THE CHALLENGE OF USING WIKIS IN SCHOOL:

THE EXPERIENCES OF TWO GRADE SIX TEACHERS.

By

Jane Ann Chin

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Abstract

This study augments an expanding body of research literature examining the complex process of integrating Information and Communication Technology (ICT) and introducing ICT-related literacy skills into English Language Arts classrooms. Widespread social changes related to ICT are impacting the literacy practices of people in everyday society. These changes in literacy practices represent challenges to teachers who have never used these literacy skills and have never seen them taught.

Through two case studies, this hermeneutic phenomenological inquiry examines the experiences of two teachers who learn and lead learning using wikis. Data collection was conducted in two Grade 6 classrooms: one in an Ontario public school and one in a private international school in Mexico and consisted of observations, informal and formal interviews with the teachers as well as observations and focus group interviews with their students.

The complex phenomenon of learning ICT and almost simultaneously having to teach it is documented and analyzed. The research involved teaching the teachers how to use a wiki and then co-planning and observing them teach a creative writing unit on the wiki. Data was analyzed and discussed with reference to Lankshear and Knobel's (2011) Paradigms.

Findings indicated that the two teachers held largely Paradigm 1(linear, individualistic and bounded) conceptions of literacy while the multimodal writing students were producing on the wiki represented Paradigm 2 practices (non-linear, collaborative and unbounded.) Also, the context of school was an insurmountable hurdle in the teachers' efforts to integrate ICT into their English Language Arts classrooms in both cases. This study sheds light on the specific moments when this contrast between Paradigm 1 and Paradigm 2 perspectives impeded deep student engagement in digital literacy skills related to the wiki.

my brutal APA were the behind-the scenes, less glamorous examples of the many ways you have shown your support in me. You rock, too.

Thanks are extended to all of you who have encouraged and supported me in my efforts to complete this dissertation. You are too numerous to mention but you know who you are, and more importantly, I know who you are. I thank you for being friends, colleagues, cheerleaders, and whatever else I needed at various points throughout this process.

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Chapter One: Motivation Behind the Study

Introduction

  This study augments an expanding body of research literature examining the complex

process for teachers of integrating Information and Communication Technology (ICT) and

introducing ICT-related literacy skills into English Language Arts (ELA) classrooms.

Learning how to lead learning using ICT is a major endeavour for many teachers as it

actually requires a shift in the way one considers the world around her/him as a direct result

of widespread social changes (Knobel & Lankshear, 2010). Lankshear and Knobel (2011)

talked about this shift as being one from "modern to post-modern worldviews and theories,

from an industrial society ... to post-industrial or information/knowledge societies..., from a

conception of societies based on a model of autonomous but related nation-states toward an

increasingly interconnected global configuration, and so on" (p. 52). While this shift happens

along a continuum and over a period of time, it is requiring new ways of viewing, interacting,

and, most importantly for this study, communicating within these new paradigms (Lankshear

and Knobel, 2011). More often than ever before, people are being required to move from a

localized, largely linear, stable method of communication that emphasizes the individual (for

example, *The Encyclopedia Britannica*) to a distributed, non-linear, flexible means of

communication that emphasizes joint/collaborative/collective efforts (for example,

Wikipedia) (Lankshear & Knobel, 2011; The New London Group, 1996). At the heart of my

study are busy, practicing teachers with no classroom experience using ICT. Specifically, I

am interested in adding to our understandings of how busy practicing teachers, who are not

themselves ICT educated, learn about and facilitate the use of ICT in their classrooms, in particular, wiki.

Background

In 1996, The New London Group wrote a manifesto that petitioned for the teaching of new literacy skills that more accurately reflected the increasing complexities and interconnectedness of a new global society. This group of English Language Arts researchers coined the term "multiliteracies" to more accurately reflect the diverse, negotiated, collaborative social practices involving a burgeoning set of multimodal skills present in everyday society. Along with understanding gestures, accents and body language, they argued, there are important new literacies related to the use of ICT. In contrast to word processing final drafts of their written narratives for example, Kress (2005) argued for the term "multimodal" to describe the new types of texts that students should be interpreting, understanding and creating. These texts would reflect the increased use of image and sound (multi-media) being used to communicate via the Internet. These types of multimodal texts involve new modes of literacy such as the expression of ideas through the complex interaction of sound and image, or text and sound etc. that complement the conventional skills students are currently learning in schools. As a result of this societal shift to multimodal methods of communication, Kress stated that unless students begin to learn the new skills related to communication via ICT, they may find themselves illiterate in the future.

Often the teachers who are asked to teach these new skills (or modes of communication), however, are typically learning them at the same time. While some

educators may have studied the use of ICT in a formal setting, the vast majority have not. So, while society continues to shift and while curriculum theorists and researchers begin to explore what should be taught in schools, teachers are being asked to shift and theorize while simultaneously learning and teaching these new ICT skills.

Kress (2003) identified four momentous changes that have taken place and have forced a change in literacy practices: First, social changes such as email, blogs, and instant messaging are drastically altering the types and purposes of writing being done. The loss of the stability of understanding what writing looks like indicates the unmaking of one of the most basic communication structures or frames of societal communication. This shift has a direct impact on the social relevance of the types of writing students are learning in schools. Second, economic changes due to globalization are altering the uses and purposes of the act of writing through the use of social media, wiki, and other types of texts not taught in schools. Third, argued Kress (2003), communication changes have introduced the increased value of the image in texts through the use of digital texts such as web pages. This challenge to the dominance of writing can be seen as almost a revolution in the concept of literacy. At the moment, it is not part of the literacy paradigm in Ontario schools to teach visual literacy or elements of graphical design. Fourth, technological changes are altering the role and significance of the traditional medium of information dissemination (i.e., the book). While the screen is challenging the book for this role, the types of writing and the increased use of image and sound are changing the landscape of traditional reading and writing skills that have been taught in schools since their inception.

While most of these new literacy skills related to ICT complement traditional literacy being taught in schools today, it is nevertheless a significant task for teachers to understand,

learn and teach these new ways of communicating. Examples of the creative ways in which text is now selected, truncated, translated, recreated, aligned and presented can be found in social media contexts and multimedia messages such as *Facebook, Twitter*, blog posts, instant messages, the use of mashups, webpages and wiki/shared collaborative spaces, to name a few. On *Facebook*, for example, participants use words, images, videos and sounds to create and project an image of themselves within their selected social groups. Mashups provide new opportunities to express one's perspective by "sampling" from a variety of seemingly unrelated videos, songs, web pages, etc. and mashing them together to produce a new message to convey meaning relevant to the creator. My decision to use wiki for my study was an intentional one. With my focus being on teachers with no previous teaching experience as they learn and use ICT in their ELA classrooms, I did not want the software to steal that focus.

Therefore, I have chosen to use wiki software because teachers and students are able to produce web-based multimodal texts with relatively little knowledge of hypertext mark-up language (html) that underlies most webpage creation. In other words, it is a fairly sophisticated website that allows for the use and experimentation with many new literacy skills related to ICT with very little technical learning. According to Imperatore (2009) wiki is one of the most powerful web tools in an educator's arsenal. She claims that it is easy to use, inexpensive (free in many cases) "and can turn one student's assignment into an interactive experience for a class, an entire school, or a cross-global community" (p. 1). In contrast to traditional classroom story writing, wiki allows for digital story writing that is collaborative, open-ended, and non-linear (Dobson, 2001). Wikis are web sites that allow authorized users (educators can lock down a site through places like PBWorks so that only

their students can access the wiki rather than the general public) to easily add, edit and delete content. As a result of the interactivity inherent in wiki, students can respond/reply to the original creator and, in turn, actually take on the role of co-author. This more active role of the reader means that students require new strategies for writing, creating, interpreting and designing and for collaborating in the ELA classroom. Because wiki is not complicated to set up, the focus of teachers' and students' time can be spent on engaging in new literacy skills rather than on learning a particular software program that will most likely be outdated at some point. The enduring skills that they will spend the bulk of their time using (such as creating links, embedding images with text, collaborating, and designing) will be transferable skills for other web-based text creation environments.

Definition of Terms

A consequence of the evolving nature of ICT is that terminology and concepts surrounding ICT are also in flux. This section, therefore, provides the reader with a clear understanding of my interpretations of the evolving terminology used in my study.

Literacy

Within this study, literacy will be defined using Lankshear and Knobel's (2011) definition which states that literacies are "socially recognized ways in which people generate, communicate and negotiate meanings as members of Discourses, through the medium of encoded texts" (p. 33).

ICT

The term ICT is used throughout current research as it is throughout this study to mean Information and Communication Technology. While there seems to be an assumed level of understanding surrounding this term, I thought it was important to define it for readers who may be less familiar with the jargon within this field of research. It seems that this term is an evolutionary one that is defined more specifically than the original term of IT (information technology). For the purposes of my study, the term ICT will be used when discussing the use of hardware (computers), software applications (wiki) and connectivity (access to the Internet) (See Toomey as cited in Lloyd, 2005) to enhance traditional literacy skills of reading and writing and to teach digital literacy skills specifically related to ICT.

ICT Integration

ICT integration is defined within this study as using ICT as a tool for processing information when ICT has extended the thinking of the students' learning of subject-content (Granger, Morbey, Lotherington, Owston, & Wideman, 2002; Pedretti, Mayer-Smith, & Woodrow, 1999) and has broadened their abilities to display this learning through the use of multimodal representations. With the integration of ICT, students should be able to apply, discuss, analyze and evaluate concepts in English Language Arts and communicate them in a variety of multimodal ways.

Multiliteracies

  This term was coined by The New London Group in 1996 to expand the concept of literacy to include relational types of literacies such as interpreting gestures and understanding accent**s** and literacy skills related to ICT such as the consumption and creation of complex multimodal texts.

Digital Literacy

  Digital literacy is a term that is emerging in policy documents that is meant to define the new literacies skills related to the societal trend of increased use of ICT. Lankshear and Knobel (2006) talk about digital literacy as being a response to the fears of a growing digital divide. Lanham (1993) claimed that digital literacy expands the definition of literacy from its original definition of "to read and write" to now meaning "the ability to understand information however presented"(p. 27). He argued that the multimediated nature of digital information means that deciphering information involves "being skilled at deciphering complex images and sounds as well as the syntactical subtleties of words" (p. 200). Following this argument, asking students to create digital stories using text, hyperlinks, and images is a logical step in their learning these important literacy skills. For the purposes of this study, I will defer to Lanham's (1993) definition that states: a digitally literate person is "quick on their feet in moving from one kind of medium to another…know[s] what kinds of expression fit what kinds of knowledge and become skilled at presenting [their] information in the medium that [their] audience will find easiest to understand" (p. 200). Throughout this study I refer to this as either digital literacy or new literacy skills related to ICT.

Paradigms

The term paradigm is used throughout this dissertation to discuss how conceptions and practices of literacy are changing in relation to widespread social, cultural, institutional, economic, and intellectual changes. A certain social paradigm identifies the perspectives with which people view and interact with the world around them. Specifically, Lankshear and Knobel (2011) talk about a modern/industrial paradigm (Paradigm One) and a postmodern, post-industrial/knowledge society paradigm (Paradigm Two). Lankshear and Knobel identify Paradigm Two as an ascending paradigm toward which society is shifting. Therefore, at the moment, social practice is shifting along a continuum from a paradigm (Paradigm One) that is informed by a view of society that is linear, individualistic and bounded toward a paradigm (Paradigm Two) that sees the world as non-linear, collaborative and unbounded. Previous to their latest publication, Lankshear and Knobel (2011) talked about this continuum in relation to Mindsets. While this terminology served to distinguish the two views of the use of ICT in the classroom, Mindset One being the use of ICT as an enrichment tool and Mindset Two being the use of ICT to enhance digital literacy skills and new ways of interacting with the world, it fell short in that much of the emphasis still seemed to be on individual thinking. The use of paradigms is significant to this study because it identifies the role of the larger social context in the use of ICT in schools by teachers. While much of society is still slowly moving along the continuum away from a Paradigm One perspective, communication on the World Wide Web typically represents Paradigm Two ways of thinking. For example, it is not simply that business and entrepreneurship looks different, instead, this difference in the methods of commerce represents a broader type of "transcendence" (Lankshear and Knobel, 2011, p.52)

in the way people are interacting and collaborating, communicating, thinking and believing. These two paradigms are referred to throughout this dissertation.

