

University of Alberta

Preservice Teachers Engaging With Social Constructivism in Elementary
Classrooms

by

Karena Louise Toy

A thesis submitted to the Faculty of Graduate Studies and Research
in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

Department of Elementary Education

©Karena Louise Toy

Fall 2013

Edmonton, Alberta

Permission is hereby granted to the University of Alberta Libraries to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly or scientific research purposes only. Where the thesis is converted to, or otherwise made available in digital form, the University of Alberta will advise potential users of the thesis of these terms.

The author reserves all other publication and other rights in association with the copyright in the thesis and, except as herein before provided, neither the thesis nor any substantial portion thereof may be printed or otherwise reproduced in any material form whatsoever without the author's prior written permission.

DEDICATION

For my daughter, Anna

ABSTRACT

Social constructivist approaches to teaching and learning emphasize the interdependence and interrelationship of social and individual processes in the co-construction of knowledge, meaning, and understanding. Although theorists and educators agree that teacher education programs must support preservice teachers' development as social constructivist educators, few studies have been done to understand how this might occur. This study focused on the ways in which three preservice teachers, engaging both individually and socially with social constructivist theory, developed towards being social constructivist educators. Pedagogical understanding was socially constructed through a methodology and study design that allowed for reflection and immersion in social constructivist theory as well as practical teaching time.

Drawing upon the central tenets of Vygotskian genetic development theory which informs contemporary conceptions of social constructivism, this study examined epistemological and pedagogical growth in three preservice teachers. The preservice teachers engaged with the principles of social constructivism as 'theoretical concepts' appropriated through learning in their zone of proximal development. Evidence of appropriation was seen through onsite teaching events and in their pedagogical approach to classroom teaching. Data sources for this study included participant-generated response journals, researcher-kept field notes of onsite teaching events, and transcripts of post-teaching debriefings and whole-group conversations. The data was analyzed thematically and presented in chronological order.

Three main findings arose from the study. The first finding showed that the preservice teachers' epistemological stance played a significant role, not only in their

practice, but in how they appropriated concepts and developed pedagogy. The second finding demonstrated that the preservice teachers' use of social constructivist pedagogy in their onsite teaching classroom was essential to the development of their knowledge and experience; preservice teachers' partial but ongoing appropriation of social constructivist concepts was linked to their partial, yet increasing use of social constructivist pedagogy in their classrooms. The third set of findings were linked to the kinds of supports preservice teachers found valuable as they worked to appropriate difficult social constructivist concepts. Immediate feedback and conversations with a teacher educator acting as a more knowledgeable other, practical field experience with teaching from a social constructivist stance, and opportunities to discuss with learning peers the challenges of learning a new way of teaching were cited as the most critical supports a teacher educator could provide.

ACKNOWLEDGEMENTS

A supportive group of special people have made the completion of this research and degree a reality. Heartfelt gratitude is most especially due, and I wish to acknowledge the significant contributions of those who were such an integral part of this process.

Thank you to my family, for their patience, love and unconditional support. For my daughter Anna, and my husband Jack - this was done out of my love for you both. Thanks to my mother Thalia, and my father Gene for providing suppers for me and for my family during long research and writing days. Thanks to my sister Jennifer and her family. Special thanks to my sister Tamara – I couldn't have done this without you.

Special thanks to my supervisor, Dr. Joyce Bainbridge, for your continuous interest, advocacy and wise counsel at each stage of my doctoral program.

Thanks to my committee members Dr. Bill Dunn and Dr. Norma Nocente, for your inspiring scholarship, expertise and support. Your feedback and encouraging comments have been invaluable during this process. External examiners Dr. Margaret Mackey, Dr. Carol Leroy, and Dr. Sharon Rich of Nipissing University for your participation and considered input into my oral defense. I am privileged to have had you all as mentors and as role models for excellence in teacher education.

Thanks to my research participants, Candace, Sylvie and Kathleen, for your willingness to share your experiences of learning during your advanced professional term and beyond. You have made valuable contributions to furthering research in teacher education and I wish you much success and joy in your careers. Thanks to research participants Carol, Carla and Katie for your professional expertise and for sharing your classrooms with us.

I would like to express my appreciation for the financial support provided by the Province of Alberta Queen Elizabeth II Graduate Scholarship Doctoral Level.

Sincere thanks to Edmonton Catholic School Board for allowing this research project to take place in their schools.

TABLE OF CONTENTS

Chapter 1: Introduction.....	1
STATEMENT OF THE PROBLEM	1
CONTEXT OF THE STUDY	6
PURPOSE OF THE STUDY AND RESEARCH QUESTIONS.....	11
SIGNIFICANCE OF THE STUDY	12
DESIGN AND OVERVIEW OF THE STUDY	16
DEFINITION OF TERMS.....	17
Chapter 2: Literature Review.....	20
CONCEPTUAL FRAMEWORK	20
SOCIAL CONSTRUCTIVISM.....	22
Historical Perspective	22
The Mediated Mind.....	23
The Zone of Proximal Development.....	28
Contemporary Perspectives and Definitions.....	35
Social Constructivism – Pedagogy and Learning.....	36
Social Constructivism in Education Documents.....	38
SOCIAL CONSTRUCTIVISM IN PRESERVICE TEACHER EDUCATION.....	42
SUMMARY	51
Chapter 3: Research Methodology.....	54
CASE STUDY.....	54
Defining the Case.....	55
RESEARCH DESIGN	58
DATA SETS	59
METHODS AND PROCEDURES.....	60
PARTICIPANTS, SETTING AND RESEARCH CONTEXTS.....	68
Participant Selection	68
Setting and Research Context.....	70
Participants.....	71
ROLE OF THE RESEARCHER	74
ETHICAL CONSIDERATIONS.....	78
SUMMARY	79
Chapter 4: Analysis of Data and Presentation of Themes	81
DATA ANALYSIS.....	82
Member Checking.....	85
APPLYING THE ANALYSIS PROCEDURES.....	85
ARRIVING AT THE THEMES.....	89
OVERVIEW OF THE THEMES	89
Theme 1: Considering and Acknowledging Prior Experiences and Understanding: Preservice Teachers’ Beliefs and Epistemology.....	89

Theme 2: Learning About Social Constructivism as Guiding Pedagogy: Working Within the Zone of Proximal Development.....	91
Theme 3: Understanding the Implications of Social Constructivist Pedagogy: Linking Theory and Practice.....	92
Theme 4: Understanding the Teacher-Educator’s Role.....	93
Chapter: 5 The Epistemological Interview and The Initial Teaching Event	96
INTRODUCTION.....	96
KRISTIN	102
Kristin’s Epistemological Interview	102
Kristin’s On-site Teaching and Debriefing.....	104
Analysis of Kristin’s Data.....	105
SOPHIE.....	113
Sophie’s Epistemological Interview	113
Sophie’s On-site Teaching and Debriefing.....	114
Analysis of Sophie’s Data.....	115
MAUREEN.....	123
Maureen’s Epistemological Interview	123
Maureen’s On-site Teaching and Debriefing.....	124
Analysis of Maureen’s Data.....	125
SUMMARY OF INITIAL TEACHING AND INTERVIEW DATA.....	130
Chapter 6: The Research Cycles.....	133
INTRODUCTION.....	133
CYCLE I	134
Cycle I - Theme 1: Considering and Acknowledging Prior Experiences: Teacher Beliefs and Epistemology	136
Cycle I - Theme 2: Learning About Social Constructivism as Guiding Pedagogy: Linking Theory and Practice.....	139
Cycle I - Theme 3: Understanding the Implications of Social Constructivist Pedagogy.....	147
Cycle I - Theme 4: Understanding the Teacher-Educator’s Role.....	150
CYCLE II.....	151
Cycle II - Theme 1: Considering and Acknowledging Prior Experiences: Teacher Beliefs and Epistemology	152
Cycle II - Theme 2: Learning About Social Constructivism as Guiding Pedagogy: Linking Theory and Practice.....	155
Cycle II - Theme 3: Understanding the Implications of Social Constructivist Pedagogy.....	163
Cycle II - Theme 4: Understanding the Teacher-Educator’s Role	165
CYCLE III.....	166

Cycle III - Theme 1: Considering and Acknowledging Prior Experiences: Teacher Beliefs and Epistemology	167
Cycle III - Theme 2: Learning About Social Constructivism as Guiding Pedagogy: Linking Theory and Practice.....	169
Cycle III - Theme 3: Understanding the Implications of Social Constructivist Pedagogy.....	175
Cycle III - Theme 4: Understanding the Teacher-Educator’s Role	183
SUMMARY OF RESEARCH CYCLES	185
Chapter 7: Findings and Implications for Teacher Education	186
FINDINGS OF THE STUDY	187
IMPLICATIONS FOR TEACHER EDUCATION.....	193
RECOMMENDATIONS FOR FURTHER RESEARCH	196
Social Constructivist Learning Environments	196
... And The Learner Within.....	199
LIMITATIONS	201
CONCLUDING REMARKS.....	202
REFERENCES	203
APPENDIX A: Epistemological Interview	217
APPENDIX B: Social Constructivist Pedagogy Curriculum Conversation Starters.....	218
APPENDIX C: Observation Form.....	221
APPENDIX E: Preservice Teacher Questionnaire	222
APPENDIX F: A Model of Support and Challenge	223

CHAPTER 1: INTRODUCTION

“I wish to offer short narratives – stories – that point to, more than they tell, what it means to be oriented in a way that allows the essence of teaching to reveal itself to us” – Ted Aoki

STATEMENT OF THE PROBLEM

Contemporary understandings of education create both controversy and opportunities for teacher educators as they work with preservice teachers at the university level. Meier (2000) suggested that, for elementary grade-school children, direct instruction arising from acquisition/transmission models fail to result in any significant gains in student achievement, and measures of the depth of student understanding are lower when compared to more ‘progressive’ pedagogical alternatives. Darling-Hammond (1997) demonstrated that contemporary and ‘progressive’ approaches to education, notably social constructivist approaches, can be very effective at improving student understanding and achievement. While these statements were made regarding elementary grade school-aged children, pedagogical approaches at the teacher education level are similarly shaped. Teacher education programs today usually include social constructivist principles, methodologies, and practice in their programmatic definitions of teaching and learning. Teacher educators themselves not only educate prospective teachers to be constructivist pedagogues, but usually attempt to utilize a constructivist methodology and pedagogy in their own pedagogical approaches wherever possible.

Richardson (1997) described two general approaches to teacher education: acquisition/transmission approaches, and social constructivist approaches. In an acquisition/transmission approach to teaching and education there is an epistemological

belief in the existence of fundamental knowledge about the world. This epistemology is predicated on assumptions that knowledge can be transmitted from someone who has this knowledge (the teacher) to someone who does not have it (the learner). Teachers who approach classroom instruction from this model position themselves as a 'conduit' for the transmission of knowledge, thoughts, meanings, and beliefs from themselves to the student who is positioned as a passive receiver-of-knowledge. Direct instruction and transmission approaches involve directing student attention toward specific learning in a highly structured environment. The teaching is focused on producing specific learning outcomes and places emphasis on teacher explanation, demonstration and student practice (Rosenshine, 2008). In direct instruction, knowledge topics and content are broken down into small parts and taught individually, in logical order, with the language and pacing of the lesson being directed and controlled by the teacher. Direct instruction involves modeling skills, behaviours and thinking, with the teacher thinking out loud when working through problems and demonstrating processes for students. The attention of students is important and listening and observing are key to successful learning. Direct instruction can be a highly useful teaching strategy for introducing topics and specific skills, as it provides structured, guided instruction in the basic understanding of required skills, which students can then build on through practice, collaboration, repetition, hands-on activities and developmental play (Marchand-Martella & Martella, 2004).

In contrast to acquisition/transmission approaches, a social constructivist approach to teaching and education is posited on an epistemology that suggests "the primary purpose of knowledge is to help learners function in the world, not to describe

universal reality” (Beck & Kosnik, 2006, p. 10), with knowledge itself being influenced by life experience and the interactions between people in social settings. Social constructivist teachers are positioned alongside students as co-creators of knowledge. Teaching from a social constructivist stance includes teaching in contexts that might be personally meaningful to students: negotiating shared meanings with students, facilitating discussions, encouraging small-group collaboration, and valuing meaningful activity over correct answers (Wood, Cobb, & Yackel, 1995). Cobb (1994) contrasts the two approaches: direct instruction ‘transmits’ curriculum as “content” whereas social constructivism fosters the emergence of ideas from the collective practices of the classroom community.

Understanding direct instruction and social constructivist teaching approaches as opposites on a continuum is a starting point; however, simply stating the binary denies complexities and nuances, forcing teachers and learners into an ‘either-or’ positioning. Contemporary understandings of teaching and learning recognize and value multiple and often intertwined pedagogical approaches, with teachers moving their approaches along a continuum, drawing upon a variety of methods to inform their classroom teaching. Conceptualizing pedagogies as being fluid and dynamic allows contemporary teachers to expand their repertoires of practice. Direct instruction allows teachers to use carefully and thoughtfully sequenced steps to help learners to construct understanding in a logical way. It allows teachers to model and demonstrate learning processes, affording opportunities for learners to see both the purpose and the result of their learning. Social constructivism folds direct instruction processes into its makeup, acknowledging the multi-layered nature of teaching and learning.

Contemporary scholars understand ‘good teaching’ to be a balance of multiple approaches used thoughtfully. White (2000) documented preservice teachers as they encountered day-to-day teaching situations and found that the pedagogical choices preservice teachers made in response to teaching challenges were ‘web-like’. The notion that ‘good teaching’ is that which draws upon multiple epistemological stances is significant, as the preservice teachers in this study tended to move between and amongst teaching approaches. However, as most preservice teachers have experienced direct instruction in their own education, teacher education programs need to provide more experience with social constructivist approaches in order to help preservice teachers to expand their pedagogical repertoire.

A social constructivist approach to education in general, and elementary education in particular, is both necessitating and resulting from a shift in preservice teacher education programs – a shift from a direct-instruction, transmission approach to elementary education to a social constructivist approach that reflects and acknowledges contemporary understandings of the ways in which students learn concepts and develop skills. Opportunities are opening up for those who prepare and educate preservice teachers – opportunities to prepare teachers to approach education from a social constructivist stance. Yet a problem remains: preservice teachers tend to fall back upon direct instruction in spite of the fact that few teacher educators advocate this approach.

In a discussion of teacher pedagogy and teacher education, Loughran (1997) wrote, “the relationship between theory and practice should be apparent within the teaching and learning episodes we create [and this] is central to learning to teach” (p. 5). Central to this understanding about teacher education is that both teacher educators and

preservice teachers must be able to “approach their teaching in ways that demonstrate the importance of the relationship between teaching and learning” (Loughran, 1997 p. 6).

Theories regarding preservice teacher education have transitioned from a direct instruction perspective of teachers acquiring skills and strategies to employ in the classroom to a social-constructivist theory of obtaining knowledge through lived experiences (Ashton, 1999). Research literature in teacher education that examines preservice teachers’ approaches to instruction in elementary classrooms suggests that the pedagogical approaches preservice teachers use in classroom instruction is varied, and that preservice teachers are not necessarily able to connect pedagogical theory with practice (Holt-Reynolds, 2000; Wolf, Carey, and Mieras, 1996).

Bainbridge and Macy (2008) stated that broader and more complex understandings of education have led to the development of social constructivist pedagogical approaches that “have the potential to result in increased student engagement, greater depth of ... learning, improved ... abilities in real-life settings, and continued ... participation and learning in later life” (p. 66). Beck and Kosnik (2006) called for research that demonstrates a clearer and stronger case for social constructivist approaches and effective ways to incorporate and implement these methods into preservice teacher education programs.

Thus, central questions arise: How do preservice teachers understand social constructivist teaching, and how do they learn to develop and implement social constructivist-oriented activities in elementary classrooms? How might teacher educators engage preservice teachers in an examination of their perceptions of social constructivist teaching and learning that enables critical and reflective examination of practice?

What preservice teachers believe about teaching and learning, and subsequently how they approach their teaching, is an important and pressing concern to teacher educators and to researchers in the field. Absent from the current research in preservice teacher education are studies that explore how preservice teachers come to understand and implement social constructivist pedagogy in their approaches to teaching and learning and what supports they identify as being essential to their appropriations.

CONTEXT OF THE STUDY

In my teaching career, I have taught students in grades 5,7,8, and 9 and I have worked with preservice teachers at the junior and senior undergraduate levels in a large University. In an undergraduate early literacy development course that I have taught many times, the preservice teachers were required to design a literacy lesson for grade one or kindergarten students and prepare to teach that lesson at a school. The lessons were first taught to university classmates who provided peer-review and support. The preservice teachers then considered the peer-review comments as well as feedback provided by me before re-working their lessons. The lessons that were developed were concept-oriented, and many preservice teachers endeavored to draw upon appropriate pedagogy in order to enable student understanding. Some preservice teachers relied solely on direct instruction to teach a concept, others ‘branched out’ into more constructivist and social constructivist methods.

One preservice teacher, Muriel, orchestrated an elaborate lesson on ‘Making Words’, an activity frequently used in early literacy classrooms. She had spent a great deal of time making a class set of letter cards, which she distributed to the students. Each

student received an identical set. Muriel then proceeded with the lesson, directing the students to move their letter cards into words, telling and showing students how exchanging one letter card would form a new word (“cat” changes into “bat” by replacing the ‘c’ with the ‘b’), and how adding an ‘s’ could pluralize the word. It was a lockstep lesson, with each student following directions and each student forming the same word as the next student. There was no opportunity for student interaction or conversation, and students were encouraged to respond to her questions by raising hands and providing single-word answers. Muriel’s lesson was a quiet and well-implemented direct instruction lesson, and was rated as ‘highly successful’ by her peers.

In a contrasting example of a lesson on making words, Amanda distributed letter cards to groups of two or three students. In Amanda’s lesson, each group was given a set of letters that they could manipulate to form words. One student in the group was given the job of writing down all the words the group formed and was to put the words into a chart – words with two-letters, three-letters, four-letters, and five-letters or more. The students were provided with materials, but received little direction as to how to manipulate the letters, and were not restricted in terms of word length or the letters they used. The students coached each other, gave suggestions, argued, consulted dictionaries, and examined the work other groups were doing. Amanda circulated throughout the classroom, encouraging and commenting where appropriate and required. Amanda’s lesson was a noisy and busy social constructivist lesson, and was well-received by her peers.

Muriel and Amanda took different instructional approaches to the same literacy strategy. Although both lessons were thoughtful, well-planned, and well-taught, the

differences in their Making Words lessons nicely exemplify the tensions and questions raised in this study. A careful look at the two approaches to the same literacy concept reveals their dissimilarities. The social constructivist approach differs from the direct-instruction approach in fundamental ways: the way in which knowledge is conceived and acquired, the types of knowledge, skills and activities that are emphasized, the role of the learner and the teacher, how goals are established -- all of these factors are articulated differently in each perspective. The ways in which teachers and learners are positioned, the assumption of the nature of knowledge, the teacher's pedagogy, and the student's resulting learning are completely different within each approach. Muriel's Making Words pedagogy relied on teacher control as she 'transmitted' the knowledge of words to the students via explicit and direct instruction. The students' resulting conception of 'words' might be that they are things to be learned about, grasped, acquired or memorized. In contrast, Amanda's Making Words pedagogy reduced the amount of teacher control, created a space for students to engage in dialogue and conversations (and arguments), exploration and problem-solving, and encouraged students to co-construct their own understanding of how letters work within words.

Muriel told her class exactly how to perform the task she had devised, while Amanda provided materials with the expectation that the students would find their own words to form and find different ways to do so. Muriel controlled the learning; Amanda facilitated the learning as she watched her students messily figure out what the inconsistencies in their spelling would tell them about the concept of word formation. Muriel's lesson was not dependent upon social interaction between students; her lesson, and her demonstration, could have been done with a single student as easily as it was

performed with a whole class. Conversely, Amanda's lesson was dependent upon students interacting with each other; students were required to think together in order to work through the lesson's concept. What can be seen from these two preservice teachers' pedagogical approaches to instruction is that they were enacting different epistemological assumptions. Hands-on though it may have been, Muriel's lesson was nonetheless consistent with beliefs about learning that still order most classrooms - that people acquire concepts by receiving information from other people who know more; that if students listen to what their teachers say, they will learn what their teachers know; and that the presence of other students is incidental to learning (Fosnot, 1996, p.77).

During many semesters of teaching this undergraduate course and working with preservice teachers on this assignment, I noticed a pattern: direct instruction, like Muriel's making words activity, was the norm. Most, though not all, of the concept lessons developed by the preservice teachers in my classes relied heavily on direct instruction and teacher transmission of knowledge, thus positioning learners as passive receivers-of-knowledge. This observation troubled me, as direct instruction/transmission teaching contradicts contemporary understandings of knowledge, pedagogy, and how students learn.

Contemporary perspectives of teaching and learning acknowledge multiple and often simultaneous processes of teaching, learning, and knowledge construction; inherent within the social constructivist perspective is the assumption that direct instruction and knowledge transmission is necessary and even desirable at certain points in learning processes. Additionally, contemporary understandings of knowledge, pedagogy and how students learn arise from a social constructivist epistemology where knowledge is seen as

mediated and co-created. Social constructivist scholars view the origin of knowledge construction as being the intersection of people and their environment engaging in social interactions that involve sharing, comparing and debating among the learners and mentors. Through a highly interactive process, the social aspect of learning is emphasized and learners construct and refine their own meanings while simultaneously helping others construct, refine, and make meaning. In this way knowledge is mutually built. The fundamental nature of social constructivism is collaborative social interaction, and it is through the cognitive give-and-take of social interaction that personal knowledge is constructed (Applefield, Huber, & Moallem, 2001). Social constructivist pedagogy positions teachers as co-creators of knowledge, and allows them to act as learners alongside students. Social constructivist pedagogues guide, shape, explore and expand students' thinking by asking learners to reflect, build, inquire, talk, write, problem-solve, and participate in various intellectual tasks (Holt-Reynolds, 2000).

As I observed lessons like Muriel's and Amanda's, and as I noticed the trend favoring direct instruction among preservice teachers, I began to wonder what my students were really learning about social constructivist pedagogy and how it relates to education. What do preservice teachers know about social constructivism? How do they develop social constructivist pedagogy? What kinds of teaching are preservice teachers engaged in during elementary school teaching experiences? How, if at all, does social constructivist theory inform their thinking and teaching? And, most importantly, through participating in a research community that focuses on social constructivist pedagogy, could preservice teachers develop towards being social constructivist educators?

PURPOSE OF THE STUDY AND RESEARCH QUESTIONS

The purpose of this study was to investigate and understand how deep engagement with social constructivism mediated in social research and onsite classroom teaching settings might inform preservice teachers' efforts to develop their pedagogies when teaching in elementary education classrooms. I define elementary education as the teaching of concepts and skills along with the exploration of curricular issues in Kindergarten to Grade 6 classrooms.

The primary research question for this study was:

How might deep engagement with social constructivism inform or contribute to the development of pedagogy in preservice teachers?

The phrase 'deep engagement' merits a contextual definition; I view it as the multiple forms through which the preservice teachers in this study learned about social constructivist concepts (readings, journal entries, conversations, debriefings, thinking) and then mediated that learning into useable knowledge in onsite classroom teaching. It was hoped that what the preservice teachers would make external in their teaching practice was the internalization of social constructivist understanding. In order to form an understanding of, and a response to the main research question, two sub-questions were posed:

- 1. In what ways do preservice teachers demonstrate an understanding of social constructivist theory in their classroom practice?**
- 2. What kinds of supports do preservice teachers identify as being the most valuable to them in developing social constructivist teaching?**

Answering these questions may offer insights into how to more effectively prepare preservice teachers to become successful social constructivist educators.

SIGNIFICANCE OF THE STUDY

Constructivist thinking, rooted in the works of Piaget (1964, 1972), and social constructivist thinking, rooted in the works of Vygotsky (1978, 1987) have been at the forefront of academic debate in recent years and applications of these theories in educational settings have been widely explored (Von Glasersfeld, 1995; Kaufman, 1996, 2004; Applefield et al., 2001). Social constructivism has greatly influenced the field of education, and advocates have called for educational settings that offer opportunities for discourse among learners, teaching for understanding and real-life application, skill development in context rather than in isolation; student engagement, ownership and choice; student talk and collaboration; interdisciplinary linkages; and “learning for all” through meeting the needs of students with diverse interests, abilities, and backgrounds (Kaufman, 2004). The benefits of such settings for students' academic, affective and social growth have been documented (Duckworth, 1987; Fosnot, 1996; Grennon Brooks & Brooks, 1993; Cranton, 2006), yet a strong case for the efficacy and prevalence of direct instruction classrooms has been made historically (Goodlad, 1984) and also appears in contemporary literature (Kirschner, Sweller, & Clark 2006). Rosenshine (2008) reviewed the research on direct instruction and noted that despite the negative connotation of direct instruction, it is an instructional procedure that has “been used successfully and reliably to help students learn” (p. 4).

Conversely, contemporary teacher educators generally acknowledge that teaching and learning are layered processes of construction. Imitation, observation, and direct

transmission-type instruction may be, and often are, incorporated into constructivist frameworks. Black and Ammon (1992), Duckworth (1987), Fosnot (1989, 1996, 2005), Richardson (2003), and Beck and Kosnik (2006) called upon teacher education programs to support preservice teachers' development in becoming social constructivist educators. Central to this process is helping prospective teachers to understand, deconstruct and ultimately change their views of teaching by immersion in social constructivist approaches and reflection on teaching and learning processes (Kaufman, 1996). The role of teachers is expanded beyond the traditional notion of the teacher as the one who imparts and transmits knowledge, to the conception of the teacher as a participant alongside students, acting as guide in their collaborative attempts to construct knowledge together. Fosnot (1989) further suggested that for preservice teachers to be able to construct their own ideas of teaching and learning, they must be immersed in a community of discourse that encourages them to be learners themselves, so that "experience can be dissected, evaluated, and reflected upon in order for principles of pedagogy and action to be constructed" (p. 20). Beck and Kosnik (2006) echoed this notion and stated that,

A key implication of the [social] constructivist paradigm for teacher education is that student teachers should have time and encouragement to reflect on what they are learning. Because of the short duration of preservice programs there is a tendency to think we must "give them the theory" while we have the chance, leaving them to work out the implications as they teach. This is an unfortunate approach, however, not only because it models transmission pedagogy but

because it gives the students inadequate opportunity to assess and adapt theory.

(p.10)

Bainbridge and Macy (2008) noted that preservice teachers themselves see the need for extended immersion in social constructivist pedagogy in order to become comfortable with the approach. This research project has created opportunities for preservice teachers to engage with social constructivist theory and reflect to upon their ongoing developing understandings and practice.

Social constructivism as a pedagogy for teaching implies that teachers will shape and develop students' thinking, beginning with eliciting and then using students' existing knowledge and ideas as a basis for constructing new, more reasoned, more sophisticated or disciplined understandings. These pedagogies can be developed through working with teachers over time either through professional development experiences or through preservice teacher education programs (Richardson, 2003). The role a teacher or preservice teacher plays in developing or shaping students' thinking via social constructivist pedagogies is obvious to teacher educators who advocate such pedagogical approaches (Holt-Reynolds, 2000); however, to preservice teachers, the role of a social constructivist teacher may not be at all clear.

Research literature investigating the use of social constructivist pedagogy by preservice teachers includes studies on how preservice teachers learn social constructivist pedagogy, how they implement it, and how teacher educators might best engage preservice teachers in social constructivist theory and principles (Mintrop, 2001; Smagorinsky, 1995; Holt-Reynolds, 2000). There is a large body of research literature that documents studies of preservice teachers engaging with social constructivist theory

and pedagogy, especially within the subjects of mathematics (Anderson, Reder, & Simon 1996; Heibert, Morris & Glass, 2009; Cobb, 2010), and science (Feldman, Divoll & Rogan-Klyve, 2009; Abell, Rogers, Hanuscin, Lee, & Gagnon, 2009). Literature investigating the use of social constructivist pedagogy by preservice teachers in elementary literacy classes is also available; a few studies (Jewett, 2007; Holt-Reynolds, 2000; Wolf, Carey, & Mieras, 1996; Asselin, 2000) noted that preservice teachers see social constructivism as a ‘strategy’ for helping students to comprehend what is presented in class. Rather than understanding social constructivist principles as pedagogical tools for thinking and learning alongside students, preservice teachers see them as ‘formulas’ for teaching and ‘techniques’ for understanding concepts (Holt-Reynolds, 2000; Wolf, Carey, & Mieras, 1996). Richardson’s (2003) framework transforms social constructivist learning theory into specific pedagogical principles for classroom implementation. This framework includes: student-centered learning, facilitation of group dialogue, planned and unplanned introduction of concept knowledge, opportunities to change or extend existing knowledge, and the development of students’ metacognition (Richardson, 2003, p. 1626).

The significance of this study is that it adds to the research literature by examining an important aspect of preservice teacher education: the development of preservice teachers as social constructivist pedagogues. This study presents an opportunity to derive an understanding of the influence of social constructivist thinking on pedagogy. Borko and Putnam (1996) stated that teacher education programs “must help prospective teachers make their implicit beliefs explicit and create opportunities for them to confront the potential inadequacy of those beliefs” (p. 701). This study created

opportunities for preservice teachers to discuss, reflect upon, and evaluate their social constructivist teaching practices. The findings of this study extend scholarly knowledge of preservice teacher education and provide insightful suggestions to those who guide and support the development of preservice teachers.

DESIGN AND OVERVIEW OF THE STUDY

This research project utilized qualitative case study methods (Merriam, 1998) in order to address the research questions previously listed. Three preservice teachers volunteered to participate in the study. All three preservice teachers had completed introductory field experience placements and all three had completed an introductory teaching methods course. The research data consisted of interviews with the preservice teachers, observations of their onsite teaching events, post-teaching debriefings, whole group conversations, participant-maintained research journals, and researcher-generated field notes. The analysis of the data resulted in the following text, which describes the preservice teachers' experiences with social constructivist theory and their efforts to integrate newly appropriated theoretical understanding with their emerging classroom practice.

Chapter One provides an introduction and rationale for this study based on my personal experiences with preservice teachers at the undergraduate level and on a review of the related literature. Chapter Two describes the rationale for social constructivist pedagogy in elementary classrooms and provides a historical and contemporary overview of this theory. A review of the literature relating to preservice teachers' epistemology, field experiences, and use of social constructivist pedagogy is also included. Chapter Three describes in detail the use of case study as a methodological approach and outlines

the research methods and analysis procedures specifically used in this study. Chapters Four, Five, and Six outline the findings of the study through the chronological and thematic analysis of the data. Chapter Seven includes a discussion of the findings of the study and the possible implications for teacher education, notably the need for more refined teacher education frameworks and definitions of practice, and more social constructivist-centered pedagogical courses that provide preservice teachers with opportunities to link theory with practice. Recommendations for further research are presented, and include a call for research that deals with social constructivist learning environments and the role of the learner within such classrooms.

DEFINITION OF TERMS

Appropriation

The process of acquiring new tools (symbolic tools such as language) and theoretical concepts. Appropriation is a process through which a learner internalizes theoretical or practical knowledge.

Internalization

The process through which preservice teachers move beyond positions of external, inter-psychological understanding of theory and practice toward positions of internal, intra-psychological understandings needed to guide them in their development as classroom teachers; the process of reconstruction of higher mental functions by internalization of speech.

Mediation

The process of consciousness-building and the making manifest, or establishing a presence of, a conscious, cognitizing mind. Tools (signs, symbols, texts) and symbolic

systems (spoken and written language, music, numerical systems) were identified by Vygotsky as part of formal education, and must be appropriated by the learner in order to develop (Wertsch, 1985).

Preservice Teacher

The term preservice teacher refers to a student enrolled in a teacher education program working towards certification to teach in schools.

Teacher Education Programs

Teacher education programs are those that include both undergraduate and after-degree university programs that lead to certification to teach in public schools. Coursework in teacher education programs includes foundational courses, methodological courses, and field experience components (Zeichner & Conklin, 2005)

Teacher Educator

The teacher educator is an instructor or faculty member in a faculty of education who facilitates learning about teaching across all coursework in teacher education (Darling-Hammond et al., 2005).

Transformation

Transformation, as used in this dissertation, refers to the enacting of new learning. This definition is linked to Vygotsky's genetic development theory (1987) and a learner's transformation of participation.

Zone of Proximal Development

Typically defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable

peers” (Vygotsky, 1978, p. 86). Vygotsky suggests that learning precedes development, and that an essential feature of learning is that it creates the zone of proximal development. In the zone of proximal development, learners experience tension between current abilities or interests and the complexity of the learning task. Within the zone of proximal development, learning awakens a variety of internal developmental processes that are able to operate only when learners are interacting with people in their environment and in cooperation with their peers.

CHAPTER 2: LITERATURE REVIEW

“Human life holds meaning through communication and dialogical relations should be at the heart of any educational experience. Whereas banking education anesthetizes and inhibits creative power, problem-posing education involves a constant unveiling of reality. The former attempts to maintain the submersion of consciousness; the latter strives for the emergence of consciousness and critical intervention in reality” – Freire

The review of the literature for this dissertation focuses on two areas. The first area of review explores historical and contemporary conceptions of social constructivist teaching and pedagogy. The second area of review examines the nature of preservice teachers’ existing epistemological beliefs about teaching and learning and how they bridge theory with practice. Particular attention is given to literature that attends to the implementation of social constructivism in practice. This area is reviewed through the use of field experience and preservice teacher reflection as processes for providing insight into the integration of previous understandings with the construction of new knowledge about teaching and learning.

CONCEPTUAL FRAMEWORK

The conceptual framework that guided this dissertation is the notion that learning in general, and teacher learning in particular, is a transformative, socially constructive process. Clift and Brady (2005) discussed the complex relationships between teacher education ‘methods’ courses and practicum or field experiences in their historical review of teacher education programs dating from 1995-2001. They traced the focus of teacher education programs and demonstrated a trajectory along a continuum from

acquisition/transmission models towards models that are more social constructivist in nature. The shift from transmission models to social constructivist models has been characterized mainly in terms of a shift in epistemological thinking and understanding. Learners were seen as being active and social contributors to the learning environment rather than participants merely receiving transmitted knowledge (Schunk, 1991). Teacher education programs have historically been known to “operate in a system of isolated and fragmented courses, passing on knowledge about teaching to frequently passive students” (Short, 1993, p. 156). Understanding teacher-learning from a social constructivist perspective suggests that teacher education programs must provide preservice teachers with opportunities for the active and social construction of their knowledge about teaching.

Contemporary understandings of the complex nature of teaching and learning-to-teach have led to the development of frameworks that guide teacher education programs. One teacher-learning framework that resonates as particularly relevant to this dissertation encompasses the importance of a social learning community, teacher beliefs, and the development of a teacher pedagogy. “New teachers learn to teach in a community that enables them to develop a vision for their practice; a set of understandings about teaching, learning and children; dispositions about how to use this knowledge; practices that allow them to act on their intentions and beliefs, and tools that support their efforts” (Hammerness, Darling-Hammond, Berliner, Bransford, Cochran-Smith & McDonald, 2005, p. 385). Pedagogical teaching – the intentional integration of theory with practice and reflection – develops over time and must evolve across many experiences. The importance of a social learning community cannot be overemphasized, as it is through

social interaction that pedagogical meaning-making processes are enabled. Reflective pedagogical practice does not happen in isolation, but rather occurs in interaction with others and the community (Rodgers, 2002).

Intertwined with social constructivist approaches to teaching and to learning-to-teach is the notion of transformation and transformative learning. Transformative learning is a process of questioning subjectively held frames of reference with the intent to make them more inclusive, reasoned, and sophisticated. Newly revised, or transformed, frames of reference are then used to guide action. Mezirow (2000) suggested that transformative learning involves “participation in constructive discourses” in order to improve “understanding and the quality of our actions through meaningful learning” (p. 8). Central to transformative learning is the notion that “learning involves the use of language to articulate our experience to ourselves or to others” (Mezirow, 2002, p. 5). When engaging in transformative processes, learners formulate more dependable beliefs about experience, assess contexts, seek informed agreement on meaning, and make decisions on the resulting insights (p. 4). In this sense, transformative learning is deeply related to epistemological change, and it is this epistemological shift that social constructivist teacher education supports.

SOCIAL CONSTRUCTIVISM

Historical Perspective

Contemporary social constructivist theory has been primarily informed by the works of L.S. Vygotsky (1978, 1987, 1997). Vygotsky’s works have exerted powerful influence on contemporary conceptions of social constructivism (Smagorinsky, 1995; Packer & Goicoechea, 2000; Lantolf, 2000), as his sociocultural theory embeds thought,

cognition, and mental processes in social context, and thus has implications for teaching and learning. Vygotsky's theory has three essential components:

1. The learner develops as changes in social context impact cognition – termed *genetic or developmental method*
2. Cognition is socially and culturally mediated; mental processes in the individual have their origin in social processes
3. Cognitive development is mediated by cultural tools and symbolic language systems (Wertsch, 1985; Smagorinsky, 1995).

Vygotsky saw development and learning as social in origin and dependent upon signs and tools, specifically, thinking and speech, to mediate cognition and mental processes (Smagorinsky, 1995). He posited that the cognitive development of the individual could be traced to social activity and cultural frames of reference, and that this development was mediated through language as well as other psychological, symbolic, and technological tools. Vygotsky stated, “the actual movement in the development of the child's thinking occurs not from the individual to some state of socialization but from the social to the individual” (1987, p. 76).

The Mediated Mind

The notion that the human mind is *mediated* is the most fundamental concept of Vygotsky's sociocultural theory (Lantolf, 2000). Vygotsky suggested that humans use symbolic systems and tools to mediate and regulate our relationships with others and with ourselves, and thus change the nature of these relationships (Lantolf, 2000). Symbolic and physical tools are used to establish indirect, filtered, mediated relationships between a human 'self', other 'selves', and their environments. Mediation is the process of

consciousness-building and the making manifest, or establishing a presence of, a conscious, cognitizing mind. Tools (signs, symbols, and texts) and symbolic systems (spoken and written language, music, and numerical systems) were identified by Vygotsky as part of formal education, and must be appropriated by the learner in order to develop (Wertsch, 1985). A learner, then, must first understand the function and use of symbolic and cultural artifacts and then apply them via the back-and-forth process of mediation (Smagorinsky, 1995). In learning situations, speech and language are fundamental to mediation. Language as a symbolic system and cultural tool is a central theme in Vygotsky's sociocultural theory as language provides the primary means through which dialogue and the co-construction of knowledge and understanding is enabled. The concept of mediation explains how individuals simultaneously act upon and are acted upon by a dynamic world in culturally constructed ways. Individuals both affect and are affected by the process of mediation. As Vygotsky (1997b) commented, "mediated activity radically reconstructs the whole mental operation of the individual" (p. 63).

Vygotsky (1997) posited that human mental functions have two distinct realms: lower order functions that develop biologically (and that we have in common with other species) and unique higher mental functions, which arise culturally and are mediated. This 'genetic general law of cultural development', also known as 'internalization' is illustrated by Vygotsky:

Each higher form of behavior enters the scene twice in its development – first, as a collective form of behavior, as an inter-psychological function, then as an intra-psychological function, as a certain way of behaving. We do not notice this fact,

because it is too commonplace and we are therefore blind to it. The most striking example is speech. Speech is at first a means of contact between the child and the surrounding people, but when the child begins to speak to himself, this can be regarded as the transference of a collective form of behavior into the practice of personal behavior. (1997a, p. 95)

Thus, understanding is mediated on multiple levels. The two planes – the interpsychological (mediation and external learning between people) and the intrapsychological (internal assimilation of learning) – are in a constant complementary process of mediation. Learning on the interpsychological level is mediated through explicit means – language, cultural tools, artifacts, and the presence of adults or peers - whereas learning on the intrapsychological level is mediated implicitly through inner speech or “natural language” (Wertsch, 1987). The multiple learning levels described here are central to this study as they imply that processing from inter- to intra- levels will enable learning and understanding and ultimately a transformation of professional practice.

Because of its basic communicative function, Vygotsky viewed speech as the primary form of mediation that transforms and reveals cognitive development and affects the social construction of our minds. Externally, language manifests as primarily a means of communication through various forms such as verbal or written speech. Turned inwards, Vygotsky saw speech as being fundamentally important in the formation of intellect, memory, perception, verbal thinking, and inner speech, and, by extension, the primary means of developing consciousness through an ongoing, iterative process, which he termed ‘revolution’ (Vygotsky, 1999, pp. 53-55). This reflects his general socio-

genetic law of internalization that higher mental functions result directly from “converting means of social behavior into means of individual-psychological organization” (Vygotsky, 1999, p. 41). Vygotsky viewed speech as the most fundamental and basic symbolic system, and is therefore the beginning point for the creation of consciousness. As Bruner commented, “for Vygotsky, language is a powerful system of tools for use – for use initially in talk but increasingly, and once inwardness is achieved, in perception, in memory, in thought and imagination, even in the exercise of will” (1987, p. 15).

To bring this discussion of mediation and speech into the present context of this research study, questions are posed: What do preservice teachers understand about social constructivist teaching and learning? How do they learn about social constructivism? In what ways do preservice teachers begin to link social constructivist theory with classroom practice? In what ways do preservice teachers show their conceptual or theoretical understanding of social constructivism in classroom practice? And, perhaps most significantly, what supports do preservice teachers identify as being essential to their efforts in developing social constructivist pedagogy?

This study drew upon the central tenets of Vygotskian genetic development theory, which informs contemporary conceptions of social constructivism, to examine the relationship between learning and development. Vygotsky’s notion of internalization is germane to this study as it provides an account for how preservice teachers’ developing understandings of pedagogy can be conceptualized and documented. Vygotsky’s external, inter-psychological activities and internal, intra-psychological activities are developmentally related, and the process through which external activities are

internalized to form internal activities is the key issue. Vygotsky noted, “first [learning] appears between people as an interpsychological category, and then within the [adult or] child as an intrapsychological category. This is equally true with regard to voluntary attention, logical memory the formation of concepts, and the development of volition” (1987, p. 163).

For the context of this study, then, *internalization* is the process through which preservice teachers move beyond positions of external, inter-psychological understanding of theory and practice toward positions of internal, intra-psychological understandings needed to guide them in their development as classroom teachers. Vygotsky labeled this phenomenon “inner speech”, which is a component of the deep understanding of the material being learned (Reiber & Carton, 1987). In Leont’ev’s (1981) words: “the process of internalization is not the transference of an external activity to a pre-existing, internal ‘plane of consciousness’: it is the process in which this plane is formed” (p. 57). Vygotsky’s notion of internalization contributes to a social constructivist perspective in that it focuses on the development that accounts for how preservice teachers’ perspectives move from the inter-psychological to the intra-psychological plane to become catalysts for generative, meaningful activity on the part of the developing teachers (Ball, 2000).

The process of internalization accounts for how preservice teachers’ developing understandings of social constructivist pedagogy can be seen as internal activities that can become observable through preservice teachers’ changes in both discourse and practice over time. Newman, Griffin, and Cole (1989) found that, “external devices like talk and charts and writing are windows in the evolution and appearance of cognitive constructs. They are an essential part of the functional system that gives the actors as well as the

analysts access to the changes occurring” (p. 73). This statement carries force in this study, as it is through the analysis of ‘external devices’ that pedagogical development can be seen. In this research project, the external devices of study and analysis were the data sets collated through the collection phases and included journal entries, researcher-kept field notes of teaching episodes, post-teaching debriefings, whole-group discussions and individual conversations with preservice teachers.

The Zone of Proximal Development

Key to his genetic account of development, and one of the most widely known concepts that Vygotsky (1978) offers educators, is his theory of the *zone of proximal development* (ZPD). Based specifically on the principles of genetic development – the intra- and inter-psychological levels of developmental learning and the role mediation plays in the process of internalization – the zone of proximal, or ‘next’, development synthesizes Vygotsky’s theory of genetic development and places it in an educational setting.

Vygotsky (1987) was concerned with the ways in which people develop concepts over time. For Vygotsky, *word meaning* was an appropriate unit of analysis for studying the development of consciousness, which he equates with the development of *concepts*. Through the meanings that they attribute to words, people reveal the degrees of abstraction they have achieved in their thinking. “If word meanings change in their inner nature, then the relation of thought to word also changes. To understand the dynamics of that relationship, we must supplement the genetic approach of our main study by functional analysis and examine the role of word meaning in the process of thought” (Vygotsky, 1987, p. 217).

Vygotsky categorized concepts into two groups: “spontaneous” concepts arise from and are embedded within the learner’s immediate and daily experience, whereas formal, logical and abstract “scientific” or “academic” (Wertsch, 1991) concepts arise from the activity of the classroom and “evolve under the conditions of systematic co-operation between the child and the teacher” (Vygotsky, 1978; Smagorinsky, Cook, & Johnson, 2003). For the purposes of this study, Vygotsky’s term “scientific” shall be replaced with the term “theoretical”. Wertsch (1991) concurred with this interpretation through his use of the term “academic”. Through “co-operation” the learner is helped to develop more complex cognitive understandings of both spontaneous and academic/theoretical concepts. Fosnot and Perry (2005) offered their perspective of the zone of proximal development by explaining it as a place where a student’s “spontaneous concepts” (p. 23) work their way “up” to meet an adult’s (or near peer’s) “academic concepts” working their way “down” within the ZPD.

Vygotsky suggested that theoretical concepts are the height of intellectual activity because formal, abstracted knowledge of a concept enables one to reapply it to a new situation. Spontaneously developed concepts, in contrast, tend to be situated in the context in which they are learned and are thus less amenable to abstraction to new situations (Smagorinsky, Cook, & Johnson, 2003).

This analysis of the difference between spontaneous concepts, those functions developed naturally without guidance or help, and theoretical concepts developed within a collaborative and guided learning context is central to the concept of the ZPD. The ZPD addresses the differences between concepts in terms of social mediation. Mediation is present in the development of theoretical concepts but not in spontaneous ones, and it

is this gap that led Vygotsky to propose the existence of an area or 'zone' of potential development that could be achieved through social assistance and mediation. Mediation, therefore, is the underlying principle of the ZPD.

The zone of proximal development is typically defined as “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978, p. 86).

Vygotsky suggested that learning precedes development, and that an essential feature of learning is that it creates the zone of proximal development. In the zone of proximal development, learners experience tension between current abilities or interests and the complexity of the learning task. Within the zone of proximal development, learning awakens a variety of internal developmental processes that are able to operate only when learners are interacting with people in their environment and in cooperation with their peers. Vygotsky stated:

Development based on collaboration and imitation is the source of all the specifically human characteristics of consciousness that develop in the child. Development based on instruction is a fundamental act. Therefore, a central feature for the psychological study of instruction is the analysis of the child's potential to raise himself to a higher intellectual level of development through collaboration, to move from what he had to what he does not have through imitation. It is also the content of the concept of the zone of proximal development. (1987, p. 210)

Work within the zone of proximal development must simultaneously be appropriately challenging and appropriately supported by peers or adults; if a student works with learning material that is too simple or too difficult, and/or the adult or peer does not support the learning activity adequately then learning and development do not take place and frustration often occurs (see Diagram I). As students increase their developmental levels, the creation of dialogue between a novice and an expert that occurs in the inter-psychological level then leads to appropriation of the concept at the intra-psychological level. Theoretical concepts appropriated into intra-psychological levels become then, the new plane upon which more sophisticated or advanced teaching in the inter-psychological levels can occur. Vygotsky explained,

What lies in the zone of proximal development at one stage is realized and moves to the level of actual development at a second. In other words, what the child is able to do in collaboration today he will be able to do independently tomorrow. Instruction and development seem to be related in the same way that the zone of proximal development and the level of actual development are related. The only instruction which is useful in childhood is that which moves ahead of development, that is which leads it. (1987, p. 211)

The ZPD, therefore, describes a social system. It stresses the importance of mediated activity and, in particular, the relationship between the learner and the teacher, or more capable peer (Lee & Smagorinsky, 2000; Newman & Holzman, 1993).

Vygotsky differed from his contemporaries in educational and developmental psychology who suggested that students should not be allowed to progress until they were psychologically ready or mature enough. His notion of the zone of proximal

development emphasized instead that students learn best when they are challenged with the guidance and support of more capable and knowledgeable teachers or peers who are able to help them attain a higher intra-psychological level of understanding. Instruction, when mediated appropriately, is crucial in learning, for as Vygotsky pointed out, “instruction is useful when it moves ahead of development. When it does, it impels, or wakens a whole series of functions that are in a stage of maturation lying in the zone of proximal development” (1987, p. 212). The concept of the ZPD emphasizes the socially mediated and contextual aspects of learning, which precedes rather than follows, psychological development.

The ZPD shows clearly the fundamental role of social mediation in learning and the dynamic process of internalization that results from this mediation. For the social constructivist educator, the concept of the zone of proximal development has powerful significance for pedagogical practice. The learner can perform at developmentally more advanced levels when assisted than when acting alone, and this difference in level of performance suggests that a learner has a range of potential rather than some fixed state of ability. The mind, therefore, is both *elastic* in that cognitive growth may take different directions depending of the social environment in which it occurs, and *unbounded* in terms of its extent and potential for growth (Smagorinsky, 1995). The zone of proximal development is a range of abilities, and educators must provide learners with socially mediated assistance to move towards upper levels of the range, which itself is always developing into a new and more complex state (Smagorinsky, 1995).

It is the social mediation and assistance within an individual’s unique zone, or range, of capabilities that leads directly to internalization of new concepts.

Fundamentally, it is through mediation and guidance that knowledge is co-constructed by the student and the more capable 'other'. Mediation and guidance in the zone of proximal development can come in the form of advanced theoretical considerations that are presented within a teacher education program or as in this research project. The ways that preservice teachers understand social constructivism as a pedagogical approach might be informed by engagement with more sophisticated theoretical perspectives presented to them within their zone of proximal development.

The zone of proximal development is a key concept for social constructivist educators, as it provides not only a theoretical but also metaphorical construct with which to assist students at appropriate upper learning and developmental levels. As Bruner (1997) stated, the zone of proximal development is where pedagogy and social interaction intersect. Pedagogy in the zone of proximal development works through accenting crucial features of a problem, sequencing concepts to understanding, scaffolding, and promoting and enabling negotiation and dialogue between and among peers and the more knowledgeable other.

For the social constructivist educator, the concept of the zone of proximal development is sound: by working with near peers or adults, and by using speech and language to mediate understanding, the learner can conceptualize and negotiate understanding of more complex learning experiences. What is not as clear, however, is the very concept of *development*. Smagorinsky (1995) clarified the issue: "The idea of development ... is problematic in that it suggests some sense of *telos*, or path towards a desired, positive, or optimal sense of completion." What then, are learners developing towards?

Wells (1995) attempted to solve the developmental conundrum by arguing that development can be considered a function of a learner's immediate sense of an activities' worth, regardless of other judgments. Guba and Lincoln (1994) suggested that development, or "meaning for action and further steps", is derived from community consensus regarding what is 'real', what is useful, and what has importance and meaning within the locality of the learning event. Smagorinsky (1995) stated that development "assumes the learner's acceptance of the value system underlying the semiotic structure of the environment and the need for intersubjectivity with the sense of meaning communicated through the signs that order thinking and activity". Tulviste (1991) reminded educators that learning and development are not limited to a single focus, but can take several directions simultaneously. Fernyhough (2008) echoed Tulviste: "The compelling evidence for social influences on social understanding and development makes it clear that [learners'] developing understanding ... is determined by their ability to draw on pre-existing and parallel-developing social-cognitive and general cognitive resources"(p. 230). Social networks and groupings can present a learner with a number and variety of problems to solve and can enable a learner to develop different frameworks for thinking and making meaning. The meaning-making activities of groups and individuals are of central interest to social constructivists because it is the meaning-making and sense-making activities that shape further developmental steps, action, and pedagogy. Pedagogy is informed by and related to the socially constructed meaning-making activities of the group.

It is this understanding of social constructivist learning theory and pedagogy that is central to this research study. Through learning in their zone of proximal development

and through socially mediated contexts, it was anticipated that preservice teachers' understandings of social constructivism would develop and inform their approach to elementary education.

Contemporary Perspectives and Definitions

The philosophical and educational foundations of social constructivist theory and related discussion of social constructivism as pedagogy of practice are examined in this section of the review of the literature. This section begins with a discussion of epistemology (the systematic study of knowing, of what can be known, and how knowledge can be produced) and ontology (the consideration of being and existing and what can be known about what exists), and continues with a discussion of contemporary conceptions of social constructivism. Additionally, social constructivism is described as both a theory of knowledge and a theory of educational practice.

Developed primarily as a learning theory, social constructivism shares with constructivism the epistemological stance that knowledge is constructed within the mind of the learner, and that the learner is engaged in a meaning-making search by constructing individual and social interpretations of their experiences (Applefield, Huber, & Moallem, 2001). Social constructivism acknowledges the social nature of knowledge development within a community, and of knowledge creation that can take place within a social grouping such as a classroom. The social constructivist perspective also includes the cultural/social/historical milieu into which every person is born and lives. From a social constructivist perspective, the cultural meaning of the situation in which learning is taking place is attended to along with social practices and power differentials that influence teachers and learners in learning situations (Schallert & Martin, 2003 p. 34).

Crotty (2003) further illustrated that “it is the view that all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed ... within an essentially social context” (p. 42).

The non-dualist ontology of contemporary conceptions of social constructivism suggests an ongoing process of construction where people shape the social world, and in doing so, are themselves transformed. This mutual configuration – a co-construction of knowledge and understanding dependent on ever-changing social contexts – is accomplished in the social practices of human relationship and community. “This non-dualist ontology clarifies the social constructivist perspective that learning – gaining knowledge or understanding – is an integral part of broader ontological changes that stem from participation in a community” (Packer & Goicoechea, 2000, p. 234). Learning is understood as participation in the social world, a co-evolution of understanding between the knower and the known that transforms both. It is this definition and interpretation of social constructivism that is central to this research study.

Social Constructivism – Pedagogy and Learning

Social constructivist pedagogies lie at the opposite end of the spectrum from acquisition/transmissionist teaching and oppose the teacher-as-conduit-for-knowledge-transmission metaphor. Social constructivism as a theory of learning suggests a pedagogy in which learning is *dependent on*, but cannot be *determined by* teaching (Davis, Sumara, & Luce-Kapler, 2000). As such, it deeply affects the development of educational thought including theoretical assumptions regarding the nature of knowledge, how students learn, the purpose of schooling, and the design of daily lessons. For the

social constructivist educator, knowledge is described not as truths to be transmitted or discovered, but as emergent, developmental, nonobjective, viable constructed explanations by humans engaged in meaning-making cultural and social communities (Fosnot, 2005). For the social constructivist educator, learning is described as a self-regulating process of struggling with the conflict between existing personal models of reality as a human meaning-making venture with culturally developed tools and symbols, and further negotiating such meaning through cooperative social activity, discourse, and debate (Fosnot, 2005).

Based on contemporary epistemological and ontological conceptions of learning and the nature of knowledge, social constructivist scholars (Beck & Kosnik, 2002; Fosnot, 2005) advocate for the transition of direct-instruction classrooms into social constructivist learning environments by way of social constructivist principles. The primary goal of the social constructivist educator is to enable the learner to construct interpretations of ongoing events and to actively make sense of language and life by stimulating thinking that results in meaningful learning, deeper understanding and transfer of learning to different contexts. To accomplish this goal, a social constructivist framework leads teachers to incorporate strategies that encourage knowledge construction through primarily social learning processes, in which students develop their own understanding through interactions with peers and teachers. A significant problem tackled by small groups of students promotes involvement, curiosity, and heightened motivation. Fosnot (2005) provided insight to the connection between learning theory and pedagogy, noting that, in the past, social constructivist theory has been misunderstood, misused, and attacked but that contemporary conceptions reflect better

understanding and have paved the way for application as a theory of pedagogy. Her social constructivist view of pedagogy suggests an approach to teaching that gives learners the opportunity for concrete, contextually meaningful experience through which they can search for patterns; raise questions; and model, interpret, make abstractions, and defend their strategies and ideas. Social groupings can present a learner with a number and variety of problems to solve and can enable a learner to develop different frameworks for thinking and making meaning. The meaning-making activities of groups and individuals are of central interest to social constructivists because it is the meaning-making and sense-making activities that shape further developmental steps, action, and pedagogy. Pedagogy is informed by and related to the socially constructed meaning-making activities of the group.

Social Constructivism in Education Documents

The contemporary understandings and conceptions of social constructivism that scholars articulate (and that are articulated in this research project) are disseminated in political educational policy documents. The Common Curriculum Framework for English Language Arts Kindergarten to Grade 12, a document produced by Western Canadian Protocol for Collaboration in Basic Education (1998, 2000, 2009), specified learning outcomes for literacy learners and outlined curriculum standards for literacy educators.

These learning outcomes and standards followed from what are essentially classical Vygotskian principles and statements regarding the importance of language in learning and thinking. The principles of language and literacy learning outlined within the WCP Curriculum Framework strongly evince a social constructivist approach to

literacy education. The document stated that: “Language is the basis of all communication and the primary instrument of thought. Composed of interrelated and rule-governed symbol systems, language is a social and uniquely human means of exploring and communicating meaning. As well as being a defining feature of culture, language is an unmistakable mark of personal identity, and is essential for forming interpersonal relationships, extending experience, reflecting on thought and action, and contributing to a democratic society” (p. 1).

The conception that language is the primary means of communication that is fundamental to the formation and transformation of knowledge and self is a cornerstone of social constructivism. In a social constructivist epistemology, language and other symbol systems mediate the knowledge that is co-created between and within individuals and groups. The WCP Curriculum Framework continued along this trajectory, stating that: “Language enables students to play an active role in various communities of learners within and beyond the classroom. As students speak, write, and represent, they also listen to, read, and view the ideas and experiences of others. Critical and creative thinking and learning through language occur when students reflect, speculate, create, analyze, and synthesize” (p. 3).

Awareness of the social construction of knowledge suggests a pedagogical emphasis on discussion, collaboration, negotiation, and shared meanings. Teachers (both preservice teachers and their teacher educators) must guide, shape and expand students’ thinking - notions that are echoed again in the Western Canadian Protocol: “Language facilitates students’ development of metacognitive awareness; that is, it enables them to reflect on and control their own thinking and learning processes. Language helps

students develop an awareness of the skills and strategies they need to complete learning tasks successfully and to communicate about themselves as learners” (p. 3). This perspective of social constructivism as an approach to literacy education is both necessitating and resulting from a shift in preservice teacher education programs. This shift is characterized as a shift from direct-instruction approaches to social constructivist approaches that reflect and acknowledge contemporary understandings of the way students learn literacy concepts and develop literacy skills. However, one defining characteristic of Western Canadian Protocol-based curricula is that it does not specify ‘how’ teachers should approach pedagogy and classroom instruction, thus traditional methods as well as contemporary approaches are quite acceptable.

Social constructivist pedagogical principles are not limited to literacy and Language Arts. The National Council for Teaching Mathematics (2000) outlined Principles and Standards for School Mathematics in which the essential components of high-quality mathematics programs are defined. Essential components included pedagogical statements that align with social constructivist principles, stating that, “students learn by attaching meaning to what they do, and the need to construct their own meaning of mathematics” (NCTM, 2000, executive summary). In Alberta, The Common Curriculum Framework for K-9 Mathematics Western and Northern Canadian Protocol (2006) states that, “students benefit from working with a variety of materials, tools and contexts when constructing meaning about new mathematics” (p. 1) and that the use of a “variety of pedagogical approaches” can enhance the formation of sound, transferable mathematical concepts (2006, p. 2).

In recent years, there has been a critical re-evaluation of the traditional methods of

instruction (John-Steiner & Mahnm, 1996) resulting in innovative approaches to instruction that draw from and are supported by Vygotskian social constructivism. Vygotsky (1987) advised that the best method of teaching uses the mediation method, which both guides and evolves through the social interaction that occurs during the learning activity. During this process the teacher does not impart knowledge. Rather the teacher mediates learning through the social interaction between learner and teacher (Dixon-Krauss, 1995; Lampert & Clark, 1990).

Vygotsky's central tenets of learning and development, pedagogy, and instruction can be seen in contemporary instruction programs. In Language Arts and Literacy education, Vygotsky's theories inform whole language approaches (Goodman, 1986); process approaches to reading and writing (Calkins, 1986; Emig, 1971; Graves, 1983; Murray, 1985); reading comprehension (Palinscar & Brown, 1984; Palinscar, Brown & Campione, 1993); and holistic, integrated approaches (Cambourne, 2002). In Mathematics education, Vygotsky's theories inform manipulatives-based approaches, informed by the understanding that students can be guided to stronger mathematical understandings as they progressively manipulate and analyze complex skills on their own or in peer groups with the teachers nearby to scaffold or facilitate as needed (Kelly & Farnan, 1991). As Lee and Smagorinsky noted, "In learning from Vygotsky, we have learned new ways to extend him. Modern applications of Vygotsky have contributed to research in ... practices and development, which in turn have contributed to the evolution of Vygotsky's theory of human development" (Lee & Smagorinsky, 2000, p. 1).

SOCIAL CONSTRUCTIVISM IN PRESERVICE TEACHER EDUCATION

Historically, studies focusing on the development of preservice teachers' attitudes and approaches to teaching have been unidimensional and sparse (Clift & Brady, 2005). For example, Hollingsworth (1989) examined written documents for a single reading course over a nine-month teacher education program, whereas Copelan and D'Emidio-Caston (1998) collected data for their developmental study of preservice teacher change through interviews, but did not examine written documents. Contemporary studies are growing in number and range of methodologies and there are notable studies that serve to orient this research project. Research on preservice teachers' epistemological beliefs (Au & Blake, 2003; Case & Hemmings, 2005; Dong, 2004; Gay & Kirkland, 2003) examined how epistemic beliefs influence preservice teachers' learning and how they implement lessons during field experiences. Some studies have examined the issue of theory into practice (Ebby, 2000; Gupta, 2004; Worthy, 2005), while others focused on methods to ease the transition (Brouwer & Korthagen, 2005; Salisbury-Glennon & Stevens, 1999). This review shows that the translation of theory into practice is more complex than implementing methods and knowledge gained through preservice coursework; indeed, translating theory-into-practice is not a singular, chronological event, but rather a recursive process.

In many teacher education programs, preservice teachers learn about teaching in two primary ways: through curriculum and teaching methods courses and through field experiences. In curriculum and pedagogy courses, preservice teachers are taught content knowledge and pedagogical theory. In field experiences, preservice teachers are expected to translate theory and content knowledge into pedagogical practice. The

literature relating to preservice teachers' abilities to integrate content knowledge and theory into practice indicates that such integration is a complex process.

At the heart of the issue of theory-into-practice are preservice teachers' epistemological beliefs. Research studies show a strong link between teachers and preservice teachers' beliefs and how their instructional approaches play out in the classroom. Richardson, Anders, Tidwell, and Lloyd (1991) found that teachers' beliefs about reading instruction and literacy practices strongly influenced their pedagogical and instructional approach. Zancanella (1991) followed five teachers of literature and found that their classroom instruction was connected with their personal literacy practices and customs; he noted that what teachers believed about teaching and learning was enacted in their instructional approach.

Holt-Reynolds (1992) has shown that preservice teachers bring personal 'history-based beliefs' about teaching and learning to their education courses. Part of the personal, history-based beliefs that preservice teachers have informs their conceptions of what constitutes "good teaching", and serves as a basis for evaluating new theories and ideas (Holt-Reynolds, 1992). Preservice teachers' beliefs are invaluable, as they form a framework into which new knowledge about teaching and learning can be integrated. However, Salisbury-Glennon and Stevens (1991) warned that preservice teachers' beliefs may not be compatible with ideas and theories presented and taught in teacher education programs, nor may they be consistent across areas.

Wolf, Carey, and Mieras (1996) documented preservice teachers' growth in understanding students' responses to literature by asking 43 preservice teachers to conduct reading sessions with children and then to document and analyze the sessions.

Their study did not include interviews or small group conversations, but, through journal writing and whole-class conversations, they found that preservice teachers needed onsite teaching opportunities in order to affect a shift from limited performance expectations and transmission of knowledge and comprehension to broader interpretive and social constructivist possibilities for instruction.

In a study describing preservice teachers' efforts to bridge the theory-practice gap, McMahon (1997) used a Vygotskian framework of language development to understand preservice teachers' growing understandings. The goal of the research was to "investigate two student teachers' written and oral texts to understand what their words may reveal about their ... efforts to bridge instructional practices advocated in university course work with the methods adopted in their field placement" (McMahon, 1997, p. 201). The study did not provide intervention, but instead data were collected as part of regular class activities. Data sets were collected assignments, written dialogues among the student and course instructor and mentor teacher, and included journals, lesson plans, small-group discussions, portfolios and field notes. Significantly, it was found that language use reveals the relationship between student teachers' definitions of teaching and their learning from university course work (McMahon, 1997). Analysis of the written language used in journals showed that repeated opportunities to converse and then document reflections revealed preservice teachers "revised and expanded" (p. 210) understandings of teaching and learning.

Research related to preservice teachers' epistemological beliefs about teaching and learning is plentiful (Davis, 2006; Ebby, 2000; Gupta, 2004; Pang & Sablan, 1998; Risko, Roskos, & Vukelich, 2002; Moore, 2003) with many studies attempting to

examine and describe complex processes related to how preservice teachers implement theory into practice.

One such study, *Old Habits Die Hard: Literacy Practices of Preservice Teachers* (Gupta, 2004), examined the instructional approaches of a group of preservice teachers to determine whether they implemented the strategies they were taught to use during the curriculum and instructional methods course in which they were enrolled. Using observation of field experience teaching episodes and the analysis of written responses of 29 preservice teachers, Gupta (2004) studied the occurrence of applied teaching methods used in field experience practice. Gupta (2004) used a qualitative research design that utilized written responses, surveys, and field experiences. Through a survey, preservice teachers were asked to comment on their beliefs related to reading and beliefs related to the employment of strategies for learning to read. The survey was completed before and after coursework and associated field experiences. The findings of the study revealed that there was “limited congruence” (Gupta, 2004, p. 67) between preservice teachers’ personal beliefs about reading and reading instruction, and that preservice teachers tended to “fall back on remembered routines during their teaching” (Gupta, 2004, p. 67). Preservice teachers did not put theory into practice, but instead relied upon their personal prior beliefs about how reading is taught. In that study, preservice teachers’ epistemological beliefs affected how they approached the task of teaching. Gupta’s (2004) conclusions suggested that teacher educators should be aware of preservice teachers’ prior belief systems as it affects their pedagogical approach. Additionally, Gupta (2004) suggested that epistemological change is not easily or typically

accomplished through a single instructional course. However, that study did not offer any intervention or opportunities to understand significant theories for learning.

In another case study that focused on three preservice teachers over a two-semester period, Ebby (2000) explored how preservice teachers accessed knowledge from their coursework and integrated it with field experiences. This study used interviews, observations, and review of written documents. What was of key concern in this study were the ways in which preservice teachers used both coursework material and prior experiences as learners to inform their teaching practice. The findings of this case study demonstrated that knowledge gained from course work is influenced by prior knowledge and experience. “What preservice teachers take away from their university coursework has much to do with the beliefs and dispositions and experiences they bring with them” (Ebby 2000, p. 91). An important observation Ebby made is the notion of resistance, which arises from preservice teachers’ personal prior experiences of being students. To dispel resistance, a constructivist approach to teaching and learning must take place within their teacher education coursework. Preservice teachers must work to overcome existing perceptions of teaching and learning that might limit their learning or limit their understanding of how to implement theory into practice. Additionally, Ebby (2000) suggested that university classroom experiences be more closely intertwined with field experiences. Knowledge gained through university courses is not always transferred to practice, and what is learned in practice is not always brought into university courses. She stated, “It is not enough for coursework and fieldwork to be simultaneous experiences; methods courses need to be explicitly oriented towards learning from fieldwork” (Ebby, 2000, p. 94). This sort of back-and-forth learning facilitates the work

that preservice teachers must do to overcome potentially limiting epistemologies of teaching and learning. The study concluded that the “mission” for teacher education programs should be to move preservice teachers’ thinking from understanding teaching as a process of transmission, to thinking about teaching as a process of construction.

Another study used the analysis of preservice teachers’ journal reflections as a way to understand their cognitive processes. Risko, Roskos, and Vukelich (2002) conducted a cross-subject pattern analysis of 30 preservice teachers from three different university teacher education programs. Double-entry journals and oral interviews were the primary data sets. Analysis indicated that, across the three sites, preservice teachers relied upon their prior personal experiences and values to guide their appropriation of course content and to inform their teaching during field experience events. The main goal of the study was to, “analyze prospective teachers’ reflective activities by identifying their mental processing strategies and determining whether these strategies change over time” (Risko et al., 2002). The study was embedded in a constructivist framework, as preservice teachers were “invited to revisit their course-related experiences, to reflect by looking back and rethinking, and to construct their own way of knowing” (Risko et al., 2002). The findings of the study indicated that preservice teachers’ prior knowledge and understandings about teaching and learning are powerful as they influence what preservice teacher choose to attend to in both their writing and their teaching. Secondly, the findings of the study reiterate the understanding that preservice teacher education is a process of development and that time is needed for preservice teachers to reflect upon their perceptions and understandings in order for rethinking to occur. The third, and perhaps most important finding of the study is the

“need for some form of instruction to mediate strategic development” (Risko et al., 2002). Risko, Roskos, and Vukelich’s (2002) study did not offer preservice teachers any intervention or new information or experience on how to change their mental processes. They concluded that a critical factor in helping preservice teachers to transform their cognitive thought processes is to be found at the teacher-educator level. Teacher educators must develop programs that provide optimal scaffolding conditions that “involve the framing of issues that are subtle or embedded, facilitate a fluid interaction between theory and practice, and develop the ability to be ‘mindful’ of issues requiring further thought and action” (Risko et al., 2002).

In order to investigate the facilitation of a ‘fluid interaction’ between theory and practice, Moore (2003) conducted a study to “find evidence that preservice teachers utilized the constructivist learning theory emphasized in the university classrooms to guide their teaching and instructional decision making in the field practicum” (p. 31). The study spanned three consecutive semesters, and inquired into the teaching and learning responses of 77 preservice teachers enrolled in a three-week language arts field practicum. Data sets for the study included researcher field notes, notes generated from conversations with mentor teachers, reflective journal entries generated from preservice teachers, and survey data administered to preservice and mentor teachers. The study showed that a significant percentage (81%) of the language arts or reading strategies that mentor teachers expected preservice teachers to demonstrate were introduced in the university methods course curriculum. However, it was found that mentor teachers and student teachers alike were far more concerned about procedures of time management, lesson content, and classroom control. Concern for the technical skills of teaching

overshadowed “rich opportunities for preservice teachers, mentor teachers, and university supervisors to examine the theoretical constructs behind the pedagogical decisions made by the preservice teachers” (Moore, 2003, p. 40). This finding showed a disconnection between what preservice teachers are taught in their university programs and what is expected of them in field experiences. Although important, procedural skills should not be the only focus of professional teacher preparation in field experiences. Rather, a process for integrating theory and practice into the ‘realities’ of the classroom needs to be a focus for university education programs and field experiences.

Britzman (2003) stated that the epistemological views of teachers as “social controllers” (p. 63), classroom managers, lesson technicians, and student regulators are implicit in the belief systems of preservice teachers. What preservice teachers expect from their teacher education programs arises from these views, as they expect to receive “generic methods for classroom application” (p. 63). Crucially, these implicit ideas can often act against the preservice teacher, as previously held assumptions of the profession can block or inhibit new learning. Teacher education programs make clear the need for theory as a means of informing instructional practice; however, preservice teachers may not see the link. Britzman (2003) asked: “What images of theory do prospective teachers hold that make it appear so untenable?” (p. 64). Significantly, Britzman saw field experience practica as simply providing ‘practice’ in ‘practice’ activities, with the field experience more connected to the preservice teachers’ identity as a ‘student teacher’ and fitting into the existing systems and established ‘practices’ of the school than being an opportunity to connect practice with theory. This dissertation research study focuses on similar issues. Does theory inform preservice teachers’ conceptions of practice? How, if

at all, does social constructivist theory inform their thinking and teaching? Can new understandings of theory be expressed during practice?

In another study, Beck and Kosnik (2002) took up these questions through implementing a change in their teacher education program. Following the suggestions put forth by teacher educators, Beck and Kosnik (2002) redesigned aspects of their campus's teacher education program. The new campus program integrated course work with field experiences in order to give preservice teachers a cohort experience that more fully linked theory and practice. The goal of the study was to understand if structural/format changes in the teacher education program could impact preservice teachers' learning. The redesigned program consisted of small cohort groups, which allowed for the development of a community of learners. In addition to the cohort groups, the university developed partnerships with schools in order to integrate campus coursework and theory with field experience work. Part of the partnership included the participation of the teacher educators; they participated in the field experiences along with the preservice teachers. This allowed for practical issues and techniques to "serve as useful entry points for theoretical discussion" (p. 430).

In their study, Beck and Kosnik (2002) conducted semi-structured interviews with nine preservice teachers enrolled in the new cohort program. The interviews were used as data sources and were analysed to determine if the preservice teachers felt that the new program design affected their learning. The findings of the study indicated that preservice teachers felt that the program redesign had a positive impact on "their development as teachers" and that the cohort format helped them to "acquire theory ... and develop a broad approach to teaching" (Beck & Kosnik, 2002, p. 424). What is

significant about this study is the opportunities it afforded for preservice teachers to participate in a small cohort learning group that integrated practical field experience events with theoretical discussions led by their teacher educators.

Bainbridge and Macy's (2008) study detailed preservice teachers' perceptions of preparedness to teach literacy. They found that, while preservice teachers perceive their literacy education courses to be relevant and practical,

some of these individuals experienced frustration with a [social] constructivist orientation to teaching and wanted to see a more transmission-oriented approach in their literacy courses, including more direct teaching (just tell me what to do), packets of resources that could be used directly in a classroom, lesson plans and units, and a clear step-by-step approach to teaching the various literacy skills laid out in the program of studies. (p. 71)

Significantly, Bainbridge and Macy noted that when preservice teachers are "given the opportunity to work in their zone of proximal development, the student teachers could work through preconceived notions and transform them into new and relevant understandings of literacy learning and teaching" (p. 79). Data collected for their study consisted primarily of open-ended interviews and short conversations with preservice teachers at the end of their teacher education program and did not create opportunities for preservice teachers to participate in peer groups with the purpose of engaging in critical analysis and development of a social constructivist approach to literacy instruction.

SUMMARY

The epistemological views held by preservice teachers prior to and during their teacher education courses are powerful and affect the depth, range, and kind of learning

that occurs during coursework. Fieldwork and practicum experiences are similarly affected by epistemological assumptions as epistemic views can be seen in instructional approach. The challenge for teacher-educators is to acknowledge and address the prior understandings that preservice teachers bring to their education programs yet provide opportunities for the construction of new knowledge through active learning and social interaction. The construction of meaning is an interactive process of transformation that occurs between prior understandings and epistemic views and the social constructivist learning offered in teacher education course work and field experiences. Teacher education, then, is partly a re-writing of the former school-pupil into a school-teacher.

The importance and relevance of a social constructivist view of teaching and learning can be seen in the literature as a shift away from transmissionist models towards more pedagogically relevant models. Active involvement and social interaction are key factors in knowledge construction and are important considerations in pedagogical approaches.

Absent from the review of the literature are studies that examine how preservice teachers' understandings of social constructivist pedagogy might be informed. This gap in the research arises from the fact that many of the studies reviewed did not offer specific supports to the preservice teachers. Studies traced preservice teachers' learning over various periods of time, but tended to follow existing courses of study. Few studies took up the challenge of exploring how preservice teachers might engage with and learn about social constructivism, and what supports might teacher educators offer. Jewett's (2007) study emphasized and documented the importance of the relationship between teacher and student as built upon and developed from mutual understanding of literature

and literacy. Her teacher-research methodology used transcribed audiotaped literature discussions as well as informal interviews, written reflections and various electronic media artifacts such as emails, and described her ongoing struggle to become more “intentional and reflective about [her] teaching and about student’s learning” (p. 154).