Purpose of the Research

The purpose of this research study is to understand the learning processes experienced by two practicing teachers as they first learned to use a wiki and then lead their students in a creative writing unit that incorporated the wiki as an instructional strategy. Specifically, I document the types of questions, concerns, frustrations and new understandings that take place and the timing of these within the learning and teaching process for these two teachers. These two cases are intended to help teachers, administrators and researchers better understand the struggles that continue to challenge teachers when attempting to respond to the expectation that they increase the integration of ICT into their teaching. Although computers have been present in schools for many years now, the primary support assisting teachers in the adoption of ICT is formal policy.

For example, curriculum documents are being updated and revised to include an increased use of ICT in the ELA classroom (Lankshear & Knobel, 2011). In the 2007 revised edition of the Ontario English Curriculum for grades 9 and 10 ICT is mentioned under the section entitled "Some Considerations for Program Planning" (p. 35). Teachers are told that "Whenever appropriate, therefore, students should be encouraged to use ICT to support and communicate their learning" (p. 35). The document goes on to suggest that students can use ICT to "gain access to museums and archives in Canada and around the world"(p. 35). Students can also "use digital cameras and projectors to design and present the results of their research to their classmates"(p. 35). The document finishes its four paragraphs on the

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integration of technology by saying that teachers "will find various ICT tools useful in their teaching practice, both for whole-class instruction and for the design of curriculum units that contain varied approaches to learning to meet diverse needs"(p. 36). In response to these subtle changes in the curriculum, experienced teachers are facing increased demands to learn new skills related to ICT and to then integrate them into their teaching. However, it is not clear exactly what they should be learning. There is no additional information about specific digital literacy skills or even where a teacher can go to learn basic ICT. Within the curriculum itself, there is no specific section on learning to use ICT and the literacies related to it.

Research Questions

This study investigated the following research questions: (1) What are the experiences of two teachers with dissimilar backgrounds when trying to lead learning in creative writing using ICT? (2) How do these teachers conceptualize what's important to learn?, and (3) To what degree does the diversity of the two contexts in this study contribute to the findings?

Significance of the Research

This research study shares insights from two seven-week studies conducted in two different Grade 6 classroom environments. In both contexts, the teachers and the students were engaged in the learning process of how to create multimodal stories using wiki. Ron and Lauren[1], were selected as participants for this research because in both cases, they

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[1] The names of all participants have been changed to pseudonyms

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presented a very specific demeanour and set of behaviours: namely, in working with their students and in their school communities, they were highly competent teachers, committed to fostering the learning achievement of their students. With Ron, I was able to observe this firsthand during our work together on the previous research study. With Lauren, her reference from her principal denoted a similar disposition. I would argue that these qualities continue to describe a large majority of today's teachers. What made Ron and Lauren especially suitable for this study was that they each reported little to no confidence and very little experience integrating ICT into their English Language Arts teaching.

Although there is an increased suggestion within formal documents to integrate ICT into the ELA classroom, teachers like Ron and Lauren are largely left to their own devices to figure out what that might look like. To this end, the dominant paradigm of ICT and the curriculum has been less of a transformative approach to ICT integration – one in which students learn and engage in new literacy skills related to ICT like the use of links and images – and more about ICT as enrichment – word processing a story rather than writing it (Burnett et al., 2006). This is mostly due to the fact that teachers are teaching the same modern/industrial skills but are using computers to do so. While the use of ICT has slowly been shifting to include more transformative activities (Baker, 2010; Courtland & Gambell, 2010) and there are more resources available to teachers who wish to take up the task of integrating ICT into their teaching on their own (Frey, Fisher, & Gonzalez, 2010; Knobel & Lankshear, 2010; Vavra & Spencer, 2011) these teachers are still defined as being largely risk-takers. In their book of Do It Yourself (DIY)-type ICT, Vavra and Spencer refer to these teachers as "Digital Daredevils" (p. 280).

Therefore, there is a need to study the practices of current ELA teachers as they begin to integrate the Internet and other ICT into their teaching as it is believed that these teachers will contribute significantly to understanding the most effective instructional practices for developing and supporting these new literacy skills (Leu, Kinzer, Coiro, & Cammack, 2004). While this statement was made in 2004, near the beginning of this study, there are still not enough studies focussing on teachers and their experiences trying to learn and teach using ICT.

This dissertation furthers the current research dialogue about how teachers experience learning and then lead learning using ICT by reporting on the thinking, actions, learning, and teaching of two ELA teachers as they learn and then teach a unit on creative writing using wiki. Their different approaches to learning as well as their varied backgrounds and comfort levels with ICT highlight the vast differences facing schools and school boards as they begin to integrate ICT. However, the underlying similarities could inform the ways in which Professional Development and support is explored and discussed in relation to busy, practicing teachers as they begin this integration process.

Relationship to my Previous Research

In this era of increased cultural diversity and rapid technological changes, experienced English Language Arts teachers face several challenges to their classroom teaching. My ongoing research program explores ways to support teachers in meeting such challenges.

In my Master's thesis, entitled *A Foreigner in my Classroom,* I explored the challenge of cultural variables faced by Canadian teachers in overseas classroom contexts. The most

salient finding from this study was that the Canadian teachers' understandings of classroom management issues were different from the host country students' understandings. For example, what a Canadian teacher would characterize as cheating, a host country student would characterize as helping a friend, and these differences between teachers and students were primarily dependent on cultural variables. The teachers in my study expressed their desire for ongoing support and education about cultural differences and their role within the teaching/learning/assessing process. Such findings are also applicable to teachers in multicultural contexts within Canada.

My doctoral research extends and deepens our understanding of the challenges faced by experienced teachers, with particular attention to the implications of rapid technological change. Specifically, I am interested in understanding how English Language Arts teachers experience the almost simultaneous learning and then teaching of new literacy skills related to ICT. How do they begin to conceptualize what is important to learn both for themselves and for their students?

I come to this research from a unique perspective. While I am a researcher and can clearly see the benefits of adopting the meaningful use of ICT in the classroom, I am also a teacher who realizes how difficult and daunting of a task this would seem to be. I remember how busy I was as a high school English Language Arts teacher. Aside from the hours spent after school working with students, preparing report cards, and meeting with parents, much of my time was spent looking for something "new." New ideas, assignments, grading strategies, or even games to play were welcomed additions to my repertoire. I kept current with the latest trends in educational research and I was not afraid to try new ideas and to share them with my colleagues. I associated this kind of "new" with good. However, after

five years of teaching overseas, I realized that there were some "new" things that happened in my classroom and in my schools that did not seem to be so good. Instead, they were challenging, confusing, and sometimes embarrassing.

I could not help but think of this kind of upheaval to my thinking that these cultural differences caused when I began to consider the inundation of ICT in society. How would *I* bring this into *my* teaching? How would *I* view these new types of literacies that seem to compete for attention with the traditional literacies I know are critical for my students to learn with only so many hours in a teaching day?

This dissertation stems from two separate circumstances. The first circumstance was a conversation I had during the roll-out of the Ontario Secondary School Literacy Test (OSSLT). When asked what I thought of the new standardized test for literacy, the first question that came to my mind was "where are the questions related to Information and Communication Technology?" It seemed that although society outside of school was exponentially increasing its use of ICT, schools were not keeping up. There were vague references to the use of ICT in curriculum documents but with little guidance for teachers who were not accustomed to using ICT. Alarmingly, 5 years later, this is still the case in Ontario. I began to think about those teachers. If I was still teaching in an ELA classroom, one of those overwhelmed teachers would have been me. I tried to imagine how I would go about learning this new ICT and then implementing it in my classroom. I grew up around computers and still believed that I would be very intimidated to teach using ICT when I had no clear idea of the outcome.

The second circumstance happened when I was working as a research assistant with Dr. Rebecca Luce-Kapler. Her SSHRC-funded research involved visiting a Grade 6

classroom, reading Radical Change (Dresang, 1999) books with the students like Anthony

Browne's *Voices in the Park*, and David Macaulay's *Black and White*, discussing what they

noticed, liked, disliked about these books and then introduced them to wiki writing. While

our entire focus of the two-year study was on the students, I kept finding my attention turning

toward the teacher. I really wanted to talk to him. He was a veteran, passionate, adept teacher

who took a step back to let us lead this new type of literacy learning. What was he

thinking/feeling/wondering about this new way of reading and writing? When our study with

the students was complete, I was at the point of crafting my own research proposal. In my

mind, our research study was incomplete. I felt compelled to include the teacher in the wiki

writing unit experience to begin to document his day-to-day perspective on such a process of

learning – teaching – learning. He would have to learn the ICT himself, teach it to his

students, and then learn from the outcomes to inform future attempts with ICT. I asked this

teacher if he would be willing to participate in my research and was pleased when he agreed

unreservedly.

As teachers begin to integrate ICT into their teaching I want to explore and

understand the processes they follow from the beginning of a unit to the end. There are an

unprecedented number of challenges facing ELA teachers as they begin to understand and to

teach ICT as many teachers are learning these new literacy skills as they go. In addition to

learning how to use ICT, they need to understand how and when it is best to use it. Cultural

differences among students might also play a role in how students use ICT to express

themselves. By conducting this research in two distinct cultural contexts, I was not hoping

for any definitive answers about the role of culture in the teaching and learning of ICT but

rather, some additional insights into the complexity of using ICT with students.

Overview of Thesis

This dissertation is meant to be read as a conversation. Although it is presented as a six-chapter text reporting the data from my research study, and each "chunk" of information stands alone in its unique chapter, much like a conversation, I would expect my reader to move around within this text. Conversations are fluid and follow the interests of the participants and in this spirit; I will invite you to interact with this text as a whole and to guide your reading by your own interpretations and interests within any given chapter. The circular process outlined in Gadamer's (1998) hermeneutic circle is a useful construct when discussing this text. I begin with the theoretical literature to set the context for the two data chapters that follow. My use of case study and hermeneutic phenomenology allowed me to focus my attention on the minute details of every day events that played out in the two classrooms. Although the focus of my research was firmly on the teachers, a rich description and understanding of the roles of the students was critical. Therefore, both the actions of the teachers and the students are described and the data from interviews with both groups are discussed in the larger context of the classroom. The first section of each data chapter is a rich narrative of the daily lived experience of the two teachers throughout the study. In the second parts of these chapters I share my analysis in the form of ideas and reflections on the narratives. In so doing, I invite you as the reader to participate in your own meaning making about the richly descriptive narratives: referring back to the literature and your own teaching experiences while thinking forward to possible future research ideas. Finally, Chapter 6 provides the reader with a discussion of my findings related to both case studies. In this chapter I identify the similarities and differences noted in the two teachers' learning processes and talk about them in relation to the research literature. The educational

significance and the direction for future research studies are also discussed. It is hoped that readers will leave with a deeper understanding of the complexities associated with the integration of new ICT into classroom practice.

Chapter Two: Literature Review and Theoretical Framework

Introduction

The focus of my research has always been clearly and specifically on examining the complex position of a teacher trying to learn and then lead learning using ICT in an ELA classroom. However, the teacher cannot stand alone. (S)he works within the structured, complex, and oftentimes messy context of the classroom within a larger school setting. The following discussion highlights the literature I have used to inform the thinking and planning of my research study and acknowledges this broader context. First, I will provide an exploration of the term curriculum and its relevance to my study. Next, the variety of interpretations of literacy used in education situates a theory of Paradigms which I use throughout my study in relation to teachers' use of ICT. Because this research began 5 years ago, I provide examples of studies that reflect the use of ICT over this period of time that represent variations of thinking from Paradigm One and Two perspectives. This is followed by a discussion of the current theories and approaches to ICT integration that argues the continued relevance of this study. Finally, I discuss the sociocultural theoretical framework and the role of Lankshear and Knobel's (2011) Paradigms within my study.

Curriculum

While any type of major change can be seen as daunting, situated within an appropriate context, new challenges can also be seen as exciting and natural. To many researchers (e.g., Grumet, 1992; Pinar, 1992; Sleeter, 1992), curriculum means more than simply the listing and delivery of content. Instead, curriculum can be said to be the fluid,

daily lived experience of school (Davis, Sumara, & Kieran, 1996). It is always unique and is constantly in flux.

In her study of curriculum implementation, Paris (1989) promoted the "enactment perspective" which included the following three assumptions:

1. Curriculum knowledge includes situated knowledge, created in practice when teachers engage in the ongoing processes of teaching and learning in classrooms.

2. Curriculum change is a process of individual growth and change in thinking and practice rather than an organizational procedure of design and implementation.

3. Teachers' work with curriculum, whether creating and adapting their own curricula or responding to curricula created and imposed by others, is shaped in response to their perceptions of their contexts. (p. 2-3)

In all three of her assumptions, Paris (1989) argued that curriculum and its delivery are highly personal undertakings by teachers. Paris challenged the notion that curriculum revision is the simple act of designing the new curriculum and then implementing it. Rather, she argued that curriculum change is a process, not a product, of individual growth and change in thinking and practice. This dynamic process has been discussed by researchers for many years but is still relevant to this research study. However, while the integration of ICT into the English Language Arts (ELA) classroom might be an individual experience shaped by teachers' previous conceptions of ICT and of their own history of using ICT, Paris' simplified interpretation leaves the complexity of the learning context out of the equation.

Vallance (2001) argued for a shift in focus from curriculum *theory* that emphasizes an end product, a theory, to curriculum *theorizing* that is more representative of the dynamic nature of curriculum as experienced by practitioners and their students. The very acts of reflection, interaction, and interpretation, therefore, would also be acts of curriculum theorizing. This subtle change in language has a critical impact on the role teachers can play as researchers and innovators in their own classrooms. This notion of theorizing, teachers and students (and, perhaps, researchers) reflecting on and making changes to their actions, dramatically impacts current curriculum practice as it acknowledges the impracticality of a static curriculum (as is currently used in many schools). As the pace at which ICT evolves and changes, notions of curriculum and its role in the classroom must be expected to evolve as well.

As I worked with teachers to integrate technology into their current ELA curricula, we were engaged in the active role of curriculum theorists. We discussed and debated what a digital literacy skill or unit would look like and how it would play out. As the study unfolded, our thoughts and reactions to what was being done by the teacher and the students shaped the continuation of the study.

The meaningful integration of ICT will require teachers to think about ICT as an integral part of the teaching and learning that happens within their classrooms. For many busy, practicing teachers, this will require some level of shift from their current ways of thinking about teaching and learning in relation to ICT. However, teachers do not work in isolation. One must look past Paris' (1989) arguments to include the complexity of the teaching and learning context and the relationship between teacher and learner that is "school."

Pinar and Grumet (1976) explored the term curriculum by referencing its Latin root. Curriculum, they stated, means *currere*, or the running of the course. Within this discussion of curriculum, the emphasis is on the unpredictability of the classroom teaching experience. There is no way to define the types of learning or the outcomes of this learning because each person is following a separate path as it unfolds in front of them. The value of these arguments about the complexity of curriculum was that they pointed to the need to talk about curriculum and curricular objectives in relation to the classroom context. One cannot ignore the importance of context, of the real-world life experiences of the learners and the teachers interacting in any given classroom. Certainly, as we begin to study the integration of ICT by ELA teachers, one must include the role of context.

While this metaphor about curriculum acknowledges that individuals respond to ideas and information from unique perspectives, Pinar (2004) has narrowed his discussion about curriculum to focus on the messy everyday interactions found during the running of the course. As students and teachers continually define and revise their thoughts and ideas with one another, and share individual perspectives, Pinar argued that this lived experience of school is a "complicated conversation" in which one is often asked to think and respond with ideas outside of the prescribed body of information found in a curriculum document. Within the context of a complicated conversation, students and teachers learn, through conversation, a deeper understanding of a discipline. A conversation is not won or lost but rather there are perspectives shared and ideas expanded (Pinar, 2004). My study focuses on this complicated conversation and expands it to include the perspectives and ideas of the institution of school and those of society outside of school. All of these perspectives play a role in the adoption and integration of ICT in the ELA classroom.

Literacy

Bruce (1997) stated that any definition of literacy is subject to change based on societal needs at any given time. As one explores the evolving interpretations of literacy implemented in schools, it is evident that Bruce's (1997) interpretation was fairly accurate. While it may seem as if the current dictionary definition of literacy is the same as it has always been, that is, "the ability to read and write" (Hillerich, 1976; Wikipedia, 2007), there are subtle but important evolutions of the interpretations of this definition over time. As far back as the 1920s, Canadian Departments of Education were grappling with how to teach "reading and writing" to their students. The specific objective-driven language of the 20s was critiqued for being too specific and for losing sight of the big picture of literacy goals (de Castell, Luke, & MacLennan, 1981).

The 30s, in turn, were critiqued for using vague, romanticized terms to list goals such as "aiming for self-discovery and personal growth through creative language use" (de Castell, Luke, & MacLennan, 1981). This ongoing debate and constant ebb and flow from "back-to-basics" to personal fulfillment related to literacy continue today. Take, for example, the debate over the Ontario Secondary School Literacy Test (OSSLT). While proponents believe that the testing for basic "literacy" skills is the way to ensure literacy knowledge and skill development (EQAO, 2012), critics charge that there is no room left in the curriculum for creativity and self-expression (Quigly, 2011). As noted in the following quotation on the OSSLT website of Jim Costello, who is Director of Education in the Lambton Kent District School, there is very little room left for the type of curriculum theorizing talked about above: "OSSLT is an independent audit of The Ontario Curriculum, and, if you are teaching curriculum in the proper order, at the proper rate, at the proper depth – your students will do

well." (EQAO, 2012). In addition, critics charge, cultural differences are not significantly considered (Pinto, Boler, & Norris, 2007).

While very few people have questioned the need to teach "reading and writing," there are constantly evolving ideas about how these skills should be taught. For example, Flesch (1955) believed that reading should be taught by teaching children letter-by-letter and sound-by-sound and that once children could sound out the words, then they could read. This can be contrasted with more recent definitions by Dechant (1982) or Rumelhart (1994) in which they include the readers' interactions with the text and their actual comprehension of the words they have decoded. Reading goes beyond simply decoding the text on the page and requires the reader to make personal connections in order to comprehend the text. In addition, there is the debate that exists between phonics and whole language instruction. Proponents of phonics argue that reading scores drop when there is whole language instruction in schools. In *Why Johnny Can't Read* (1955) Flesh contended that using basal readers to carefully control what students read (emphasis on repeating high frequency words) did not provide students with the tools to read other texts. Whole language proponents argued that much of the English language does not follow set rules and so students need to begin to "know" words by sight. Phonics relies on decoding practices as the basis for success whereas whole language calls for personal meaning-making and prior knowledge to inform student interaction and interest in reading.

While these debates continue, they are not the focus of my research. Instead, I focus your attention on these discussions to demonstrate the dynamic essence and the ongoing discussions of the term literacy.

The 1970s continued to see the evolution of the interpretation of the term literacy. As Lankshear and Knobel (2003) stated, the 1970s were when the term literacy gained widespread notoriety. Previously, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) had provided a benchmark of the completion of the fourth grade as their literacy standard. UNESCO also defined a person as functionally literate when she/he had acquired basic knowledge and skills in reading and writing. These skills, they argued, should enable a person to engage effectively in all activities in which literacy is normally assumed in her/his culture or group (Gray, 1956). Most discussions about literacy focused on adults outside of school who were illiterate or young males enlisting in the army who needed to be at least functionally literate. With the announcement of a literacy crisis both in the United States and then, subsequently in Canada (de Castell, Luke, & MacLennan, 1981), the word literacy began to gain notoriety. The post-industrial era that began around the same time as the alleged literacy crisis in Canada uncovered an alarming proportion of the workforce that was illiterate (de Castell, Luke, & MacLennan, 1981). Since the nature of society was changing to this post-industrial era, the literacy levels of individuals were found to be insufficient to support the evolving types of activities and employment.

Around the same time, researchers like Paolo Friere (1968) began to illuminate the complexities associated with literacy. Literacy was seen as a complex, dynamic, and socially and culturally situated enterprise. Friere's concept of literacy as reading the word and the world caused people to look at the act of reading in a new light. Each reader could potentially interpret the same text differently depending on his/her social context and previous experience. Ferdman (1990) argued that conceptions of literacy that take into account social and cultural contexts can significantly impact how literacy is ultimately defined and

interpreted and taught. For example, one's literacy behaviours would be better understood if witnessed within one's cultural norms and as part of a group rather than as an individual with isolated skills and activities. He argued that literacy "involves facility in manipulating the symbols that codify and represent the values, beliefs, and norms of the culture-the same symbols that incorporate the culture's representations of reality" (p. 187). For Friere, also, literacy was always embedded within some context. When one begins to look at literacy as a recursive process of reading the word and relating it to one's world, the lines blur and it becomes impossible to separate out the teaching of the decoding of individual words ("reading") and the decoding of gestures, tone of voice, proximity, etc. Many researchers like Ferdman (1990), Friere (1968), and Scribner (1984) also questioned the role of literacy in the holding of power. One must be literate in the dominant culture to hold power within a society. This argument speaks directly to the current lack of literacy skills related to ICT in schools today. As literacy in our students' social contexts evolves to include the use of ICT, schools need to be teaching them the skills they need.

Digital Divide

Although not the focus of this research per se, the digital divide has been a concern within educational research for many years (e.g., Anderson, 2009, Andrews, 2008; Guzzetti, 2010; Varma, 2002,). As a result, it plays an active role in the growing social pressure to include teaching using ICT within schools. Consequently, although hardly mentioned within this study, it is a silent force driving this research. Researchers (Anderson, 2009) have made the argument for the inclusion of ICT-related teaching on the grounds of social justice. They argue that there is differential access to ICT and therefore to new literacy skills related to ICT

based on individual learners' socio-economic status (Andrews, 2008). Geographical location – even the difference between urban and rural learners – can also make a difference to students' personal access to ICT (Beaudoin, 2008). The digital divide, then, can be defined as the gap between those learners who have personal access to ICT and those learners who do not. Digital divide researchers (Anderson, 2009) call for universal access to ICT, by teaching it in schools, to eliminate this divide.

Currently, there is also recognition of a "second level digital divide" (Hargittai, 2002) which argues that even if children are provided with the use of ICT at home, they are disadvantaged if they are not being taught how to use them. Therefore, the children of parents who own ICT and teach them corresponding new literacy skills can be at as much as twice the advantage to those students who do not have these parents that can teach them how to use ICT.