The areas included in the review of the literature inform the research project presented in this dissertation. The areas in the preceding review, although presented as discrete studies, when viewed as a whole provide insight into my central research questions. The research investigation for this dissertation extends previous studies by not only providing preservice teachers with opportunities to engage with social constructivist theory through work in their zone of proximal development and through participation in a small research community, but by providing opportunities to analyze, reflect, discuss, and implement new pedagogical understandings in classroom settings. Vygotsky viewed the classroom as the laboratory for studying student learning and development (Moll, 1990). It can also be the laboratory for studying how teachers learn by exploring instructional change through the convergence of research and practice (Dixon-Krauss, 1992).

This research study extends and contributes to the above body of research by focusing on how preservice teachers might explore, engage with, and more deeply understand social constructivist theory and pedagogy, and how it might inform and contribute to their developing approaches to teaching in the elementary grades.

CHAPTER 3: RESEARCH METHODOLOGY

*"Who dares to teach must never cease to learn." - John Cotton
Dana*

The purpose of this study was to investigate and understand how preservice teachers engage with social constructivism. This research study, with data collection carried out over the course of a single academic semester, provided opportunities for three preservice teachers to engage with social constructivist theory and it presented them with opportunities for pedagogical practice. Case study research methodology was employed during the data collection and analysis phases. This methodology informed a research design that consisted of three research cycles implemented in chronological order and parallel format. Each cycle of research afforded opportunities for the preservice teachers to engage with social constructivist ideas, and included: readings related to the case and subsequent journal responses; onsite teaching events and post-teaching debriefings; and collaborative group conversations.

CASE STUDY

A case study methodology (Merriam, 1998) was utilized as it best fits the overall intent of the research and was conducive to developing an understanding of and a response to the research questions. Merriam (1998) stated that a case study presents a detailed account of the phenomenon under study and uses these detailed accounts to “develop conceptual categories or to illustrate, support, or challenge theoretical assumptions held prior to the data gathering” (p.38).

Defining the Case

Case study design is particularly suited to the circumstances of this research project: preservice teachers' engagement with social constructivist pedagogies is a complex, but researchable phenomenon. It is defined by the multiple and complex contexts of the preservice teachers themselves and their experiences both as teachers and students, their prior field-experience placement assignments, mentor teachers and schools, and their university experiences. The outermost boundaries for this study were the experiences of the preservice teachers – their relationships and resulting interactions between these contexts and social constructivist theory. The 'innermost' boundary of this study was situated and nested within these interlocking contexts, specifically at the site of the preservice teachers' classrooms where the study was conducted. These boundaries served to focus and limit the research and provide context for analysis.

With case study methodology, it is essential to answer the question, "what is the case?" In this instance, the case consisted of three preservice teachers working to appropriate theoretical knowledge of social constructivism and to implement social constructivist pedagogy in grade one classrooms in a school. Additionally, this case was defined temporally, locally, and was theoretically bound. The temporal boundaries were the three months during which I was engaged in the data collection; the study had specific start and end dates that coincided with an academic semester. The local boundaries were defined by physical spaces in this study: university meeting rooms, our meeting place for post-teaching debriefings in the school, and the classrooms in which the preservice teachers taught. Our time spent in conversations in meeting rooms at the University provided opportunities to discuss, interpret, and co-construct ongoing

appropriations and understandings of social constructivism and how these understandings informed the pedagogical approaches seen in onsite teaching events.

The theoretical boundaries of this study are linked to the purpose of the study and further serve to refine the case. Vygotsky's theory of genetic development in which mediation of concepts occurs through work in the zone of proximal development provides the theoretical framework for interpreting the development of preservice teachers' understandings of social constructivist approaches to teaching and learning. In claiming a Vygotskian approach to this research, I drew not only upon Vygotsky's work, but post-Vygotsky research and contemporary understandings of social constructivism. A Vygotskian perspective, with its emphasis on social, cultural, and linguistic factors, is well-suited to case study methodology, and so to the investigation of cognitive development and learning in context. A Vygotskian approach to analysis, that is, understanding word meaning, was used to complement Hatch's (2002) interpretive procedures and to determine findings and themes.

In keeping with a Vygotskian approach, by offering social constructivism as 'academic' (Wertsch, 1998), or, as used earlier in this thesis, *theoretical* concepts to be appropriated by preservice teachers, I contributed to the creation of a space for learning to occur within the preservice teachers' zone of proximal development. In this research study, theoretical concepts were introduced to preservice teachers in two primary ways: first, through academic readings related to the case and second, through discussion forums (both individual post-teaching discussions, and group conversations). The theoretical curriculum, as it were, for this research study was set by me, acting within the social constructivist framework as the more knowledgeable facilitator and teacher, but

with room for negotiation and evolution of ideas and understandings. The study evolved, “under the conditions of systematic co-operation” (Vygotsky, 1978; Smagorinsky, Cook, & Johnson, 2003) between me as researcher and my participants. Through this ‘co-operation’ the preservice teachers were supported and encouraged to develop more complex cognitive understandings of contemporary social constructivist pedagogical theory. Vygotsky (1987) argued that this interplay between theoretical knowledge of concepts and knowledge gained through activity and work within the ZPD enables people to think about problems beyond their range of experience. He stated, “development based on instruction is a fundamental act. Therefore, a central feature for the psychological study of instruction is the analysis of the [learner’s] potential to raise himself to a higher intellectual level of development through collaboration, to move from what he had to what he does not have ... It is also the content of the concept of the zone of proximal development” (Vygotsky, 1987, p. 210).

The zone of proximal development is inherently developmental – the learner appropriates a cultural tool, or in the case of this research, a theoretical concept, mediates its meaning through social interaction with peers or teachers, *and then implements that concept independently*. “The process of concept formation requires ... acts of thought which are associated with free movement in the concept system, with the generalization of previously developed generalizations, and with a more conscious and voluntary mode of operating on these existing concepts” (Smagorinsky, et. al, 2003). Through participating in this research study, by appropriating theoretical concepts and by implementing these concepts through pedagogical approach, the preservice teachers might reveal degrees of growth and understanding.

The research literature indicates that any sort of transformation in how preservice teachers think about their pedagogy and their approach to instruction is difficult to accomplish and document (Davis, 2006; Gupta, 2004; Ebby, 2000; Au, 1998), and any change seen is often minimal. Wideen, Mayer-Simth and Moon (1998) suggested that both deeply embedded attitudes and beliefs about teaching and education, combined with the philosophy, structure, and content of teacher education programs limit the amount of growth and change preservice teachers can undergo through the course of their programs. While previous studies have analyzed journal entries written through course work and through entire teacher education programs (Myck-Wayne, 2007), this study combined journal entries with conversations, post-teaching debriefings, and onsite teaching events, and was focused on a single academic semester. Prior studies (Myck-Wayne, 2007; Gupta, 2004; Evans, 2002) used naturalistic methodologies such as case studies and participant observations. My study follows from these, and used a chronological and thematic analysis to build an explanation of the case.

RESEARCH DESIGN

The design of the study consisted of an introductory ‘epistemological’ interview and initial teaching event followed by three cycles of research implemented in chronological order and parallel format. The initial interview and the initial teaching event were designed to help ‘orient’ me to the preservice teachers’ existing understandings of teaching and learning within social constructivist contexts. The data gathered from the initial interview and teaching event informed my understanding of what the preservice teachers could do without support. The three research cycles were designed to provide multiple means of support to the preservice teachers as they worked

towards appropriating social constructivist concepts and as they struggled to implement new understandings into their teaching practice.

The three research cycles were structured around readings, planning and teaching, pre-and post-teaching debriefings and whole group conversations. Each research cycle kept the same structure, but provided preservice teachers with opportunities to engage with more complex social constructivist concepts, to apply those concepts in their teaching, and to draw upon the supports they found particularly valuable.

During each of the three research cycles, each preservice teacher:

- Read and responded to one set of readings
- Taught three lessons
- Debriefed each of the three lessons
- Participated in one whole-research-group conversation

During each of the research cycles, the researcher:

- Provided readings and replied to three participant generated response journals
- Observed nine teaching lessons (three per preservice teacher)
- Debriefed nine lessons (three per preservice teacher)
- Facilitated one whole-research-group conversation

DATA SETS

The data for this study were obtained primarily in three ways:

1. Post-teaching debriefings and open-ended, informal group conversations
2. Research journals

3. Field notes taken during onsite teaching observations

Preliminary data were gathered from three epistemological interviews and three initial teaching events. During the course of the study, during the three parallel cycles of research, the following data were gathered:

- 18 journal entries (six from each participant)
- 3 whole-group conversations (one from each cycle) in which all three preservice teachers and I participated
- 27 onsite teaching events (nine for each participant)
- 27 days of researcher-generated field notes
- 27 post-teaching debriefings.

The research cycles followed parallel formats throughout the research and provided preservice teachers with opportunities to ‘fold back’ and to re-think, re-do, re-evaluate and refine their understandings. Each new cycle of the research saw the research participants approaching the cycle with new understandings, new perspectives and knowledge; each set of lessons the preservice teachers taught during a cycle evidenced a more sophisticated and more complex teaching practice informed by their theoretical understandings of social constructivism.

METHODS AND PROCEDURES

In order for me to orient myself to the levels of the preservice teachers’ existing understandings about teaching and learning within a constructivist framework, I conducted introductory ‘epistemological’ interviews. These interviews were followed closely (within a few days) by an initial teaching event. The epistemological interview was a significant part of the research study in that it provided for me a way to understand

what preservice teachers knew about teaching and learning prior to entering into the learning cycles of this research. The initial teaching event allowed me to see what they could do without support. The initial teaching event was done ‘cold’ – that is, each preservice teacher was asked to teach a lesson without guidance or input from me or their cooperating classroom teacher (although collaboration did occur with respect to the topic of the lesson). Instructional approach was not discussed. Externalization of internal understandings of teaching and learning was seen as the ‘activity’ of the teaching, and my initial understandings of the level of a preservice teachers’ ZPD could be established.

In my analysis, attention was given to the ways in which the preservice teachers used language when describing their approaches to teaching. This was important for this study as use-of-language is understood to be a ‘window’ into the cognitive state of the individual; cognitive development can be traced to social activity and development is mediated through language (Vygotsky, 1987; Smagorinsky, 1995). Thus the ways in which preservice teachers used language throughout the study was carefully monitored, with careful consideration given in the analysis to language that seemed to ‘change’ or develop.

Vygotsky suggested that, “to study an internal process it is necessary to externalize it experimentally, by connecting it with some outer activity; only then is objective functional analysis possible” (Vygotsky, 1978). While Vygotsky firmly believed that word meaning should be the unit of analysis, many neo-Vygotskian accounts, following the suggestions of activity theory, prefer activity as the primary unit (Karpov, 2005). Activity as a unit of analysis, however, may have broad interpretations. As Wertsch (1998) pointed out, “action may be internal as well as external, and it may be

carried out by groups, both small and large, or by individuals” (p. 23). Wertsch preferred the modified notion of mediated activity, an encompassing term, which includes entities such as speech, and physical activity, for example, a notion, which he says “provides a kind of natural link between action, including mental action, and the cultural, institutional and historical contexts within which such action occurs” (Wertsch, 1998, p. 24). From a methodological perspective, Wertsch’s claim highlights the need to address the effects of mediation from observing and measuring a range of behaviour from both aspects, that is, verbal and physical. Cognitive development is a consequence, in part, of culturally contextualized events, so that Crook (1991) suggested that from this perspective the “unit of analysis becomes the *activity in a context* – and the study of cognitive change, therefore must dwell on the setting in which understandings are acquired” (p. 83). My research study upheld this perspective and examined internal cognitive development as seen as both change in language use and in how language use manifests during pedagogical action.

The epistemological interviews and the initial teaching events served as a set of starting points for the study in terms of establishing Zones of Proximal Development for the preservice teachers. Essentially, the importance of understanding the initial starting points of the research participants helped me to provide appropriate support, scaffolding and guidance.

Following the initial interviews and teaching events, the three cycles of the research began. Each cycle was conducted in consistent and parallel format, and included readings related to the case and participant-generated response journals; three onsite classroom teaching events and their subsequent debriefing; a whole-group

conversation. The cycles were designed to provide the research participants with opportunities to think, reflect, gain feedback, and to plan and teach. Importantly, opportunities were provided for the preservice teachers to converse with me and with their co-participants in whole-group conversations.

The research cycles were implemented in parallel format. The following sections identify and clarify the procedures for each of the three cycles.

Readings and Journal Entries: Readings were provided to research participants at the beginning of each cycle. Readings became progressively more theoretical in nature and increasingly difficult as the research unfolded. These readings provided the ‘academic’ (Wertsch, 1997) and theoretical concepts and perspectives of social constructivism and served as a framework upon which to build understanding. Participant-generated written journal entries enabled me to analyze the language of the participants, as well as gather data concerning what the participants had given attention to and what they had chosen to write about (Creswell, 2003). Greater complexity in the readings and theoretical concepts contained within allowed preservice teachers to incorporate new understandings through mediation and appropriation through work in their zone of proximal development.

Readings assigned in Cycle I:

1. Vignettes of Teaching Approaches - Case Studies of Pre-Service Teachers – Ms. Brown and Ms. Smith (Toy, Researcher. 2011, Written for the purposes of this study)
2. (Richardson, V. (2003). Constructivist pedagogy. *Teachers College Record*, 105(9), 1623-1640).

Readings assigned in Cycle II:

3. Denton, P. (2007). *The Power of Our Words*. Northeast Foundation for Children. Chapter 3 - *Open-ended Questions Stretch Academic and Social Learning*.
4. Kim, B. (2001). Social constructivism. In M. Orey (Ed.), *Emerging perspectives on learning, teaching, and technology*.

Available Website: <http://www.coe.uga.edu/epltt/SocialConstructivism.htm>
http://projects.coe.uga.edu/epltt/index.php?title=Social_Constructivism

Readings assigned in Cycle III:

5. Breunig, M. (2006) Radical Pedagogy as Praxis. *Radical Pedagogy*, ISSN: 1524-6345. Retrieved from

http://radicalpedagogy.icaap.org/content/issue8_1/breunig.html

Journal Entries: After reading the text pieces, participants wrote journal entries. The following questions were provided to the preservice teachers to guide their reading and focus their responses:

- What was your reaction to the reading?
- What struck you as interesting and/or significant?
- What are some ideas from the text that you agree with? That you disagree with? That you feel uncertain about?
- Is there a difference between social constructivist lessons and other types of lessons (such as ‘transmission-oriented’ or ‘direct instruction’)? Which type do you prefer as a student? As a teacher? Why?
- How do you understand social constructivism as a theory of learning?

- How is your understanding of social constructivism influencing the ways you think about your teaching?

Onsite Teaching: The teaching events were a critical part of this study as it is through the ‘action’ of teaching that appropriation of understanding can be seen. Teaching events were planned semi-collaboratively, with suggestions for lesson topics originating from the classroom teacher. The preservice teachers discussed their instructional approach with me and with their cooperating teacher, with special consideration given to the ‘words’ of teaching.

Post-Teaching Debriefing: Done one-on-one with the preservice teacher participants, lessons were debriefed immediately following the teaching in the classroom. We used my written field notes as a way to summarize the lesson and derive a course for the conversation. Post-teaching debriefings were essential to the appropriation as feedback was immediate and useful and integrated well with the thinking and processing of the teaching lesson. We used guiding questions to frame our conversations:

- What instructional approach did you use with this lesson?
- What was your role in the lesson – how did you ‘position’ yourself?
- How did you ‘position’ students? What was your rationale for this? How do you think this affects student learning? Why do you see this as important?
- How and where did the students work? Does it matter if/how students collaborate? Was there opportunity for collaboration between students? Between teacher and students?

- How were co-creation, co-construction, cooperation at play in the lesson?
- What was your rationale behind the instructional approach to this lesson?
- Is there anything that you would do differently if you were to teach this lesson again?
- How can we move the lesson ‘forward’ in terms of social constructivism?

Whole-Group Conversation: The final ‘stage’ in each research cycle was to meet together as a research group. The three preservice teachers and I met to discuss readings, teaching, and general progress. The following questions guided our discussions. Our conversations were iterative; the following questions guided our conversations, though not all were addressed each time.

- What is social constructivism?
- (How) Has engaging with this research into social constructivism changed the way I think about and practice my teaching? What supports have been helpful?
- How is the notion of the ‘good teacher’, which has its roots in transmission, reconciled with the social constructivist approach?
- (How) Is social constructivism different from transmission theories of teaching and learning?
- What is “the environment”? What is “knowledge”? What is the relation of knowledge to the environment? What environments are better for learning?
- What is the meaning of “meaningful”?
- What does it mean to be a good teacher?

- How do I form praxis (interweaving theory of pedagogy with practice: the purposeful integration of the intent of theory with practice and reflection)?

The use of interviews, conversations, and observations are commonplace in case study research (Denzin & Lincoln, 2005; Fontana & Frey, 1994; Merriam, 1998; Stake, 1994) as they allow a researcher to obtain an insider, or *emic*, perspective of the questions and issues under study. An emic perspective is understood to be essential to qualitative case study research, as the key concern is to understand the phenomena in question from the perspective of the participant (Merriam, 1998). For me, the epistemological interview and subsequent post-teaching debriefings and group conversations created a way into the emic perspective. Without this perspective, my understanding of the process of appropriation and the types of supports provided would not have been possible. The questions asked during the conversations focused on creating an atmosphere of trust and mutual familiarity. The relatively open-ended nature of the group conversations contributed to an atmosphere of trust and a willingness to explore the topics of interest. My level of familiarity with and understanding of the participants' situations as well as their level of engagement with social constructivist theory arose from the analysis of group conversations and post-teaching debriefings. Establishing trust and a mutual familiarity through interviews and conversations can be a "powerful way to gain insight into educational ... issues through understanding the experience of the individuals whose lives reflect those issues" (Seidman, 2006, p. 14).

As Ellis (2006) noted, "one of the challenges in interviewing is to create conditions that enable a participant to recall significant experiences, analyze them, and

reflect on their meaning” (p. 113). Regular post-teaching debriefings and conversations over a period of time allowed not only my relationships with my research participants to evolve, but my understanding of the research questions as well. A period of time in which to collect data allowed me to “learn the stories as they [were] happening and invited immediate and later reflection on their significance” (Ellis, 2006, p. 113).

Mischler (1986) stated that the “development of interviewing methods that are appropriate and adequate to the tasks of eliciting and analyzing meaningful responses” is essential to the overall research architecture.

The design, methods, and procedures of this research study served to provide opportunities for the participants to learn and to develop understandings of social constructivism. The methodology allowed me to gain insights into how the preservice teachers engaged with social constructivism and how their understandings were appropriated, internalized, and then made external in their teaching. Additionally, the design of the research allowed me to understand more deeply the types of supports that preservice teachers need and find valuable when working to develop social constructivist pedagogy.

PARTICIPANTS, SETTING AND RESEARCH CONTEXTS

Participant Selection

This study was conducted with the cooperation and contributions of three preservice teachers enrolled in a four-year undergraduate Bachelor of Education degree program at a large Canadian university. Their teacher education program included non-education courses, educational psychology and educational policy studies courses,

curriculum and instruction courses, and fourteen weeks of field experiences. Field experiences were distributed across two blocks of field experience time – an introductory student teaching field experience, in which the preservice teachers participated in a five-week practicum, and an advanced student teaching field experience during which they participated in a nine-week teaching practicum. This research project provided the three volunteer research participants with onsite teaching experiences that were additional to their regular field experience placements, and which occurred between the two regular student teaching experiences.

Preservice teacher candidates for this study were limited to and selected from those in their final year of study for the Bachelor of Education degree who had completed their introductory field experience placement, but had not yet completed their advanced field experience placement. The preservice teachers were generalists in elementary education; had completed an introductory course in literacy education; and had completed the introductory field experience placement. As my University teaching experience centered upon literacy and Language Arts education, I knew that some social constructivist principles had been introduced within the literacy course content. Ensuring that each research participant had participated in and completed an introductory literacy education course allowed me to assume that they had a level of familiarity with social constructivism, and that their understandings would be relatively similar and consistent. Three research participants were selected from a pool of volunteers drawn from those who had responded to a short questionnaire distributed in Spring and Summer (2010) sessions of introductory 300- and advanced 400-level literacy education classes (See Appendix E). Three teacher candidates were selected using the following criteria:

- Willingness to participate in the study
- Eligibility (completed their introductory literacy education course and their initial field experience placement)
- Interest in the study
- Availability to meet (as correlated with other potential research candidates)

The selection criteria ensured that participants were in the same ‘place’ in their degree program. Having similar coursework and field experiences prior to entering into this research project helped to ensure a more consistent data-coding process across participants.

Setting and Research Context

The preservice teachers were asked to plan and prepare for teaching lessons in grade one classes. Each research participant taught three lessons in each of the three cycles of the study, for a total of nine onsite teaching events. The preservice teachers taught a variety of subject-area lessons including Language Arts and literacy, mathematics, science, and art.

The preservice teachers were paired with practicing teachers in grade one classrooms in an Early Learning School, and each pairing and classroom remained constant throughout the research. At the time of the research, the school consisted of four junior kindergarten classes (two in the morning and two in the afternoon), eight kindergarten classes (four morning, four afternoon) and four full-day grade one classes. Each grade one class consisted of 22 – 25 students and a classroom teacher. Two grade one classrooms had full-time teacher assistants. One of the grade one classrooms in this study had a full-time teacher assistant assigned to the class. In this research study,

preservice teachers taught in their assigned grade one classroom for a period of time each assigned teaching day. To ensure as few disruptions as possible, the teaching events for this research study occurred before or directly after natural breaks in the school day (morning call, recess break or lunch period). I took observational field notes during each teaching episode.

The preservice teachers then debriefed the onsite teaching events with me in a small office in the school immediately following their lessons. Debriefings were digitally recorded and later transcribed. During the debriefing, we spoke about the content and structure of the lesson, the approach to instruction, and the response of the students. Most importantly, during the lesson debriefings, we discussed issues arising from the challenges of trying to link social constructivist theory with the practice of teaching.

In addition to the time spent in the school setting, the preservice teachers were asked to independently read and respond to readings related to this study. Each of the preservice teachers kept a research journal and brought this journal to teaching events and group conversations. Group conversations were attended by all three preservice teachers and myself. Conversations were loosely structured; topics arose from onsite teaching, issues and questions that developed from the readings, and from structured questions posed by me. Group conversations were conducted in a small meeting room at the University and were digitally recorded for later transcription.

Participants

Three female preservice teachers were the focus of this study. Also participating, though not as subjects-of-interest, were the practicing classroom teachers with whom the preservice teachers were paired. The data collected throughout the research project and

subsequently analyzed were exclusive to the preservice teachers. However, relevant comments from the classroom teachers were included for clarity and depth. To ensure anonymity, each research participant and each classroom teacher chose a pseudonym. For clarity in this dissertation, I refer to the preservice teachers by their first names only. I refer to the classroom teacher by salutation and last name.

Pair I – Kristin and Mrs. Singer

Kristin was in her early thirties, and was the mother of two teenagers and one preteen. After working as a bank clerk and as a teacher's assistant for several years, she was "tired of being in a job which offered me financial stability but was deteriorating my passion for life in general." Kristin mentioned that she felt that she had a lot of "good skills" to offer and that she "wanted more enjoyment for my own life that I could share with others. I knew from having kids and working in schools that this was the direction for me." Kristin was paired with Mrs. Singer in a grade one classroom.

With twenty-four years of classroom teaching, ten of which were in Grade One, Mrs. Singer was the most experienced teacher involved in the study. Mrs. Singer described her approach to teaching as an approach that provides a "literacy-rich, emergent curriculum." Most interesting and useful to this study was her understanding of how the co-construction of knowledge occurs in the classroom and how teachers can facilitate and guide learning. She described her teaching and learning processes as being, "constructivist", with the knowledge in the classroom being "emergent ... and co-created with children's and my own interests".

Pair II – Maureen and Miss Larson

After graduating from high school, Maureen completed a Medical Laboratory Technology program at a local college. She worked in this field for four years before becoming a full-time stay-at-home mom of three children. During her children's pre-school years, Maureen volunteered as a helper and then later as a replacement instructor. As her children moved through elementary school, Maureen volunteered in the school library and in the classroom. Through her volunteerism at the school, she was asked to be a teacher's assistant, and worked in classrooms in this capacity for five years. Maureen decided that a full degree in education was what she wanted, as she enjoyed classroom work very much. She said that, "being a teacher is a chance to work with students under my own direction and have more input in the classroom." At the time of this study, Maureen was in her early forties, and enrolled full-time in her degree program.

For this research study, Maureen was paired with Miss Larson. The pairing was an interesting one – the study participant with the most life experience was paired randomly with the teacher who had the least classroom experience.

In only her second year of teaching, 25-year old Miss Larson volunteered to be a part of this research study hoping that she could, "learn from the study too!" Miss Larson recently graduated from the same University the research participants were attending, however, Maureen and Miss Larson had no prior relationship. Miss Larson described her practice as being, "exhausting, but a lot of fun." She was working on developing a social constructivist instructional approach, but said that it is "so difficult to do." She stated that social constructivism was "so amazing in what the students can do," but that

pedagogically it is difficult to orchestrate. “I can’t do it in all of my classes, but I try to do one unit at a time that is more constructivist. Next year I’ll try to do two at a time.”

Pair III – Sophie and Mrs Kampe

Sophie entered the Bachelor of Education degree program knowing that this was her calling. “I believe that knowledge is power and that education in our world is very important in order to aid children to become functional, caring, and active members of society.” She was in her mid-twenties, and registered as a full-time student. Sophie’s background in French provided context for her interests in language and literacy education. She was paired with Mrs. Kampe for this research project.

Having spent the past six years developing her curriculum units of study and her pedagogy for grade one, Mrs Kampe described her philosophy of education: “I believe that children learn through interacting with others and their environments. It is the teacher’s role to encourage this interaction and to respect the interests of each child. When creating learning opportunities, piquing students’ curiosity is the key to assisting them in reaching high levels of understanding.”

ROLE OF THE RESEARCHER

The development of an approach to teaching stands in relation to one’s development of a conception of teaching which comes about through activity in a social context (Smagorinsky, Cook, & Johnson, 2003). Making this argument requires recognizing the inherent relation between abstracted systems of principles and engagement in cultural practice. A social constructivist approach to both teaching and

research treats, “human learning and cognitive development as a process which is culturally-based...social rather than individual; and a communicative process, whereby knowledge is shared and understandings are constructed in culturally-formed settings” (Mercer, 1994, p. 93).

The non-dualist (Packer & Goicoechea, 2000) ontology of social constructivist theory described in the theoretical framework that guided this research study was clarified in the review of the literature and in the account of learning and teaching that followed from it. It is a perspective that defines both the subject and process of this research. Vygotsky’s genetic development theory and its complex implications stresses the inherent social nature of all human activity, and in claiming a social constructivist framework shaped by a Vygotskian perspective, my approach to research has been to thus engage in a social practice of knowledge construction together with my research participants. Social constructivist researchers emphasize the process of interaction and the mediating role language plays in social settings. Stetsenko and Arieviditch (1997) commented that by borrowing from Vygotskian theory, this approach conceives of human development “as a social co-creation of new reality of psychological processes by people acting together in a sociocultural milieu” (1997, p. 161); that is, it is interactivity itself that defines development. This perspective aligns with Vygotsky’s beliefs. In a social constructivist account, the process of co-construction together with the mediational means then becomes the unit of study (Stetsenko & Arieviditch, 1997, p. 165).

I entered into the research settings with preliminary understandings and expectations of the overall architecture of the study, but with little or no knowledge of my research participants or their personal contexts. Similarly, research participants entered

into the research project identically positioned: knowing about the potential arc of the research, but with no familiarity with my expectations for the research. My research participants and I used this research project as an opportunity to engage in genuine dialogue where language facilitated our mutual understandings of what each was thinking, learning, and hoping to achieve. A Vygotskian approach to education views human learning and cognitive development as a process deeply embedded in interpersonal communication, with new understandings manifested as sophisticated speech acts and as manifested and enacted into new situations. The overall aim of the research was to understand the meanings that each person constructed in the social, cultural, and communicative contexts of this research project in order to understand developments in pedagogy and recognize appropriate supports. The experience we brought to the research context contributed to our understandings of the topic of the research and from a social constructivist perspective, this was a perfect meshing of theory and practice and process, since new knowledge was created upon prior knowledge.

The social nature of research becomes especially apparent when researchers undertake the study of learning, that is, the study of cognitive change. “When researchers enter a socio-cultural setting to conduct research on developmental and learning processes, they become part of that setting and thus become mediating factors in the very learning they purport to document. However, rather than “contaminating” the research environment, they become additional mediational means in a learner’s development” (Smagorinsky, 1995, p. 192). Additionally, as a social constructivist researcher, I encouraged my participants to “take an increasingly active role in nominating questions of interest for any inquiry and in designing outlets for findings to be shared more widely

within and outside the community” (Guba & Lincoln, 1994, p. 175). In keeping with a Vygotskian perspective, research data were then social constructs developed through the relationship of researcher, research participants, research context, and the means of data collection (Smagorinsky, 1995).

The ways in which the cycles of research were designed allowed for an iterative process to occur. Because we entered into each cycle with more knowledge and more complex understandings than previous cycles, my role as the researcher was not static. Acting as the ‘more knowledgeable other’ (Vygotsky, 1978), allowed me to pinpoint areas where guidance and facilitation of discussion would allow preservice teachers to form understandings of complex subject matter. As the more knowledgeable other (MKO) I posed questions that would help to open up thinking and learning, with our conversations being carefully guided and facilitated by myself. Oral and written conversations with the preservice teachers allowed me to gauge existing levels of knowledge so that sufficiently complex and appropriate support could be provided to scaffold the preservice teachers into upper reaches of their Zones. However, as a researcher engaging in qualitative research, and as a thinking, learning being in my own right, I, too was continually at work in my own ZPD. As I provided support and guidance to the preservice teachers, I was also receiving valuable information from them. The more I understood about their learning and the supports that they found invaluable, the more I understood my personal processes of knowledge facilitation and construct formation and how to guide those processes in others. Because this study has been premised on the non-dualist ontology of contemporary conceptions of social constructivism, my ‘role’ as the MKO in the study was that of ‘learner’ as often as it was

as ‘facilitator’. Contemporary understandings of the MKO show that in social settings and relationships, learners act as MKO’s for each other. Each contributes to the construct formation of the other, with scaffolding and support provided for both at appropriate levels. The knowledge in contemporary social constructivist learning systems does not flow along a central line, from teacher (as MKO) to student. Rather, knowledge is constructed and co-created at multiple levels and at multiple paces. Knowledge is distributed between and amongst researcher and participants. Although I was present in the conversations with the research participants as the more knowledgeable other – and they relied upon me for guidance and support, I was also simultaneously relying upon them for support and guidance in my own learning.

ETHICAL CONSIDERATIONS

All data gathered from preservice teachers and classroom teachers were collected with explicit permission and in full compliance with the University’s ethics review process. All necessary documentation and requirements of participating schools and school boards was satisfied and provided for. Throughout the study I reiterated to the participants that their involvement in the research was voluntary and that they were free to withdraw from the study at any point without penalty or prejudice, and the anonymity and confidentiality of all participants would be protected. Research data and confidential material will be kept in a secure location for a period of five years after the end date of the study.

SUMMARY

This case study focused on social constructivist learning theory as it was manifested in the epistemological understanding and pedagogical experiences of three elementary generalist preservice teachers. The study focused on how preservice teachers engaged with the principles of social constructivist theory as ‘theoretical concepts’ appropriated through learning in their zone of proximal development, and then implemented during social constructivist lessons taught in elementary classrooms. This study used data collection and analysis methods in accordance with case study methodology to capture and document preservice teachers’ engagement with social constructivism and their development as social constructivist educators. Field observations, research journals, and post-teaching debriefings and conversations were part of the research design.

A case study presents a detailed account of the phenomenon under study and uses these detailed accounts to “develop conceptual categories or to illustrate, support, or challenge theoretical assumptions held prior to the data gathering” (Merriam, 1998, p.38). This case study research explored the complexities and nuances of experience in order to develop insights into educational pedagogy - insights, which, in turn, might inform policy, practice, and future research. This research study used data gathering techniques consistent with case study methodology, and the subsequent analysis of the data, presented in the following chapters, led to the development of thematic categories that clarified and supported contemporary conceptions of social constructivist pedagogical theory. Additionally, through the analysis of the case study data, directions for future research were determined. A full discussion of the thematic analysis, the findings of this

study and suggestions for topics of further research and exploration are presented in the following chapters.

CHAPTER 4: ANALYSIS OF DATA AND PRESENTATION OF THEMES

“Once contradictions are apparent, teachers (and teacher educators) have two choices: they can become shrewdly clear of their need to be reactionary, or they can accept a critical position to engage in action to transform reality” - Paulo Freire

The central purpose of this study was to examine and describe how deep engagement with social constructivist theory might inform the pedagogical practice of three preservice teachers. The research questions that guided this study centred on the preservice teachers’ approaches to teaching and how their engagement with social constructivism might inform their teaching. The main research question, **“How might engagement with social constructivist theory inform or contribute to the development of pedagogy in preservice teachers?”** was supported by two subquestions:

1. In what ways do preservice teachers demonstrate understanding of social constructivist theory in their classroom practice?
2. What kinds of supports do preservice teachers identify as being the most valuable to them in developing social constructivist teaching?

This study was conducted according to the principles of qualitative research. Denzin and Lincoln, (2005) describe qualitative research as:

“a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive,

naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them” (p. 3).

Through the analysis of the data gathered in this study, what was made “visible” was the preservice teachers’ efforts to implement social constructivist thinking and knowledge into pedagogical strategies. Qualitative research seeks “answers to questions that stress how social experience is created and given meaning” (Denzin & Lincoln, 2005, p. 10).

The questions that guided this study focused on understanding how, through various forms of mediation, preservice teachers might develop a social constructivist pedagogy to guide their elementary classroom instruction. The question of how preservice teachers’ understandings of social constructivist pedagogy develops can be examined through deep analysis of the data sets gathered throughout the research study – the journal entries, interview and conversation transcripts, and teaching observation data.

DATA ANALYSIS

Research data accumulated through this study consisted of transcripts of post-teaching debriefings and group conversations, written lesson plans and related artifacts, participant-kept research journals, and researcher field notes of participants’ teaching events. Research data were gathered in consistent ways through each of the three cycles of research. Hatch (2002) described a typological approach to data analysis; this approach informed my approach to research data analysis.

In this research project, I investigated how engagement with social constructivist theory (as appropriated through readings and conversations) could inform or contribute to

the pedagogical approach of three preservice teachers (as seen both in onsite teaching episodes and through written and spoken understandings). In order to analyse the data, I began by transcribing all interview data into transcripts. Each 40-minute interview or debriefing took approximately four hours to transcribe, for a total transcription time of 120 hours. All data collected digitally (through conversations and post-teaching debriefings) were rendered into transcripts, and data collected as research journals were photocopied and expanded to form useable data for analysis. Preservice teachers' written lesson plans, reflective of their pedagogical thought processes and epistemological development, were also collected as data. Multiple forms of data provided evidence of corroboration or contradiction when considered alongside other collected data and contributed to the richness of the analysis. I assembled all of the research journals, my field notes, and other data artifacts (lesson plans and emails) and integrated them with the interview transcripts so that I had a complete research data set for each participant. I then began the process of analyzing the data.

Hatch (2002) described a typological approach to analyzing qualitative research data. In a typological analysis, the data is divided or coded into groups or categories that serve to break the aggregated whole of the case into more manageable and focused parts. I began my coding process by checking back to my main research questions. Having the research questions clearly in my mind focused the coding process: I coded the data into initial groupings or categories that easily and justifiably aligned with or thematically 'spoke' to the research questions. Hatch (2002) stated that research studies in which the primary data collection methods are interviewing and observation are well suited to typological analysis (p. 152). He stated, "when the study was designed, the researcher

had as [the] goal to capture the perspectives of a group of individuals around particular topics” (p. 152). The topics that inform the research questions become the initial places to begin looking for categories in the data analysis upon which to build further analysis (Hatch 2002). Hence, my research question and subquestions guided my initial typological/categorical coding.

In the first pass of data analysis, I coded entries that seemed to be categorically related, and that seemed to relate back to the research questions. I coded these by highlighting in different colours, the categories (or typologies) that seemed to align with the research questions. I then organized all colour typologies into groups. Hatch (2002) described this process as, “simply separating the larger data sets into smaller sets based on your predetermined typologies” (p. 154). Organizing the data this way allowed me to read through the data by category and to begin to look at possible themes within the data. As I read data by colour typology, I made note of particularly salient or meaningful passages in the data, and summarized them onto an additional data sheet. From these summaries, themes began to emerge. Patterns within the data - such as spoken phrases that seemed to be similar across participants, or expressions of frustration or challenges that were experienced by each participant – became material for thematic organization. Hatch (2002) described themes as, “integrating concepts”, and that themes are, “statements of meaning that run through all or most of the pertinent data” (p. 156). These statements of meaning, or themes, were then carried back to the data to ensure that they were supported. Checking, and rechecking the data and marking especially salient passages for inclusion in the thesis were also steps in my analysis process. Hatch (2002), stated, “the last step in the typological model is to go back to the data to select powerful

examples that can be used to make your generalizations come alive for the reader” (p. 159). These passages, along with my interpretations and analysis, are fully explored in the upcoming chapters.

Member Checking

Member checking is generally considered an important method for verifying and validating research data. Stake (1995) recommended that participants be supplied with rough drafts of writing or transcriptions of interviews in order to review the material for accuracy and critique. Post-teaching debriefings and group conversations were therefore digitally recorded and transcribed and were provided to the research participants for review. This type of check can also provide material for further investigation and triangulation in which there is a search for the convergence of information. Member checking, “helps triangulate the researcher’s observations and interpretations” (Stake, 1995, p. 115). Participants were not asked to respond to the interpretation of their comments and actions.