A Sociocultural Perspective: Capital D Discourse

In this light, Gee (1996) recognized the role of society in defining and teaching literacy. Gee argued that literacy involves learning more than one way of being. Instead, each person is part of one dominant Discourse and several secondary discourses. Gee (1996) defines Discourses as ways of being in the world, including the integration of words, acts, gestures, attitudes, beliefs, purposes, clothes, bodily movements and positions. In so integrating these various parts of human interaction, Discourses actually integrate identities. Through their participation in Discourses, individuals identify themselves and are identifiable by others as belonging to specific socially meaningful groups or networks. As well, they are identified and are identifiable as players of socially meaningful roles. In this way, we are all

changing identities and literacies as we move from one group situation to another. For

example, the Discourse you use with your best friends is different from the one you use at the

doctor's office, etc. Gee argued that to be literate, one must comfortably be able to critique

one Discourse from the vantage point of another. In other words, the more easily one is able

to negotiate a variety of Discourses, the more literate they can be said to be. Brock, Boyd,

and Moore (2003) concurred that language use varied across contexts, and that this has

implications for literacy learning. If students are not able to express themselves in the

Discourse of ICT use, therefore, they will find themselves excluded from parts of their

current social contexts.

Gee and others (Barton, Hamilton, & Ivanic, 2000; Kinzer & Leander, 2003;

Lankshear & Knobel, 2010) have a preference for using the term literacies. This purposeful

shift from the singular to the plural signals, once again, a critique of the indivdual model of

reading and writing. No longer can the process of becoming literate be seen as a largely

cognitive one involving a neutral process of learning to decode and produce text in isolation.

By emphasizing the ideological nature of literacy practices, Street (1995) introduced the

concept of multiple literacies being socially constructed and always within subtle power

relations. This is one of the views taken by researchers who subscribe to a New Literacies

perspective (Alvermann, 2009; Guzzetti, 2010; New London Group, 1996). This perspective

takes into account how globalization, new ICT, and multimedia are transforming our ways of

knowing and making meaning in a digital world (Alvermann, 2002; Hagood, 2010;

Lankshear & Knobel, 2010).These changes in society have significant implications for

teaching in English Language Arts classrooms where students are engaged in the process of

learning to navigate their societies through literate behaviours.

Wagner (2004) argued that in addition to specific reading and writing skills that must be taught (like encoding and decoding text), there were two conceptions of literacy, life-span and life-space literacy, that could not be parsed off and ignore the role of context. Life-span literacy tracks what specific skills one is learning at any given time and measures that against what most people within that culture or group are learning. For example, one does not watch a seven year-old boy trying to read and declare him illiterate. For his age and place within his life-span, he is at an age and developmentally appropriate place in his learning to read. However, if, 10 years later, that boy is still trying to learn how to read, one can begin to make inferences about his reading abilities which are one factor in determining his literacy abilities.

Wagner's (2004) second concept of literacy in relation to context is life-space literacy. Life-space literacy focuses on the immediate cultural context within which a person lives and measures the types of literacies used within her/his group or society. Life-space literacy acknowledges the fact that for many people in the world, reading is not the most valued or used form of literacy. For example, if that young boy lived on the streets, reading would not be as critical for his survival as, say, street talk (colloquial speech) or bartering for food/shelter.

These conceptions of literacy are useful especially when one considers literacy learners in relation to ICT. According to Wagner if they do not begin to learn these life-space literacies at life-span appropriate times, they will begin to find themselves less suited for full participation in their social contexts.

As a result of the new emphasis on literacies, the 1990s witnessed a spike in the prevalence of the term "literacy." Labels for many skill sets or competencies have come to be

known as "literacies." For example, there is now computer literacy, cultural literacy, diagrammatic literacy, document literacy, information literacy, film literacy, media literacy, visual literacy, and technological literacy (Patersson, 1996). Lankshear and Knobel (2006) referred to many of these labels as metaphors for "proficiency" or "being functional" at any given task.

While many ELA teachers including myself were pleased to see an increase in the attention that literacy was receiving, Kress (2003) argued that the term literacy has been stretched to the point of having no clear meaning at all. The more that is gathered up in the meaning of a term, the less meaning it has. Instead, he used the term multimodality to refer to the literate behaviours of individuals able to communicate using a variety of resources such as the visual mode of image or the mode of writing. Two central assumptions of his multimodal approach to representation and communication of ideas were: (1) that communication is always multimodal, and (2) that each of the modes (words, images, sounds, etc.) has possibilities for communication but also has limitations. Therefore, one must pay attention to the assortment of modes being used in any interaction and interpret what these various modes are adding to the message being conveyed in that particular situation (Kress, 2005). Understanding these modes will be the first step to teaching the practices associated with them.

When busy practicing teachers begin to learn, and, ultimately teach, these new literacies, they are not only being asked to learn new skills related to ICT, but to reconsider their own interpretations of literacy learning and the role of context within that learning.

While the term literacy continues to evolve in response to societal changes, teachers find themselves facing a massive shift in the literacy practices of their students. At the

moment, students are learning literacy at school in relation to largely print-based texts.

However, outside of school, they are engaging in a wide array of ICT-based literacy activities

such as text messaging, *Facebook* posts, and video game playing (Giampapa, 2010; Hagood,

2010). While curriculum documents are beginning to acknowledge these forms of texts

(Ontario Curriculum, 2010), there is still no guidance for teachers in how to teach the literacy

skills relevant to these new literacy practices.

Digital Literacy

In 1996, The New London Group stated that multiliteracies will impact forms and

functions of writing by focusing on the importance of being literate in a variety of modes.

Their manifesto acknowledged that monumental changes were taking place in society due to

the increased use of ICT and that there were new literacy skills related to the use of ICT that

required recognition.

Kress (2003), for example, argued that hypertextuality used in the workplace and in

social sites on the Internet is requiring that students blend knowledge and ideas from a

variety of types of information to produce highly literate, multimodal pieces of information.

In this way, new student-generated texts are always evolving as they become more efficient

with the process of design. Burnett & Myers (2006) noted that screen-based texts can be

easily altered and manipulated and this ease of revision may prompt writers to experiment

with text more extensively. Students can begin to make critical decisions about the interplay

between text and image and they can continue to enhance their texts as their own digital and

visual literacy skills become increasingly sophisticated. While this is all possible outside of

schools right now, there are no formal requirements to teach the skills related to multimodal

text design and creation within curriculum documents. In addition, unless a teacher is brave enough to pick up a Do-It-Yourself (DIY) book on the use of ICT in her teaching, to date, there are still no clear guidelines on *how* to teach these skills.

Jewitt (2003) reported on video and observational data from five English lessons that occurred in a grade 10 classroom focused on the characters in the Steinbeck novel, *Of Mice and Men*. The class in question utilized the CD-ROM version of the novel that included a dossier, a biography, a map, and a diary, which served as support materials for this digital version of the novel. The novel as CD-ROM allowed the students to view the "text" in print form, and to also view the "visual" option that introduced auditory and visual modes of the novel. Findings from this study suggested that students described the novel as CD-ROM as a multimodal text, and the various visual and auditory features (i.e., visual appearance, action, and voice) allowed them to understand the construction of character in a more enriched way. The supplementary dossier information also served to enhance the students' understanding of the characters and they were able to produce their own texts in response that reflected this type of mutlimodality. Jewitt (2003) concluded that new literacy practices and the use of new ICT within the ELA classroom produced new types of multimodal texts in response. These new texts signalled the need to re-think conceptions of literacy, learning, and assessment. Assessment practices in particular, Jewitt argued, must change in order to adequately capture students' multimodal competence. Failure to change assessment practices, he believed, was to ignore the meaning of the process and the final product. Consequently, teachers are not only being asked to rethink notions of literacy, but also they must rethink assessment to respond to these news skills and texts meaningfully and accurately.

Kalantzis, Cope, and Harvey (2003) argued that four types of assessment practices will become increasingly relevant to multimodal English Language Arts classrooms. The four types are: project assessment, performance assessment, group assessment, and portfolio assessment. Project assessment, designed to measure broad knowledgeability and a flexible solutions orientation to knowledge, requires students to complete in-depth tasks (e.g., task plan, retrieval of information, and presentation). Performance assessment would assess organization and problem solving skills that occur in the planning, doing, and completion of an assigned task. Group assessment would measure the collaborative skills of students and the collective work of a learning group. Portfolio assessment becomes particularly important because it acknowledges the embodied nature of the students' learning, and that, within the multimodal context, learning outcomes will vary greatly among students. All four of these assessment approaches call for significant changes not only in classroom assignments, but also in teacher and student thinking about assessment.

Joyce (1995) used the term "cardinal technology" to explain the iterative relationship that hypertext technology can create with a learner: the nature of the technology changes which in turn causes a change in the nature of the learning that takes place. Therefore, as teachers begin to learn new ICT and incorporate new literacy and assessment practices into their classroom teaching, the nature of their thinking and teaching begins to change. Therefore, it is critical that as ELA teachers introduce digital literacy skills into their classrooms, research continues to be done on how teachers are thinking about this new learning and teaching.

Leu, Karchmer, & Leu (1999) also talked about the iterative relationship of what Joyce calls cardinal technology in relation to literacy. While one uses technology and learns

new literacies, these new literacies allow the learner to further explore certain software and to create new products, ideas, and software as a result. This in turn can foster the generation of new literacies and so the cycle continues. Technology, therefore, is both the catalyst for the development of new literacies and the product of new literacies. This fluid evolution requires that educators remain abreast of digital practices related to ICT so they can remain relevant in the lives of their learners and in their own lives outside of school.

As mentioned above, Lankshear and Knobel (2006) talk about new literacies and Kress' (2003) ideas about multimodal design could be considered a new literacy. However, Lankshear and Knobel do not believe that all new literacies must relate directly to the use of new technology. They argue that there is new technical *stuff* to consider when discussing new literacies (for example, software programs, keyboarding etc.), and there is new ethos *stuff* to consider (for example, seeing the world as changing in fundamental ways and needing to change our literacy practices to stay current).

One example of a literacy skill which is not technology dependent, but, Lankshear and Knobel (2006) argue, relevant and necessary to learn in this new economy, is scenario planning. Scenario planning involves reading succinct narratives that outline a possible situation in the future. These scenarios are designed to help people think about possible future outcomes before undertaking specific actions. By delving deep into one particular situation and predicting possible outcomes, one takes on various roles within that scenario (such as perhaps corporate executive, curriculum planner or policy maker). Taking on these various roles and participating in the Discourses of these roles builds literacies and supports the type of thinking strategies that people need in the workforce of this new economy and in relation to the constant changes and evolutions related to ICT. So, while scenario planning

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lacks the technical *stuff* of a new literacy, it encompasses the ethos *stuff*. New literacies can

emerge that do not involve the use of a computer. However, the focus of my research will be

on digital literacies – new literacies that encapsulate aspects of both the new technical and

the new ethos *stuff* in the use of ICT.

   Leu and Kinzer (2000) talked about our early attempts to include digital literacy

skills within policy documents as "literacy as technological deixis" (p. 117). The term deixis,

they explained, was used by linguists like Murphy (1986) for words such as *now, today, here,*

and there. These are all words that change quickly depending on the time and space in which

they are being said. The same could be said, they stated, for literacy as it related to ICT

because the forms and functions of literacy were rapidly changing and adapting to the

evolution and creation of new ICT. This inability to define concrete examples of specific

ICT-related literacy activities increases the challenge for teachers trying to learn about this

new ICT as much of the hardware, software and skills related to ICT are fluid and evolving.

Without concrete guidance in the form of curriculum documents (which has been the

traditional method of determining what is important to teach) how does a teacher begin to

decide what to teach and how to do it? The constant upgrades and evolutions of hardware and

software provide unending choices to be made before any teaching and learning can even

begin.

   As mentioned above, Gee (1997) argued that literacy behaviours impact on one's

identity. Rather than simply being involved in the practice of reading or writing text,

participants are shaping their identities in relation to the Discourses within which they are

participating. Hypertexts, for example, require a certain amount of specific knowledge about

terminology and spatial organization. Someone who is a novice to this type of writing will be

identified by their lack of specific knowledge about the language and organization of the text. Therefore, veteran teachers who are accustomed to being authorities within the classroom will identify themselves as novices when it comes to the teaching of new literacies. While this flattening of the teacher-as-expert hierarchy is a characteristic of new literacies of Paradigm 2, it is certainly not a characteristic of most traditional and current classroom settings found in Paradigm 1. However, the need for students to learn the skills related to hypertext is not going away. Students experienced in reading and writing literary hypertexts may be able to develop a wide range of digital literacy skills required in a new economy that demands cognitive flexibility (Jacobson & Spiro, 1995).

Aside from teachers not being accustomed to being novices in their own classrooms, it is also arguable that they are not able to provide support or useful feedback and they may not be able to explain wiki or hypertext thoroughly (Gee, 1997). The more time spent interacting within the Discourse, the better able teachers will be to teach it. Becker (2000) noted that computers become valued and integrated members of the classroom when the teacher has a reasonable comfort level and is at least moderately skilled at using a computer.

However, this change in the use of ICT in society and the evolving definition of literacy has not changed the overall practices of ELA teachers in relation to new literacies. There are a number of theories as to why this is so. Some of these theories identify the role of teachers' individual personalities and/or life-views in their decisions to use ICT (or not) in their teaching. Ertmer's and Roger's Frameworks represent two popular views of this theory.

Ertmer's Framework

Ertmer's (1999) framework identifies two levels of barriers that prevent teachers from adopting the use of ICT in their teaching. First-order barriers are those extrinsic to teachers: self-efficacy, time, access, and support. These barriers are experienced earliest when teachers are thinking about adopting the use of ICT. Most notable of these first level barriers is self-efficacy. Wang and Ertmer (2003) defined self-efficacy as "the personal beliefs about one's ability to learn or to perform actions at designated levels." This recognition of teachers' need to feel confident about their own abilities is critical in the planning, teaching, and implementing of ICT. Although self-efficacy theories suggest that, "Personal successful experience with technology in the classroom is the most powerful means for building teachers' self-efficacy," the reality is that it is "almost impossible to achieve in practice" (Ertmer, Conklin, & Lewandowski, 2002, p. 11). Limited knowledge and limited personal confidence on how to integrate ICT into a classroom curriculum, overwhelms certain teachers and they do not attempt integration (Ertmer, Ross, & Gopalakrishnan, 2000).

Second-order barriers are those intrinsic to teachers: varying pedagogical beliefs and reaction to change. These highly personal attributes of individual teachers can inform their professional practice in significant ways. If teachers are not comfortable with the change or do not see the role of ICT in contributing to learning in meaningful ways, they are unlikely to take meaningful action to integrate it into their teaching. Ertmer believed that these barriers would always be present in some capacity; therefore, she argued that the best method to address these barriers was awareness. "By arming our current and future teachers with knowledge of barriers, as well as effective strategies to overcome them, it is expected that

they will be prepared to both initiate and sustain effective technology integration practices" (Ertmer, 1999, p. 60).

It seems, however, that researchers' examples have discovered that even if all of the barriers mentioned by Ertmer are removed, there are teachers who still will not adopt ICT use into their teaching. It seems that there may be additional factors related to context that may also play a role in teachers' decisions to integrate ICT or not.

Roger's Framework

Roger (2003), in his book, *Diffusion of Innovation*, categorized teachers into five levels of ICT adopters: innovators, early adopters, early majority, late majority, and laggards. This was an attempt to identify particular qualities of "innovators" and "early adopters" and distinguish them from the "late majority" and the "laggards." The criterion for a particular adopter categorization was the timing of the individual teacher's innovativeness. Innovators are characterized by being venturesome and by close personal and professional connections to other innovators. Early adopters are comfortable trying an innovation first before anyone else in their workplace as they are comfortable with little to no support. Early majority adopters are typically outside of leadership roles (being first) but will take on a new innovation as they begin to hear about it in their professional social circles. They want to be in on new ideas once they are more "mainstream" within the workplace. Late majority adopters are far more sceptical, need more encouragement from peers and typically benefit from additional support. Laggards are wary of change. They are wary of innovators, are more isolated within their professional social circles and need assurance of a certain level of

success before they will consider adopting new ICT. Roger's Framework made explicit the various roles teachers can play in the roll-out of a new innovation.

Lankshear and Knobel's (2006) use of the term "Pardigms" adds a new culturally relevant dimension to the discussion of teachers' roles in the integration of ICT. A Paradigm is a construction used to identify "broad trends and patterns evident in different times and places under different conditions" (Lankshear & Knobel, 2011, p. 52) Part of the definition of a particular paradigm consists of a characteristic way of thinking about the world and responding to it. In turn, part of this characteristic way of thinking includes ways of thinking about and practicing literacy. Lankshear and Knobel argued that the Paradigm within which our society has been developing over the past century or so is changing in historically significant ways. This change in paradigm is the result of the mass uptaking of new technologies and the accompanying new ways of thinking about the world and therefore literacy. Consequently, new literacy practices are evolving as a result of this new paradigm that compliment but are different from traditional literacy skills and practices. These new literacy skills represent *transcendence* from conventional Paradigm One practices toward innovative Paradigm Two practices.

People who still reside largely within Paradigm One thinking believe that the world is much the same as before only there is now some very sophisticated technology with which to carry out your business and communication. Lankshear and Knobel (2011) argued that people who see the world from a Paradigm Two perspective believe that the world is a very different place than it was before and that this is in large part due to the emergence and massive uptake of new digital technologies. In Paradigm One, value is a result of scarcity whereas Paradigm Two fosters the belief that value is a result of dispersion. For example, in

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Paradigm One, authors would hold on to their information/ideas until they had them published under copyright. Paradigm Two authors want their ideas out to as many people as possible because the more people who see them and respond and critique them, the stronger the ideas will ultimately become. Paradigm One focuses on individual intelligence whereas Paradigm Two focuses on collective intelligence.

Space is also viewed very differently within the two Paradigms. Paradigm One views space as enclosed and purpose-specific (for example, the book). Paradigm Two views space as open, continuous, and fluid (for example, hypertext). A teacher who sees the world from a Paradigm One perspective still sees student work as largely print based, linear in nature, and individualized. In contrast, the Paradigm Two teacher would expect to see student work that is digital in nature employing a variety of modes (image, words, sound), non-linear (for example, hypertext), and the result of a collaborative effort.

These two contrasting Paradigms articulate the differences between those teachers who see technology as another trick in their bags of tricks to improve individual literacy, and those teachers who see its importance as a catalyst for change in the literacy behaviours of their students. What follows is a discussion of the ways in which technology is currently being used in classrooms.

Situating this Research: Empirical Studies

Computers have become increasingly prevalent in society and are a common and expected item in schools. As a result, curriculum documents have been updated and revised to include an increased use of information and communication technologies (ICT) in the English Language Arts classroom for over a decade now (Barrell, 2001; Looker & Naylor

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Eds., 2010). In response to these changes, experienced teachers have been facing increased demands to learn these new technologies and to then incorporate them into their teaching. However, it is still not clear what they should be learning. Currently, the dominant paradigm of technology and the curriculum is less about a transformative approach to curricular inclusion and more about ICT as enrichment (Burnett, Dickinson, Myers, & Merchant, 2006). Lankshear and Knobel (2003) referred to this type of teaching as the "old wine in new bottles" (p. 25) syndrome. Teachers may tack on a new technology within their typical teaching plans but make no change to the objectives or outcomes of their literacy teaching.

Since this research began in 2007, there have been an expanding number of studies being published on the integration of ICT in schools. The following discussion explores the findings of some of these studies and provides additional context for this particular research.

There are a number of studies that demonstrate Lankshear and Knobel's (2010) "old wine in new bottles" approach to ICT use. These studies clearly show the use of ICT but with a narrow conception of its use within the English Language Arts classroom. The computer is seen as a device with some well-defined functions such as drills on basic skills, a multi-media presentation instead of a lecture, and the use of film to learn about famous authors, or playing word games on a computer instead of a board game to build vocabulary. Many studies have pointed to the effectiveness of these types of activities. The ICT serves a real purpose in the classroom but does not contribute to the development of digital literacy skills.

Owston (1992) conducted a comparison study of 111 8th graders who composed writing "by hand" and by using the computer. He observed that when students used computers to write, they moved blocks of text and continuously revised their work, something that they did not do when composing "by hand." Owston concluded that word

processing helped students create better pieces of writing because they were able to continuously edit as they worked. Snyder (1994) found that when she examined two different groups of writers, one that used computers for writing and one that used paper and pen, the group that used the computers were more engaged in their writing and produced more complex pieces of writing. Again, no effort was made to employ a variety of modes and the assignments themselves only required the traditional skills of reading and writing. The final products were linear in nature and print-based. This study was firmly locked into Paradigm One as it was seen as a way to increase the Paradigm One literacy practice of writing single-authored texts with no multi-modal characteristics for a single audience of the classroom teacher.

Bangert-Drowns (1993) reported that the use of technology as a learning tool could make a measurable positive difference in student achievement, attitudes, and interaction with teachers and other students. As well, his research demonstrated that the use of ICT could help students gain language skills in classification and reading comprehension, listening comprehension, phonological awareness, reading achievement, and spelling. While these are desirable outcomes, they do not require the learners to engage in the use of new literacy skills.

ICT has also been used effectively to enhance the writing processes of students with learning disabilities. For example, McArthur (1996) reported that students with learning disabilities benefit from word processing through spell checkers, grammar checkers, and style checkers. McArthur also explored applications that supported planning, such as outlining and semantic mapping software. Again, this software was seen as helpful.

Strassman and D'Amore (2002) also reported using computers for students with learning disabilities to edit each others' writing. They constructed an electronic read around whereby students presented their writing on one screen and then moved around the room to read and edit each others' work. They reported that because the read arounds were done on computers, students used writing to discuss writing thus increasing the amount of writing they actually produced. While this study offers a useful tool for teachers, the activity itself promotes the traditional views of the writing process and of literacy education. While improving traditional literacy skills is commendable, ICT is not being used to its fullest potential. Students are not being encouraged to think and write differently (for example, in a non-linear fashion like in hypertext) in ways that will be useful for future use of ICT in general (navigating the non-linear world of the Internet).

Simply adding a computer to the lesson plan did not change the intended outcomes of the curriculum in any meaningful way. Students in these studies were required to produce the same products but were given an additional tool to do it. In an on-line survey of writing practices (Media Awareness Network, 2001), secondary school students reported that their writing was for a wide range of purposes (e.g., e-mail, text messaging, chat rooms). As the above studies indicate, however, most schools still favour pen and paper writing processes. The expectations for students have not changed significantly in that they are still required to create "final drafts" of single-authored writing texts. It seems that there are still many entrenched ideas about what a finished product will look like.

Karchmer (2001), for example, reported on a study of 13 teachers considered to be exemplary by their colleagues in the use of technology in the classroom. Interview data, teachers' reflective journals, and on line course materials revealed that the teachers viewed

the Internet's influence on reading as an extension of traditional literacy skills. Publishing student work on websites seemed to increase the motivation of elementary school students. While there was some web publishing, there were largely pen and paper-type assignments completed using ICT.