APPLYING THE ANALYSIS PROCEDURES

Previous related research has focused primarily on the formal field experiences of preservice teachers (Gupta, 2004; Lassonda, Stearns, & Dengler 2005; Risko, Roskos, & Vukelich, 2002), and used course materials such as lesson planning and course reflections as data sources. Other studies have been course-specific (McMahaon, 1997; Gupta, 2004) or multi-semester studies (Ebby, 2000; Risko, Roskos, & Vukelich, 2002). The research in teacher education on the impact of teacher education programs in

transforming the thinking of preservice teachers suggests that change is difficult to accomplish and limited in scope. The literature is limited in terms of being able to pinpoint which experiences, methods and supports in teacher education programs most profoundly impact thinking and pedagogy.

There is little research related to the knowledge and development of pedagogy that may have resulted from individual and social interactions in a specific social constructivist program of study. A thorough and deep analysis of all data sources is essential in order to fully understand the combined impact of social constructivist-specific readings, onsite teaching events, and interview and conversation / discussions on preservice teachers' pedagogical growth.

As I worked through the data, reading and re-reading allowed for refinements in interpretations and understandings of themes. In the analysis of participants' written responses, the research analysis focused primarily on passages that included explanations of a theoretical concept, as well as those that suggested epistemological commentary. Specifically, journal analysis focused on how preservice teachers were able to link theoretical concepts to their previous experiences and how they envisioned it as being useful for their future classroom practices.

As data were analyzed, and themes coalesced throughout the course of the study, Stake's (1995) reminder that "organizing concepts change somewhat as the study moves along" (p.133) became more significant to me. The design of a case study is "emergent and flexible, responsive to changing conditions of the study in progress" (Merriam, 1998, p.8) and allows the researcher to explore in-depth the research questions, to follow directions that participants may take as a result of their experiences, and to gain a deeper

understanding of the guiding questions through natural interaction within the research setting. “Being open to any possibility can lead to serendipitous discoveries” (Merriam, 1998, p.121). Stake (1995) stated that “nuances of increasing complexity” unfold during the research project, the analysis of which leads to the emergence of data, motifs, and themes. Data analysis occurred after collection, and was in-depth, ongoing and recursive throughout the study; data sets were visited and revisited. Stake (1994) emphasized that data are continuously interpreted since qualitative research is inherently reflective, and “in being ever reflective, the researcher is committed to pondering the impressions, deliberating recollections and records ... data [are] sometimes precoded but continuously interpreted, on first sighting and again and again” (p. 242).

Post-teaching debriefings and group conversations were designed to explore preservice teachers’ conceptions of their practice as it moved towards incorporating elements of social constructivist pedagogy. For post-teaching debriefings and conversation data, the analysis focused on instances from the preservice teachers’ discussions of their experiences that might be interpreted as examples of thinking or acting ‘through’ social constructivist theory (Dunn, 2010). Drawing from Vygotskian (1987) genetic development theory, the words used by the student teachers to express ideas focused the analysis and indicated appropriation of theoretical concepts.

The analysis of written journal entries provided the opportunity to study the development of each individual preservice teacher as each read and responded to readings related to social constructivism. The readings provided catalysts for group conversations and interviews, and helped to provide a theoretical framework to guide onsite teaching events. Some of the readings provided an overview of social constructivist theory; others

demonstrated practical applications of this theory into classroom practice through the use of examples presented as vignettes. Preservice teachers were asked to reflect on the readings through use of their research journals, which were submitted to me at three points during the research process for analysis and feedback. The written journals, examined over the length of the research study, provided valuable information about the processes by which the preservice teachers were thinking about theory and connecting it to practice.

In analyzing the transcript data from conversations and interviews conducted in this study, I combined information from all three research participants. Individual interviews constituted post-teaching debriefing sessions between me and the preservice teachers. My classroom observations of the preservice teachers' teaching approach informed and guided the debriefing topics. Transcript data provided the opportunity to understand how preservice teachers integrated knowledge and concepts as they developed their teaching practice during the onsite teaching events. We met as a whole group three times (once per cycle) for a group conversation. These were open-ended discussions, with all three preservice teachers and myself in attendance. The open-ended nature of the conversations was conducive to understanding the construction and co-construction of knowledge as the preservice teachers grappled with important issues raised during the readings and through their onsite teaching events.

An iterative approach to the study (through three parallel cycles) allowed me to identify areas where the most sensitive instruction or guidance could be provided to allow the preservice teachers to develop skills or understandings they might use in classroom practice. Areas of sensitivity are initial beginning points within the theoretical construct

of the Zone of Proximal Development. Conversations (both in-person and written) with the preservice teachers allowed me to understand existing levels of knowledge so that sufficiently complex and appropriate support and guidance could be provided to scaffold the preservice teachers to the next level of understanding and use within their Zones. Attempts were made, throughout the research study, to keep the research participants' and researcher's learning at the upper reaches of their Zones of Proximal Development. The iterative approach to the data analysis (multiple readings of transcripts and thematic codings) allowed for development and elucidation of themes of analysis.

ARRIVING AT THE THEMES

This research study focused primarily on understanding and supporting preservice teachers' efforts to develop social constructivist pedagogy. The findings that follow are presented chronologically by cycle and thematically, demonstrating the effects of the preservice teachers' efforts to engage with social constructivist theory and pedagogy. Four themes are used to generate an explanation of the case and to tie the findings to the research questions. A brief overview of the four themes is stated, followed by an in-depth thematic analysis of the data from each cycle.

OVERVIEW OF THE THEMES

Theme 1: Considering and Acknowledging Prior Experiences and Understanding: Preservice Teachers' Beliefs and Epistemology

Data that informed this theme addressed the sources of the preservice teachers' prior beliefs about teaching and learning. At the outset of the study, each of the three participants was asked to consider particular aspects of their existing conceptions of

teaching and learning. Sources of prior knowledge were traced back to experiences from both personal and professional lives, as students in elementary and secondary schools, and as students during their undergraduate degree programs. The epistemological interview and initial teaching events provided crucial data for this theme as it is through the comparison of data gathered through the cycles and the triangulation of thematic material that development might be shown. Further material supporting this theme emerged during the subsequent three cycles of research and, when triangulated back against the initial epistemological interviews and teaching events, indicated upward movement within the preservice teachers' Zones of Proximal Development.

Two primary areas of epistemological perspective were examined:

1. *Belief Statements.* Attention was given to responses relating to the question, "What is good teaching?" This included responses to questions such as, "What does it mean to be a good teacher?" "Why is good teaching important?" "Why is it important to be a good teacher?" "How do you know that this is good teaching?" Primary data sources were journal entries, transcripts of post-teaching debriefings, and transcripts of whole-group conversations.
2. *Pedagogy.* Attention was given to instances of the preservice teachers' onsite teaching events that indicated that an epistemological perspective was contributing to pedagogical approach. Evidence for epistemology informing practice included preservice teachers' use of language, use of resources, and the ways in which their teaching attended to the changing roles of teacher and student within the classroom. Primary data sources included researcher observations and field notes and transcripts of post-teaching debriefings.

Theme 2: Learning About Social Constructivism as Guiding Pedagogy: Working Within the Zone of Proximal Development

This theme addressed the participants' personal processes of knowledge construction in which new understandings of social constructivism were formed and built upon existing understandings. The preservice teachers worked to appropriate theoretical concepts presented in the readings and encountered in discussions with their peers and with myself as the more knowledgeable other. In their learning about social constructivism, the preservice teachers were asked to monitor their processes and to comment on them. Vygotsky's (1987) theory of the Zone of Proximal Development figures prominently in this theme, as preservice teachers moved from interpsychological learning to intrapsychological knowing. Points of tension, disequilibrium and convergence were of particular interest in this theme, as they were viewed as indicators of learning and development. Formation of and work within the Zone of Proximal Development was indicated by the following thematic motifs:

1. *Points of Tension and Convergence.* Vygotsky (1994) emphasized points of tension and moments of convergence as being significant to learning. Attending to points of tension and convergence within the meaning-making process is central to understanding learning and change. Tension in the Zone of Proximal Development occurred when preservice teachers experienced (and commented upon) apprehension between current abilities or knowledge and the complexity of the learning task at hand. Convergence (the emergence of agreement or patterns) and tension indicated internalization of external social construction of understanding among individuals.

Primary data sources were transcripts of post-teaching debriefings and whole-group conversations.

2. *Metacognitive Moments*. The preservice teachers were encouraged to monitor their own understandings and learning during the research cycles. During the analysis of data, attention was given to instances of learning that the preservice teachers felt was significant. The participant-kept research journals provided data for this theme, as well as the transcripts of post-teaching debriefings and whole-group conversations.

Theme 3: Understanding the Implications of Social Constructivist Pedagogy:

Linking Theory and Practice

During the whole-group conversation in each cycle we asked ourselves the following questions:

1. (How) Has engaging with this research into social constructivism changed the way I think about and approach my practice?
2. Why would I want it to?

These seemingly simple questions revealed deep thinking and struggle within the preservice teachers as they attempted to reconcile what they had thought they knew about teaching and learning, with what their new understandings of social constructivism were implying about their practice. This theme addressed the transformation that was occurring in the preservice teachers' epistemological perspectives. "Transformative learning, especially when it involves subjective reframing, is often an intensely threatening emotional experience in which we have to become aware of both the assumptions undergirding our ideas and those supporting our emotional responses to the need to change" (Mezirow, 2002, p. 8)

As the preservice teachers learned about social constructivism through readings and conversations, they came to understand how social constructivism, as theory of knowledge, could be incorporated into their pedagogical approach during onsite teaching events. This theme focuses on instances from the preservice teachers' discussions of their experiences that might be interpreted as examples of thinking or acting "through" social constructivist theory (Dunn, 2010). Drawing from Vygotskian (1987) genetic development theory, the words used by the preservice teachers to express ideas focused the analysis and indicated appropriation of theoretical concepts. Vygotsky's (1987) and Mezirow's (2002) notions of transformation are relevant to this theme, as are Fosnot's (2005) explanations of knowledge, learning and the purpose of education.

Theme 4: Understanding the Teacher-Educator's Role

The fourth theme emerged as a result of my attempt to answer the final research question, "What kinds of supports do preservice teachers need to enable them to develop social constructivist lessons?" As I monitored the research project, I continually examined my role as teacher-educator. I wondered what I could do, not only as the investigator of this study, but also as a teacher educator, to support preservice teachers in their learning. The question of supporting and guiding preservice teacher learning led me to ask, "As a teacher-educator, how can I support preservice teachers' attempts to use social constructivist theory as a pedagogical lens that informs their teaching?" Data sources were researcher-kept field notes and observations, and transcripts of post-teaching debriefings and whole group conversations. I was mindful of instances during the research when I had an insightful moment, or when a research participant helped me to understand my practice differently. Particular attention was given to moments when

research participants commented on support they found helpful (or not helpful) or useful to them as they worked to appropriate social constructivist theory and to link that theory into practice.

The themes presented in my analysis are not separate from one another. Rather, they represent a complex sphere in which knowing, understanding, and questioning are intertwined. Taken as a whole, the analysis represents the preservice teachers' shared and individual journeys into their engagement with social constructivism.

What follows is an in-depth analysis of all data. It is presented chronologically, in order of data collection, beginning with the analysis of the epistemological interviews and the initial teaching events of the three preservice teachers. The interviews and teaching events are analyzed thematically, taking up each of the four themes in turn. Careful attention has been paid to the analysis, as it was through a thorough understanding of these data sets that initial beginning points were determined for the learning cycles of the study, and thus, the Zone of Proximal Development identified. The presentation of the findings continues with the three research cycles. Each research cycle is presented thematically, but also 'checks back' to the initial events to show movement within the ZPD; this analysis takes each cycle in turn through the four thematic analysis strands. Thematic analysis of Cycle I shows that the preservice teachers were willing, but unsure of how to engage with unfamiliar material. Cycle II analysis reveals the preservice teachers' struggle with both understanding social constructivism on cognitive levels and implementing social constructivist pedagogy in the classroom. The analysis of Cycle III of the research shows that the preservice teachers began to gain confidence in their approach to teaching, with social constructivism becoming more dominant in their

thinking and more evident in their teaching. Additionally, the analysis of Cycle III shows the preservice teachers engaging in deep thinking in posing challenging questions, indicating appropriation of concepts and a move from the interpsychological to the intrapsychological.

CHAPTER: 5 THE EPISTEMOLOGICAL INTERVIEW AND THE INITIAL TEACHING EVENT

*“I’m not afraid of storms,
for I’m learning how to sail my ship.”~ Louisa May Alcott*

INTRODUCTION

Prior to beginning the cycles of research, each preservice teacher participated in an individual, semi-structured, epistemological interview with me. The epistemological interview was designed to allow participants to show their understandings of teaching and learning, and it allowed me to orient myself to these understandings. This interview was done in order to know what types of knowledge and understandings the preservice teachers had prior to engaging with the research; knowing what the preservice teachers’ understandings were allowed me to guide and support them in having meaningful experiences with social constructivism. The initial interview made evident their epistemological beliefs about good teaching and learning. Questions in this interview revolved and evolved around the nature of teaching, what it might mean to be a ‘good teacher’, the role of the teacher in the classroom, and why it might be important to do a ‘good job’ of teaching. This is significant, as pre-service teachers’ conceptions of ‘good teaching’ are linked to their epistemological perspective (White, 2000). I hoped that these questions would reveal the epistemologies that inform preservice teachers’ practice, and that ways to support their engagement of social constructivism would become apparent for me.

Ellis (2006) suggested that a pre-interview activity can be used to “support getting-to-know-you conversations” (p. 118), and can provide opportunities for both the researcher and research participants to learn about the subject and context of interest. The pre-interview prompt in this study was, “draw a picture or write a short piece about a moment when you were doing a ‘good job’ of teaching”. Two research participants chose to write a short piece relating to this prompt, while one preservice teacher chose to illustrate a pictorial example. The interview proceeded from the visual or written creation.

The purpose of the interaction between researcher and participant through the interview was, “the establishment of human-to-human relation with the respondent and the desire to *understand* rather than to *explain*” (Fontana & Frey, 1994, p. 336). The epistemological interview was open-ended and semi-structured. Although a fixed topic was provided to each participant, responses were freely generated and open-ended. Ellis (2006) suggested that a list of questions might be prepared in preparation for an interview, but these “should mainly serve to orient oneself to the topic and its many dimensions. The object of an interview is not simply to get answers to the questions, but to learn what the topic of the research is about for the participant” (p. 113). The following prompts/questions were used to guide the epistemological interview:

- Please tell me about the creation of this piece
- How would you explain its significance?
- Why was this an example of good teaching?
- What does it mean to do a ‘good job’ of teaching?
- How do you know that this is an example of ‘good’ teaching?

- How did you know how to teach this lesson?
- Where does your understanding of ‘good’ teaching come from?
- Why is doing a good job important?
- Is there anything you would do differently? Add? Remove?
- Are there any comments you wish to make?

The epistemological interview questions followed general guidelines and directions, and therefore allowed for consistent investigation of lines of inquiry between the participants and researcher, but also afforded flexibility to engage in natural conversations that provided deeper insight. “This makes the interview more honest, morally sound and reliable, because it treats the respondent as an equal, allows him or her to express personal feelings, and therefore presents a more ‘realistic’ picture than can be uncovered using traditional interview methods” (Fontana & Frey, 1994, p. 337).

Cunningham and Fitzgerald (1996) defined epistemology as “the study of what can be counted as knowledge, where knowledge is located, and how knowledge increases” (p.36). Along with this definition, they suggested that the ways in which teachers view education and their corresponding educational practice varies with respect to underlying epistemological stances. Researchers have described teachers’ (Anders & Evans, 1994) and preservice teachers’ (Many, Howard, & Hoge, 2002) epistemological beliefs and suggested that these beliefs are strongly linked to teaching practice. These studies noted that teachers and preservice teachers often exhibit consistency between their beliefs about knowledge and their corresponding teaching plans and instructional approach. Key to this study was understanding how epistemological beliefs might be tied to pedagogical practice.

What preservice teachers believe about teaching and learning, and subsequently how they approach their teaching, is a primary focus of this study. Preservice teachers' conceptions of 'good teaching' are linked to their epistemological perspective (Lortie, 1975; Clark, 1988, White, 2000). Research suggests that the beliefs and attitudes that teacher candidates bring to their teacher education programs influence what they learn (Ball, 2000; Bird, 1991; Hollingsworth, 1989; Holt-Reynolds, 1992; Weinstein, 1989) and influence how they teach (Many, Howard, & Hoge, 2002). Conceptions of 'good teaching' and underlying epistemological perspectives emanate from preservice teachers' personal experiences of being students, from what Lortie (1975) described as an 'apprenticeship of observation'. Teachers often teach as they themselves were taught, relying on their own memories of being students. Lortie (1975) notes that when students engage in an apprenticeship of observation, they are not necessarily 'studying' teachers in order to form their own later teaching practices. What students learn about teaching via apprenticeship, "is intuitive and imitative rather than explicit and analytical; it is based on individual personalities rather than pedagogical principles (Lortie, 1975, p.62)". Deliberately learned or not, personal experiences of being students are powerful, and not easily overcome by teacher education programs.

Britzman explains:

The problem with conformity in teacher education, then, begins with the fact that schools attempt to "process" not only knowledge but persons as well.

Can the tensions of teacher education be experienced in such a way that its potential — as a catalyst for transforming schools and the knowledge cultivated there — becomes a possibility felt by its participants? Must

teacher education be lived as an accommodation to existing school structure?
Can teacher education be structured more dialogically to take into account the
myriad forms of negotiation that position pedagogy and the teacher's
identity? (Britzman, 2003, p. 47)

Developed within this theory is the social constructivist paradigm that posits that learning happens from both instruction and experience, through construction of personal meaning based on prior knowledge and beliefs. Included within this theoretical perspective is the idea that new knowledge develops from a specific context, and transfers to other contexts when the learner has identified common aspects between contexts (Ashton, 1999).

Preservice teachers enter teacher education programs with attitudes, beliefs and assumptions about teaching that have been shaped by popular culture, politics and their personal experiences as students (Hammerness et al., 2005).

Preservice teachers' epistemological beliefs may not be aligned with the goals of teacher education programs nor may they reflect contemporary conceptions of 'good' teacher pedagogy and how students learn best. Conversely, preservice teachers' beliefs may indeed be congruent with contemporary understandings, but preservice teachers may be unable to implement or translate those beliefs into classroom practice (Moore, 2003). In this study, the epistemological interview revealed initial 'imprinting' and served as a starting point for understanding how I might best support epistemological growth and engagement with social constructivism. The initial onsite teaching event provided a way to observe preservice teachers' epistemology-in-action, so to speak; observing preservice teachers as they engaged in classroom teaching created a 'window' into which I could

glimpse if and how their epistemological beliefs were shaping their practice. The debriefing of the teaching episode was a way to further refine understanding.

After responding to the pre-interview prompt, the preservice teachers and I spent time discussing the artifact they had created and worked through the loosely structured interview questions. Kristin's interview was 55 minutes long, Sophie's interview was 48 minutes, and Maureen's interview was 62 minutes long. Each interview was audio-recorded and transcribed.

Following the epistemological interview, each preservice teacher participated in an initial onsite teaching event. Kristin, Sophie and Maureen each had a short discussion with their mentor teacher about the lesson content, but I asked them not to discuss teaching or pedagogical approaches. The purpose of the initial teaching event was to gain an understanding of the beginning points within a preservice teachers' ZPD, and to determine if or how epistemological perspectives elucidated in the initial interview were be enacted into pedagogical practice.

Using Hatch's (2002) procedure for typological analysis, the epistemological interviews, initial teaching events and post-teaching debriefing data were studied and coded, with the analysis focusing on passages that might be interpreted as epistemologically relevant. Working with the epistemological interview transcripts, I began by identifying themes that were seen in the data. These themes were then coded into two main sections identified as *belief statements* about knowledge (with subsets of nature of knowledge and knowledge construction) or learning, and *pedagogy* (with particular attention paid to comments that seemed to emanate from the transmissionist/positivist approach or from the social constructivist approach). In the

transmissionist/positivist orientation, knowledge is static, objective, and external to the knower. This implies a teacher-centred methodology in which knowledge is transmitted from the teacher to the student who is a passive receiver. Within this perspective, the teacher is central to the learning process and is responsible for controlling the pace of learning, selecting and distributing knowledge, and evaluating learner progress based on external referents. In the epistemological stance of a social constructivist perspective, learning is a dynamic social activity that is situated in physical and social contexts, and is distributed across person, tools and activities (Fernyhough, 2008). Social constructivist epistemology emphasizes human interaction and mediation as being fundamental to cognitive growth and learning. This implies a learner-centred methodology in which knowledge is constructed between and among participants in the learning context. Within this perspective, teachers and learners are equal contributors to the learning process. Learners are positioned as active, valued participants invested in their own learning, and teachers are positioned as learners-alongside who guide and facilitate the learning of individuals and groups.

Each research participant is discussed individually with respect to their epistemological interview and their initial onsite teaching event and post-teaching debriefing. A summary of the initial data follows.

KRISTIN

Kristin's Epistemological Interview

In response to the prompt, “draw a picture or write a short piece about a moment when you were doing a ‘good job’ of teaching”, Kristin spent time drawing a representation of the story, ‘The Three Little Pigs’. Her drawing consisted of three pink

pigs, a brown house of sticks, a red house of straw, and another house drawn in blue (See Appendix A). She wrote questions alongside each drawing. Her questions were grade-leveled, aimed at student learners. Kristin circled the roof and wall of the straw house drawing and wrote beside it, ‘How do they stay together?’ Beside the red house, she wrote, ‘What shape is here?’ Above the blue house she wrote, ‘What materials could be used to build this?’ Another question, ‘Can the wolf blow any of these down?’ was written at the bottom of the page.

Kristin’s explanation of the completed drawing served as a starting point for our discussion. Our conversation was recursive, building on comments and reflections, but was always focused on key epistemological concepts:

What does it mean to do a ‘good job’ of teaching literacy?

How do you know that this is an example of ‘good’ teaching?

How did you know how to teach this lesson?

Where does your understanding of ‘good’ teaching come from?

Why is doing a good job important?

Kristin’s responses were lengthy and thorough, with a reflective, observational quality that provided a rich source of data for analysis.

During the analysis of the interview, I was particularly interested in exploring relationships between Kristin’s epistemological stance and her approach to instruction. Therefore, as I examined the epistemological interview transcript data, I attended to *belief statements* and comments relating to her *pedagogy*.

Kristin's On-site Teaching and Debriefing

To see how Kristin's epistemology might be carried into or enacted in her approach to teaching, I observed her teach a lesson that she designed and taught to students in a grade one classroom. Her initial lesson was thoroughly planned, well thought out, and aligned to provincial grade-level standards. Kristin's lesson was brief, running 40 minutes in length and was a cross-curricular science and language arts lesson focusing on colour concepts.

Kristin's lesson plan was meticulous. It included curriculum objectives from science, art and language arts. Her plan had a focus question, 'where do colours start?' a learning focus, 'students will understand that all colours are created from three primary colours and four secondary colours' and an essential question, 'how can the world have so many different colours?' Her lesson was procedural, beginning with an introduction, continuing with two activities, one of which was a picture book, and finishing with an evaluation and a list of assessment indicators. Her plan also included a list of materials. I observed her teach and kept digital field notes using a computer and a word processor.

After the teaching episode, Kristin and I held a debriefing session in a small office at the school. This debriefing was approximately forty-five minutes long and was audio-recorded and then transcribed.

Mrs. Singer, Kristin's mentor teacher, was able to join us for part of the debriefing to offer her comments and guidance. During the debriefing, Mrs. Singer, Kristin and I discussed Kristin's lesson, focusing on Kristin's perceptions of her pedagogy. My comments for Kristin were intended to provide provocation to her

thinking, while Mrs. Singer's comments gave practical classroom suggestions for incorporating a more social constructivist approach to her teaching.

Analysis of Kristin's Data

Analysis of the data from Kristin's epistemological interview and her lesson debriefing indicated that she was working and speaking through two fundamental epistemological perspectives: a transmissionist/positivist orientation, and a social constructivist orientation. Analysis of Kristin's comments seems to show that she did not align herself consistently with either epistemological orientation, and freely shifted between different epistemological lenses (Many, Howard, & Hoge, 2002).

Kristin appeared to operate within a positivist or transmissionist orientation when she referred to her use of books in her lesson planning and instruction. She said, "I always found a way to pull a book into it, and I used that as a reference point for me" (Kristin-EI-PCI, Sept, 2010). When asked to explain further, she said, "there's a book out there that can help you understand better" (Kristin-EI-PCI, Sept, 2010). Her view of knowledge, though never overtly stated, seems to be that knowledge is static, found outside of the learner (in books or other resources) and that accessing this outside knowledge is essential for learning. She stressed that the role of books was "important" in learning – "there's a lot to be learned from books" - and said that "a new concept like subtraction or adding" and "problem solving skills" could be learned from books (Kristin-EI-PCI, Sept, 2010). The way Kristin acknowledged books as a source of knowledge for both teaching and learning reflects a transmissionist epistemology in which knowledge to be learned is first identified by the teacher, transmitted through instruction and use of books or texts, and then practiced or appropriated by students.

She further suggested that the knowledge available in books could supplement or even improve her teaching.

I find that there are just so many books out there that offer very creative ways to learn” and that books can “make it [learning] exciting for kids, to at least feel like it’s fun. (Kristin-EI-PCI, Sept, 2010)

She subtly implied that without the use of books, her approach to teaching would be boring and might not engage her students. In explaining why it might be important to include books in her instructional plan, she stressed that interesting or exciting materials, such as children’s books, would be needed to encourage students to learn in an engaged way. She suggested that teachers should choose materials of interest to students, with the choice of materials or resources for learning being the sole responsibility of the teacher. Kristin also suggested that books can make things ‘real’ for students. When commenting on the learning that can be associated with books, she said, “I think that’s what it is. I’m trying to bring something real to them [students], in a way that’s still fun in incorporating it all together” (Kristin-EI-PCI, Sept, 2010).

That the information or knowledge found in books is ‘real’ suggests that knowledge derived from the teacher’s personal experiences may not be. This perspective further deepened her reliance upon transmissionist epistemology in which the teacher is positioned as a conduit for knowledge.

Kristin’s teaching episode corroborated this epistemological perspective. She directed the learning, maintained control of the students in the classroom, paced the lesson appropriately, and kept to the structure outlined in her lesson plan. During the reading of the book, she had prepared questions for the students to think about and to try

to answer in their heads during the time they were sitting and listening. After the readings, she distributed colour-coded nametags to the students and organized them into discussion and work groups. Children worked with magnetic colour boards, organizing them into Primary and Secondary groups. Her lesson was thoughtful, carefully planned and reflected a lot of preparation.

Kristin's use of books followed by activities was a dominant procedure throughout her lessons. Her primary example of 'good teaching' elucidated in her epistemological interview described a formulaic lesson: an introductory 'hook' into learning, a direct-instruction component supported by a book, and a follow-up activity to reinforce concepts introduced in the lesson. This formula was applied in the lesson she designed for this research. In the debriefing of the lesson, she commented,

You'll see that in lesson after lesson ... I love stories and I love incorporating them into my lessons. (Kristin-EI-PCI, Sept, 2010)

She was quick to acknowledge this pattern and remarked:

... I know I can't read books every time. So in my head my own challenge will be, 'how can I mix this up a bit' because I don't want to get stuck in this rut, this being all I'm doing. (Kristin-EI-PCI, Sept, 2010)

The structure of this type of formulaic lesson placed Kristin in a highly centralized position in the classroom, with the pacing of the lesson, the control of the activities or learning experiences, and the resources for learning all radiating from the teachers' control. The need for control over the students' learning was brought up in the lesson debriefing. Her comments reflected her thoughts about control. Concerns over the need

for traditional, teacher-directed teaching strategies to ‘cover’ curricular concepts and skills were apparent, as were her concerns for accountability.

I have to come in prepared. So how do I come up with a lesson plan that meets the curriculum, that allots my time, shows how I’m going to cover the curriculum. And how I’m going to engage them [students] ... and like you said, I’m directed by the administration and by the principal. I need to be accountable for the time I’m in there, and so I need to have that done. (Kristin-EI-PCI, Sept, 2010)

Another way Kristin oriented her thinking is revealed through our discussion of ‘good’ teaching. Our conversation led us to the following exchange:

Researcher: So why is this – all we’ve been talking about – why is this an example of good teaching?

Kristin: For me, good teaching is about doing what’s best for kids, and in this scenario, I really feel like I approached the whole unit, both that and math, doing what’s best for the kids. I gave them material that put it on a level they could relate to, that they could understand, I allowed them the space to learn safely, to express themselves, to explore. I wasn’t a dictator, but I was there to maintain order and to do the guidance and um, that role as a teacher where you know, you’re still responsible for what goes on and what they’re achieving and what progress is being made. (Kristin-EI-PCI, Sept, 2010)

Kristin wanted what is best for students. To that end, she gave material to students, put it into accessible form, provided them space to learn, and maintained order. She felt that she was accountable for the operations and learning that occurred in the classroom, and that achievement and student progress was solely her responsibility. In the following

response, she suggested that, ultimately, her responsibility to students extended beyond the classroom.

Researcher: Why is it important to do a good job of teaching?

Kristin: If I don't do a good job, um, these individuals have to be functioning adults in society one day. I'm not going to be there all their life. Um, you know, whether it be my own kids, or whether it be the students I'm teaching. So being a good teacher means you're setting an example ... These kids one day will be adults, and little things they are learning now at an appropriate level, are going to be qualities that make a huge difference to who they are when they are functioning adults in society. (Kristin-EI-PCI, Sept, 2010)

Kristin seemed to believe that a teacher metes out knowledge appropriate to the learners' levels and relies upon external referents for learning and measuring knowledge acquisition. The locus of learning and control resides with the teacher, whose ultimate responsibility is to role model conformity to social values and norms.

However, Kristin also drew upon a constructivist or social constructivist orientation, which implies a sensitivity to the conditions of the learning environment, and a learner-centred methodology in which knowledge is co-constructed and derived from consensus within the learning community. The following exchange occurred during Kristin's epistemological interview where she drew upon both transmissionist and constructivist orientations:

Researcher: Why is working in a group important?

Kristin: Well that's just a life skill! For me, like, number one, that's a life skill. If you cannot learn to work with others, then um, you're going to have a lot of

challenges. Because everything you do, whether it's school, whether you go home with your siblings, whether you're staying at your grandparents, when you have a job one day – you have to be able to work together. And, if you each did a little bit on your own, then they can see when they put it all together how much more that can be.

Researcher: Say more. Say more about that.

Kristin: Well, you know, you can each build your own little house. But again, drawing on everybody's strengths, because you have now incorporated everybody's understandings. And so from that you can see that not everything is black and white, and it gets grander. (Kristin-EI-PCI, Sept, 2010)

When Kristin commented on the importance of group work as a life skill connected with job success, she seemed to be speaking from a transmissionist epistemology. In her next sentence, she took on a social constructivist stance. She valued individual contributions to the whole, and suggested that differing perspectives afford opportunities for grandness in learning situations.

Kristin's beliefs represented multiple epistemological perspectives; while some of Kristin's comments demonstrated a transmission-based orientation, she also clearly stressed a social constructivist epistemological orientation. Her movement between orientations indicates that here pedagogy is informed by multiple epistemological perspectives, drawing from appropriate orientations in a web-like way. Throughout her work, she stressed the importance of drawing upon the pre-existing knowledge of the individual learners in the group. For example, the importance of personal knowledge was evident in her interview. Kristin continually drew on her own prior knowledge and

experiences as she articulated her rationale for valuing particular teaching approaches. She would often substantiate her beliefs by relating memories from her own educational background and her experiences of being a parent.

For me, [teaching] is like my parenting, which is the other thing I relate everything in life to ... and something I've told my kids is, ever since they were little ... if you always have a book with you, you have a way to learn... (Kristin-EI-PCI, Sept, 2010)

Kristin frequently responded in ways that demonstrated her understanding of the value of personal knowledge and the importance of students' active participation in knowledge construction:

And so, one of my questions is, 'How does this stay together?' So I had the kids build marshmallow houses. So once we introduced that, we started talking about what kind of materials are there, to help things hold together, and it was an open question to get kids to put their ideas forward. And we got all kinds of ideas... (Kristin-EI-PCI, Aug, 2010)

Additionally, she commented on the depth of learning that occurs when students draw upon personal experiences and participate in social learning:

... where they [students] can really feel like they've contributed. So when they feel that they contribute, they feel like they have ownership in the event that has taken place. So when you feel like you have ownership in it, you value it more, know it more. (Kristin-EI-PCI, Sept, 2010)

Mrs. Singer, the classroom teacher, reinforced the value of student's active participation in learning. At the beginning of the lesson debriefing, Kristin expressed her

disappointment with the lesson she had just taught. She began by saying, “I’m not happy with it. I’m not going to lie” (Kristin-PTD-PCI, Sept, 2010). When we discussed this further, she said she felt that the lesson she had planned was too simplistic for the children,

I came in too behind where they were at. I caught on to that right away. And then I was trying to catch up. (Kristin-PTD-PCI, Sept, 2010)

Kristin’s reflective and analytical approach to her teaching allowed us to deepen our understanding of her lesson and the way she felt about it. Through our discussion, we came to realize part of what was unsatisfactory about Kristin’s lesson was her tendency to ask simplistic yes/no questions. During her teaching, she asked, “Who would like a book and an activity?” and “Can everybody start to think of a color?” These questions invite only single word responses, and serve to ‘close off’ potential discussion and limit the learning.

Mrs. Singer explained:

A lot of the questions that you were asking were looking to zero in – there was only one right answer. So if you can have a question that opens more then you would draw more constructivism from the kids. Instead of saying ‘do you know’ and so that would be a yes or no response, try saying ‘what do you know about...?’ so it’s more open and you can draw more from the students. (Mrs. Singer –PTD-PCI, Sept, 2010)

The language that is used to question students and to initiate learning is vitally important to a social constructivist approach. In the social constructivist orientation, the language

of the question leads the learning and begins the process of generating possibilities for understanding and co-constructing knowledge.

SOPHIE

Sophie's Epistemological Interview

Sophie's response to the interview prompt was to write a short paragraph about recent successful teaching experiences. She wrote:

During my practicum I did a good job of teaching literacy when working in small groups in a book club. I allowed the students the time to read aloud at their pace and then helped them work through any problems reading by having them sound the word out or read the whole sentence over again to see what makes sense. And then in math we were learning about 3-D objects and I would have the students guess what they think the object is then explain why. Many of the activities were done on the smart-board so everyone can see. They would take turns participating. I would allow other students to include any other suggestions they may have. (Sophie-EI-PCI, Sept, 2010)

These seemingly simple words led us to explore in-depth Sophie's understanding of good teaching. Our conversation began with an explanation of the writing followed by a casual but serious exploration of key issues. We discussed the same questions that were taken up in Kristin's epistemological interview:

What does it mean to do a 'good job' of teaching?

How do you know that this is an example of 'good' teaching?

How did you know how to teach this lesson?

Where does your understanding of ‘good’ teaching come from?

Why is doing a good job important?

Sophie was thoughtful and sincere in her responses to my questions and was willing to volunteer her ideas and to ask her own questions. The richness of our conversation provided excellent material for analysis, especially with respect to the two key epistemological analysis themes: *belief statements* (of teaching, learning, and knowledge) and *pedagogy* (transmissionist/positivist approach, along a continuum towards social constructivist approach).

Sophie’s On-site Teaching and Debriefing

Sophie’s initial onsite teaching event echoed Kristin’s in format. Sophie’s lesson was well-thought out, structured, and her concepts were taken directly from the provincial curriculum standards for grade one. Sophie’s 30 minute literacy lesson introduced simple ‘-AT’ words, like ‘cat’, ‘bat’, ‘rat’, ‘sat’ and ‘mat’. She began by reading aloud a ‘leveled-reader’ that used ‘-AT’ words. Sophie had students suggest a hand motion they could do (like raising their thumbs) every time they heard an ‘-AT’ word. Following the reading, Sophie had children work in small groups to write a single sentence using an ‘-AT’ word. Sophie’s lesson followed her lesson plan, focused the children’s learning, and provided a practice session to reinforce the word concept. During the time she was teaching, I observed the lesson and kept digital field notes.

Following the teaching, Sophie and I held a debriefing in a small office in the school. The debriefing took almost an hour, and was audio-recorded and then transcribed. Mrs. Kampe, the mentor teacher, was unable to join us during this

debriefing, but made comments to me independently during the school lunch hour. Because of scheduling commitments, Sophie was unable to attend that debriefing.

Analysis of Sophie's Data

I began the analysis of Sophie's epistemological interview and her lesson debriefing by coding her responses into two main themes: *teacher beliefs* and *instructional approach*. Like Kristin, Sophie drew upon a transmissionist orientation to inform her descriptions of 'good teaching', but deeper analysis reveals that a social constructivist orientation was present within her thinking as well.

Sophie discussed her writing for her interview prompt:

So I guess I thought that a good time when I was being a good teacher of literacy was when I was doing sort of a 'book club' during my [field experience]. And during that we had lots of time to make sure everything was ready, and we would even double-read it if we needed to, and so what I did, instead of when the students are having trouble with a word, simply correcting them right there, I allowed them time to think though it and sound it out and something else that they may know. Um, if that didn't work, then I oftentimes would say, well, you know read the sentence again, and ask them to tell me what would make sense there.

(Sophie-EI-PCI, Sept, 2010)

Sophie indicated that 'good' literacy instruction places emphasis on a set of skills necessary for comprehension: re-reading for clarification, sounding out, linking to other similar words, re-reading for context clues. She placed emphasis on vocabulary usage, grammar and opportunities to use phonetic knowledge to pronounce difficult words. She also highlighted the need for practice in her discussion of her teaching. She stated,

I corrected them if there was a mistake ... and then they would have a chance to practice what they'd learned. (Sophie-EI-PCI, Sept, 2010)

She further suggested that methods or classroom teaching strategies that convey information were important to learning and part of what 'good' teaching is.

And then at the end of every two or three chapters they would go in front of the class and explain what they had learned. (Sophie-EI-PCI, Sept, 2010)

When asked to clarify this statement, Sophie suggested that this sort of approach could help the teacher to judge or evaluate "what had been learned" by that student.

Sophie also commented on what students had learned and what they remembered. Referring to her use of a Smart Board during her [field experience], she stated that through a series of drill-like activities, she:

... was trying to see who remembered what. And I know that they would know their basics because this was grade four and I know they had a little background from grade three – and I so I was trying to see who remembered what. (Sophie-EI-PCI, Sept, 2010)

The notion of 'remembering' is significant for Sophie, suggesting that part of her job as a teacher was to get students to 'remember'. If she did not do a 'good job' of teaching then "they're [students] not going to remember anything at the end" (Sophie-EI-PCI, Sept, 2010). Sophie's comments reflected a teacher-centred approach, with the learning, assessment and pacing of classroom activities being her sole responsibility.

Sophie's teaching episode corroborated much of the discussion contained within her epistemological interview. In her initial teaching event, Sophie prepared an elaborate lesson plan, used an appropriately 'leveled book' that supported the topic of her lesson ('-

AT' words) and provided practice time for her students. During the reading of the book she asked students to give a 'thumbs-up' signal when they heard an '-AT' word, and gave a visual cue (a head-nod) to acknowledge students who had correctly identified an '-AT' word. After she had finished the book, she distributed a worksheet to students; through practice, students could cognitively reinforce the concept of the lesson. The structure of this type of formula-lesson placed her in a centralized position, with the locus of control of the knowledge, the learning, and the classroom atmosphere residing in her.

Sophie worried about the need for pacing, both daily and year-long, and control over the learning in the classroom. Her post-teaching debriefing comments reflected her thoughts about control. She was deeply concerned about the need for teaching strategies that might help her to 'cover the curriculum':

Well, from what I hear, everything is so timeline. This has to be done, that has to be done at a certain time, by now. So a lot of people it's like, 'oh no – I have to be done this unit by this time or else everything else is backed up.' And this is where the government or whoever association says we should be here by this time. (Sophie-PTD-PCI, Sept, 2010)

Her beliefs about curriculum pressures reinforced her use of a transmissionist epistemology; external referents dictate both the knowledge to be learned and how the acquisition of that knowledge is measured.

Our conversation about 'good teaching' also led us to the following exchange:

Researcher: So why is it important to do a good job of teaching? To be a good teacher?

Sophie: I guess so that students and kids can get as much out of education as they can.

Researcher: Say more. Why is that important?

Sophie: (pauses, laughs)

Researcher: This is a hard question. Stay with it.

Sophie: I'm thinking globally, I guess... as they get older, we live in such a fast-paced world, with so much technology and everybody's cramming as much as they can into their heads, and as they get older they need to have the basic foundation. So that when they do graduate they can go on to do and be whatever they want to be. I guess function in society. (Sophie-EI-PCI, Sept, 2010)

Sophie took her role of teacher very seriously by suggesting that her influence on students extends into their lives beyond her classroom and beyond their primary and secondary school experiences. Her belief that student's abilities to 'function in society' is reflected in her actions in the classroom: a teacher's responsibility is to help students 'get as much out of education as they can' in order to create students who are capable of conforming to social values and norms. This aligns with the transmissionist perspective in which the teacher controls the pacing and the learning, and the primary measure of scholastic success is the ability to function within society.

A significant passage in Sophie's interview connects her epistemology with her early experiences of being a student.

Researcher: Can you say a little bit about how you know to do these teaching strategies that you are doing? Can you tell me where these particular teaching strategies came from?

Sophie: How did I know that was one of the better ways to proceed?

Researcher: Yes.

Sophie: Ummm... I think part of it was from my own education when I was smaller, how I knew how I learned best. And also I guess just from topics that we went through in school – I can't say I remember a specific class, but...

Researcher: Are you talking about University classes?

Sophie: Yes, specifically (a methods course) when I took the language arts class, I'm sure it came up.

Researcher: So let's go deeper with this. The teaching that you were doing with the children in your example, comes from, in part, what you did when you were a student? Like a grade-school student? How you remember being?

Sophie: Umm... Yes, like how I remember myself learning in elementary school.
(Sophie-EI-PCI, Sept, 2010)

Sophie was clearly drawing upon her prior experiences as being a student in both K-12 and University coursework settings. Sophie's conceptions of 'good teaching' can be traced back to her personal experience of being a student. Lortie's (1975) notion of 'apprenticeship of observation' is especially important in the above passage, and Sophie can clearly be shown to be relying on her memories of being a student. Her descriptions of her time when she was doing a 'good job' of teaching arose from her own personal experiences of being taught in elementary school: Sophie's understandings of good teaching practices and procedures emerged from formal and informal imprinting experiences.

Like Kristin, although a transmissionist lens focused some of Sophie's beliefs about teaching and learning, this was not the only epistemological perspective she drew upon. The following exchange showed that Sophie drew upon both transmissionist and social constructivist perspectives in her approach:

Researcher: So why is this an example of good teaching?

Sophie: Um – I think because it makes the student *think* about what they're reading. I find oftentimes we're so quick to come and give the correct answer, and they don't really know why and they think it's easy to repeat a word once you've heard it and not exactly know why that's pronounced that way or why it means that. (Sophie-EI-PCI, Sept, 2010)

Sophie was clearly showing that she understood 'good teaching' to be that which helps students to think; she sensed that a teacher's approach should be to help students to think about the content or material presented in the lesson. When she suggested that teachers are too quick to 'give the answer' and instead wanted to give students opportunities to think about what they have heard and why, she was speaking through a constructivist lens: learning is a process of thinking, not just a process of acquiring or repeating transmitted knowledge. Sophie spoke through a social constructivist orientation when pressed further:

Researcher: Say more about that, about the 'thinking'.

Sophie: Um – because I think it makes them have to process the information that they're getting. And not only process it, they have to be able to put it out there – explain why. And be able to apply it to different scenarios.

Researcher: What does this allow you to do?

Sophie: (pauses)

Researcher: This is another hard question. The children are explaining their thinking. What does this allow you to do?

Sophie: When they're explaining what they're thinking?

Researcher: Yes.

Sophie: It allows me to get into their thought processes and to where their thinking is. Because there were a lot of times when I was thinking, 'oh this is where this topic's going to go' and instead it went way over there! So yes.

(Sophie-EI-PCI, Sept, 2010)

Sophie clearly wanted to be able to express her approach to teaching as a pedagogy for thinking and learning, but did not yet have social constructivism as a conceptual framework for understanding her teaching. When she said, "there were a lot of times when I was thinking, 'oh this is where this topic's going to go' and instead it went way over there!" (Sophie-EI-PCI, Sept, 2010), she was removing the teacher-centeredness of transmission approaches and providing students greater responsibility in deciding the direction the learning was taking. Although she thought the learning would move in one direction, her willingness to have the students move the learning 'way over there' indicated that she understood the importance of students' active participation in knowledge construction.

The importance of understanding the thought processes of her students showed that Sophie had an understanding of the concept of the Zone of Proximal Development (Vygotsky, 1987). Sophie's deep concern for getting 'into their thought processes and to

where their thinking is' showed that she was striving to pinpoint the learning needs or levels of her students in order to help them to learn. She said:

I guess it's like I said, if they're not at the level that they should be, like they're just not – I don't think that they can be continuing on and pushing through. It is not going to be of any help to them because they're not going to learn anything. Starting at step two and then moving on to step ten with nothing in between, I mean, how are you going to understand? They're going to be lost. (Sophie-EI-PCI, Sept, 2010)

Sophie had a basic sense of the Zone of Proximal Development. She was clearly trying to determine the learning levels of her students by understanding their thinking and their reasoning. However, Sophie lacked the conceptual framework that she needed to be able to more deeply understand the Zone of Proximal Development and how it could relate to her teaching. She indicated that understanding the students' thought processes and their knowledge levels would help her to know what her students were ready to learn, however, she did not know how to adjust her instructional approach accordingly. This issue came up during her post-teaching debriefing.

Researcher: Students will always be really excited to tell you and show you what they know and what they are learning. Remember the little boy who came up to show you what he knew? Look – look at this word that we know already, it's on our word wall.

Sophie: Yes – I noticed that. And when that happened, I was like, now what? I was thinking, "I'm really glad you're noticing this" but at the same time I don't know what to do or where to go with this. (Sophie-PTD-PCI, Sept, 2010)

Sophie's lack of understanding or experience in guiding the learning was evident. She clearly recognized the moment as being significant, but did not know what to do, pedagogically or conceptually, to extend the learning. After thanking the student for his comment, she redirected the students back towards her worksheet activity.

There were clearly two predominant epistemological perspectives at play within Sophie's work. She enacted aspects of both transmissionist and social constructivist perspectives, and showed a tendency to 'fall back' upon her previously imprinted experiences. However, she was quick to acknowledge the direct-transmission patterns in her teaching, and saw the need to move away from that instructional approach. She commented,

My next lesson ... right. Because I had another worksheet with the end letter for '-AT'! And now I have to go away and think about it ... I was going to have them fill in the word and then use it in a sentence. And now I'm going to have to change that up a bit! (Sophie-PTD-PCI, Sept, 2010)

MAUREEN

Maureen's Epistemological Interview

Like Sophie before her, Maureen also elected to write a short piece about her experience of doing a 'good job' of teaching. She wrote:

Doing a 'good job' of teaching involved working with a small group of Grade 5 students in a guided reading setting. Prior to working with the group, I read through the book and selected five to six key vocabulary words. In the small group, the students were given the book and had an opportunity to look through it prior to beginning the lesson. We then discussed what they thought the

book/story would be about based on the pictures and titles. Reading through the book, students took turns and when we came to a vocabulary word each student was asked what they thought the word meant based on the context of the story. After discussion, students looked up the word using a dictionary. Once the story was complete, we discussed it as a group – their thoughts, impressions, and they answered questions and made predictions. (Maureen-EI-PCI, Sept, 2010)

Maureen's writing was an excellent starting point for discussion. Our conversation was recursive, checking back to points made earlier, and building on the ideas presented during the interview. Key ideas focused on the same epistemological concepts that focused Sophie and Kristin's interviews, always centering on ideas linking to 'good teaching' and the underlying epistemological perspectives. My analysis focused on understanding Maureen's *belief statements* and how they informed her description of her *pedagogy*.

Maureen's On-site Teaching and Debriefing

Maureen's initial teaching event provided an opportunity for me to see if and how the epistemological perspectives she revealed in her interview were translated into classroom practice. Her initial teaching event took place in a grade one classroom. Her lesson was well-planned and well-executed, and she demonstrated control over the pacing of the lesson and the tone of the classroom learning. Maureen's lesson, the longest at close to 50 minutes, focused on rhyming '-AM' words.

Maureen's lesson plan was detailed and included an initial activity, followed by an introduction of the rhyming '-AM' concept through the use of a book, and wrapped up

with an activity sheet for the students to complete and colour in. Maureen periodically asked students for rhyming ‘-AM’ words, and wrote the students’ suggestions on a master list. Maureen’s lesson plan included an assessment component as well as a closure activity that involved the students collecting their work for the next days’ lesson.

Maureen’s prior experiences as a teacher assistant served her well in this teaching event, as she was adept at gauging the concentration and attention levels of the students and was responsive to their need to take a physical ‘wiggle’ break.

After completing the lesson, Maureen and I debriefed the experience. The debriefing was approximately 43 minutes long, and was audio-recorded and then transcribed. Miss Larsen, Maureen’s mentor teacher, could not join us for this lesson debriefing.

Analysis of Maureen’s Data

Analysis of Maureen’s epistemological interview data and her teaching event showed that, like both Sophie and Kristin, Maureen was drawing upon transmission/acquisition perspectives of teaching and learning, as well as beginning to drawing upon social constructivist perspectives. Her epistemological beliefs were somewhat conflicted however, and the ways in which she moved between the two epistemic orientations was context-dependent.

Maureen’s view that knowledge is external to the learner and must be acquired through transmission was integral to her personal approach to teaching and her beliefs about teaching strategies. One teaching strategy that Maureen discussed was the focus on

vocabulary words to enhance the meaning of a text when she was engaged in ‘round robin’ reading with her students:

And as [the students] read, we would all follow along, and I would watch the reader as well as the other students to make sure everybody was on the same page following along, making sure that they all knew what was going on, and were participating. And then after they read a page it would be the next person’s turn. And then that person would continue on and then once we hit a [designated] vocabulary word I would ask them to stop and then I would say, ‘ok, let’s read that sentence again, because this is a vocabulary word’, and I’d have the vocabulary words done out on cue cards and so the words would be spread out in front of them. (Maureen-EI-PCI, Sept, 2010)

Maureen’s approach placed the teacher in a highly centralized place within the lesson. The control of the lesson and the pacing of the reading and learning was directed by her, thus strongly evincing a transmissionist approach to her teaching. Maureen saw the role of the teacher as being one who controls the content of the lesson and relies upon external referents to validate knowledge acquisition.

And then, as far as the vocabulary, um, when they choose words that or when they come to a word they aren’t sure of or they come to a word that I selected for the vocabulary, I gave each student a chance to make a prediction based on the context of that word ... and then I’d let them look up in the dictionary. (Maureen-EI-PCI, Sept, 2010)

Her reliance upon external referents (dictionaries or other resources) demonstrated her epistemic belief that knowledge is static, found outside the learner, and that gaining

access to this knowledge is an essential part of learning. The way that Maureen used books and external referents reflected a transmissionist perspective in which knowledge to be learned is identified by the teacher, ‘a word I selected for the vocabulary’, transmitted through instruction, ‘took turns reading’, and confirmed through external sources, ‘let them look it up in a dictionary’.

Maureen also drew upon constructivist principles when she discussed her teaching. She stated that she thought group work would, “help [students] to connect, to relate to one another” (Maureen-EI-PCI, Sept, 2010), but when pressed further for her understanding of the pedagogy behind group work, she stated,

I think that by doing things, like in small groups, not necessarily hands-on, but I mean that’s just one way of learning, doing things hands-on, but it’s just another opportunity to cement their understanding of that particular fact. (Maureen-EI-PCI, Sept, 2010)

Maureen had a limited understanding of the value of sharing among peers, and saw ‘group work’ as a strategy for learning and for reinforcing ‘facts’.

Maureen used a constructivist approach some of the time. She had an instinctive understanding of the notion of the ‘more knowledgeable other’, as indicated in her comment:

Then I would be guiding and overseeing them to make sure that they were ‘teaching’ the others the right things ... or the correct ... you know things that we are trying to accomplish. That they’re not providing misleading information to the other students or the wrong way to say a word or the wrong meaning for a word. And so by allowing them to be the teachers, but with the understanding

that they don't have the same level of understanding as an adult would. So, kind of backing them up and providing them with correct meaning if that's needed.

The guiding and 'backing up' that she was doing indicated a sense that her knowledge was the correct knowledge to be taught to students. The way that she used small group work and peer teaching indicated only a beginner's use of constructivist strategies, however, her transmissionist epistemology clearly informed her teaching.

That Maureen oriented her thinking deeply within the transmissionist approach was revealed during our discussion of 'good teaching' in the following conversation:

Researcher: Why is this an example of 'good teaching'?

Maureen: Well, I mean, I chose that as an example of good teaching because, um, I put the effort in, and I saw the students putting effort in too. And so between the two of us, or the group of us, and myself, we were making the effort and I was providing the opportunity for them to take risks and work in a small group, work with their peers, learn from each other and guide them in the direction that would help them gain skills and knowledge.

Researcher: Why is it important to do a good job of teaching?

Maureen: ... um... ..

Researcher: There are many different levels here. Do your best with it. You might want to think about the question, "Is it important to do a good job of teaching?" first. Then we can talk about the 'why'.

Kathleen: Yes – that would be the easier question to answer. The answer is 'yes'. It is important to do a good job of teaching. And 'why' it's important ... I guess primarily it's because you want the students to learn. And if you're not a

good teacher and you're not providing them with the resources and the information and the direction they need, they're not going to learn anything and it's kind of a waste of everybody's time. So – why it's important to be a good teacher is that you need to provide the students with the opportunity to learn and to discover things and explore things on their own. Um, it's the way that they can make connections to the real world and to their own knowledge. And that they can build all their skills. (Maureen-EI-PCI, Sept, 2010)

Maureen's comments reflected her understandings of pedagogy and the purpose of education. Her sense of a 'good teacher' was one who controls the pacing of the learning, chooses the resources, and provides the information to students in order to ensure their acquisition of skills necessary to function in the 'real world'.

Interestingly, she suggested that group and peer-scaffolding could occasion risk-taking and learning. When Maureen commented about students making 'connections to the real world and to their own knowledge' she was beginning to use a constructivist lens and her statement that knowledge is centred within the individual and can be connected to experiences and others was fundamentally constructivist. However, it seemed that she drew upon constructivist strategies to reinforce her transmissionist epistemic beliefs that knowledge exists in the 'real world' and that students have to practice skills in order to be able to participate.

In the same way Maureen espoused students' connections to personal knowledge, she used her own knowledge and connected her teaching to prior experiences. Her teaching strategies could be traced back to both her personal experiences of being a student and being a teacher assistant. Lortie's (1975) notion of 'apprenticeship of

observation' can be seen in Maureen's comments, as she was clearly drawing upon her own knowledge and memories of being a student. When she discussed her teaching strategies, she commented:

Maureen: I just um... I was never a very strong reader out loud, and I know that I didn't feel comfortable reading in a big group so I'm assuming, based on how I felt, and I've worked with students before as a teacher assistant, and noticed that some students just don't feel comfortable reading out loud. (Maureen-EI-PCI, Sept, 2010)

Maureen's beliefs evinced a transmissionist epistemological orientation. While she drew upon constructivist strategies in her teaching, ultimately it was her transmissionist epistemic beliefs that informed her instructional approach.

SUMMARY OF INITIAL TEACHING AND INTERVIEW DATA

The research that examines what teachers do in classrooms focuses on uncovering the beliefs that teachers hold about knowledge and knowledge construction and their role in those processes. There is a large grouping of literature that asserts that advancing instruction depends on research that not only examines what teachers do in classrooms but also analyzes teachers' perceptions and interpretations of what they do there (Bullough, 1991; Cook-Sather, 2003; Joseph & Burnaford, 2002). There are relatively few studies, however, that examine the relationship between epistemological orientation and teacher practice (Brownlee & Berthelsen, 2006) and even fewer studies still that clarify what supports preservice teachers find helpful. Inconclusive findings from the research show that, in some cases, teachers espouse one epistemological orientation while enacting an opposing epistemic perspective (Olafson & Schraw, 2010). In other cases it

has been shown that teachers act congruently with their epistemological orientations (Tsai, 2007).

Bullough, Knowles and Crow (1991) suggested that beliefs about teaching and learning are lenses through which preservice teachers interpret teaching, and that these beliefs influence decisions and affect instructional approach (Hollingsworth, 1989; Borko & Putnam, 1996). Helpfully, White's (2000) research into preservice teachers' beliefs indicates that epistemological orientation is 'web-like', and that movement between epistemologies is not a back-and-forth thing, but rather an intertwined weaving of beliefs. Understanding epistemological perspective as being 'web-like' is particularly useful with respect to understanding what Kristin, Sophie, and Maureen show about their beliefs.

Kristin certainly reflected this research finding, as she drew upon different epistemologies in different contexts; she held loosely connected beliefs that represented multiple epistemological perspectives. Evidence was found within her epistemological interview, her initial teaching event, and her post-teaching debriefing. While some of Kristin's comments indicated a view of knowledge as discrete skills or objective truths to be found in external sources, she also clearly stressed the role of a teacher as a facilitator and guide who helps students construct their own meanings and understandings.

Analysis of Sophie's data indicated that her epistemological orientations were also 'web-like', with transmissionist epistemic beliefs intertwined with constructivist perspectives. Sophie's teaching and interview comments indicated that she was looking for a theoretical framework to expand her instinctive understandings of a social constructivist instructional approach. Analysis indicated that her approach to teaching

was one that emphasized ‘thinking’; however, she did not yet have the language or the conceptual framework upon which to orient her pedagogy.

Analysis of Maureen’s data indicated that she, too, was drawing upon multiple epistemologies to inform her thinking and practice. Her use of discussion and small-group work was done for the purpose of generating student understanding; however, her notion of what the students should understand was limited and had been formulated within her – it was her construct that she wanted the students to arrive at. Like Sophie, Maureen was also searching for a conceptual framework to provide support for her thoughts about teaching and learning. She clearly saw the value in multiple approaches to learning but did not see that her approaches lead to single, static-construct formation rather than constructs that have been individually and socially formed.

The following chapter addresses the subsequent learning cycles of the research in which Kristin, Sophie and Maureen had opportunities to read theoretical material and respond in writing in their journals, practice and implement their acquired understandings of social constructivism, and to participate in post-teaching debriefings and whole-group conversations. The cycles of research showed that continued engagement with social constructivism provided the preservice teachers with opportunities to expand their understandings and thinking, and to begin to use these new appropriations to inform their classroom practice.

CHAPTER 6: THE RESEARCH CYCLES

*“My worst moments have been in the classroom;
I persevere because my best moments have been there, too.” ~Anonymous*

INTRODUCTION

After each participant had completed their epistemological interview and their initial onsite teaching experience, we moved into the learning cycles of the research. The three learning cycles followed parallel formats and included a set of readings and journal reflections, three onsite teaching events for each and post-teaching debriefings for each participant, and one whole-group conversation. The format of the research allowed the preservice teachers time for individual contemplation and construct formation as well as opportunities for social discourse and reconstruction of their understandings.

The design of the research cycles afforded opportunities for preservice teachers to think, reflect, access feedback and supports, plan, teach, and converse with colleagues. The research cycles allowed for ‘arcs’ of learning within each cycle; there were opportunities to ‘fold back’ and to re-think, re-do, re-evaluate and refine their understandings. Each iteration of a new cycle of the research saw the research participants approaching the cycle with new understandings, new perspectives and deeper knowledge; each set of lessons that the preservice teachers taught during a cycle evinced a more sophisticated and more complex teaching practice informed from their theoretical understandings of social constructivism.

In this chapter, each research cycle is taken up in terms of expanding and clarifying the themes and providing analysis and interpretation of these themes with respect to the research questions.

CYCLE I

As part of each research cycle, Kristin, Sophie and Maureen were asked to keep a research journal about the readings related to the study. The readings provided an overview and an initial introduction to some of the key concepts of social constructivism. The journal gave the preservice teachers an opportunity and a space to write about their efforts to understand the theory and to attend to issues that might arise during the reading. Questions were provided to focus the reading and to provide prompts for journal writing topics.

For the first research cycle, Kristin, Sophie, and Maureen were asked to read the following articles:

Reading #1: Case Studies of Preservice Teachers.

I wrote these case studies specifically for this research project to make apparent two differing epistemological approaches to teaching. The first vignette exemplified the transmission approach and illustrated a teacher approaching instruction from this perspective. The second vignette exemplified the social constructivist approach and illustrated a lesson taught from this approach. Through this reading I hoped that the preservice teachers would be able to visualize these two types of teaching in a more concrete manner. The preservice teachers were asked to read the vignettes and, in their research journals, comment on the reading using the following guiding questions:

1. What was your reaction to the reading?
2. What struck you as interesting and/or significant?

3. What are some ideas from the text that you agree with? That you disagree with?
That you feel uncertain about?
4. How are teachers positioning themselves in relation to their subject matter, knowledge, and students?
5. How are the students positioned as a result of the teacher's pedagogy?

Reading #2: Richardson, V. (2003). Constructivist pedagogy. Teachers College Record, 105(9), 1623-1640

This reading provided an overview of constructivism and social constructivism and suggested ways in which teachers could begin to develop social constructivist teaching pedagogies. In addition to the first three questions stated above, Kristin, Sophie and Maureen were asked to consider:

1. (How) Is your understanding of social constructivism developing/changing?
2. What new possibilities does the reading raise for you?

Kristin and Maureen kept hand-written journals, while Sophie kept an electronic journal. The purpose of the journaling was to make explicit the preservice teachers' thoughts about teaching and learning and their developing sense of social constructivism. As part of the research process, I commented on the ideas presented in the journals. These comments were photocopied and returned to the owner along with the original journal. The journal comments provided additional data.

In addition to the readings, each preservice teacher taught three lessons onsite in their teaching classrooms. Each lesson was debriefed, and each debriefing was transcribed for data analysis. During each cycle we met together as a group to discuss the learning and teaching that took place during the cycle. The three preservice teachers and

I were in attendance at each whole-group conversation. Each conversation was transcribed for data analysis.

What follows is the analysis of the learning that occurred during Cycle I of the research. The cycles are presented chronologically, but analyzed thematically. Each theme contains data and analysis from each research participant. The data is blended to present a holistic viewing of the research cycle and the progress of the research participants.

Cycle I - Theme 1: Considering and Acknowledging Prior Experiences: Teacher Beliefs and Epistemology

The notion of the apprenticeship of observation (Lortie, 1975) and the powerful influence of prior experiences was seen in the learning that Kristin, Sophie and Maureen were engaged with in the first cycle. Each participant drew upon their own memories of being a student; it became a useful lens through which new understandings could form. Significantly, what they chose to share in their journal was strongly linked to their prior experiences and their epistemological perspectives. Their discussions in post-teaching debriefings and in whole group conversations reflected their prior epistemological beliefs. In the analysis, attention is given to belief statements about education in general and pedagogy in particular.

Sophie linked her reading with her prior experiences as a student. Her journal focused on aspects of education that she considered important, specifically teaching approaches. She wrote:

The idea that I most agree with is that education needs to be authentic and real. I remember being a student and always thinking, ‘When am I ever going to use that in real life?’ Most of the time, my teachers did not have an answer for me. This simply made me less engaged into what I was learning. (Sophie-RJ-CI, Oct, 2010)

She further suggested that her approach to teaching would be to encourage students to think about the topic of the lesson.

Using open-ended questions create an opportunity to back up your thought processes. That way you are looking deeper into the question. (Sophie-RJ-CI, Oct, 2010)

Sophie believed that education should be ‘authentic’, and that lesson content and context should be, somehow, linked to ‘real life’ or the life that students will have in the future. For Sophie, a way to create a sense of authenticity in her own lessons would be to have students think about the lesson content and to ‘justify their thought processes’. She was looking for a way for students to deeply engage with the lesson material and believed that ‘meta-cognition’ in students was a way to do this. What was not clear from Sophie’s statement was the educational purpose of meta-cognitive strategies. To hear students discuss their thinking, their processes of learning, and what they have learned may allow her to understand more fully her students’ learning; in essence, it would allow her to help students to form and work within a ZPD. Sophie herself needed help with this. She needed to be ‘provoked’ to think deeply about her prior beliefs and understandings about education and her instructional approach in order to form her own ZPD; work within her ZPD would then allow her to construct or re-construct her existing ideas about education.

Kristin, too, wrote about her prior experiences, and in particular about a teaching strategy she used in one of her lessons:

I adapted this from my own learning experiences. I know that I sometimes want to learn in a group, but I don't necessarily want to be forced into it. (Kristin-RJ-CI, Oct, 2010)

Her memories of being a student influenced her current teaching strategies, however, instead of mimicking the strategies and techniques that she was exposed to as a learner, her apprenticeship of observation and her personal abilities to critique herself allowed her to take ownership of the strategies she used. She stated,

I think that, for me anyway, I became resentful of instantaneously being thrown in a group to develop thoughts and ideas. This is not because I don't work well with other, but rather I need a bit of time to develop my own understanding so I can better contribute to group ideas. (Kristin-RJ-CI, Oct, 2010)

Kristin acknowledged the importance of both individual and social contributions to the construction of knowledge, however, she seemed to frame 'group work' as 'social constructivism' and 'individual work' as transmission or direct instruction. The misunderstanding that 'social constructivism' is simply about 'group work' was seen in Maureen's statements as well. In her first post-teaching debriefing she stated:

There was some social construction in there, I thought. I mean, I had them working in groups a bit (Maureen-PTD-CI, Oct, 2010).

The notion that social constructivism is equated with group work is a misconception that all three preservice teachers seemed to hold. Sophie, too, admitted that her understanding

of social constructivism was based on group work. During the final whole-group conversation of this research project, at the end of Cycle III, Sophie stated:

And that's what I thought when I first came into this project. That's how I thought, because that's how we were taught. So, OK, well, if they're doing hands-on activities, and they're talking and socializing, then that's constructivism. Even though I'm telling them what to do. That's the approach that I came in with.
(Sophie-WGC-CIII, Dec, 2010)

Sophie's comment insightfully linked 'how we were taught' with her epistemic construct. Her comment indicated that the teaching of social constructivism as a teaching approach, presumably during her teacher education program, was limited to incorporating strategies for hands-on learning and group work. Understanding the underlying epistemology and implications for pedagogy seemed to be lacking.

Cycle I - Theme 2: Learning About Social Constructivism as Guiding Pedagogy:

Linking Theory and Practice

Theoretical concepts were presented in the academic readings and were also presented through dialogue and discussion. In their efforts to learn about social constructivism, Kristin, Sophie and Maureen were asked to monitor their processes and to comment on significant moments of learning. Instances of tension and apprehension (Vygotsky, 1987) were considered to be of key interest to the formation of and learning within the Zone of Proximal Development. As the preservice teachers learned about social constructivism, they struggled to reconcile prior epistemic perspectives with their emerging understandings.

During her journal writing, Sophie wrote about her deepening understanding of social constructivism and how her prior understandings were causing her thoughts to be conflicted. She wrote,

The last reading on the characteristics of constructivism also had me thinking more deeply about the constructivist approach. One of the characteristics listed is that 'instructional goals and objectives should be negotiated and not imposed'. Though ideally this may be possible, in reality I find it quite baffling. Our responsibility as teachers is to make sure our students leave our classroom with a certain skill set. In order to achieve these skills, certain goals and objectives must be put in place. Though it would be nice to say these are negotiable, I don't think they really are. We may give students options in achieving goals, but I don't think they really should be negotiated. With that said, maybe this coincides with being able to transfer the control to the students. Even then, some responsibilities we are binded to. (Sophie-RJ-CI, Oct, 2010)

When Sophie showed concern for covering concepts or teaching skills she was thinking from a transmissionist epistemology in which the control of the lesson and the learning resides with the teacher. In my response to Sophie I wrote:

In transmission and direct instruction, the teacher chooses the concept, chooses or develops an appropriate activity or experience to 'support' the concept and plans a lesson with an instruction component that is separate from the 'activity' component. She then measures the learning (through a rubric or a test or a worksheet or a dialogue with the student, etc) and reports it. As teachers, we are mindful, always, of the curriculum that we need to cover. This is inescapable -

there exist standards of achievement and objectives of learning and outcomes of instruction and standards of knowledge that we move through and 'cover' during the year. In a pure, true social constructivist environment these pre-existing standards wouldn't exist and learning would follow its own arc.

This moment was particularly salient for me, as I was acutely aware of my own role as the more knowledgeable other, not only with respect to responding to Sophie's comments, but also in my comments to the other preservice teachers. As the more knowledgeable other, in the contemporary social constructivist sense, I wanted to help the preservice teachers understand that pedagogical and instructional approach is a choice - a mindful choice that allows for positioning that is more conducive to constructivist learning. I stated, "If we choose social constructivism to guide our pedagogy and to inform our instructional approach, we can move away from not only positioning ourselves as conduits for knowledge transmission and positioning our students as passive receivers of knowledge, but we can position ourselves as true learners and creators of knowledge that is constructed alongside other learners and creators" (Researcher-RJ-CI, Oct, 2010).

The epistemological and pedagogical positioning of the teacher was something that Maureen was also attending to in her comments. During a lesson debriefing, she chose to discuss an aspect of her lesson that troubled her. She displayed a deep concern for her own classroom-level knowledge and considered gaps in her prior knowledge that made her uneasy in her onsite teaching situations:

This is what happened during the teaching of my word family lesson. I didn't add the words to the list because I wasn't sure how to spell the words the students gave. (Maureen-PTD-CI.1, Oct, 2010)

The way that Maureen thought about her knowledge and her teaching seemed to point to a strong transmissionist epistemic belief system. It seemed that she believed that teachers were repositories of 'correct' knowledge, and to show gaps or weaknesses in the knowledge was to show poor teaching. Maureen's epistemological beliefs limited her view of teaching; she did not realize that the 'gaps' in her own knowledge open up opportunities for the social construction of knowledge. I responded to her:

What you are saying about being uncertain about spelling words, not confident in your own spelling – this could be a way into the social constructivist notion of 'learning alongside the students'. Could there be a way to ask students for help in spelling? "I really like that word, Sally. You know, I am not sure how to spell it. Where could we look if we're not sure about the spelling?" Could you then ask a child to help you find the correct spelling in a dictionary or on the word-wall or another source? This sort of on-the-fly learning would be for the very experienced teacher and also the very experienced student (but could be done at grade one, I'm sure). (Researcher-PTD-CI.1, Oct, 2010)

Kristin, too, had moments of uncertainty in her teaching. During a lesson debriefing she chose to discuss a moment in her teaching when she was uncertain of how to proceed. In response to a question Kristin posed to the class, a little boy offered a 'wrong' answer. In her debriefing she said,

...and that moment, that was an “I don’t know what to do next” moment because I very much didn’t want to tell this kid that he is wrong ... but at that point, I was unsure. (Kristin-PTD-CI.1, Sept, 2010)

Her uncertainty as to how to proceed stemmed from her belief systems. From a transmissionist perspective the ‘procedure’ is unambiguous: correct the response of the student before proceeding. However, from a constructivist perspective, the way to proceed is not as clear. Acknowledging a student’s contributions and understandings is essential for construct formation, yet it is essential that the teacher artfully guide the learning towards constructs that are real, proven, or viable. Kristin’s uncertainty arose at this point because she was beginning to apply her newfound and initial theoretical understanding of social constructivism into a practical teaching experience.

Sophie, too, experienced conflict. While commenting on one of the readings that gave an overview of Vygotsky and social constructivism, Sophie, quite insightfully, wrote:

There were definitely some things which really [made me think]. Firstly, the idea of the MKO – more knowledgeable other – had me inquiring about the constructivism approach. I always viewed constructivism as working on others’ knowledge to form your own schema, not necessarily of knowledge being transferred from someone more intelligent. It really made me think more about our role as teachers in the classroom. Though we want students to create their own knowledge, I believe the idea of the MKO indicates that we also must transfer our knowledge to the students. (Sophie-RJ-CI.1, Oct, 2010)

Sophie's comments indicated that she was thinking deeply about constructivism and how it fit with her own pre-existing 'schema'. To clarify for her, I responded:

The notion that the more knowledgeable other 'transfers' their understanding to the learner is a traditional 'read' on Vygotsky. Vygotsky certainly used the term to mean a teacher (and he was thinking in 'transmission' terms). Keep in mind that Vygotsky was forming his understandings and theories of learning at the turn of the last century (in the early 1920's). Post-modern, subjectivist, relativist thinking did not exist then, but is fundamental to the way we think now. Instead of knowledge being absolute, and learning being a causal, linear process, we now understand knowledge to be subjective to the individual, relative to culture and experience, and fluid within learning situations. We also understand learning to be a complex process involving physiological and psychological changes in the brain.

When we think of the more knowledgeable other within the context of contemporary (present day) thinking, the role of the MKO is not as clear-cut. Our contemporary understandings show that in social relationships, learners are MKOs for each other, with the 'role' of MKO flipping back and forth or present in both or neither or residing in an artifact, like a text or a computer. The teacher's role as MKO is not as clear, either, as we want to diminish the amount of direction coming from us and allow ourselves to be taught by learners and to become a learner alongside others. Certainly we want to retain enough power/authority/knowledge to guide the learning, but the way the knowledge

flows within this system is not along a central line, but distributed among learners. (Researcher-RJ-CI.1, Oct, 2010)

What is significant about the moments of uncertainty or conflict to which Sophie, Kristin and Maureen were attending is that they are moments of tension. The preservice teachers had not yet developed the sophisticated ability to teach content and process simultaneously or interactively, and the tension that resulted led to frustration. In the context of this study, moments such as this, when preservice teachers were experiencing frustration or struggle, indicated the formation or opening-up of their Zone of Proximal Development. Work in the ZPD arose from their struggle to reconcile prior epistemic beliefs with their new understandings of social constructivist pedagogy; learning was occurring.

Although the three preservice teachers were beginning to form new constructs of social constructivism, there were still many instances when their thinking returned to transmissionist models. Prior beliefs and knowing, when considered in the context of the learning cycles of this research, often resulted in the preservice teachers looking at their practices in multiple ways. Feiman-Nemser and Remillard (1996) make reference to the “paradoxical role of prior beliefs” (p. 80), and state that existing beliefs and constructs can serve as barriers to learning or provide a framework for assimilating or evaluating new and sometimes contradictory learning. For example, both Kristin and Maureen were looking practically and critically at social constructivism as an instructional approach. The nature of social constructivism as being negotiable and emergent had Maureen concerned. She wrote:

I understand a bit more about social constructivism and letting students build their own understanding, but I also feel at the this point, that not every aspect of the curriculum can be taught in this manner. It seems to be a very time consuming method of teaching as well. I believe the composition of the classroom impact the way in which lessons can be taught (Maureen-RJ-CI.1, Oct, 2010)

Kristin echoed this when she discussed lesson planning and curriculum procedures.

And I'm thinking, as a teacher, I'd never get through the school year like this, I'd never get through the curriculum. I'm trying to think what I can compare this to – in thinking about social constructivism. We will always have to incorporate whatever it takes in order to satisfy the system. Whether it be teacher-directed or whatever. And it's going to be, to a certain degree. (Kristin-PTD-CI.1, Oct, 2010)

Prior beliefs and knowledge strongly influenced what and how the preservice teachers were learning. The impressions of teaching and learning the preservice teachers' held helped them to critically and practically examine their ongoing appropriations; their prior epistemic beliefs provided a lens through which to view new learning. New learning was seen as a struggle to reconcile former understandings with new understandings; we found the struggle to connect theoretical concepts to other experiences essential to the development of new constructs and indicated the opening-up of the learner's Zone of Proximal Development for incorporating new ways of thinking about pedagogy and instructional approach.