Boling (2006) reported on a study of technology use in two laptop high schools located in an affluent school district. Through extensive classroom observations, supplemented by interviews and surveys with the teachers and students, the researcher expected to report on the enhanced quality of use of computers in the classroom. Boling found that the computers were being used extensively within the classrooms, but the main purposes of computer use were for taking notes, posting homework assignments, and searching for information needed for school reports. She concluded that there needs to be a stronger emphasis on the relationship between technology use, student learning, and multimodal ways of knowing. Boling also concluded that both teachers and students did not recognize the affordances of technology and multimedia in relation to meaning-making and learning.

These studies indicate that while many teachers are taking on the task of integrating ICT into their teaching, they are not engaging their students in meaningful applications of digital literacy skills. Hayes (2007) reported that, when asked how ICT impacted their classroom teaching, many of her Australian teacher participants, had difficulty answering the question. Most of them indicated that while they were using ICT, it had not fundamentally changed anything about their classroom teaching practises.

Hagood (2010) argued that a literate person in today's society can be characterized by four qualities: (a) a possession of strategic knowledge in order to know what search strategies

to use to retrieve information in complex changing information contexts, (b) critical thinking skills to be a critical consumer of information, (c) an awareness of the variety of meanings inherent in multiple media forms (i.e., images, sound, text), and (d) a continuous interest and commitment to learning and updating how to use and communicate within the changing technologies. Therefore, it is no longer sufficient to simply know how to use language effectively. Rather, a literate person in the digital age knows how to gather, analyze, solve problems, and design within the affordances of a variety of technologies while working independently or cooperatively (Hagood, 2010; Labbo & Reinking, 1999; Lankshear & Knobel, 2011; Leu, 2000). Although literacy has been defined as being multifaceted for many years, literacy today requires a more varied series of functional, academic, critical, and technological skills (Leu, 2000). In contrast to the studies discussed above, there are a growing number of examples that clearly denote ICT integration with an emphasis on digital literacy skills.

Wilhelm and Friedmann (1998) worked with struggling high school English Language Arts students to research a question in popular culture and to subsequently present their findings. The students worked on the question of who was the greatest baseball player of all time. Their final presentation involved a series of hypertext cards with various facts and statistics about Babe Ruth displayed using spreadsheets, databases, a graphics program for statistical data, and MIDI (Musical Instrument Digital Interface) to create a soundtrack for some of their hypertext cards. The boys found titles of books that they could read by going to Internet sites about baseball. They learned to understand and interpret spreadsheets and statistics while also learning the importance of balancing text and image and sound in a final presentation.

In the Wilhelm and Friedman study (1998) the use of ICT in the everyday enacted curriculum (like a textbook or a blackboard) required more from the students than simply reading text and word-processing essays in response. The boys were engaged in the use of new digital literacy skills that assisted them in navigating the World Wide Web and various ICT programs to find answers to questions that were of genuine interest to them at that time. Not only did the integration of ICT require new literacy skills, it also motivated and engaged reluctant students.

Hammett (1999) reported similar findings when she worked with high school English Language Arts students. As the students composed hypertext presentations of *Romeo and Juliet*, she recorded their designing of multimedia presentations that included a still image of the balcony scene with the pop song by Styx entitled "Babe" playing in the background, quotes out of the original text, and a Wordsworth sonnet about losing a loved one. Hammett concluded that the students' new literacy skill of design afforded them the ability to create an exploration of various moments of despair that provided them and their classmates with a deeper understanding of *Romeo and Juliet*. Hammett also concluded that students became conscious of the power of design in effective communication as they made design decisions such as what song to choose, what colours to use, and the relative size of one part of a screen to another.

The acquisition of digital literacy skills is central to the production of the new types of texts students are reading on the Internet. Kajder's (2004) study spoke of her students' multi-modal personal narratives as representations. She noted that in their representations (writings), the children reflected the multiliteracy of their lived experiences as they made their meanings clear through written word, image and sound in dialogues.

Burnett and Myers (2006) reported on a study of elementary school children's use of on-screen electronic texts, and on the differences that occur in writing when comparing on-screen and paper approaches. The data for this study were the email compositions and PowerPoint presentations of 12 children, aged 8-10, who attended two schools. Additional data included observations and interviews with six 10-11 year-old children who were writing on-screen as part of their ongoing literacy program. The researchers reported the significance of visual aspects of on-screen writing, which has implications for digital writing in classrooms. In particular, the iterative process of on-screen composition was highlighted. Children seemed to benefit from a variety of open-ended tasks in which they composed, on-screen, a range of texts for different purposes. The authors believed that the children saw the multimodal elements as central to their meaning making, and to the meaning that they wanted to convey to others in their presentations. Of particular importance from this study was the conclusion that if multimodality is to be realized, then children need to be encouraged to evaluate and select digital options such as images, moving images, and sound files as part of the composition process.

Accompanied by an explicit curricular acceptance of multiliteracies, these studies illustrate analytical and creative writing approaches that strive to honour and extend students' current lived and literacy experiences. Wilhelm (2000) stated that we must teach students from their current realities to their future possibilities. Computers are an integral part of many students current reality and are, therefore, a powerful starting point from which to teach them. While it is heartening to read studies that reflect the positive use of digital literacy skills, there is still a need to study the role of the teacher in the integration of ICT in the ELA classroom.

McClay (2006) reported on three teacher-researcher case studies that sought to engage middle school students in literacy practices involving their out-of-school literacy interests. A salient finding from this collaborative research was that teachers who engage in teaching new types of literacy practices are aware that both they and their students are "walking new literacy paths" (p. 194). In response to this, McClay argued that research and learning are similar in that they both have planned and improvisational elements to them. This was especially true in these cases as the teachers worked with new conceptions of texts and so had no exemplars and no clear sense of outcomes. Thus, the researchers, teachers and students had to acknowledge and come to terms with the improvisational nature of teaching in a multiliteracies framework. Giampapa (2010) argued that this improvisational nature is a key ingredient in multiliteracies practice. For example, allowing students to create identity texts in which the engaged their first language, English language (the language of school) and their choice of a variety of complex multimodal skills to produce identity texts. Now, while there is the predictability of the production of "text" the actual final products are unpredictable and perhaps impossible to create exemplars of. Finally, Shoffner, De Oliveira, and Angus (2010) presented two case studies that examined the work of two English teachers as they began to articulate and expand their notions of literacy. Both teachers endeavored to engage their students in multiliteracies. The researchers reported that in both cases, the teachers saw value in expanding their conceptions of literacy to include multimodal forms of representation but neither teacher managed to completely engage in teaching from a multiliteracies perspective. One teacher was not comfortable making the transition from leader of learning to facilitator. He saw this as a dilution of his role as teacher. In the second case study, the teacher found herself abandoning these new forms of multimodal expression

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for traditional literacy skills teaching because, she argued, her students were struggling learners and she needed to focus her time and energy simply on keeping them "caught up" on the school-mandated skills they needed to pass the course.

What these studies represent is an evolution from studying and reporting on "best practice" in the area of ICT integration to the much-needed studying and reporting on the "everyday practice" as it is lived by teachers who are not leaders in the area of ICT.

As rapid technological change is creating a measurable shift in the social Paradigm, as noted above by Lankshear and Knobel, this shift is causing noticeable changes in the very nature of learning. Hagel and Seely Brown (2005) talked about the ways in which, over time, major shifts in technology are the catalysts for change in, what they referred to as "common sense models" for judgment and consequent actions in people's everyday lives. They contended that people make many of their daily decisions based on identified "common sense" assumptions and understandings in order to achieve their goals. The current model for schooling, they believed, is informed by a "push" model of common sense. Schools calculate budgets and push the money out so it is there when they need it. They predict the learning that students will need to do and then they "push" the content in the form of prescribed curriculum documents. These curricula "expose students to codified information in a predetermined sequence of experiences" (p. 3). In this way, the common sense model of late has been to decide on the forecasted resources needed (i.e., curricular objectives), push them out to schools and teachers, and then tailor the learning to what has been "pushed."

Hagel and Seely Brown (2005) argued that with the invention of platforms of information found on the Internet, they are seeing the beginning of a shift to a "pull" approach within such fields as education, media and many forms of business. Platforms, they

contend, offer just-in-time type learning and the resources to compliment that type of learning. They "help people to mobilize resources when the need arises" (p. 3). According to Hagel and Seely Brown, pull models

> help people come together and innovate in response to
>
> unanticipated events, drawing upon a growing array of highly
>
> specialized and distributed resources. Rather than seeking to
>
> constrain the resources available to people [as in a push model],
>
> pull models strive to continually expand the choices available
>
> while at the same time helping people to find the resources that are
>
> most relevant to them. Rather than seeking to dictate the actions
>
> that people must take, pull models seek to provide people on the
>
> periphery with the tools and resources (including connections to
>
> other people) required to take initiative and creatively address
>
> opportunities as they arise...(p. 4)

Just as Ontario Kindergartens are seeing an introduction of play-based and inquiry-based learning (Ontario Ministry of Education, 2010), a "pull" model is student centered and relies on platforms of information and peers to supplement the learning the student actually wants to do. Teachers still play a vital role in this type of learning but it requires a shift in thinking and in action. No longer can the teacher be the "sage on stage" or even control the pace or content of the learning. Instead, they guide, question, facilitate and model.

This shift in thinking to consider a "pull" model of common sense is not without context. Knobel and Lankshear's (2010) latest publication, *DIY Media: Creating, Sharing and Learning with New Technologies* outlines the myriad ways in which teachers and students can create audio media, still media and moving media with no real expertise. The authors point to an influential paper published jointly by MIT and the MacArthur Foundation: Jenkins et al. (2006) explain the massive increase in participatory culture as being the direct result of DIY Media. An average person surfing the Internet today can "archive, annotate, appropriate, and re-circulate media content in powerful new ways" for little to no cost with little to no expertise. Participatory culture is defined as one:

1. With few limitations on the types and quality of artistic expression and with low barriers to joining in on discussions/contributing to the chosen community

2. With strong encouragement from members for sharing contributions and creations

3. With an expectation of informal mentorship by more experienced/knowledgeable members to those who are less so

4. Where all members, regardless of ability, believe that their contributions matter

5. Where all members feel socially connected (Jenkins et al., 2006, p. 7, cited in Knobel & Lankshear, 2010, p. 15)

These highly participatory and generative communities have language and references specific to their own unique community. Gee (2007) called these discourse communities of like-minded people "affinity spaces" (p. 100). Within these spaces, members feel safe to experiment, seek mentorship, create, and generate new innovations. The idea of DIY media and "pull" models of schooling stem from the same perspective: this is what and how people outside of school walls are communicating and creating right now at this moment. If schools are serious about authentic learning, they need to allow students to pursue their interests and to create DIY media using the forms and functions that interest them. Allowing students to participate in a culture of peers interested in the same types of endeavours is one way to achieve a level of authentication not possible within the confines of the classroom walls alone.

However, since this research is focussed on the role of the teacher, there is another side to this notion of DIY media. As defined in their book, Knobel and Lankshear (2010) talk about the DIY ethic as being self-reliant. People who do any type of DIY project are taking on tasks with which they do not have any highly specialized expertise and are completing them usually for the personal satisfaction of completing something they have just learned or to save money. In either case, there are many teachers at the moment who struggle to do DIY media as they have no other means of learning the skills required to teach within this described participatory culture. If teachers are not able to gain a certain level of expertise, it will be difficult, if not impossible, for them to extend their learning to their students.

The Australian Deans of Education (2001) argued that knowledge was quite specifically situated, rapidly changing, and extremely diverse. By specifically situated, they were referring to these groups of sub-cultural interest found online (Gee, 2000). The vast number of alternatives offered in this type of environment, argued Lo Bianco (2000), limits the effectiveness of any curriculum focussed on empirically right and wrong answers. Within this rapidly changing environment, Kalantzis, Cope, and Harvey (2003) ask the questions "What kinds of learning will be durable, and how can we measure these?" (p. 17). The user-friendliness of the wiki takes the emphasis off learning the actual program and places it on the processes of creating, collaborating, and expressing in a hypertextual environment.