Cycle I - Theme 3: Understanding the Implications of Social Constructivist Pedagogy

The notion that teaching from a social constructivist orientation can result in ‘grander’ or more complex learning began to appear during this cycle of the research. In her research journal, Kristin commented on a teaching vignette in which a teacher, Ms. Brown, taught a lesson using a transmissionist approach. She wrote:

I found myself feeling bad for the students; not because they were in a bad environment, but because they were in a limiting environment. Their ideas, thoughts, and participation were limited to what Ms. Brown would allow as part of the lesson. (Kristin-RJ-CI.1, Oct, 2010)

In response to a second vignette in which another teacher, Ms. Smith, taught a lesson using a social constructivist approach, Kristin wrote,

Ultimately, I feel Ms. Smith provides more of what students need to be successful learners. Students are active learners who help develop the direction their learning goes. Ms. Smith guides the learning as opposed to controlling it ... at the end of both lessons the students in Ms. Smith’s class actually took their learning further and were able to move to more complex ideas for the following lessons. Ms. Brown’s class, where things were more controlled and lacked flexibility, was only able to make small progress with their learning. (Kristin-RJ-CI.1, Oct, 2010)

Such responses indicated Kristin’s openness to alternative ways of thinking about teaching and learning and reflected her growing awareness of differing epistemological orientations. While some of Kristin’s comments indicated a view of knowledge as discrete skills or objective truths to be found in external sources, she also clearly stressed

the role of a teacher as a facilitator and guide who helps students construct their own meanings and understandings. For instance, in her research journal she wrote:

Students have different experiences that make them unique from others. Because everyone can identify with their individual self best, it is most effective for students to contribute from that basis. (Kristin-RJ-CI.1, Oct, 2010)

She elaborated this notion further, commenting on the importance of the social construction of knowledge, and she wrote,

When each individual becomes further socially intertwined, the results were impressive. This experience allowed students to use what they knew ...social interaction has worked to increase the range of knowledge they possess. (Kristin-RJ-CI.1, Oct, 2010)

Kristin was acknowledging the ‘grandness’ of the learning that can potentially occur through implementing a social constructivist approach in her classroom. Social constructivist pedagogy helps students to ‘intertwine’ their thinking, to form more ‘impressive’ constructs and to ‘increase the range of knowledge’ students are engaged with. This is powerful understanding and thinking.

Maureen commented similarly about her readings from Cycle I. She suggested that open-ended questions and sincerity in the part of the teacher would lead to deeper learning in the future. She stated,

Children are definitely very intuitive and know when you are being sincere in seeking their opinions and thoughts. As a teacher, one must be actively working towards using open-ended questions sincerely and using the responses given by the students to generate future learning. It makes sense that the students are more

motivated to learn and are more engaged when their thoughts are genuinely acknowledged. Their learning will be deeper. (Maureen-RJ-CI.1, Oct, 2010)

The implication for this type of teaching is clearly that a social constructivist approach will lead to deeper and grander learning; Maureen was clearly looking for ‘deeper’ and more ‘engaged’ learning opportunities for her students. Concern for the depth of learning and the engagement of the students came up during one of her post-teaching debriefings.

I think that I get this. But, like, I wonder if the students are. I think that there are some of them that are ‘getting it’... like (a little boy), he was really getting it when he said, “this is like what we were talking about yesterday. I saw that in the book yesterday.” He’s making the connections. But some of the other students – I mean I don’t think they’re really doing this yet. (Maureen-RJ-CI.1, Oct, 2010)

As we spoke further, Maureen suggested that deeper learning would occur when students got a ‘foundation’ for the concepts she was teaching. She suggested,

... the students don’t seem to have that foundation for what we’re talking about. I mean they need to have this in order to go on, so I think I’ll have to teach them this first. And then we can do what I want them to do next. Like get into the book in a different way. And use the chart board. (Maureen-RJ-CI.1, Oct, 2010)

Maureen’s perception that her teaching would provide a ‘foundation’ for future knowledge indicates a transmissionist perspective in which she, as the teacher, would have to give the students the knowledge they need. She seemed unable to reconcile the notion of teacher-as-knowledge giver, with teacher-as-knowledge facilitator.

In looking back at Maureen's epistemological interview, it seemed that she was still relying on transmissionist epistemic beliefs to guide her teaching. Although she commented on her new understanding of social constructivism, she still relied heavily on her prior knowledge and belief systems to inform her teaching.

Cycle I - Theme 4: Understanding the Teacher-Educator's Role

During this cycle of the research, Maureen wrote a passage that became significant for me. She suggested that although her learning was important, and the readings and conversations were contributing to her ability to understand social constructivism as theory and practice, she wanted more. She wrote:

As understanding a theory is more than just reading about it, I believe it would be beneficial to see social constructivism in action. This would help link the textbook knowledge with practical, hands-on experiences in order to gain a deeper understanding of social constructivism. Understanding the theory in principle is different than being able to transfer that into practice. I struggled with how to incorporate this theory into my lessons. (Maureen-RJ-CI.2, Oct, 2010)

For this research, Maureen was paired with Miss Larsen, a young teacher in only her second year of teaching. Miss Larsen was, herself, struggling with some of the same issues that we were taking up in our research learning cycles with respect to developing social constructivist pedagogy. While Kristin was paired with a teacher who was a master mentor teacher, Maureen was, in this regard, disadvantaged. Being able to see the pedagogy first hand would have helped Maureen, but the conditions of the research and the groupings did not allow for that.

The issue of compatibility between mentor teacher and student teacher is not new. Crucially, in this instance of Maureen and Miss Larsen, the experience-level of the mentor teacher and the needs of the student teacher did not align. The presence of a disconnection between the mentor teacher and the preservice teacher bothered me deeply, and I began to consider the following questions: How can I ensure that the needs of preservice teachers are being met in practicum field experience classroom placements? How does a disconnection between the practices of the mentor teacher and the expectations-of-practice of the preservice teacher influence pedagogical development? What are some ways that we might increase pedagogical compatibility between mentor teacher and preservice teacher?

Support for preservice teachers in the form of compatible mentor teacher groupings in practical field experiences seemed to be a common comment from the preservice teachers in this study. Clearly Maureen was asking for support from me and from her mentor teacher, and she suggested that support could be provided through a visit or series of visits in to watch a more experienced teacher facilitate social constructivist lessons. However, scheduling issues and the challenge of coordinating this research project made a visit to another classroom impossible for Maureen. The request for support was noted; preservice teachers need support from a more knowledgeable other during critical learning points as they struggle to appropriate difficult theoretical and practical concepts.

CYCLE II

During the second cycle of the research, Kristin, Sophie and Maureen were in the process of aligning themselves with varying degrees of learner-centeredness and social

constructivism in their classrooms. Their thoughts on teaching and learning, and incorporating social constructivism into their practices, were, in a sense, messy, as one epistemological belief system began to be mixed up with another. As each participant considered the role of knowledge in teaching from a social constructivist orientation, they began to develop new understandings and refine their existing belief systems. They worked towards developing a system that would manifest itself as the pedagogical focus of their teaching.

Cycle II - Theme 1: Considering and Acknowledging Prior Experiences: Teacher Beliefs and Epistemology

A significant factor that hampered their understanding and appropriation of social constructivist thinking was the preservice teachers' substantial lack of experience with it as students themselves. None of the preservice teachers had been learners in social constructivist environments as students (at elementary, middle or high school levels) and they discussed only a few scattered encounters with it during their University courses prior to engaging with this research. As presented in earlier discussions of epistemological beliefs, teachers often draw upon their previous experiences as being students when they develop their teaching techniques (Britzman, 2003; Lortie, 1975/2002). Social constructivist concepts, principles and pedagogy were essentially new to them, given their very limited, and sometimes conflicting, experiences with it. As Sophie stated in a post-teaching debriefing,

This is all still very new. It's not like I can think about the ways that I was taught, like transmission, and then incorporate it in to my lesson. I guess that's why or part of why this is so hard ... (Sophie-PTD-CII.2, Oct, 2010)

Kristin, too, commented on the newness of teaching from a social constructivist orientation. In a post-teaching debriefing, she stated that her understanding of the pedagogy was affecting the way she used language in the classroom. Her understanding of how language use can promote constructivist thinking was incomplete, yet she sensed its importance and expressed an unwillingness to revert to transmissionist ways.

Kristin: ... and I know that this is just unfamiliar ground to me, but I know, compared to some of my hurdles, this is going to be a big one for me.

Mrs. Singer: Yes. The way that you use language to draw the constructivism out from the children is very important, it's so essential to the learning.

Kristin: And I felt – this is the point that I am not going to get any of this, this language. Because with today and the language difficulties and gaps, I think I'll never get this!

Researcher: It's process, process.

Kristin: And I'm not saying this negatively, though, about myself. Today, though. Today just made me realize that if I don't get this language I'm going to be stuck as a transmission teacher. And I just don't want that. (Kristin-PTD-CII.2, Oct, 2010)

Through the work that Kristin was doing in the classroom, she was beginning to see the connections between theory and practice as well as being able to see how her epistemological beliefs were affecting her instructional approach. The ways in which we debriefed her teaching experiences provided opportunities to refine her thinking and to begin to adjust her practice to align with her thinking. Further, she was beginning to see the results she wanted in her classroom and to identify processes and strategies for

attaining those results. That Kristin was unwilling to return to transmissionist teaching was a significant moment for her; she could see the potential and power of social constructivist pedagogy even if she was yet unable to completely incorporate the theory into her practice.

Maureen's discussions and writing indicated that she was working to understand deep levels of social constructivism. During our whole-group conversation she said:

Well, in constructivism you're having the students lead and the teacher's the guide. So you're just facilitating their learning. So that they're constructing their meaning based on what they know. Their experiences, their style of learning.

Whereas in transmission you're just giving them the facts. Like your construct to them. (Maureen-WGC-CII, Nov, 2010)

Her understanding of constructivism to be 'construct formation' that is socially formed through student learning is a powerful notion and indicates deep appropriation. However, she commented on the difficulties of translating her understanding into practice.

And it's even different watching it than actually being the one teaching it too. I mean, it looks so easy and effortless, and flawless and when Mrs Singer is doing it and you see it in action. But then you get up there, and it's not the same!

(Maureen-WGC-CII, Nov, 2010)

Difficulties in connecting epistemic belief to practice was discussed with each participant, as each struggled with their own variation of the problem. Sophie commented on a lesson she taught during the second cycle of the research. She had written two sentences on the board for students to copy, hoping that the sentences would

lead to whole or small-group discussions with her grade one students. During our debriefing she commented:

I sort of had an ah-ha moment there. I was kind of waiting for the students to write their sentences when I thought about what you [researcher] had said before, about having a reason for everything that I do in the classroom. Like relating it to their learning. So at that moment, I kind of said, like “do I really want them to be writing here?” And I didn’t. I didn’t want the focus to be writing, but speaking. I wanted them to be talking about the question instead of writing it. So that was kind of an ah-ha moment for me. I think I get it a bit more. (Sophie-PTD-CII, Nov, 2010)

Sophie was beginning to link her practice with her theory. She realized how her instructional design had focused her students thinking in a way she did not intend for. Her intent was to open up discussion, and instead she had closed off all conversation. The moment was significant for Sophie as she was beginning to draw upon her newly-formed social constructivist epistemic beliefs in order to affect her pedagogy.

Cycle II - Theme 2: Learning About Social Constructivism as Guiding Pedagogy:

Linking Theory and Practice

As the participants implemented their lessons, some more and others less student-centered, their strengths and weaknesses in using social constructivist pedagogy became apparent. As the preservice teachers began to use a social constructivist approach in their teaching, it became clear that implementing social constructivist principles was more difficult to do than simply understanding the concept. Kristin commented on her use of

social constructivist language in her teaching. She had been working hard to use her knowledge of social constructivism to inform her teaching approach.

Kristin: And that's where the language comes in, you know. Then it's pushing my own understanding of something. When I don't know how to do that, I'm trying to keep discussion going, but then I'm losing sight of the purpose then. Because the purpose is then that we're just hearing words, hearing a few answers and we're not hearing insight and thought. So I've got to transition now - I did better at keeping the discussion going longer, I did better with that than I did a few weeks ago. But now I need to learn how to do that.

Researcher: What you've said there is interesting for me. Because what's coming out in your conversation is the language and the words and the things that you know about social constructivism. You've got this internalized but it's not quite coming out in the practice. But it's there – it's in you. Not quite yet coming out...

She acknowledged that there was a transition occurring within her thinking and her teaching. Significantly, work within her ZPD was leading her to understanding her learning better. Theoretically, she knew what the pedagogy called for during her teaching, but she was having difficulties implementing those understandings. Further, she recognized where there were 'gaps' in her knowing and doing and was quick to point out what she needed to learn in order to increase her use of social constructivism in her pedagogy.

A significant moment of learning arose during our whole-group conversation. The preservice teachers were raising concerns about the need to reconcile social

constructivist pedagogy with the ‘goals’ of learning. They suggested that in a true constructivist context, there would be no curriculum, and learning would follow its own arc.

Researcher: So “Education should not be about the transference of knowledge but rather the collaborative and collective production of knowledge grounded in the reality of students’ lives.” I think ... I hope that this starts at teacher education. I think that this is where it has to start. And you get into your classrooms and you begin to affect the lives of your children.

Kristin: But you can see where some of the resistance to this comes. When you are dealing with a whole class – and this is all the way right up to university – there has to be some gauge. I mean there has to be some range that everybody is deeming OK in order to allow these students to continue on to the next grade. Again it leads us back to that same tug-of-war, right? Can you have pure social constructivism when you need to have some of those standards.

Sophie: You can’t have pure constructivism.

Maureen: But like you [researcher] were saying, it is your choice, your choice to teach transmission or to teach constructivism. And you do as much as you can within the boundaries that are existing.

Kristin: And those boundaries are not necessarily bad things. We all have to eventually function in society, so until society is ready to go completely different ... and I’m not sure that’s going to happen any time soon!

Maureen: I’m sure too. We have rules and laws and things. And to some extent it will always be there.

Researcher: But this last sentence, “they begin to envision and strive for something different for themselves” – that’s really key.

Sophie: I agree. If we can really get them to think about what they are doing and why. And where they are going.

Researcher: Yes. This is ‘transformation’. In the constructivist sense. Students can imagine themselves into something different.

Maureen: That’s pretty big.

Researcher: It is.

Kristin: ... but to get back the point of meeting the goals or standards of curriculum or whatever it be, I wonder how we’re supposed to do that in social constructivism.

Sophie: Like for me, it can sometimes seem like I know where I’m supposed to be and I have to somehow get the students there. But then I think that if I lead them I’ll be too direct and that’s transmission again.

Maureen: But if you are sort of guiding them so that they get there in the end... I don’t know ...

Researcher: Are we, in some sort of contrived way, constructing the lesson so that we ‘land’ there?

Maureen: That’s what I want to know, too. Like, don’t we know where we’re going? Don’t we have to know?

Kristin: Even Mrs. Singer, in her own class, she sort of knows where the students are going to get to and she sort of guides them.

Researcher: The ‘guiding’ is informed by the curriculum.

Kristin: Exactly.

Researcher: All the time, in the back of your head, is the curriculum. It is the curriculum that will make the broad turns in the road for you.

Kristin: Yes. But that can be really hard sometimes. Like, I find that hard to do in my classroom. Mrs. Singer makes it look easy!

Maureen: I know! I really feel that. I can't do what I want to do sometimes because I don't know where I'm supposed to go with this. But I don't want to be too direct in things either. It's really hard to like, strike a balance.

(Sophie, Maureen, Kristin-WGC-CII, Nov, 2010)

What is significant about these comments is that they revealed deep thinking and struggle within the preservice teachers. Their efforts to reconcile what they had thought they knew about teaching and learning with what they were learning were beginning to transform their thinking; learning in the Zone of Proximal Development was occurring. Transformation of thinking, of epistemic belief, is an 'intensely threatening emotional experience' (Mezirow, 2002), and needs the support that social interaction can provide. Consider Kristin's comments about teaching and planning.

Kristin: Yet what are teachers told often – “don't recreate the wheel”. And that being said, I can see why too, because time just gets to be of the essence. And with myself, just keeping up with assignments. And that's a big fear of mine – when I have eight subjects to teach that's a lot that I can see. A lot of planning. I'll stay up wicked hours to pull off two good lessons, right. But when I have to

start the unit planning and the individual lesson planning ... it's like ... too much to think about. You can see why they say, 'don't reinvent the wheel!'

Researcher: Yes. And direct instruction is easy. Transmission is easy. It is a lot easier than social constructivism. It's a lot easier to say, 'I teach, you learn.'

What we're trying to do is hard.

Kristin: Yes.

Researcher: To think it through, to really understand it is a fundamental shift in what we've been taught, what we've been doing, what we've had taught to us at teacher education. Social constructivism is fundamentally different.

Kristin: But there's irony in that. Because we're being told we are making it more student centered, and we are because it's more fun than it was years ago. And you've just got me thinking - in my math curriculum course they're giving us all the strategies that we should use and how we should be drawing from the students. Now they have said, you know, ask the students how and they may show you a way you haven't heard of before, but ultimately you're looking for things that you've shown them, things that do play a part. So really it's student centered but not really, because we're still giving them the knowledge.

Researcher: I know.

Kristin: That is deep! But now I'm thinking in circles. But essentially isn't that what we're doing? Because as a parent I want to give my kids the tools they will need for life so they can survive, right? So you want to give them the tools because if they figure it out on their own they might hurt themselves. You know ...

Researcher: I know exactly what you're saying, it's hard. I don't have the answers.

Kristin: I don't either! But I'm already thinking!

(Kristin-PTD-CII.2, Oct, 2010)

Kristin felt confused about her prior epistemic understandings coming into conflict with current expectations of learning. When she discussed the time constraints of planning, she drew upon transmissionist thinking. However, she was also linking transmission and direct-instruction models with some of her University teacher education courses. There was clearly conflict with her thinking and understanding that was forcing her to 'think in circles'. But as we spoke together about Kristin's fears of planning and of teaching, and trying to understand a social constructivist approach, we discussed the process of learning. Kristin was satisfied with understanding knowledge construction as being a process.

Researcher: It is about process, process. We will never be done understanding this.

Kristin: Yes. I guess that's the best I can answer that for now. None of these are definite answer because it's about growing. Figuring it out. (Kristin-PTD-CII.2, Oct, 2010)

The preservice teachers were indeed processing, learning and embracing elements of social constructivism, but they were still developing comprehensive understandings of how this pedagogy could be enacted into classroom practice. Kristin and Sophie in

particular, valued this pedagogical approach and sought to employ it into their practice. Maureen, too, was beginning to understand theoretical concepts, but seemed to be having more difficulty in implementing the theory into practice. During one of her teaching lessons in Cycle II, she had students working with paints. Students were to explore the addition of black and white to a colour to create shades and tints. Maureen's approach to the lesson was still quite teacher-directed in spite of her understandings of the theory. Her lesson included a short lecture component that described the learning expectations and she provided an exemplar for students to reference. During our post-teaching debriefing, Maureen commented on the success of her lesson.

Maureen: I think the ones who were painting with the darker colours could see the differences happening... because I know that one of the boys who had yellow said that nothing happened when he added white. So he didn't notice the change as much as the ones who had darker colours, so that would be something that maybe I would change, to just sort of omit the yellow just so that they could see more. (Maureen-PTD-CII.2, Oct, 2010)

Maureen still did not realize that differences in experiences in learning can open up new understandings for students as they engage with materials in the classroom. Her instinct was to then modify her lesson plan to exclude aspects that did not lead to 'successful' learning for all students. When she said that she would 'omit the yellow' from the lesson, she was enacting a transmissionist orientation. By controlling the materials, she controlled the experience and how much potential knowledge students could co-create. The transmissionist notion of the teacher retaining the locus of control

and knowledge in the classroom was still very much apparent in her statements. She did not use a social constructivist orientation to guide her thinking and her instruction. I commented to her:

Researcher: Could you not go with that, though? Would there be a way to ask the students to think about why this [process of adding white to tint a colour] doesn't work as well with yellow? To get them to co-create their understanding of this experience?

Maureen: Ahh, yes, I didn't think of that. It's so hard ... when you're there. Like in front of the class. To do that sort of teaching, or guiding, I suppose. (Maureen-PTD-CII.2, Oct, 2010)

Maureen continued to bring the control of the learning and the locus of knowledge back to herself. She did not realize that, pedagogically, a social constructivist approach would be to allow the students' successful and not-so-successful experiences to inform their learning.

Even with models and support from their mentor teachers, Kristin, Sophie and Maureen found that teaching from a social constructivist orientation was an arduous task. It was very difficult for them to recognize the moments of potential for social constructivism while they were teaching their lessons.

Cycle II - Theme 3: Understanding the Implications of Social Constructivist Pedagogy

This cycle of the research brought the preservice teachers and me to question the nature of social constructivist pedagogy. While the preservice teachers were working to deepen their understandings of social constructivism, they began to question the purpose

of the pedagogy itself. Two important questions we addressed during this cycle of the research were:

1. (How) Has engaging with this research into social constructivism changed the way I think about and approach my practice?
2. Why would I want it to?

The question of ‘why’ we would want to undergo disruption and struggle to develop existing epistemological stances was taken up through the post-teaching debriefings and during the whole group conversation for this cycle. Sophie began by suggesting that social constructivist pedagogy results in more open learning:

It’s more open. It’s more empowering for me to think about my role as the teacher. And hopefully I can empower the students a little bit more, to give them a sense of coming forward, rather than always being pushed in.

(Sophie-WGC-CII.2, Nov, 2010)

Kristin agreed and offered her understanding of ‘why’:

We’re still at the beginning point where everything seems overwhelming, but I can say, because I’m in Mrs. Singer’s class, that the things that she does with her kids is amazing. Like, there’s so much going on in that classroom and it’s all done through work together. I can’t pretend to really understand how she does what she does, but the things the kids do and create and talk about... it’s like, “I’ll never be that good!”

The sense that social constructivism leads to ‘grandness’ and ‘amazing’ learning from ‘empowered’ learners became a starting point for us as we explored the notion further.

Within a social constructivist orientation the whole context of the classroom must be re-examined and re-constructed. In particular there needs to be a change of role for both the student and the teacher - from passive objects within a transmission paradigm, to active, thinking, practicing beings. Transmissionist pedagogies force students and teachers into being complacent about their role in education and in their lives. Social constructivism is a way for students and teachers to envision themselves as active, social, human participants. Social constructivism, as a pedagogy for teaching and learning, is a fundamentally human approach to education. Within social constructivism is the premise that students will engage with learning experiences in order to further the purposes of their lives (Cambourne 2001). Through engaging with social constructivism in the classroom both teachers and students can come to a deeper, more fully formed understanding of themselves and others.

Cycle II - Theme 4: Understanding the Teacher-Educator's Role

My immersion in this study showed that if preservice teachers' views of teaching and learning can be socially constructed (Orstoga, 2006), then their ways of knowing become the foundation that forms their educational practice. Epistemological orientation strongly influences classroom practices and teacher pedagogy, and for teacher educators, this demonstrates that, in order to develop teachers who are social constructivist pedagogues, then it is necessary to develop courses of study that promote a change in their epistemic stances. Ostorga (2006) suggested that teacher education programs have to include experiences aimed at promoting transformation of epistemic beliefs. This research project provided preservice teachers opportunities for inquiry and educative mentoring in combination with field experience work. Thus the implication for teacher

educators is that courses of study in teacher education programs must promote critical thinking and self-evaluation of preservice teachers' epistemic beliefs.

Kristin commented: "And what we're doing together, like when we get together and to just talk, is so valuable. I couldn't do this on my own, and you've said that sort of thing. Like when we're teaching, we can't do it alone, we need the help of the students." Kristin suggested that she would be unable to fully understand social constructivism without the support the conversations and debriefings provided. Opportunities to talk, in loosely-structured ways was a crucial part of the learning and a critical support for teacher educators to provide. 'Educative mentoring' (Ostorga, 2006) as post-teaching debriefings and whole-group conversations seemed to be an invaluable means of providing support for preservice teachers to enable them to develop social constructivist lessons.

CYCLE III

During this final cycle of the research, the preservice teachers increasingly drew upon social constructivist perspectives to inform their teaching. In particular, the lessons that the preservice teachers taught evinced a more social constructivist approach. Interestingly, as the preservice teachers' practice evinced a more social constructivist approach, their reliance upon support in the form of affirmation from peers or colleagues also seemed to increase.

Cycle III - Theme 1: Considering and Acknowledging Prior Experiences: Teacher Beliefs and Epistemology

Kristin expressed a deep understanding of the premise that, from a social constructivist perspective, knowledge is constructed by the students, not given by the teacher. Her teaching consistently focused on student-centred experiences with opportunities for student discussion and peer support. During a post-teaching debriefing we discussed her lesson:

Kristin: I really liked today. I really liked the process today. I liked that I was writing stuff down. One student said, ‘look I made a colour storm!’ I liked that, I thought it was great to see that. Another one – he said, ‘this is bad’. And I said to him, ‘why do you think this is bad?’ And the little girl beside him looked over and said, ‘that’s not bad, that’s perfect!’ And I loved that exchange, that conversing. That’s when we started talking about how he wasn’t excited about the medium he was using. And another little girl was looking at her colour and said, “I don’t know what to call this.” And the little boy beside her said, ‘If I had made that I’d call it ‘purquoise’ because it’s a little bit purple and a little bit turquoise.’ So I really liked seeing them converse. Another little boy came to me and we were watching a little girl painting. And he said how he liked her painting because it made him think about real paintings in a museum. So on that end, I really enjoyed the process of today.

Researcher: Yes – you are allowing children to talk about the work of their classmates and it also lets children learn how to have their work talked about. I think that’s very important.

Kristin: And I can see, finally see, the co-construction happening. They're creating the knowledge right there in the classroom. It's really an awe-inspiring thing.

Researcher: To be able to decentralize yourself from being the centre of control, the centre of knowledge, the centre of attention, give the students the space to co-create, to co-construct and to support each other in their understandings is so significant.

Kristin's changing epistemological beliefs appeared to allow her pedagogy to evolve. Her deep understanding of social constructivism was affecting her epistemic belief system, which was in turn, manifesting itself as classroom pedagogy.

Maureen, too, understood in an academic sense the meaning of social constructionist epistemology. Her deep thinking and appropriation of theoretical constructs had developed, but social constructivism did not yet seem to resonate with her individual belief system. She consequently struggled to teach with social constructivist approaches. When she met with resistance via internal (herself) or external sources (students, readings, post-teaching debriefings and conversations), she often spoke about social constructivist pedagogy, and did so in a sophisticated way, yet she continued to return to a transmission model of pedagogy which was a better fit in terms of her understanding of and beliefs about knowledge. Maureen made the following comment at the end of the research project, during our last whole-group discussion. As a group we were attempting to reconcile the notion of the 'good teacher', which has its roots in transmission models, with our newfound understandings of what 'good teacher' means in a social constructivist sense. Maureen suggested that,

I think as long as you can show, or they can show that they've learned something, and to what extent they've learned it can indicate how good a teacher you are.

And in providing that experience for them. So if you've created some experience and they've gotten nothing from it, then really, as a teacher then you didn't do something right. But if they get all sorts of new knowledge and understanding and depth of understanding, then you've provided them with tools and guided them in the right direction. Then you've been a good teacher. (Maureen-WGD-CIII, Dec, 2010)

Her comments indicated that she was using transmissionist thinking. She considered the teacher as the director-of-learning, with the locus of control and responsibility for learning residing in her. The social constructivist notion of distributed thinking and learning is not yet reflected in her understanding. Although she had engaged with social constructivism throughout the semester, through her readings and journaling, teaching and post-teaching debriefings, and through whole-group conversations, her appropriation of concepts had not yet become her guiding epistemology.

Cycle III - Theme 2: Learning About Social Constructivism as Guiding Pedagogy:

Linking Theory and Practice

Appropriation of theoretical concepts and new construct formation, as discussed in Cycle I and Cycle II, implies that the participants' previously held notions of knowledge, teaching, and learning affected their ability to engage with social constructivist pedagogy. Participants learned this new pedagogical approach through their own epistemological lenses and individual experiences. In some cases this provided further support for social constructivism, and in another, it caused significant cognitive

dissonance. The notion that knowledge is a socially constructed entity resonated with the participants. Kristin and Sophie understood epistemology in this sense and were best able to embrace social constructivist pedagogy. Moreover, they were willing and able to persist despite obstacles encountered in the classroom and in the standard curriculum, and they were able to meet the challenges of learning new content and practice.

Kristin's ongoing appropriation of social constructivist theory and concepts continued to develop over the course of the semester. Evidence of appropriation was seen in her use of language that linked her epistemic beliefs to her practice. She perceived at first, her efforts with social constructivism as a process of reciprocal teaching (Palinscar, 1998), in which the teachers and students co-construct knowledge. The lesson is orchestrated by the teacher who initially holds the role of the more knowledgeable other, with the gradual release of responsibility being transferred to the learner. The goal in Kristin's classroom was for the students to engage with materials, experiences, and each other in complex ways that would lead to deeper student understanding. As the semester continued, Kristin focused on ways she could facilitate her students' thinking in class and group discussions, and did so using open-ended questions that allowed her students to evaluate and synthesize their learning. For example, during one of her final lessons Kristin asked her students, "How can we show what we know about colours?" This simple question led the students into a 'pouring out' of ideas related to showing their understanding and knowledge. Kristin skillfully guided the discussion, acknowledged sophisticated and complex thinking, and probed for deeper understanding. Later, during the post-teaching debriefing, she commented on that portion of the lesson:

I was thinking frantically the whole time! Because I knew that that's where the language comes in. Because what I do say now will nudge them in the right direction, and what I say will draw more ideas out and not shut them down, and will move them over here... not directing them, but more like guiding, asking.

(Kristin-PTD-CIII, Dec, 2010)

Kristin's use of language to guide the learning indicates a deep understanding of social constructivism in the sense that knowledge is generated within the classroom, emerges from the experiences and understandings of the students, and is co-constructed together. However, she still contemplated her role as that of guide and facilitator. She said:

I'm after them [students] to think, their ideas and their thinking, their steps. And it's not like I'm asking them for what they've memorized, like drills or whatever. So I'm not directing what they're giving back to me. (Kristin-PTD-CIII, Dec, 2010)

Additionally, Kristin was coming to understand the role of the student in the co-construction of knowledge. During one of her final teaching lessons of this research, Kristin navigated an interesting and meaningful episode. A student had commented that his experience with the colour station was 'bad'. She was quick to acknowledge his comment and began immediately to talk with the student to understand his negative experience. During our post-teaching debriefing we discussed this occurrence.

Researcher: I liked how you debriefed with that little boy. He said it wasn't fun at his station.

Kristin: I went with my gut on that one. I approached it as – there was a lot of positives from that. I know that it's ok to not have 'fun' with something. And

I'm glad that the other students said, 'I heard bad'. It's ok to have a different experience than someone else. What part of the experience didn't you like? Another little girl – she really didn't want to come up with a name. She was really backing away from that ... I think it's more authentic to talk about positives and negatives of an experience. And to acknowledge the fact that not everything needs to be great or perfect. But the environment has to be safe. I needed to ask him about this. But it's hard – because I didn't know the conversation was going to go there. I didn't know what was going to be brought up.

Researcher: This is really what co-construction is about. The experience that we share in the classroom will construct new knowledge.

Kristin: I know – I'm really seeing that now. It's funny ... the momentum builds from the kids... (Kristin-PTD-CIII, Dec, 2010)

Sophie, too, showed her growing understanding of the role of the teacher as guide or facilitator of learning. Sophie discussed her attempts to reduce the amount of teacher-directedness she had in her lesson. Interestingly, she had tried so hard to decentralize herself from being the locus of knowledge, she forgot that co-contributions and co-construction meant that she was part of the process.

Researcher: And it's ok for you to make suggestions, too. That's not being teacher directed, that's being a contributor, a co-creator of the experience.

Thinking about how to get the most out of this experience with them. It's ok to co-construct. It's ok to co-create.

Sophie: Yes. And that's where I have my trouble with this. When I'm in my head thinking that everything's got to come from them. I have to work on that part of it. I'm sort of afraid to come back to involving myself because I'm working so hard to sort of remove myself from that really, you know, in charge position.

Researcher: Right. Maybe we have to remove ourselves to see how essential we are to the process. *We are* essential to the process, and maybe part of getting into the balance is to get out of balance for a while....

Sophie: Yes. Interesting. (Sophie-PTD-CIII, Dec, 2010)

Sophie's thoughtful implementation of social constructivist pedagogy indicated deep engagement with the concepts:

Sophie: I think on the whole – I think I've come a long way from where I started. And my thinking behind it. And the meaning behind social constructivism. And putting more meaning into what I'm actually teaching. And not just saying, 'do this, this and this'. And I'm really trying to think about why I'm doing this and how they're going to come to this as well. And seeing how this is going to work.

Researcher: Right. Why am I doing this and how are they using the experiences to construct their understandings of concepts.

Sophie: Yes. And doing this without directly telling them what's in your brain. What is your construct isn't necessarily going to be theirs. (Sophie-PTD-CIII, Dec, 2010)

That her understanding of constructivism is stated so succinctly indicates true appropriation of concepts. Not wanting her personal constructs to be transmitted to

students is a sophisticated understanding of social constructivism. By thinking about what social constructivism is not (it is not directly telling students what your current construct is), she is able to enter into a deeper conceptual appreciation of what the pedagogy is about.

Kristin, in a nearly identical exchange, commented on her growth and understanding and use of social constructivism in the classroom. She discussed her unwillingness to impose her own cognitive and experiential constructs on to the students.

Kristin: I have ideas about where I want to go. But is that too directed?

Researcher: No – you have to participate alongside them – definitely share your ideas with them, but know that they might not choose to go in that direction. But be careful about your constructs, too. If you were to only ever do direct instruction, then those are your constructs of knowledge that you are imposing upon them. That is your construct. Your understanding of colour. That you are imposing upon them.

Kristin: Exactly. I've gone so far in my head. I have done a lot of thinking. I have really good ideas, but I've come so far out of that that I don't want to say them out loud. Because then I'm inflicting my own ideas on to them...

Researcher: Yes, but it shows them that you are also thinking. You are modeling the thinking process but also modeling the learning process. And it shows that this is important to you, it is an important thing that we are talking about and we're learning together. I have some ideas of my own that we can share, and you can share with me and with each other ... Put yourself alongside them, co-create with them. (Kristin-PTD-CIII, Dec, 2010)

As Sophie, Maureen, and Kristin progressed through the semester, their understanding of the importance of social constructivism grew. Their thinking can be traced from a transmissionist stance, as seen in their initial interviews and beginning cycles of the research, to a more social constructivist stance, as seen in their final lessons and post-teaching debriefings. Despite their previously limited experience with social constructivism, they were willing to engage with the new learning and new concepts and were persistent and active in developing their understandings. All three research participants were highly contemplative about the work they were doing for this research, and their understandings of social constructivism grew. As students, each preservice teacher possessed a limited range of individual experience with appropriate models of this pedagogy. Yet, throughout the research semester, the participants displayed a wide range of thinking, teaching and discourse topics related to social constructivism. This thinking provided an epistemological foundation for the work in their classrooms. They all professed a strong desire to use social constructivist pedagogies in their classrooms and identified it as central to their teaching. With Kristin and Sophie, a definite social constructivist epistemology was being enacted in their classroom teaching. Maureen's engagement and enactment of social constructivism placed her in a more transmissionist realm despite the leaps in appropriation she made.

Cycle III - Theme 3: Understanding the Implications of Social Constructivist Pedagogy

As the preservice teachers continued to implement social constructivist lessons in their classrooms, a recurring theme was one of 'trust' in the process. The preservice teachers needed to allow themselves to trust the process of social constructivism, to trust that their knowledge of the theory would come through in their teaching, and, most

importantly, to help the students to trust the teaching and to learn to be successful in this type of learning. Kristin commented:

When we talk about a ‘good teacher’ I almost think that part of it is to trust. Step back and trust, give the kids that freedom to be able to talk and explore. And it’s not so much about you. It’s about the kids. You almost have to back off, and you know, you’re there to keep the flow going, and the guiding going, but you really need to put a lot of trust into the fact that they know stuff. And we have to let them explore that and add to that. In your own head, you have to be willing to let go. It’s a control thing. You know, to be a good teacher I have to control what’s going on in this classroom. And if I don’t, it’s all going to fall apart. So there’s that trust thing. So if I step back, these four walls aren’t going to crumble without me! (Kristin-PTD-CIII, Dec, 2010)

During one of our post-teaching debriefings, Sophie brought the discussion around to the learners in her classroom. She expressed dissatisfaction with the way her students were responding to her instructional approach.

Sophie: I find that the students are struggling to get what I want them to do. Sometimes I think they’re getting this, going in the right direction. But not in a direct I-tell-you-what-to-do way. It’s like, I want them to be thinking in different ways, but it’s almost like they don’t want to or maybe can’t do it. I’m not sure what this is because I mean, I know they liked the lesson and they were engaged with the story and were giving me good ideas.

Researcher: Yes. This is something that I’ve been noticing, too. Both in your class and in the class that Maureen is teaching in, the way the students respond to

our attempts at teaching in a social constructivist manner is not what we have been expecting. I think that we had some vague idea that simply using a social constructivist approach with students would somehow, magically, open up all the potentials and the students would ‘run with it’. The more I think about this, the more I am convinced that, like us in our journey to understand social constructivism and to apply the theory to our practice, the students, too, are on a journey. If they have only had direct instruction / transmission teaching, they will be unable to respond/learn/be any other way. We have to take them on this journey with us. Does this sound clichéd? Maybe – but I think that this is a key point for us.

(Sophie-PTD-CIII, Dec, 2010)

In a social constructivist educational context, students are experiencing highly complex learning situations. Social constructivism positions students as active learners who, both independently and co-operatively, construct knowledge through experiences. The mediation provided by social settings contributes to the refining of constructs, and the role of the teacher is to facilitate multiple forms of mediation. The challenge for the learner is this: learners who have participated in classrooms that model a transmissionist approach to learning can be far less prepared for the demands of a social constructivist learning environment. Open-ended tasks and questions, experiences-for-learning rather than activities-for-concept-reinforcement, and emphasis on co-construction of understanding may be too much for students to suddenly adjust to. As Sophie and Maureen comment in the following passage, students can be ‘really lost about how to learn this way’.

Sophie began by commenting on her teaching as she perceived it now, compared to where she had been at the beginning of the project.

Sophie: I think it would be impossible now, for me anyway, to go back to that. Knowing what I know now. About transmission being about passive learning, and almost playing into the ignorant, I guess. If I actually want the students to get where they should be, to let their learning go, and to get them to think. I can't just do direct teaching because it's easy.

Kristin: Me too. And yet I know I'm going to do some of it. I would be fooling myself if I didn't admit that I will be starting with it. You need to figure out your own experience and figure out where you're going and how you're going to get there. We've got a lot to figure out once we get into our classrooms. I'm going to be doing some direct instruction and transmission until I start getting comfortable, building relationships, and then being able to trust my own (teaching) experience too. Then I can say here's where I can start to move the learning towards constructivism. It's a process.

Sophie: And even the students need a bit of warning, almost. You can't, like even now, you can't just walk in and 'have at it'. They wouldn't know what to do, or how to get anything out of it.

Maureen: Exactly. I've noticed that my students sometimes are really lost about how to learn this way. Some of them are getting it though.

(Sophie, Maureen, Kristin-WGC-CIII, Dec, 2010)

Maureen commented individually about this in her research journal. She stated:

I can see how this way of teaching could be very time consuming ... it requires a lot of effort and commitment on the part of both the teacher and students. I believe the key is finding the balance to make this style of teaching a rewarding experience for both teachers and students. (Maureen-RJ-CIII, Dec, 2010)

She brought up this issue as we conversed together as a whole group. She wondered about the differences in learning and expectations for learning through the three research classrooms. She asked me:

Maureen: Do you see differences in the three classrooms in the way that students approach their learning in constructivism?

Researcher: Most definitely. Between the three classrooms – Mrs. Singer’s children were the most independent in their learning, the most active. Mrs. Kampe’s class was in the middle. And Miss Larsen’s class had the most passive learners This might be because she is the most inexperienced teacher ... I’m not sure, but I know that she’s still learning this. It was an interesting spectrum. And it raises an interesting question. How can we move the children into thinking the way that we need them to be thinking?

Maureen: I think some of them were there, I was beginning to get some of them to think that way.

Researcher: Yes, I could see that during your lessons. It was there in your expectations of them. I don’t think the classroom teacher, Miss Larsen, has that expectation of them. She is not thinking of them as being thinking contributors. She’s still thinking in terms of how cute they are. And they are cute. But they are capable of being so much more.

Kristin: But how often do you hear the term, ‘they’re just kids’. That is a block to them, really. And it’s not in a bad way, but it is if you think about it.

Maureen: And you don’t want to push them to grow up any faster than they have to. And at the same time they’re capable of higher things.

Researcher: The expectations are not high enough sometimes.

Kristin: But when we say, ‘they’re just babies, just kids, we don’t want to push them too fast’, that’s if you’re doing it transmission way. Right? In a constructivist way – they are engaging, having fun, experiencing. And really deeply, and they are being kids. And they’re just getting the opportunity to go to the range of what their abilities are. Transmission-wise, if we’re treating them like transmission learners, sitting down, writing tests, aiming for outcomes, then yes, that’s starting to be inappropriate. But in a constructivist way, they can still be kids and still work at appropriate things but do so in a way that is different, more experience-based.

Researcher: More at the ‘world’ of the child.

Kristin: Exactly!

(Sophie, Maureen, Kristin-WGC-CIII, Dec, 2010)

The preservice teachers’ epistemological stance influenced their notions of the teacher’s role in a classroom. The ways in which they conceived knowledge created inherent assumptions about teaching roles and ultimately their use of tools and resources in the classroom to instigate the construction of knowledge on the students’ part. As social constructivist epistemology became more apparent in their pedagogy, the preservice teachers began to express frustration with the classroom learning resources

available to them. Sophie, in particular, noticed a discrepancy between the constructivist learning that her students wanted to do, with the static, fixed information in a book. During one particular lesson, she wanted to use an appropriately leveled, non-fiction book to guide the learning. However, the ways in which her students were responding to the reading and contributing to the knowledge creation in the classroom was noteworthy in the sense that the level of the book was far beneath the level of the classroom conversation.

The children seemed to have a very advanced understanding of what we were talking about. Like the eyes and how they see, and the pupils, and like, I remember one student actually said, ‘dilating’. That really made me, like, say ‘wow’ to myself. The book that I was using didn’t have much on that ... So I needed to somehow make it more advanced for them, like talking it out more. ...And I didn’t finish the book. (Sophie-PTD-CIII, Dec, 2010)

Sophie’s decision to discontinue with the book indicated that she was willing to leave her plan for the lesson behind. Her notion of the role of the teacher as being a knowledge facilitator had been expanded; it was quite clear that Sophie’s constructivist epistemology was influencing her pedagogical decisions. She chose to disregard her lesson plan, opting instead to facilitate a more advanced line of discussion.

The use of textbooks and lesson-plan guidebooks was taken up in a whole-group conversation. Sophie commented that her lesson planning had changed over the course of the research:

Sophie: At the beginning, I was, like, trying to be perfect in my lesson planning and also how I followed my plan. But now, it’s like I don’t even bother to go into

that much detail in the plan because you don't know how the students are going to go with it.

Researcher: And like Maureen was saying – you spend 20 hours on one lesson plan. How realistic is this to do?

Maureen: It's not realistic at all. I mean, in that way, social constructivism kind of takes the pressure off.

Sophie: And like, in your lesson planning for university they want specific wording – almost like, what you are going to say, verbatim

Researcher: ... it's almost like scripted instruction.

Kristin: One thing I learned, too, was that I can have a rough skeleton of a lesson plan but when you get there, there is so much more value in how those kids respond, how they want to move with the learning. And so these very detailed things that you have to prepare are like, useless. Now I feel that that sort of planning is a waste of my time because student A may all of a sudden come up with this idea, and I'm just going to totally go that direction.

Maureen: Yes, and that would be a better way of doing it. You just never thought of it because you're not able to think that way. We've been so taught to think one particular way about our planning and our teaching.

Like even resources. There's a lot more resources out there with the direct transmission model behind them. Lesson plans and all that. And if you're just starting out and you need something to go with, that can be something that you can sort of fall back on. You're going to consult a resource that has a direct lesson, right? So you go with that until you have the time or the experience to

start working differently. And when you're first starting out there's a lot of things sort of just coming at you. Like Miss Larsen was saying, you start with one subject and do that in a social constructivist way, and then sort of build into that. Don't jump in and try to make everything work.

Researcher: All of those teacher resources work because they are transferrable from one teacher to the next. And they are supposed to be 'teacher proof'. So it doesn't matter the skill of the teacher, you're supposed to be able to do it. And that removes you from the teaching, objectifies you, makes you simply a conduit for knowledge. (Kristin, Sophie, Maureen-WGC-CIII, Dec, 2010)

While their experiences with social constructivist pedagogy may invoke doubts regarding curriculum considerations within their long-term planning, their efforts with social constructivist pedagogy indicated that they will likely continue working with this approach. Each preservice teacher expressed their belief in the importance of social constructivist pedagogy and their desire to make it a central part of their instruction.

Cycle III - Theme 4: Understanding the Teacher-Educator's Role

Conversations with the preservice teachers have shown me the importance and value of the teachers' use of multiple epistemologies to inform pedagogical approaches. Emphasis can be placed on maintaining balance between teacher-guidance and student-initiated exploration, and between social learning and individual learning. Constructivist strategies such as student-centered learning, facilitation of group dialogue, planned and unplanned introduction of concept knowledge, opportunities to change or extend existing knowledge, and the development of students' metacognition (Richardson, 2003) must be balanced with teacher-directed transmission referents such as skills practice, rote

memorization and recall, and test-taking strategies. Methods derived from a transmissionist framework have value, as long as they are critically applied and their context is made clear. We spoke about this during our final whole-group conversation:

Researcher: There needs to be an understanding that multiple approaches to instruction must be at play within the classroom. And there is nothing wrong with this. Where I think we must be careful is when we blithely use one approach simply because it is the dominant or accepted or learned approach without really understanding the position we are putting ourselves and our students in. Are we unwittingly forcing ourselves to be conduits? Are we placing our students in positions of passive receivership?

Kristin: Right, because I know I'll be doing some direct instruction when I get out there. That's unavoidable.

Researcher: And I think that there's also a spectrum of this, too. We can be very radical in our approach or we can be more moderate.

Sophie: A little bit of this, a little bit of that.

Kristin: I'll be radical. There's no halfway with me!

That multiple epistemologies must be at play within the classroom is an important concept. Direct-instruction, social constructivist strategies, along with other methodologies for teaching and learning must be utilized to inform pedagogy. The challenge for teachers will be to deeply understand each approach and to allow for multiple epistemic perspectives in their approach to classroom instruction.

SUMMARY OF RESEARCH CYCLES

While each preservice teacher experienced setbacks, lesson ‘snags’, and concerns regarding the practical aspects of teaching (“I can’t get the SmartBoard to work!”), each problem was met with persistence and professionalism. Each preservice teacher struggled to understand pedagogical principles and worked to develop their social constructivist pedagogical repertoire. The preservice teachers frequently reflected upon their instructional design and implementation, and continued to work to incorporate social constructivism into their personal banks of working knowledge.

The design of this research study, with its iterative research cycles, provided opportunities for the preservice teachers to reinforce their thinking and to refine their understandings. Reconceptualization of epistemological orientation was begun through the appropriation and internalization of theoretical concepts, and the developing and growing understandings of the preservice teachers was demonstrated in multiple ways.

This study provided me with the opportunity to reflect on my own teaching, instruction and programmatic components. While teacher educators explore strategies to “develop the preservice teacher into a reflective educator and a life-long learner who perceives every experience as an opportunity for growth, change and development of understanding” (Hutchinson & Allen, 1997, p. 226), teacher educators should, as Freese (2006) suggests, consider the entire developmental process and not just the end product. A review of the research on epistemological change as a result of course content suggests that there are “cautious but positive conclusions that methods courses and field experiences can impact prospective teachers’ thoughts about practice and in some instances actual teaching practices” (Clift & Brady, 2005, p. 323).

CHAPTER 7: FINDINGS AND IMPLICATIONS FOR TEACHER EDUCATION

“Education, therefore, is a process of living and not a preparation for future living” – John Dewey

This chapter discusses the findings of the study and presents the implications for the field of teacher education. The implications are carefully qualified, as this study represents findings from a single teacher education program, a small group of study participants, and a limited number of teaching events. Thus, the findings of this study may not easily be transferred into other areas of teacher education or subjects of interest. Based on the findings of this study, however, a few lines of discussion open up. The chapter also suggests recommendations for further research.

In the study, I used research journals, onsite teaching observations, debriefings, and individual and group conversations to provide data that might answer my research questions. The purpose of the study was to examine the potential development of social constructivist pedagogical understanding in three preservice teachers over the course of an academic semester. The study drew on the central tenets of social constructivism to inform the conceptual framework, knowledge content, and the methodology employed. Analyzing the data provided the means of determining and understanding the ways that preservice teachers engaged with social constructivist principles and developed pedagogical practice. Analysis focused on aspects of teaching and discourse during which preservice teachers showed examples of a pedagogical approach informed by social constructivism; that is, instances from the preservice teachers’ teaching and discussions of their experiences that might be interpreted as examples of thinking or

acting from a social constructivist stance (Dunn, 2011). Careful consideration was given to understanding the types of supports that preservice teachers identified as being useful or necessary for aiding their concept formation and learning within their Zone of Proximal Development.

FINDINGS OF THE STUDY

The primary research question for this study was: **How might deep engagement with social constructivism inform or contribute to the development of pedagogy in preservice teachers?** This research question was supported by two sub-questions:

- 1. In what ways do preservice teachers demonstrate understanding of social constructivist theory in their classroom practice?**
- 2. What kinds of supports do preservice teachers identify as being the most valuable to them in developing social constructivist teaching?**

In order to answer the research questions, I designed a study that would provide three preservice teachers with an opportunity to engage with social constructivism as both theoretical knowledge and as pedagogical practice. Theoretical knowledge was gained through readings, conversations, debriefings, and whole-group conversation. Pedagogy was practiced during onsite teaching events. Challenges were identified throughout the research and disseminated within themes. The final research question linked into my personal practice as a teacher educator and asked what kinds of supports preservice teachers needed to enable them to develop a social constructivist practice.

Three main findings arose from this study. The first finding showed that the preservice teachers' epistemological stance played a significant role, not only in their practice, but in how they appropriated concepts and developed pedagogy. The second

finding was that the presence and use of social constructivist pedagogy in their onsite teaching classrooms was essential to the development of the preservice teachers' knowledge and experience. The preservice teachers' partial but ongoing appropriation of social constructivist concepts was linked to their partial, yet increasing use of social constructivist pedagogy in their classrooms. This finding indicates that difficult learning was occurring within the preservice teachers' ZPD: learning that may have been re-writing the preservice teachers' previously-held epistemic beliefs. The final finding of this study identified the supports that preservice teachers found invaluable to their learning.

In answering the first research question, which asked how deep engagement informs practice, it was found that the preservice teachers in this study drew from two main epistemological stances to inform their practice. A transmissionist epistemology was used by each preservice teacher, and, at the beginning of the study, this seemed to be the dominant epistemology employed. However, each preservice teacher was also aware of alternative ways to approach their teaching, and drew upon some aspects of social constructivist theory to inform their practice. Initially, their understandings of social constructivism seemed to be limited in terms of depth and breadth, with social constructivism being limited to 'group work' and 'class discussion'.

The first finding affirmed the notion that preservice teachers' epistemological stance plays a significant role in their development as classroom teachers. The ways in which the preservice teachers in this study drew upon their epistemic belief systems contributed to the ways in which they shaped themselves as teachers. The preservice teachers were encouraged to overcome existing perceptions of teaching and learning that

might have limited their learning or have limited their understanding of how to implement theory into practice. The effects of understanding and adding to existing epistemic beliefs were twofold: first it introduced the concept that knowledge is a socially constructed entity; and, second, it encouraged the appropriation of social constructivist principles.

As seen in this first finding, each preservice teachers' individual epistemological stance was linked to the degree to which their classroom was learner-centered or teacher-centered. This was reflected in the research participants' conception of their roles as 'good teachers' and co-constructors of knowledge. The most critical notion in the first finding was that these preservice teachers' epistemological beliefs were both enacted as pedagogy in the classroom and simultaneously reinforced by their experiences in the classroom.

I found that during the course of the research, there was movement towards much deeper engagement with social constructivist theory and pedagogy, with the preservice teachers showing their understanding of theory in their writing, their conversations, and their teaching language. The preservice teachers demonstrated pedagogical understanding in both how they designed their lessons and in how they taught them. Throughout the study, the preservice teachers worked to appropriate theoretical understandings of social constructivism and to incorporate those understandings into their classroom practice. The ways in which the preservice teachers used differing epistemologies was web-like and dynamic; this was seen throughout the study. However, as the study unfolded and the preservice teachers worked to appropriate theoretical understanding and to engage with social constructivist pedagogy in the classroom, what

was seen was a much more mindful and thoughtful use of different pedagogical approaches. Rather than freely moving along a continuum of practice from transmission to construction, as was seen at the beginning of the study, the preservice teachers demonstrated a much more deliberate and thoughtful engagement with their chosen pedagogical approach. They drew upon multiple epistemologies, but their choice of pedagogy was informed, deliberate, and showed deep understanding of teaching and learning processes. This study found that, given the proper supports, preservice teachers can appropriate theoretical knowledge of social constructivism and implement that knowledge as pedagogical practice; they can utilize social constructivism as a pedagogical choice in their teaching repertoire.

The preservice teachers identified two main supports that were essential to them in their efforts to appropriate and use social constructivism in their practice. The first support was that the presence and use of social constructivist pedagogy in the on-site teaching classroom was essential to the development of the preservice teachers' knowledge. This finding demonstrated the need for engagement with the pedagogy within the teaching classroom. Significantly, the use of social constructivist pedagogy in the onsite teaching classroom demonstrated the need for careful introduction of concepts and for thoughtful examination of the social constructivist paradigm, learning theory, and the pedagogical consequences. At the end of this research study, the participating preservice teachers were developing an understanding that knowledge can be seen as a socially constructed entity subject to interpretation, co-construction, and revision. Two of the preservice teachers – Kristin and Sophie – demonstrated through the design of their teaching events and their pedagogical approach that this epistemic belief was informing

their practice. As a result, they demonstrated the potential for developing sophisticated social constructivist teaching repertoires, as their belief systems fueled their persistence and willingness to continue practicing with this particular approach. The participant who maintained a more transmissionist pedagogical stance – Maureen - provided a contrast to this in the sense that her lesson design tended to reflect her previously held beliefs in the idea of knowledge as an objective, pre-existing entity. This preservice teacher may be less likely to develop as a social constructivist educator. Maintaining a positivist belief system while attempting to design and implement lessons within a social constructivist realm undermined her efforts to incorporate social constructivist teaching into her practice.

The findings of this study affirm much of the prior research in teacher education related to teacher beliefs, prior knowledge, and epistemological knowing and change. The introduction of theoretical concepts into teaching practice engages cognitive processes and opens up opportunities for learning in the ZPD; learning that must be supported through various meditational means in both university coursework and in field experience teaching sites. This study found that the most valuable supports to preservice teachers were provided through the presence of a teacher educator acting as a ‘more knowledgeable other’, through opportunities to engage with social constructivist principles in conversations with peers, and through field experience practice. The kinds of supports preservice teachers found most valuable were immediate feedback in the form of post-teaching debriefings, time for reflection, and opportunities to discuss their struggles, challenges and learning with their peers. The process of becoming a social

constructivist educator was challenging, yet through appropriate supports, not unattainable.

Vygotsky's explanation of the relationship between language and thought provides a compelling illustration of this. As Wertsch (1985) noted, the title of Vygotsky's book, *Thought and Language*, is more accurately rendered in the active voice as 'Speaking and Thinking', which captures the notion that speaking and thinking are ways of understanding and interacting with experience. In Vygotsky's (1985) analysis, the relationship between speaking and thinking is the most compelling example of the specific process of development in which theoretical social constructivist concepts are appropriated and transformed into useful pedagogy. Vygotsky (1985) noted that the movement from the social plane of functioning to the individual and internal plane of functioning, however, requires active engagement in social interaction with individuals acting as the more knowledgeable other. It is the socially situated use of language that enables the learners at a later time to recapture, reflect on, and transform experience. In this research, support was provided by both peers and teacher educators. The opportunity to use speech as a means of making sense of experiences with other participants is a crucial step, therefore, towards independent intellectual functioning and towards becoming social constructivist pedagogues.

When Maxine Green (Pinar, 1998) answered her own question, "Who am I?" she replied, "I am who I am not yet." The statement is particularly relevant to the findings of this study. The participating preservice teachers constantly drew from who they *are* in an effort to inform who they were *becoming*. Their prior experiences and understandings formed a framework into which new learning could be integrated – their 'becoming'

resulted from their efforts to appropriate challenging theoretical concepts and to examine and rework their epistemological beliefs. The effort to integrate the theoretical concepts presented in discussions into their teaching practice signifies the establishment of a ZPD and the potential for the expansion of understanding. As indicated through language used during conversations and post-teaching debriefings, the preservice teachers' understandings of social constructivist theory expanded and deepened along with their growing understanding of the implications of social constructivist pedagogy for classroom practice. "Learning leads development" (Vygotsky, 1987). However, the findings of this study clearly show that the cognitive appropriation of concepts is easy compared to the challenging task of enacting those understandings into a pedagogical approach. "New teachers learn to teach in a community that enables them to develop a vision for their practice; a set of understandings about teaching, learning and children; dispositions about how to use this knowledge; practices that allow them to act on their intentions and beliefs, and tools that support their efforts" (Hammerness, Darling-Hammond, Berliner, Bransford, Cochran-Smith & McDonald, 2005, p. 385). Pedagogical teaching – the intentional integration of theory with practice and reflection – develops over time and must evolve and be supported across many experiences.

IMPLICATIONS FOR TEACHER EDUCATION

Given the themes presented throughout Chapter Four, the implications of this study centre upon the programmatic considerations of teacher education. The first implication is that preservice teachers and teacher educators should be encouraged to engage in considerable deliberation regarding their individual epistemological stance and how it informs or affects their conceptions of knowledge and pedagogy. The second

implication impacts both university classrooms and field experience classrooms in that preservice teachers need more opportunities to participate in and observe social constructivist pedagogy in practice.

Zeichner and Conklin (2005) suggest that, “close study of the inner workings of a teacher education program will help illuminate the critical features of programs that make a difference in producing desired outcomes” (p. 700). This statement is significant on two points. First, it emphasizes the notion that examining the effects of teacher education must consider coursework and field experiences together, rather than seeing them as individual components. This research study supports contemporary understandings that practicum experiences and educational coursework must align; a deliberate connection between theory and practice must be made in order to make possible any epistemological examination or pedagogical development. This concurs with the review of the literature on preservice teacher reflection, preservice teacher’s beliefs, and social constructivist theory. The second point is that teacher education programs must articulate an understanding of what the ‘desired outcomes’ of the teacher education program are. This research points to the need for teacher education programs to have an implicit or programmatic definition of “good teaching”. Korthagen and Wubbles (2001) showed that a programmatic definition of good teaching can help teacher educators to envision and structure coursework and field experiences that support that definition. Linked with this notion is that teacher educators themselves must be constantly and consciously examining their own role as teacher educators and they must engage in the same sort of self-study and critique of practice as they ask their students to do. Learning within the ZPD is critically important for teacher educators as well as for preservice teachers. If a

teacher education program functions on the principles of social constructivist thought, then it is important that preservice teachers and teacher educators know their stance so that they will be able to appropriately and meaningfully interact with and respond to the course material and with each other.

Field experiences are important occasions for teacher learning and are not simply a time for preservice teachers to demonstrate or apply things previously learned (Zeichner, 1996). Assumptions about the purpose and scope of the teaching practicum can limit the experience for both mentor and preservice teachers. Cochran-Smith and Lytle (2009) offered ideas for approaching the practicum as an opportunity for inquiry and learning and suggested that classroom students, the preservice teacher and the mentor teacher would benefit from such an approach.

In this study, preservice teachers were provided a 'curriculum' of study through readings, whole-group and peer conversations, and teaching practice, and they were asked to link their theoretical appropriation efforts into classroom practice. This is not unlike university teacher education settings in which preservice teachers are provided with teaching methods courses and practicum field experiences. It is hoped that practicum field experiences and teacher education coursework will align. However, it may not always be the case. This study found that one of the most important supports for preservice teachers was the presence of a more knowledgeable other in classroom practical situations. Placement in field experience sites is often based on mentor-teacher availability and other administrative considerations rather than what is best for the learning of the preservice teacher. Classroom teachers who agree to become mentors for preservice teachers are often not prepared or supported in that role (Valencia, Martin,

Place, & Grossman, 2009). Crucially, this often results in a disconnection between mentor teachers and preservice teachers. Mentor teachers often have little understanding of the purpose of the field experience, the theoretical or conceptual understandings advocated in university coursework, or the contemporary pedagogical approach to instruction the preservice teachers are trained to utilize. In the reverse, teacher educators themselves often have very little understanding of the specific practices used in the placement classrooms or the instructional approach of the mentor teacher. The question for the teacher education program then becomes, “How can we best determine student teacher and mentor teacher compatibility to ensure more consistent pedagogical matches?”

RECOMMENDATIONS FOR FURTHER RESEARCH

From this research study, two main avenues of continuing research have emerged. Each avenue for exploration would be conducive to interpretive inquiry, case study, or other forms of qualitative research.

Social Constructivist Learning Environments ...

The first avenue for further research would be to explore how a teacher education course in social constructivist pedagogy might contribute to preservice teachers’ developing understandings of their own pedagogy. Rather than social constructivist theory being offered as small components of study within the context of curriculum and pedagogy courses, an entire course might be dedicated to this theory and pedagogical approach. Expanding preservice teachers’ experiences with social constructivism – in both theoretical and practical ways - might lead to more in-depth knowledge that can be

utilized in their own developing pedagogy. A full teacher education course centering on social constructivist theory and pedagogy might provide more opportunities for co-construction of understanding among peers and in group settings in both coursework and fieldwork opportunities.

The literature relating to social constructivist learning environments in university teacher education programs is sparse, but examples can be found. In one such study, Tynjala (1999) examined the potential of social constructivist learning environments for developing expert knowledge. The purpose of the study was to compare the learning of students who studied course material in a social constructivist learning environment with those of students who learned the same material under traditional teaching and studying conditions. The study itself did not deal with social constructivism as the expert knowledge to be learned, but focused on material presented in an educational psychology course. Students who were learning in the social constructivist learning environment read course material, engaged in reflective writing, discussed their learning with peer groups, and were asked to monitor their own learning through meta-cognitive strategies. The study showed that there were differences in the learning of the two groups of students. Although all students in both groups described their learning in terms of knowledge acquisition, the clearest differences between the groups appeared in the students' subjective descriptions of their own learning. Most of the learners in the social constructivist group stated that they had gained an ability to apply knowledge, developed their critical thinking skills, changed their conceptions of the topics studied, and moved "from epistemological dualism towards a more relativistic view of knowledge" (Tynjala,

1999, p. 427). Similar descriptions of learning were rare among the group of students learning with traditional transmission approaches.

Although some of the learners in Tynjala's (1999) study were given opportunities to learn within and from a social constructivist perspective, it is important to note that social constructivism informed the methodology only; it did not form the content of the expert knowledge presented in the course. Additionally, Tynjala's (1999) study was purely theoretical in the sense that it did not include a practice period or opportunities for field experience. Thus, Tynjala suggested that theoretical material be coupled with learning processes and be centred on the main principles of constructivist pedagogy (p. 427). He further stated that the issue in teacher education is clear: "Designing social constructivist learning environments requires of the teacher much more than traditional teaching because the main emphasis shifts from the presentation of information to guiding students' learning processes. This is a task where university teachers need education and support. Thus, the pedagogical training of higher education teachers and students is the question of the day" (Tynjala, 1999, p. 429).

The question that remains is how to encourage and implement powerful knowledge-mediated social constructivist pedagogy in a preservice teacher education course. Based on the findings of the research study presented in this thesis, it is recommended that teacher educators develop a programmatic framework for the development of social constructivist pedagogy. This framework would serve to guide preservice teachers' educational experiences in both coursework and in fieldwork. Hatton and Smith (1995) called for teacher education programs to do just this: "The theoretical framework ... adopted by a particular program will depend upon the purpose

and focus, and therefore upon the assumptions about teaching and teacher education upon which these are based” (p. 35). Teacher educators could identify techniques and methods that can be used to strengthen the relationship between preservice teachers’ prior knowledge and experiences, their ongoing development of social constructivist pedagogy, and their experiences in practice.

... And The Learner Within

The second avenue for further research suggested by this study concerns the learner within a social constructivist classroom. Scholars and educators advocate basic tenets of social constructivism: there is emphasis on the use and transformation of knowledge, problem solving, metacognitive and self-regulative skills, and fundamental importance is placed on social interaction among learners, peers, and teachers. The benefits of this approach have been documented in the literature as a pedagogy that supports contemporary learners and contemporary understandings of the ways students learn. However, what is significant is how little attention has been paid to social constructivist instruction as learners in the elementary classroom experience it and how its challenges might look to them. “Any pedagogy – but especially constructivism, given its commitments – does well to include a vision of how students experience it” (Perkins, 1991, p. 21).

Often, students who are experiencing social constructivist learning environments are asked to cope with very complex situations. In a social constructivist classroom, students are expected to form independent (but socially mediated) conclusions about knowledge and concepts. Learners are asked to continually refine their conceptions through participating in discussion with classmates and are encouraged to monitor their

own thought processes and meta-cognitive strategies. The challenge for the learner is that they may have very little familiarity with this way of learning; they can feel lost as they grapple with open-ended tasks, struggle to understand how to function as independent and co-learners, and have difficulties recognizing that the “right answer” is not important (Richardson, 2003). The direct instruction of concepts that they have been expecting from the traditional, transmissionist teacher is missing. In much the same way that preservice teachers look for direct or transmission instruction about how to teach, many learners are looking for direct instruction about what to learn.

In one of the only studies of its kind, *Student Perceptions of the Social Constructivist Classroom* (Hand, Treagust, & Vance, 1997) examined students’ perceptions of the changing nature of a classroom as the result of the implementation of a social constructivist approach. The study was conducted over a four-year period and accessed learners in secondary high school science classes. The classes were taught by teachers who had received an intensive in-service program aimed at introducing social constructivist approaches into secondary science classrooms. Through the use of classroom observations of students, interviews, and questionnaires, Hand, Treagust, and Vance (1997) determined that students were aware of the changing roles and responsibilities required of them within a social constructivist environment. They further determined that over the course of the study, learners in a constructivist environment gained confidence in their involvement and demonstrated an appreciation for the learning opportunities provided through the social constructivist approach. However, it took time for confidence and appreciation of process to grow. The authors of the study call for further research that examines, “in much more detail how students perceive their role

within a social constructivist classroom” (Hand, Treagust, & Vance, 1997, p. 574). Further research may contribute to understanding how students experience social constructivist learning environments and how educators can best support their social constructivist learners.

LIMITATIONS

This study was limited to three preservice teachers in their final year of their teacher education program in a large Canadian university. The small number of research participants and their specific interactions over the restricted time frame limit the findings of this study. Research and data-gathering phases for this study was limited to a single academic semester, and onsite teaching experiences were limited to grade one classrooms within a single school. This study spanned only a single academic semester and did not follow teacher candidates into their first years of professional teaching.

Accordingly, the findings of this study cannot be generalized to the teacher education field as a whole. However, the methodology of the research may be replicated for other epistemological and/or pedagogical development studies in order to evaluate or suggest program changes related to new courses or field experience recruitment and placement strategies.

A limitation to the findings of this study arises from the very nature of interpretive case study inquiry. In case study research, the data, by necessity, is given to interpretation by a single principal research investigator. The researcher’s voice, interpretive autonomy, and representation (Clandinin & Connelly, 1992; Chase, 2005) influence the presentation of data, as in the context of this study. Despite all efforts made to retain the quality of study, qualitative research is inherently interpretive and therefore

subjective to the principal investigator's analytical stance. As such, the principal investigator's analysis and interpretation are inherently privileged in this case study.

CONCLUDING REMARKS

The research topic for this dissertation was chosen because of questions I had about how teachers develop pedagogical practices. Pedagogical practice, I have found, is a coming-together of the life experiences of student teachers combined with their teacher education programs and an enactment of these into classroom teaching. My questions centered upon how pedagogy was effectively fostered in teacher education. Prior to this study I had not seen a clear and deliberate description of the processes through which preservice teachers must move in order to develop an understanding of pedagogical thinking. Preservice teachers enter into their teacher education programs already 'imprinted' with life and school experiences that colour their perceptions and understandings of what it means to be a 'good teacher'. My review of the literature in preservice teacher education and social constructivist pedagogical development shows a clear body of literature that illustrates that preservice teachers are able to move beyond technical aspects of teaching into pedagogically-based practices that use social constructivism as a basis for thinking, learning and teaching. However, it is clear that immersion in teacher education programs of study does not automatically ensure the development of pedagogical thinking. Therefore, it is important to promote, inform, and guide a habit of social constructivist-based pedagogy during teacher education courses. Preservice teachers and teacher educators alike should perceive social constructivism as being a fundamental approach to teaching and learning and as being intrinsically tied to the development and pedagogical thinking of professional educators.

REFERENCES

- Abell, S. K., Rogers, M. A. P., Hanuscin, D. L., Lee, M. H., & Gagnon, M. J. (2009). Preparing the next generation of science teacher educators: A model for developing PCK for teaching science teachers. *Journal of Science Teacher Education*, 20(1), 77-93.
- Adler, P. A., & Adler, P. (1994). Observational techniques. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 377 - 392). Thousand Oaks, CA: Sage Publications.
- Anderson, J.R., Reder, L.M., & Simon, H.A. (1996). Situated learning and education. *Educational Researcher* 25(4), 5-11/
- Applebee, A.N. (1996). *Curriculum as conversation: Transforming traditions of teaching and learning*. Chicago: The University of Chicago Press.
- Applefield, J. M., Huber, R., & Moallem, M. (2001) Constructivism in theory and practice: Towards a better understanding. *High School Journal*, 84(2). Retrieved from Academic Search Complete database. (AN00181498)
- Ashton, P. (1999). Integrating educational psychology into professional studies: linking theory into practice. In R. A. Roth (Ed.), *The role of the university in the preparation of teachers* (pp. 210-219). Philadelphia, PA: Falmer Press, Taylor & Francis, Inc.
- Asselin, M. (2000). Confronting assumptions: Preservice teachers' beliefs about reading and literature. *Reading Psychology*, (21) pp. 31-55.
- Au, K. (1998). Social constructivism and the school literacy of students of diverse backgrounds. *Journal of Literacy and Research*, 30(2) pp. 297-319
- Au, K.H. & Blake, K.M. (2003). Cultural identity and learning to teach in a diverse community: Findings from a collective case study. *Journal of Teacher Education* 54(3), 192-205.
- Bainbridge, J. & Macy, L. (2008). Voices: Student teachers link teacher education to perceptions of preparedness for literacy teaching. *Teacher Education Quarterly*, 35(2), 65-83. Retrieved from Academic Search Complete database. (AN35045198)
- Ball, A.F. (2000). Teachers' developing philosophies on literacy and its use in urban schools: A Vygotskian perspective on internal activity and teacher change. In C.D. Lee & P. Smagorinsky, (Eds.), *Vygotskian perspectives on literacy research: Constructing meaning through collaborative inquiry* (pp. 226-256). Cambridge University Press

- Barr, R., Watts-Taffe, S., Yokota, J., Ventura, M., & Caputi, V. (2000). Preparing teachers to teach literacy: Rethinking preservice literacy education. *Journal of Literacy Research*, 32(4), 463-470
- Basit, T. N. (2003). Manual or electronic? The role of coding in qualitative data analysis. *Educational Research*. Vol. 45, No. 2, 143-154. Retrieved from Academic Search Complete database. (AN10473857)
- Beck, C., & Kosnik, C. (2002). The importance of the university campus program in preservice teacher education. *Journal of Teacher Education*, 53(5), 420-432
- Beck, C. & Kosnik, C. (2006). *Innovations in teacher education: A social constructivist approach*. State University of New York Press, Albany.
- Black, A., & Ammon, P (1992). A developmental-constructivist approach to teacher education. *Journal of Teacher Education*, 43(5) pp. 323-335.
- Boostrom, R. (1994). Learning to pay attention. *Qualitative Studies in Education*. 7(1), pp. 51-64.
- Borko, H. & Putnam, R. (1996). *Handbook of educational psychology*. Macmillan
- Breunig, M. (2006). Radical pedagogy as praxis. *Radical Pedagogy*, 8(1) pp. 1-18
- Britzman, D. P. (2003). *Practice makes practice: a critical study of learning to teach* (Rev. ed.). Albany, NY: State University of New York Press.
- Brouwer, N., & Korthagen, F. (2005). Can teacher education make a difference? *American Educational Research Journal*, 42(1). 153-224.
- Brownlee, J. M. (2003) Paradigm shifts in preservice teacher education students: A case study of changes in epistemological beliefs for two teacher education students. *Australian Journal of Educational and Developmental Psychology*, 3, 1-6.
- Brownlee, J., Schraw, G., Berthelsen, D. (2011). Epistemic beliefs and Teacher Education: An Emerging Field of Research. In Jo Brownlee, Gregg Schraw & Donna Berthelsen (Eds.), *Epistemic beliefs and Teacher Education* (pp. 3-21). New York: Routledge
- Bruner, J. (1960). *The process of education*. Cambridge, MA: Harvard University Press.
- Bruner, J. (1985). Vygotsky: A historical and conceptual perspective. In J. Wertsch (Ed.), *Culture, communication, and cognition: Vygotskian perspectives* (pp. 21-34). London: Cambridge University Press.
- Bruner, J. (1997). Celebrating divergence: Piaget and Vygotsky. *Human Development*, 40 (2) pp. 63-73.
- Brown, J.S., Collins, A., & Duguid, P. (1989) Situated cognition and the culture of teaching. *Educational Researcher*, 18(1), 32-42. Retrieved from <http://www.jstor.org/stable/1176008>
- Bullough, R.V.Jr. (1991). Exploring personal teaching metaphors in preservice teacher education. *Journal of Teacher Education*. 42(1) pp. 43-51

- Bullough, R.V., Jr., Knowles, J.G., & Crow, N.A. (1991). *Emerging as a teacher*. London & New York: Routledge.
- Calkins, L. (1986). *The art of teaching writing*. Heinemann
- Cambourne, B. (2002). Holistic, Integrated Approaches to Reading and Language Arts Instruction: The Constructivist Framework of an Instructional Theory. In A.E. Farstrup, & S. Samuels (Eds.), *What Research Has to Say About Reading Instruction* (pp. 25-47). Newark, DE: International Reading Association.
- Case, K., & Hemmings, A. (2005). Distancing strategies: white women preservice teachers and antiracist curriculum. *Urban Education*, 40(6), 606–626.
- Chase, S. E. (2005). Narrative inquiry: Multiple lenses, approaches, voices. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (pp. 651-679). Thousand Oaks, CA: Sage Publications.
- Clandinin, D.J. & Connelly, F.M. (1992). Teacher as curriculum maker. In P. Jackson (Ed.). *Handbook of research on curriculum* (pp. 363-401). New York: Macmillan.
- Clark, C.M. (1988). Asking the right questions about teacher preparation: Contributions or research on teaching thinking. *Educational Researcher*, (17)2, p. 5-12
- Clift, R. T., & Brady, P. (2005). *Studying teacher education: the report of the AERA panel on research and teacher education*. Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Cobb, P. (1994) Where is the mind? Constructivist and sociocultural perspectives on mathematical development, *Educational Researcher*, 23(7), pp 13-20.
- Cobb, P. (2010). *A Journey in Mathematics Education Research: Insights from the Work of Paul Cobb* (Vol. 48). E. Yackel, K. Gravemeijer, & A. Sfard (Eds.). Springer.
- Cochran-Smith, M., & Lytle, S. (1999). Relationships of knowledge and practice: Teacher learning in communities. A. Iran Nejad and C.D. Pearson (Eds.), *Review of Research in Education* vol. 24, pp. 249-305
- Cook-Sather, A. (2003). Movements of mind: The matrix, metaphors, and re-imagining education. *Teachers College Record*, 105 (6), pp. 946-977.
- Copeland, W. D., & Marianne D'Emidio-Caston, M. (1998). Indicators of development of practical theory in preservice teacher education students. *Teaching and Teacher Education*, 14(5), 513-534.
- Cranton, P. (2006). *Understanding and promoting transformative learning* (2nd ed.). San Francisco: Jossey-Bass.
- Crotty, M. (2003). *Foundations of social research: Meaning and perspective in the research process*. SAGE Publications Ltd.
- Cresswell, J.W. (1997) *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks: Sage Publications.
- Crook, C. (1991). Computers in the zone of proximal development: Implications for evaluation. *Computers & Education*. 17(1), pp. 81-91. doi:10.1016/0360-1315(91)90075-3