Lock (2007) reported on a study that involved two researchers collaborating with a group of preservice teachers. They created and modeled a learning environment where these preservice teachers were challenged to think about teaching and learning with technology, the relationship between technology and learning, and to become designers of learning with digital media and network technologies.

The research team used six guidelines to support teacher learning throughout the project: (a) Technology is best learned just-in-time, instead of just-in-case. A great deal of responsiveness was required on the part of the researchers in order to keep the preservice teachers moving forward on their work, (b) planning, designing, implementing, and evaluating are best done in collaboration with others, (c) learning must be situated in authentic, challenging and multidisciplinary tasks, (d) a culture of inquiry around technology for learning supports risk-taking and knowledge creation,

and (e) teachers need intentional and meaningful opportunities to reflect on professional development and growth (Jacobsen et al. 2002, p. 370).

In all six guidelines, there is recognition of the shift from teacher in isolation to teacher learning from and in interactions with others. Teachers are not learning new skills by sitting in front of a book or computer; rather, they are involved in the learning process while simultaneously teaching and learning from others.

The National Council of the Teachers of English (NCTE) published an article in *The Council Chronicle* discussing the teaching of ICT in the ELA classroom (Collier, 2007). Within that article, Sara Kajder (2007) writes, "Because the technology is always changing, and because the tools are always changing, it's a hugely challenging time to be a teacher" (p. 6). Kajder goes on to say that one of the myriad results of 21st Century literacy practice is that "We have opened up what counts as valued communication" (p. 4). Our definitions of valid texts have broadened to include such forms as rap lyrics, graphic novels, still images, audio text, and oral performance. Kajder recognizes that these are not all new forms of communication. However, they are being given increased validity within the ELA classrooms as authentic forms of text. The article warns that ELA teachers have a growing responsibility to their students to remain current and to continue to grow as 21st Century teachers. Students are depending on teachers to prepare them for life outside of school and, Collier argued, this requires the authentic and consistent use, modeling, and teaching of 21st Century literacies.

With such a serious charge in mind, this study proposes to add depth to the conversation about how complex this call for consistent use, modeling and teaching of digital literacy skills is in the reality of the classroom context.

Theoretical Framework

This study examines teachers' learning and leading of learning with ICT from a sociocultural perspective. Informing my study, then, is the premise that literacy changes as cultures change. So, while there has been a massive shift in the way society engages with ICT and communicates using ICT, schools must now transform and begin to teach these new literacy practices. Gee (2007) stated that literacy was about ways of participating in social and cultural groups rather than simply a cognitive achievement done inside one's mind. Therefore, people engage in written language differently in different social contexts and cultural groups. Written language also is not seen in isolation from oral language and social norms and values. In this way, literacy is nested within the complex social interactions of a given group within a specific social context. I entered this study from a sociocultural perspective and this study reports findings through this lens. However, exploring the complex and often contradictory everyday events of the classroom teaching and learning experience requires more than this one perspective to inform the analysis and reporting of the data.

In addition, I refer to Lankshear and Knobel's (2011) use of the term Paradigm to acknowledge the evolving nature of literacy practice in society and to situate the literacy practices of the two teachers. And while these two perspectives clearly helped to inform my planning, implementation, and reporting of this study, additional theories were brought to bear on the analysis of my data. In the following chapter, I detail my use of reader response

theory to enhance my data analysis. It should be noted that the literature discussed above

informed the close reading of my narratives throughout the analysis process.

Chapter Three: Methodology

Introduction

Ron and Lauren, two Grade 6 teacher participants used wiki software to engage their Grade 6 students in creative writing using ICT. Neither of these two teachers had previous experience using ICT in their classroom teaching. During seven-week units in each of their respective classrooms, the following research questions were investigated: (1) What are the experiences of two teachers with dissimilar backgrounds when trying to lead learning in creative writing using ICT? (2) How do these teachers conceptualize what's important to learn?, and (3) To what degree does the diversity of contexts in this study contribute to the findings?

In this chapter I describe both the methods and the methodology I employed during this research. I begin with a rationale for the use of a qualitative two case-study design to achieve the purposes of my phenomenological study. Next, the methods used in participant and site selection and data collection provide a context for the research. In the analysis section, I discuss my choice of a hermeneutic phenomenological approach with reference to Rosenblatt's theory of reader response. In addition, Richardson's (1997) notion of triangulation is discussed in relation to my research findings.

Qualitative Case-Study Design

When I first became interested in this topic of investigation, I was in the classroom while students were learning to use a wiki. My fixation on the thoughts and feelings of the classroom teacher were directly related to that classroom context. Logically then, my study is

situated in the messiness and complexity of the classroom. Specifically, choosing a case-study approach was most suitable because I wanted to explore the social phenomenon of teaching using ICT within these real-life contextual conditions (Yin, 2003). For example, I needed the teachers to have only the allotted time that a typical class period would allow when they began to teach lessons involving the wiki. They were only granted access to the computer labs at times when they were able to sign up and, obviously, the presence of the students themselves played a critical role in the research. Yin noted that a case study "investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident"(p. 13). The contextual conditions surrounding this study were highly pertinent to the phenomenon of learning and then leading learning using ICT.

Yin (2003) noted some key components in case-study design. For example, the studies best answered by case-study research tend to begin with "how" or "why". In the case of my research, I wanted to know "how" a teacher experiences their learning and "how" s/he conceptualizes what's important to learn. Another key component, Yin believed, was that a case-study approach should typically begin with study propositions. In this case, the proposition for this study was that busy, practising teachers must be struggling with learning how to use this new ICT given the rate at which it is evolving and the lack of clear guidance about how to teach it. Stake (2006) outlined two distinct ways in which case-study research could be considered. Intrinsic case-study research focuses on one given case and the research reports on this unique situation. Instrumental case-study research, Stake argued, is concerned with using a particular case to understand some general problem. In my research, this general problem of teachers needing to take up the use of ICT provides the instrumental backdrop for

my case-study research. As Stake described, I have "recognize[d] a problem, a puzzlement, and stud[ied] it, hoping to connect it better to known things" (p. 96). A major objective of this study was to document the process that a teacher undergoes when learning and then teaching ICT. This process of continually updating one's practice is at the core of the teaching profession. It is active, fluid and interactive. The teacher is constantly informing future behaviour using previous outcomes. Dyson and Warshauer-Freedman (2003) noted that process research provides critical insights into how various processes work for particular people in particular situations. My instrumental question proposes to shed light on the complex process of teachers learning new ICT while teaching.

Another feature of a case-study design, as outlined by Yin (2003), is the unit of analysis. The unit of analysis for this study is a Grade 6 teacher in a self-contained classroom teaching ICT through wiki. Given the diversity of classroom contexts in schools, I wanted, as much as possible, my study to reflect that diversity. By choosing to create what, on the surface, seems like completely different contexts, I could easily identify the particular proposition (or unit of analysis) for my case studies: a classroom with a teacher who does not use ICT in their teaching. What is this experience like for the teacher? How do they begin to conceptualize what they need to be teaching?

In addition, I decided on a two case-study design for my research for reasons of feasibility. As previously noted, the purpose of the case-study approach is to, "gather comprehensive, systematic, and in-depth information about each case of interest" (Patton, 2002, p. 447). Therefore, the very nature of conducting a detailed description of a phenomenon requires a generous amount of time and yields a vast amount of data. I wanted to allow myself time and energy to focus on a small number of cases in detail. However,

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limiting my research to one case, Yin (2003) argued, potentially limits the data and the possible findings. If the study yielded limited amounts of information, my study might fail to contribute to the research literature in any meaningful way.

Although no future teaching situations will follow the direct path of either one of these two teachers in my case studies, some of the similar experiences, questions, concerns, and actions, might serve to inform future research studies and future ICT integration in the ELA classroom.

Hermeneutic Phenomenology

As McRobbie (1996) searched for the discourses within which "different, youthful, subjectivities" are constructed, my study searches for the discourses within which different classroom teacher subjectivities are constructed. In other words, what interested me was not the overview of "the classroom teacher learning ICT" but rather the specific narratives that highlight the complexity of the experience of the individual teacher.

Hunsberger (1992) stated that as teachers we are constantly redefining and interpreting the "manner in which we are situated in 'the midst of things' – located as we are between individual and collective, past and future, actuality and possibility" (p. 89). This particular quotation resonated with me when I thought about the difficult position that many teachers must be facing in today's classrooms. They are in the midst of great social upheaval when it comes to literacy practices. In addition, they are individuals situated along this continuum of social change with their own thoughts and perspectives on communication and literacy practices within a changing paradigm within their social contexts. However, they are part of the collective of teachers who are responsible for the fostering of children's literacy

behaviours within this changing society. The actual conditions of the classroom and of their thinking about literacy may be in competition with the possibilities society is presenting to them. This study furthers this important exploration of the role of the teacher in the integration of ICT in the ELA classroom.

Because it includes the messiness of lived experience, phenomenology served as the perfect foundation for my theoretical framework when thinking about researching teaching and learning within the classroom context. The first activity van Manen (1984) identified to guide phenomenological exploration is the choosing of a phenomenon that interests the researcher in a serious way and pulls her into the world. When discussing the separation of the researcher's story from the participants' stories, Richardson (1997) stated, "by objectifying ourselves out of existence, we void our own experience. We separate our humanity from our work…we create the conditions of our own alienation" (p. 19). As a researcher, I relied on my own thoughts and feelings as an ELA teacher nervous about using ICT and the role they played in the identification of my research questions and in my interpretation of the experiences of my participants. Varela, Thompson, and Rosch (1993) stress "the deep tension in our present world between science and experience" (p. 12). They argue that rather than adding to the layers of abstraction in a study, we should revisit where we started – the concrete particularities of our experiences. As an ELA teacher, I always wanted to remain current and be aware of new ideas and theories for my classroom. This study connects in a meaningful way for me because I have a sense of how I would be struggling to learn and integrate ICT into my own classroom teaching.

The second activity for a researcher embracing a phenomenological methodology, according to van Manen (1984), is that the researcher must investigate the phenomenon as it

is lived and not as it is theorized. Phenomenology is not interested in the frequency of events or the scientific results. Rather, it seeks to present the experience and meaning of a phenomenon in the daily lives of the participants. My interests lay not in the theory of what teachers learning ICT should do, but rather in what happened to them on a daily basis when they did try and how they chose to handle particular situations. van Manen (1984) stated, "Phenomenology responds to the need for the theory of the unique" (p. 19). Each educator responds to situations in ways that are unique to him or her and I wanted to begin to explore what some of those responses looked like. It is in this type of inquiry that researchers will come to better understand the individual needs of this large group of teachers trying to integrate ICT into their teaching. This, I believe, is not a one-solution-type problem. Instead, it is going to require insights gleaned from teachers and myriad possibilities for learning and for support offered as a result.

Participant and Site Selection

Two teacher participants were chosen purposefully (Patton, 2002) for this study: Ron, a male teacher with over 25 years of teaching experience was in his final years of teaching when he participated in the study. Lauren, a female teacher was in her fifth year of teaching. They were chosen based on (a) their school locations (Ron had a diverse group of learners in an Ontario public school; Lauren taught an almost exclusively Mexican group of learners in a Mexican private school); (b) their lack of previous ICT experience; (c) their gender, ages and stages of career (Lauren being female and early in her teaching career, Ron being male and late in his teaching career). By choosing these differences in participants and contexts, I realize that my data will not provide any firm conclusion about the nature of learning and

then leading learning using a wiki. Instead, I will provide insights into the complexity of this daily lived experience in the authentic and diverse contexts in which teachers teach.