- Cunningham, D.J. (1992). Beyond education psychology: Steps toward an educational semiotic. *Educational Technology* 33: 12-19.
- Cunningham, J.W., & Fitzgerald, (1996), Epistemology and reading. *Reading Research Quarterly*. 31 pp. 36-60
- Darling-Hammond, L. (1997). *The right to learn*. San Francisco: Jossey-Bass
- Darling-Hammond, L. (2006). *Powerful teacher education: Lessons from exemplary programs*. San Francisco, CA: Josey-Bass
- Darling-Hammond, L., Hammerness, K., Grossman, P., Rust, F., & Shulman, L. (2005). The design of teacher education programs. In L. Darling-Hammond & J. Bransford (Eds.), *Preparing teachers for a changing world: What teacher should learn and be able to do*. pp. 390-441. San Francisco: Jossey-Bass.
- Davis, B. (2005). Teacher as ‘consciousness of the collective’. *Complicity: An International Journal of Complexity and Education*. Vol 2 (2005), No. 1, pp. 85 – 88. Retrieved from: www.complexityandeducation.ca
- Davis, E.A., (2006). Characterizing productive reflection among preservice elementary teachers: Seeing what matters. *Teaching and Teacher Education*, 26 pp. 281-301
- Davis, B. & Sumara, D., & Luce-Kapler, R. (2000). *Engaging minds: Learning and teaching in a complex world*. New Jersey: Lawrence Erlbaum Associates, Inc.
- Deal, D. & White, C.S. (2006). Voices from the classroom: Literacy beliefs and practices of two novice elementary teachers. *Journal of Research in Childhood Education*. (pp. 313-317)
- Denton, P. (2007). Open-ended questions: Stretching children’s academic and social learning. The power of our words. Northeast Foundation for Children, Inc.
- Denzin, N.K., & Lincoln, Y.S. (1994). Entering the field of qualitative research. In N. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (pp. 1-15). Thousand Oaks, CA: Sage.
- Denzin, N.K., & Lincoln, Y.S. (2005). *The sage handbook of qualitative research*. Thousand Oaks, CA: Sage Publications.
- Dixon-Krauss, L.A. (1992). Whole language: Bridging the gap from spontaneous to scientific concepts, *Journal of Reading Education*, 18, 13-17.
- Duckworth, E. (1994). “*The having of wonderful ideas*” and other essays on teaching and learning. New York: Teachers College Press
- Dunn, W. (2011). Working Toward Social Inclusion Through Concept Development in Second Language Teacher Education. In K.E. Johnson & P.R. Golombek (Eds.), *Research on Second Language Teacher Education: a sociocultural perspective on professional development* (pp. 50-65) New York, Routledge
- Dong, Y.R. (2004). *Preparing secondary subject area teachers to teach linguistically and culturally diverse students*. Clearing House, 77(5), 202-206

- Ebby, C. B. (2000). Learning to teach mathematics differently: the interaction between coursework and fieldwork for preservice teachers. *Journal of Mathematics Teacher Education*, 3, 69-97
- Eisner, E. (2002). The centrality of curriculum and the function of standards. In E. Eisner (Ed.), *The arts and creation of mind* (pp. 148-177). New Haven, CT: Yale University Press.
- Ellis, J. (1998). Interpretive inquiry as a formal research process. In J. Ellis (Ed). *Teaching from understanding: teacher as interpretive inquirer*. New York; Garland Publishing, Inc.
- Ellis, J. (2006). Research children's experience hermeneutically and holistically. *The Alberta Journal of Educational Research*, Vol. 52, No. 3, Fall, 2006, 111-126. Retrieved from ProQuest Document ID: (1175257531)
- Emig, J. (1971). *The composing processes of twelfth graders*. Urbana; NCTE
- Evans, L. (2002). *Reflective practice in educational research: Developing advanced skills*. Continuum International Publishing Group
- Feldman, A., Divoll, K., & Rogan-Klyve, A. (2009). Research education of new scientists: Implications for science teacher education. *Journal of Research in Science Teaching*, 46(4), 442-459.
- Feiman-Nemser, S., & Remillard, J. (1996). Persepctives on learning to teach. In F.B. Murray (Ed.), *The Teacher Educator's Handbook*. (pp. 63-91). San Francisco: Jossey Bass
- Fernyhough, C. (2008) Getting Vygotskian about theory of mind: mediation, dialogue, and the development of social understanding. *Developmental Review*, 28 (2), pp. 225-262. doi:10.1016/j.dr.2007.03.001
- Fontana, A., & Frey, J.H. (1994). Interviewing: The art of science. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 361-376). Thousand Oaks, CA: Sage Publications.
- Fosnot, C.T. (1989). *Enquiring teacher, enquiring learners: A constructivist approach to teaching*. New York: Teachers College Press.
- Fosnot, C.T. (1996). Constructivism: A psychological theory of learning. In C.T. Fosnot (Ed.), *Constructivism: Theory, Perspectives, and Practice*. New York: Teachers College Press.
- Fosnot, C. T. (Ed.). (2005). *Constructivism: Theory, perspectives, and practice* (Second Edition ed.). New York: Teachers College, Columbia University.
- Fosnot, C. T., & Perry, R.S. (2005). Constructivism: A psychological theory of learning. In C.T. Fosnot (Ed.), *Constructivism: Theory, perspectives, and practice*. New York: Teachers College Press
- Freese, A. R. (2006). Reframing one's teaching: Discovering our teacher selves through reflection and inquiry. *Teaching and Teacher Education*, 22, 100- 119.

- Gay, G. & Kirkland, K. (2003). Developing cultural critical consciousness and self-reflection in preservice teacher education. *Theory Into Practice*, 42, 181-187.
- Goodlad, J. (1984). *A place called school*. New York: McGraw Hill.
- Goodman, K. (1986) *What's whole in whole language?* Portsmouth, New Hampshire. Heinemann.
- Graves, D.H. (1983). *Writing: Teachers and children at work*. Heinemann
- Grennon Brooks, J. & Brooks, M. (1993). *The case for constructivist classrooms*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Gruber, H.E., & Voneche, J.J. (1977). *The essential Piaget*. New York: Basic Books.
- Guba, E.G. & Lincoln, Y.S. (1994). Competing paradigms in qualitative research. In N. Denzin & Y. Lincoln (Eds), *Handbook of Qualitative Research*. Thousand Oaks, CA: Sage.
- Gupta, R. (2004). Old habits die hard: Literacy practices of pre-service teachers. *Journal of Education for Teaching*, 30(1), 67-78
- Halliday, M. (1969). Relevant models in language. *Educational Review*, 22(1), 26-37. doi: 10.1080/0013191690220104
- Hammerness, K., Darling-Hammond, L., Bransford, J., Berliner, D., Cochran-Smith, M., McDonald, M. (2005). How teachers learn and develop. In L. Darling-Hammond & J. Bransford (Eds.), *Preparing teachers for a changing world: What teachers should learn and be able to do* (pp. 358-389). San Francisco: Jossey-Bass.
- Hand, B., Treagust, D. & Vance, K. (1997). Student perceptions of the social constructivist classroom. *Science Education*, (81)5, pp. 561-575
- Hatch, J.A., (2002). *Doing qualitative research in education settings*. State University of New York Press, Albany
- Hatton, N., Smith, D. (1995). Reflection in teacher education: Towards definition and implementation. *The University of Sydney: School of Teaching and Curriculum Studies*. Retrieved from: <http://www2.edfac.usyd.edu.au/LocalResource/Study1/hattonart.html>
- Heibert, J., Morris, A.K., & Glass, B. (2003). Learning to teach: An “experiment” model for teaching and teacher preparation in mathematics. *Journal of Mathematics Teacher Education*. (6) pp. 201-222
- Hlebowitsh, P. (2005). Generational ideas in curriculum: A historical triangulation. *Curriculum Inquiry*. 35(1), 73-87. doi: 10.1111/j.1467-873X.2005.00316
- Holt-Reynolds, D. (1992). Personal history-based beliefs as relevant prior knowledge in course work. *American Educational Research Journal*. 29(2) pp. 325-349
- Holt-Reynolds, D. (2000). What does the teacher do?: Constructivist pedagogies and prospective teachers’ beliefs about the role of a teacher. *Teaching and Teacher Education*, 16(1), pp. 21-32. doi: 10.1016/S0742-051X(99)00032-3

- Hollingsworth, S. (1989). Prior beliefs and cognitive change in learning to teach. *American Educational Research Journal*, 26(2), 160-189.
- Hruby, G. G. (2001). Sociological, postmodern, and new realism perspectives in social constructionism: Implications for literacy research. *Reading Research Quarterly*, 36(1), 48-62. Retrieved from Education Research Complete database. (AN4020883)
- Hutchinson, C., & Allen, K. (1997). The reflection integration model: A process for facilitating reflective learning. *Teacher Educator*, 32(4), 226-233
- Jackson, P. (1992). Conceptions of curriculum and curriculum specialists. In P. Jackson (Ed.), *Handbook of research on curriculum* (pp. 3 - 40). New York: Macmillan.
- Jewett, P. (2007). Reading knee-deep. *Reading Psychology* 28, pp. 149-162. doi: 10.1080/02702710601186365
- John-Steiner, V., & Mahn, H. (1996). Sociocultural Approaches to Learning and Development: A Vygotskian Framework. *Educational Psychologist*, 31 (3/4), 191-206. (AN9710150897)
- Joseph P. and Burnaford, G. (2002) (Eds.). *Images of schoolteachers*. New York: Lawrence Erlbaum Associates.
- Karpov, Y.V. (2005). *The neo-Vygotskian approach to child development*. New York. Cambridge University Press.
- Kaufman, D. (1996). Constructivist-based experiential learning in teacher education. *Action in Teacher Education*, 18(2), 40-50. (AN199619704813006)
- Kaufman, D. (2004). *Constructivist issues in language learning and teaching*. Annual Review of Applied Linguistics. 24, p. 303-319, Cambridge University Press. doi:10.1017/S0267190504000121
- Kelly, P.R., & Farnan, N. (1991) Promoting critical thinking through response logs: A reader-response approach with fourth graders. In J. Zutell & McCormick (Eds.), *Learner factors/teacher factors: Issues in literacy research and instruction*. 40th Yearbook of the National Reading Conference (pp. 277-284). Chicago: National Reading Conference.
- Kelly, P.R., Farnan, N., & Richardson, J. (1996) Reader response: A way to help children with learning difficulties think about literature. *Reading & Writing Quarterly*. 12(2), 137-148.
- Kim, B. (2001). Social constructivism. In M. Orey (Ed.) *Emerging perspectives on learning, teaching, and technology*. Association for Educational Communications and Technnology
- Kinnucan-Welsch, K., & Jenlink, P. (1998). Challenging assumptions about teaching and learning: Three case studies in constructivist pedagogy. *Teaching and Teacher Education*, 14(4), 413-427. doi:10.1016/S0742-051X(97)00053-X

- Kirschner, P., Sweller, J., & Clark, R. (2006). Why minimal guidance during instruction does not work: An analysis of the failure of constructivist discovery, problem-based, experiential, and inquiry-based teaching. *Educational Psychologist*, 41, pp. 75–86.
- Kvale, S (1996) *InterViews: an introduction to qualitative research interviewing*. Thousand Oaks: Sage.
- Labov, W. & Waletzky, J. (2003). Narrative analysis: Oral versions of personal experience. In Paulson, C.B. & Tucker, G.R. (Eds.) *Sociolinguistics: the essential readings*. Blackwell Publishing.
- Lampert, M. & Clark, C. (1990). Expert knowledge and expert thinking in teaching : A reply to Floden and Klinzig. *Educational Researcher* , 19 (4), 21-23, 42
- Lantolf, J. P. (2000). *Sociocultural theory and second language learning*. Oxford University Press.
- Lee, C.D., & Smagorinsky, P. (Eds.) (2002). *Vygotskian perspectives on literacy research: Conducting meaning through collaborative inquiry*. Cambridge University Press
- Leont'ev, A.N. (1981). The problem of activity in psychology. In J, Wertsch (Ed.), *The concept of activity in Soviet psychology* (pp. 37-71). Armonk, NY: Sharpe
- Lortie, D.C. (1975). *Schoolteacher: A sociological study*. Chicago, IL: University of Chicago Press
- Loughran, J. (1997). An introduction to purpose, passion and pedagogy. In J. Loughran & T. Russel (Eds.), *Teaching about teaching: Purpose, passion and pedagogy in teacher education* (pp. 1-9). London, Washington D.C.: The Falmer Press.
- MacKinnon, A. & Scarff-Seater, C. (1997). Constructivism: Contradictions and confusion in teacher education. In V. Richardson (Ed), *Constructivist teacher education: Building new understandings*. (pp. 38-55). Washington, DC: The Falmer Press.
- Many, J., Howard, F., & Hoge, P. (2002). Epistemology and preservice teacher education: How do beliefs about knowledge affect our students' experiences? *English Education*. 34(4), pp. 302-322.
- Marchand-Martella, N. E., Slocum, T. A., & Martella, R. C. (Eds.). (2004). Introduction to Direct Instruction. Boston, MA: Allyn and Bacon
- Mezirow, J. (2002), *Transformative Learning: Theory to Practice*. *New Directions for Adult and Continuing Education*, 1997: 5–12. doi: 10.1002/ace.7401
- McGee, L. (1992). An exploration of meaning construction in first graders' grand conversations. In D.J. Leu & C.K. Kinzer (Eds), *Literacy research, theory and practice: Views from many perspectives*. 41st yearbook of the National Reading Conference (pp. 177-186),. Chicago: National Reading Conference.

- McMahon, S. I. (1997). Using documented written and oral dialogue to understand and challenge preservice teachers' reflections. *Teaching and Teacher Education*, 13(2), 199-213.
- Meier, D. (2000). *Will standards save public education?* Boston: Beacon
- Mercer, N. (1994) Neo-Vygotskian theory and classroom education. In Stierer, B. & Maybin, J. (Eds.), *Language, literacy and learning in educational practice: A reader*. The Open University.
- Merriam, S. (1998). Case studies as qualitative research. *Qualitative research and case study applications in education*. (pp. 26-43) San Francisco, CA: Jossey-Bass/Wiley.
- Merriam, S. (1998). What is qualitative research? *Qualitative research and case study applications in education*. (pp. 3-24) San Francisco, CA: Jossey-Bass/Wiley.
- Mezirow, J., & Associates (Eds.). (2000). *Learning as transformation: critical perspectives on a theory in progress* (1st ed.). San Francisco: Jossey-Bass.
- Mezirow, J. (2002). Transformative learning: Theory into practice. *New Directions for Adult and Continuing Education*. Wiley.
- Mintrop, H. (2001). Educating students to teach in a constructivist way – can it all be done? *Teachers College Record*, 103(2), 207-239. Retrieved from <http://www.tcrecord.org.login.ezproxy.library.ualberta.ca/library>
- Moll, L.C. (1990). Introduction. In L.S. Moll (Ed.), *Vygotsky and education: Instructional implications and applications of sociohistorical psychology* (pp. 1-27). NY: Cambridge University Press.
- Moore, R. (2003). Reexamining the field experiences of preservice teachers. *Journal of Teacher Education*, 54(1), 31-42.
- Mischler, E. (1986). The analysis of interview-narratives. In Sarbin, T.R. (Ed). *Narrative psychology; the storied nature of human contact*. Praeger.
- Myck-Wayne, (2007). *Linking theory and practice in teacher education: An analysis of the reflective-inquiry approach to preparing teachers to teach in urban schools*. ProQuest Information and Learning Company. Ann Arbor MI.
- Murray, D. M. (1985). *A writer teaches writing*. Houghton Mifflin Co.
- Newman, D., & Griffin, P. & Cole, M. (1989). *The construction zone: Working for cognitive change in schools*. Cambridge, England: Cambridge University Press.
- Newman, F., & Holzman, L. (1993). *Lev Vygotsky: Revolutionary scientist*. London: Routledge.
- Olafson, L., & Schraw, G. (2010). Beyond epistemology: Assessing teachers' epistemological and ontological worldviews. In Lisa D. Bendixen & Florian C. Feucht (eds.), *Personal epistemology in the classroom: Theory, research, and implications for practice*. Cambridge University Press.
- Ostorga, A. N. (2006). Developing teachers who are reflective practitioners: A complex process. *Issues in Teacher Education*, 15(2), 5-20.

- Packer, M.J., & Goicoechea, J. (2000). Sociocultural and constructivist theories of learning: Ontology not just epistemology. *Educational Psychologist*, 35(4), 227-241, Lawrence Erlbaum Associates, Inc. Retrieved from Academic Search Complete database (AN 3933276).
- Palincsar, A. S. (1998). Social constructivist perspectives on teaching and learning. *Annual Review of Psychology*, (49), 345-375.
- Palincsar, A., & Brown, A. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction*, 1, 117-175.
- Palincsar, A. S., Brown, A. L. & Campione, J. C. (1993). Dialogues among communities of first grade learners. E. Foreman, N. Minnick & A. Stone (Eds.), *The Institutional and Social Context of Mind: New Directions in Vygotskian Theory and Research* (43-57) Oxford University Press.
- Pang, V.O., & Sablan, V.A. (1998). Teacher efficacy: How do teachers feel about their abilities to teacher African American students? *Being Responsive to Cultural Differences: How Teachers Learn*, 77. Pp. 39-58
- Perkins, D.N. (1991). What constructivism demands of the learner. *Educational Technology*, September
- Peterson, R., & Eeds, M. (1990). *Grand conversations: Literature groups in action*. New York: Scholastic.
- Pinar, W.F. (1998). *The passionate mind of Maxine Greene: 'I am ... not yet'*. USA Falmer Press, Taylor & Francis Inc.
- Pinar, W. F., Reynolds, W. M., Slattery, P., & Taubman, P. M. (1995). *Understanding curriculum: An introduction to the study of historical and contemporary curriculum discourses*. New York: Peter Lang Publishing.
- Piaget, J. (1964). Development and learning. In R. Ripple & V. Rocksdales (Eds.), *Piaget rediscovered* (pp. 7-19). Ithaca, NY: Cornell University.
- Piaget, J. (1972). *Psychology and epistemology: Towards a theory of knowledge*. Harmondsworth: Penguin.
- Phillips, D.C. (1995). The good the bad and the ugly: The many faces of constructivism. *Educational Researcher*. Vol. 24. No. 7, pp. 5-12. Retrieved from <http://www.jstor.org/stable/1177059>
- Reder, L., Anderson, J.R. & Simon, H.A., *Situated learning and education* (1996). Department of Psychology. Retrieved from: <http://repository.cmu.edu/psychology/1>
- Reiber, R. W., & Carton, A.S. (Eds.) (1987). The collected works of L.S. Vygotsky *Volume 1: Problems of General Psychology*. New York: Plenum Press
- Richardson, V. (Ed.) (1997). *Constructivist teacher education: Building new understandings*. London: Falmer Press.

- Richardson, V. (2003). Constructivist pedagogy. *Teachers College Record*, 105(9), pp. 1623-1640. Retrieved from <http://www.tcrecord.org.login.ezproxy.library.ualberta.ca/library>
- Richardson, V., Anders, P., Tidwell, D. & Lloyd, C. (1991). The relationship between teachers' beliefs and practices in reading comprehension instruction. *American Educational Research Journal*, 28(3) pp. 559-586
- Rinaldi, C. (2006). In dialogue with Reggio Emilia: Listening, researching, and learning. Routledge.
- Risko, V. J., Roskos, K., & Vukelich, C. (2002). Prospective teachers' reflection: Strategies, qualities and perceptions in learning to teach reading. *Reading Research and Instruction*, 41(2), 146-176.
- Rodgers, Carol (2002). Defining reflection: Another look at John Dewey and reflective thinking. *Teaches College Record*, 104(4), 824-866.
- Rosenshine, B. (2008). Five meanings of direct instruction. Centre on innovation & improvement. U. S. Department of education's office of elementary and secondary education. Academic development institute.
- Salisbury-Glennon, J. D., & Stevens, R. J. (1999). Addressing preservice teachers' conceptions of motivation. *Teaching and Teacher Education*, 15, 741-752.
- Seidman, I. (2005). *Interviewing as qualitative research*. New York: Teachers College Press.
- Schallert, D., & Martin, D. (2003). A psychological analysis for what teacher and students do in the language arts classroom, In J. Flood, D. Lapp, J.R.Squire, & M. Jensen (Eds.), *Handbook of research on teaching in the English language arts* (pp.31-45). New York: Macmillan
- Schultz, R. (1997). Interpreting teacher practice ... two continuing stories. *Practitioner Inquiry Series*, pp. 83-89.
- Schultz, R. (2005). The practicum: More than practice. *Canadian Journal of Education*, 28(1 & 2), 147-167.
- Schunk, D. H. (1991). *Learning theories*. New York, NY: Macmillan.
- Smagorinsky, P. (1995), The social construction of data: Methodological problems of investigating learning in the zone of proximal development. *Review of Educational Research*, 65(3), 91-212. Retrieved from <http://www.jstor.org/stable/1170682>
- Smagorinsky, P., Cook, L.S., & Johnson, T.S. (2003), The twisting path of concept development in learning to teach. *Teachers College Record*, 105(8), 1399-1436. Retrieved from <http://www.tcrecord.org.login.ezproxy.library.ualberta.ca/library>
- Smith, M. (2005). Helping preservice teacher develop habits of inquiry: Can it be don? *Reading Research and Instruction*, 45(1), 39-68.
- Spivey, N. (1997). *The constructivist metaphor: Reading, writing, and the making of meaning*. San Diego: Academic Press.

- Stake, R.E. (1994) Case studies. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of qualitative research* (236-247). Thousand Oaks, CA: Sage Publications.
- Stake, R. E. (1995). *The Art of Case Study*. Thousand Oaks, CA: Sage Publications.
- Stetsenko, A., & Arievitch, I. (1997). Constructing and deconstructing the self: Comparing post-Vygotskian and discourse-based versions of social constructivism. *Mind, Culture, and Activity*, 4(3), 159- 172.
- Stuart, C., & Thurlow, D. (2000). Making it their own: Preservice teachers' experiences, beliefs and classroom practices. *Journal of Teacher Education*, 51(2), 113-121
- Sumara, D. J. (2002). *Why reading literature in school still matters: Imagination, interpretation, insight*. New Jersey: Lawrence Erlbaum Associates, Inc.
- Taylor, K. (2000). Teaching with developmental intention. In J. Mezirow (Ed.), *Learning as Transformation* (pp. 151-179). San Francisco: Jossey-Bass
- Tulviste, P. (1991). *The cultural-historical development of verbal thinking*. Commack, NY: Nova Science Publishers
- Tsai, C.C. (2007). Teacher's scientific epistemological views: the coherence with instruction and students' views. *Science Education*, 91(2), pp. 222-243
- Tynjala, P. (1999). Towards expert knowledge? A comparison between a constructivist and a traditional learning environment in the University. *International Journal of Educational Research*, 33, 355-442.
- Valencia, S., Martin, S., Place, N., & Grossman, P. (2009). Complex interactions in student teaching: Lost opportunities for learning. *Journal of Teacher Education*, 60(3), 304-322.
- Von Glasersfeld, E. (1995) *Radical constructivism: A way of knowing and learning*. London: The Falmer Press.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA.: Harvard University Press.
- Vygotsky, L. S. (1987). *Thought and language*. Cambridge, M.A.: MIT Press. Retrieved from: <http://www.marxists.org/archive/vygotsky/works/words/index.htm>
- Vygotsky, L. S. (1987). *Collected works volume 1: Problems of general psychology* (Vol. 1). NY: Plenum Press.
- Vygotsky, L. S. (1997a). *Collected works volume 3: Problems of theory and history of psychology* (Vol. 3). N.Y.: Plenum Press.
- Vygotsky, L. S. (1997b). *Collected works volume 4: The history of the development of higher mental functions* (Vol. 4). N.Y.: Plenum Press.
- Weinstein, C.S. (1989). Teacher education students' preconceptions of teaching. *Journal of Teacher Education*. 40(2) 53-60
- Wells, G. (1995). Language in the classroom: Literacy and collaborative talk. *Language and Education*, 3(4), 251-273.

- Wertsch, J.V. (1985). *Culture, communication, and cognition: Vygotskian perspectives*. James V. Wertsch (Ed.). Cambridge University Press: London
- Wertsch, J. V. (1985). *Vygotsky and the social formation of mind*. Harvard University Press, Cambridge, Mass., and London.
- Wertsch, J. V. (1991). *Voices of the mind: A social cultural approach to mediated action*. Cambridge, MA: Harvard University Press.
- White, B.C. (2000). Pre-service teachers' epistemology viewed through perspectives on problematic classroom situations. *Journal of Education for Teaching*, 26, 279-3006
- Wideen, M., Mayer-Smith, J., & Moon, B. (1998) A critical analysis of the research on learning to teach: Making the case for an ecological perspective on inquiry. *Review of Educational Research* 68(2) pp. 130-178
- Wittrock, M.C. (1985) The generative learning model and its implication for science education. *Studies in Science Education* 12: 59-87.
- Wolf, S. (2001). Waxon/waxoff: helping preservice teachers 'read' themselves, children, and literature. *Theory into Practice*, 40(3), 205-211. Retrieved from <http://www.jstor.org/stable/1477477>
- Wolf, S.A. (1994) Learning to act/acting to learn: Children as actors, characters, and critics in classroom theatre. *Research in the Teaching of English*. 28(4), 7-44. Retrieved from <http://www.jstor.org/stable/40171323>
- Wolf, S.A., Carey, A.A., & Mieras, E.L. (1996) "What is the literachurch stuff anyway? Preservice teachers' growth in understanding children's literary response. *Reading Research Quarterly*, 31(2), 130-157 Education Research Complete database (AN 9605212456)
- Wolffe, R. J., & McMullen, D.W. (1996). The constructivist connection: Linking theory, best practice, and technology. *Journal of Computing in Teacher Education*, 12(12), 25-28.
- Wood, T., Cobb, P. & Yackel, E. (1995). Reflections on learning and teaching mathematics in elementary school. In L. P. Steffe & J.Gale (Eds) *Constructivism in education* (pp 401-422). Hillsdale, New Jersey: Lawrence Erlbaum.
- Worthy, J. (2005). 'It didn't have to be so hard': the first years of teaching in an urban school. *Journal of Qualitative Studies in Education*, 18(3), 379-393
- Yin, R. K. (2009). *Case study research design and methods, 4th Ed*. Thousand Oaks, CA: Sage Publications.
- Zancanella, D. (1991). Teachers reading/readers teaching: Five teachers' personal approaches to literature and their teaching of literature. *Research in the Teaching of English*, 25, pp. 5-32
- Zeichner, K. (1996). Designing educative practicum experiences for prospective teachers. In K. Zeichner, S. Melnick, & M. L. Gomez (Eds.), *Currents of reform in preservice teacher education* (pp. 215-234). New York: Teachers College Press.

Zeichner, K. (2005). Becoming a teacher educator: a personal perspective. *Teaching and Teacher Education*, 21, 117-124.

Zeichner, K., & Conklin, H. (2005). Teacher education programs. In M. Cochran-Smith & K. Zeichner (Eds.), *Studying teacher education* (pp. 645-735). New York: Routledge.

Zeichner, K. (2010). Rethinking the connections between campus courses and field experiences in college-and university-based teacher education. *Journal of Teacher Education*. 61(1-2) 89-99. Retrieved from <http://jte.sagepub.com/login.ezproxy.library.ualberta.ca/content/61/1-2/89.full.pdf+html>

Western Canadian Protocol 2006

Retrieved from: <http://education.alberta.ca/teachers/program/english/programs.aspx>

The Common Curriculum Framework for English Language Arts Kindergarten to Grade 12. Western Canadian Protocol for Collaboration in Basic Education Copyright ©1998, the Crown in Right of the Governments of Alberta, British Columbia, Manitoba, Northwest Territories, Saskatchewan, and Yukon Territory, as represented by the Minister of Education, Alberta; the Minister of Education, Skills and Training, British Columbia; the Minister of Education and Training, Manitoba; the Minister of Education, Culture and Employment, Northwest Territories; the Minister of Education, Saskatchewan; the Minister of Education, Yukon Territory

NCTM - Principles and Standards for School Mathematics - National Council of Teachers of Mathematics 2000

Retrieved from: www.nctm.org/standards/content.aspx?id=16909

APPENDIX A: EPISTEMOLOGICAL INTERVIEW

“The preexisting knowledge that learners bring to each learning task is emphasized. Students' current understandings provide the immediate context for interpreting any new learning. Regardless of the nature or sophistication of a learner's existing schema, each person's existing knowledge structure will have a powerful influence on what is learned and whether and how conceptual change occurs” (Applefield, et.al., 2000-01). Ellis (2006) suggests that a pre-interview activity can be used to “support getting-to-know-you conversations” (p. 118), and can provide opportunities for both the researcher and research participants to learn about the subject and context of interest.

Epistemological Interview – Pre-Interview Activity Prompt:

Draw a picture or write a short piece about an occasion when you were doing a ‘good job’ of teaching (literacy).

Debriefing: to explain significance of pre-interview activity and to explore understanding

Questions that guided the debriefing were:

Would you share with us the creation of this artifact?

Could you explain its significance?

Why is this an example of ‘good teaching’?

How do you know this?

Why is it important to be a ‘good teacher’?

Why is it important to do a good job of teaching?

How did you feel during the creation of the artifact?

How did you feel when asked to discuss the artifact?

Is there anything you would do differently? Add? Remove?

APPENDIX B: SOCIAL CONSTRUCTIVIST PEDAGOGY CURRICULUM CONVERSATION STARTERS

In Applebee's (1996) notion of curriculum as conversation, a curriculum provides the forum for extended conversations. Extended talk extends over time as opposed to the specific episodes of talk he terms discussion. This extended conversation spirals in Bruner's (1960) sense in that it engages participants in an ongoing exploration and extension of a theme or concept as it is mediated through a variety of contexts. Conversation starters, concepts from which further exploration through conversation can occur between and among researcher and research participants, were drawn from post-teaching discussions, written journal entries, or field note observations. These conversations did not take place between researcher-and-participant in isolation. Rather, the three research participants and I met as a group to engage in extended conversations in a social setting.

Cycle I Meeting Guiding Questions for Discussion

What is social constructivism?

How might social constructivism change the way I think about my practice?

Why would I want it to?

Cycle II Meeting Guiding Questions for Discussion

"Through meaningful experiences, knowledge is actively constructed by the learner, not passively received from the environment."

This reacts against other epistemologies promoting simplistic models of communication as simple transmission of meanings (and even the transmission of 'constructs') from one person to another. The prior knowledge of the learner is essential to be able to "actively" construct new knowledge. To me, this seems obvious, and it seems to be compatible with most opinions I've read about teaching. Learning is work - effective learning requires concentration. There may be some things you have to learn before others. The education system has always been built on a progression of ideas from simple to complex. So, so far, nothing really new.

So how is social constructivism different from transmission theories of teaching and learning?

What is social constructivism?

How might social constructivism change the way I think about my practice?

Why would I want it to?

What is “the environment”? What is “knowledge”? What is the relation of knowledge to the environment? What environments are better for learning?

What is the meaning of “meaningful”?

What does it mean to be a good teacher?

How do I form a praxis (interweaving theory of pedagogy with practice: the purposeful integration of the intent of theory with practice and reflection)?

What is the purpose of education?

“Education either functions as an instrument which is used to facilitate integration of the younger generation into the logic of the present system and bring about conformity or it becomes the practice of freedom, the means by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world.” – Paulo Freire

Cycle III Meeting Guiding Questions for Discussion

(How) Has engaging with this research into social constructivism changed the way I think about my practice?

How is the notion of the ‘good teacher’, which has its roots in transmission, reconciled with the social constructivist approach?

About social constructivism:

- “Education should not be about the transference of knowledge but rather the collaborative and collective production of knowledge grounded in the reality of students’ lives.”
- Authentic dialogue requires a relationship between teacher and learner where one “knowing subject [is] face to face with other knowing subjects”. Education thus becomes “a pedagogy of knowing” rather than an exercise in “narration sickness” (Freire, 1984: 57).
- Yes, the challenges for social constructivist pedagogues are huge. Social, political, economic, and cultural factors are at play, and each has an existing momentum and trajectory. But – the alternative of inaction is untenable. In our profession we have two choices. We can succumb to the mainstream and become

programmed toward deskillling our intellect, or we can become critical social constructivist pedagogues and liberate ourselves and those who choose to join the dialogue.

APPENDIX C: OBSERVATION FORM

Descriptive Notes: researcher records a description of activities, provides a drawing of the physical setting, and includes chronological entry of events

Reflective Notes: researcher provides notes about the process, reflects on activities, makes personal comments

Descriptive Notes	Reflective Notes

APPENDIX E: PRESERVICE TEACHER QUESTIONNAIRE

Research Study: **Preservice Teachers Engaging With Social Constructivism in Elementary Literacy Education Classrooms**

Principal Researcher: Researcher Toy

email: ktoy@ualberta.ca

This study focuses on how student teachers understand social constructivism as a theory of learning and how you might use this understanding to inform your instruction in elementary literacy classes. Thank you for your responses.

I am a (circle one): 4-year B.Ed student 2-year AD student

Have you completed [field experience]? Yes No

Have you successfully completed EDEL 305? Yes No

Are you interested in working with a small group of other student teachers and a researcher to learn about social constructivist teaching and learning? Yes No

Are you interested in developing social constructivist literacy lessons? Yes No

Are you interested in extra on-site, in-class teaching? Yes No

I am very interested in this research project.

2 4 6 8 10

I would be interested in participating in this research project.

2 4 6 8 10

I would be available to meet during:

Weekdays Weekday evenings Weekends

My Contact information

Name _____

Email _____

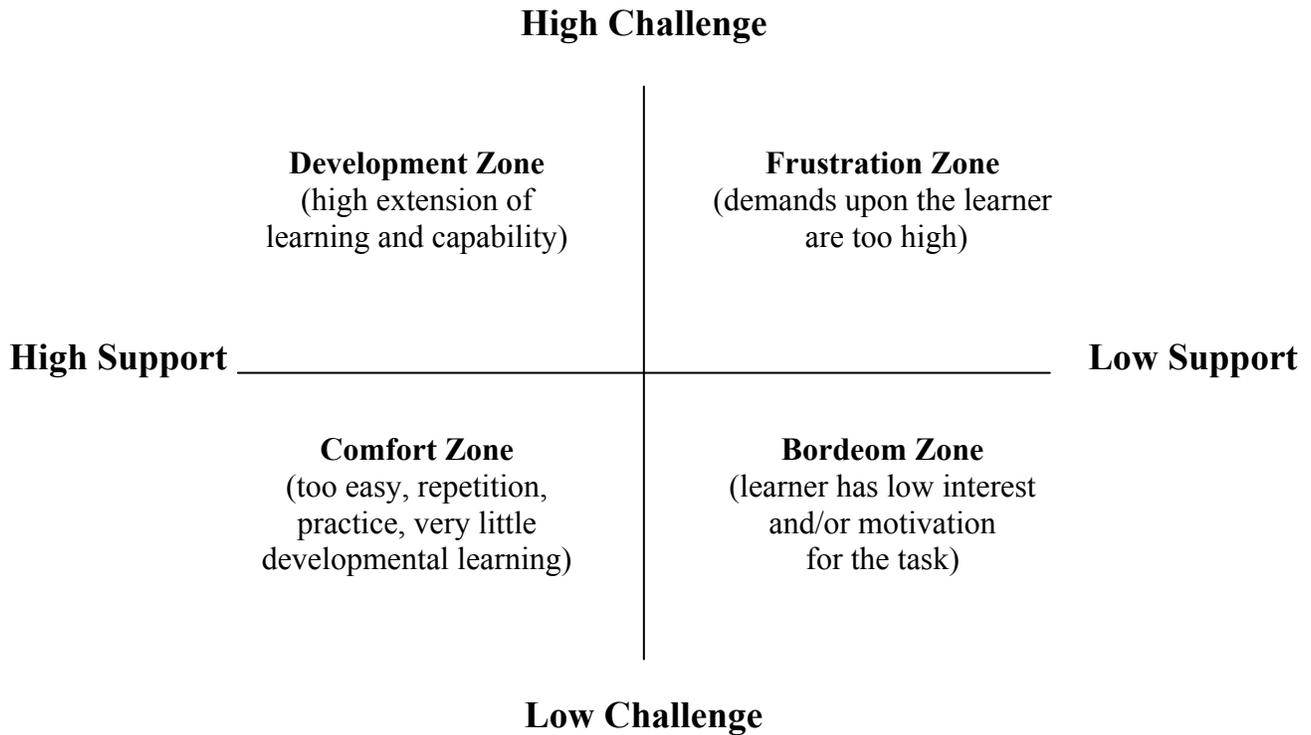
I know someone who might be interested in this research project

Contact information

Name _____

Email _____

APPENDIX F: A MODEL OF SUPPORT AND CHALLENGE
Within the Zone of Proximal Development



Adapted from Mariani, L. (1997). Teacher support and teacher challenge in promoting learner autonomy. *Perspectives*, 23 (2), 54.