My decision to invite Ron to be a participant was an easy one. Ron had worked with a research group of which I was a part for the two years previous to my dissertation research. When I mentioned my study to Ron, he volunteered to participate. Because he fit my chosen criteria (late career, little classroom experience with ICT, Grade 6, and Ontario-based) I was thrilled to have him as a participant. Previous to our research studies with him, Ron's computer experiences consisted of using a computerized grading program, email, and word processing. Ron was extremely attentive to his students as individual learners and was comfortable teaching in the midst of noise, emotions, movement, and cramped spaces.

Lauren also volunteered to participate in my study. I asked a principal at a school in Mexico at which I used to teach, if he would ask his ELA teachers if any of them who had no teaching experience with ICT would consider participating in my study. The principal posted a copy of my letter of information in the form of an email and sent it to his ELA teachers. Lauren was quick to volunteer. She also fit my selection criteria: early career, little classroom experience using ICT, Grade 6, Mexico-based school. Lauren's computer experiences consisted of using a computerized grading program, email, and word processing. She regularly used the computer for managing parental contact, student records, and teaching plans, and she used programs such as Skype to communicate with family in Ontario. Lauren used the Internet to look for future employment, book travel vacations, and use search engines like Google when she needed information. She admitted, however, that she did not use ICT with her students in the classroom. Lauren was an energetic, competent teacher who was intimidated by the thought of using ICT in her teaching. Although Lauren and I had not

previously met, she was a graduate of our Faculty of Education and was happy and willing to help out with my research.

Allowing me to research the often messy and unpredictable daily lived experience of their classroom required a great commitment on the part of both teachers. The collection of daily observational and conversational data, over a seven week period, hinged on building a positive rapport and a sense of trust between the two teacher participants and me. By choosing teachers who I already knew (in the case of Ron) and who were willing volunteers (both Ron and Lauren), I felt that I was increasing the likelihood of completing my study and of gathering insightful data. Both teachers offered personal perspectives and thoughts that I believe hinged on these personal relationships we had built with each other.

Although my research focussed on the teachers, I also needed the participation of the students. As a result, all students were invited to participate but were under no obligation to do so. Those who returned the consent forms were included in formal data collection. Ron was very closely connected to the parents of his students and was able to talk to them about my research and what the form was all about. As a result, we had 18 out of 28 students return their forms. Lauren's class had all 24 students return their forms.

All of my participants were informed of their rights to change their minds at any time during the study and they were promised that their identities would be protected to the extent possible. Therefore, the names used in this study are pseudonyms. Participants were given letters of information, and signed consent forms were obtained from all participants (see Appendix A for the Letter of Information and Consent Form).

<center>**Ron's Context**</center>

There are two distinct contexts for this study:

Context A is a Grade 6 classroom in Ontario. The school, with approximately 350 students, is located in the suburbs of the largest city within the school board jurisdiction. During the study, instruction of Ron's Grade 6 class occurred in the classroom or in the computer lab.

The Classroom

Walking into the class was an overwhelming experience. Just about every inch of wall space was taken up with posters or projects created by students. The top third of two walls in the classroom – right to the ceiling – were taken up with large cut-outs of new vocabulary words. There were old computer parts in one corner and two old but working computers set up where space allowed. The room was crowded, noisy, and busy. The energy level was consistently high. At any given time, students were involved in a wide variety of tasks.

The Students

Ron reported that he had a smaller class size that year with only 28 students. There were two students with little English proficiency who were learning English as a second language. There were four students identified with learning disabilities and one student with anger management issues who had not yet been identified but who needed special consideration most of the time. One of the students had a full-time Educational Assistant and

needed daily instructions from Ron in order to best support the particular student. As a result, the Educational Assistant met daily with Ron either before or after school. The students represented a host of visible minorities and a variety of cultures and socio-economic backgrounds although for the most part, they would be considered middle-class.

The Computer Lab

There was one class set of 35 computers in one computer lab for all of the 350 students at the school. Ron had to reserve lab times well in advance. The lab was a room off to one side of the library and had no walls separating it from the regulated quiet space of the library. If an administrator or a student required access to a computer, they could enter the lab at any time during the session booking.

<p align="center">Lauren's Context</p>

Context B was a Grade 6 classroom in Mexico. The school, with approximately 700 students, was located in the suburbs of a large city in the Northern industrial region of Mexico. As a well-established international school (where the language of instruction was English), all students and many of their parents were fluent in English. During the study, instruction of Lauren's Grade 6 class occurred within the classroom or within the computer lab.

The Classroom

Lauren's English class met in a science lab. There were desks down the middle of the classroom and lab benches around the outskirts of the room. This particular classroom setup

allowed the students additional space to spread out and to set up laptop computers and still have desk space. The room was modern and bright with white boards, emailed morning announcements read from the teacher's school-issued computer, and a traveling class set of laptops delivered each morning. The laptop cart was brought by someone from the technology department who stayed to help with set-up and provided immediate trouble-shooting if needed.

The Students

Lauren's class had 24 students in total. All of the students in the class were second language learners who have been immersed in English speaking classrooms since kindergarten. There were no students identified with learning disabilities. This was a private school with one of the most costly tuitions in the city. All of the students were from wealthy families in the community and all had access to computers at home.

The Computer Lab

There were a few occasions when the laptops were already booked and the class used a computer lab. The labs were also bright and spacious with modern computers and access to immediate tech support if needed. The lab was one of three designated computer labs within the high school. Although booking the computers was necessary, it was often the case that a teacher could find the space that he/she needed as there were many options for access to ICT.

Data Collection Methods

The data collected for this study, was largely collected during typical school days in these two contexts rich with the everyday interactions and dynamics of the teaching and learning process. Because these teachers were taking on the additional task of learning this new ICT and then teaching it, my data collection plan had to be flexible, convenient and open to modifications as the study unfolded. There were days, for example, with Ron, when parents were meeting him directly after class, or, he had to move on to his next topic to teach. In these situations, meetings that were scheduled to be held immediately after class may have taken place after school or the next day. All of this messiness has informed my study in meaningful ways. The data collection outline below represents the plan from which we may have strayed on occasion.

The study began with the teachers learning how to use wiki software. This initial learning was done by the teachers on their own time. Instructions were sent and questions answered via email. There was one follow-up meeting to discuss the wiki itself and any problems the teachers may have been experiencing. The decision to instruct the teachers to begin on their own was done purposefully. I wanted to gauge how much learning they were able to do on their own and their reactions to this kind of learning.

Second, each teacher and I met to co-plan a 12 lesson unit on story writing using the wiki. This was planned to be a truly collaborative event and I was open to providing as much or as little support as each teacher required. I was aware of the fact that the teachers might not have a good sense of what they could do with the wiki while trying to plan this early in their learning.

The students were given a 20-minute questionnaire focusing on computer use at the beginning of the unit (See appendix C). The questionnaire was given to all students but only student data for which consent was obtained were analyzed. Some items asked students to rate statements using a 5-point Likert scale and others required open-ended responses. In all cases, this data was simply used to give the teachers and me a sense of the students' own interpretations of their personal computer use and abilities. Students also indicated their willingness to participate in a 45-minute focus group interview that would occur at the end of the unit.

The first lesson with the Grade 6 students was in the computer lab or in the classroom with the laptop computers. In self-selected groups of three, the students completed a scavenger hunt on the Internet. This was our opportunity to see what types of ICT skills the students possessed. The scavenger hunt involved the students locating information and images about topics relevant to the story writing unit. In Ron's class, they were sent to find information about an author they would be reading and they were asked to locate background information related to this novel. In Lauren's class, they were sent on a scavenger hunt to find information about poets, and definitions and examples of various forms of poetry.

The following classes, the body of the unit, involved short pre-lessons in the classroom to outline what the students were going to do in the computer lab. I learned that once in the lab, it was difficult to get everyone's attention to give instructions. Pre-lessons included topics such as story planning, downloading images, creating links, and linking to a friend's story. Then, while the students were busy in the lab, I was observing and helping students who were experiencing difficulties. The teachers were also providing assistance to struggling students. I attended each class to observe and to provide assistance if the teacher

needed it. The classes were audio taped and I used field notes to capture details/emotions/responses I wanted to talk about with the teachers. I would meet with each teacher after each class to debrief the lesson taught and to discuss and plan the upcoming lesson and jotted important ideas/information from those conversations in my field notes. Formal interviews were conducted at the beginning, middle, and end of the wiki/story writing unit.

Ideally I planned on the participation of six to eight students for my focus groups in order to maximize diversity in gender, ability, and opinion regarding wikis. I was able to have two groups of six to eight in both locations. Final versions of all wikis were used to supplement interviews and data analyses.

The data for this study, therefore, is comprised of the following: pre-planning email correspondence as the teacher learned to use a wiki, also, audio transcriptions from twelve classes and twelve discussions with each teacher that occurred the day after each lesson allowed for "repetitious data gathering and critical review of what was being said" (Stake, 2006, p. 34). An informal conversational interview approach was employed for these follow-up discussions. This approach helped to lower the focus on the interview and its pre-determined categories and questions and to allow the participants to talk about the questions, observations, ideas that were of interest to them (Patton, 2002). These conversational style interviews allowed me to follow up on various comments the teachers made or to follow the direction of the teacher-directed conversation. In this way, I was able to have a better sense of their thoughts and feelings in relation to the events as they had just unfolded.

These conversations informed the structured interviews in meaningful and relevant ways. After each interview I conducted a preliminary analysis by reviewing the audio taped

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conversations and began to identify emergent ideas or patterns that I wanted to discuss after the following class. As the study progressed, the conversations became more focussed as I was interested in specific actions or ideas expressed by the teachers that seemed to relate to broader patterns and the teachers began to have more specific questions about process or content. I would then make note of questions that I would want to ask in the more structured interviews.

My field notes were also used as data. While in the classroom observing and while planning with the teachers, I used field notes to depict impressions of meetings, and observational notes of interactions and questions asked by the teacher in the classroom time during each lesson taught. I also made note of correspondence outside of class time. Once in a while I would get a phone or an email from a participant teacher asking about something that impacted planning for the following day. I made note of the teachers' frustrations with and eventual understandings of specific elements of the wiki. These notes provided depth to the narrative of learning and teaching of a new ICT. Also, I would observe the mood of a conversation so that if the teacher was laughing or serious or frustrated I could remember this by making note of body language and mannerisms.

The results of the student scavenger hunt were used to identify those incongruities between the perceptions of student strengths by the teacher and their actual abilities with the computer.

In addition, there were transcriptions from three formal interviews with each teacher that were conducted at the beginning, middle and end of each study. I also used the transcripts from two focus group interviews with students after the final wiki lesson. Finally, the actual wikis were used as discussion points with the student focus-group interviews and

with the teachers throughout the unit. The description and actual quotations used in the narratives for each of these case studies are drawn directly from these data sources.

Relationship of Data to Specific Research Questions

Given that the classroom is busy and so many intriguing interactions can happen simultaneously, I relied on a variety of data collection methods and sources as noted above. When exploring the question, "What is the experience of teachers when trying to lead learning using ICT?" I relied most heavily on classroom observations and the daily interactions with the teachers before and after class. My audio recordings of classroom interactions, my conversations and observations with students and the teachers and the wiki work itself all served to inform this question in meaningful ways. In addition, the formal interviews provided insights into this experience. My informal conversations with students as well as the formal focus group interviews were invaluable in providing additional insights here.

To address my second research question of "How do they conceptualize what's important to learn?" my data collection methods of pre-planning sessions and informal and formal interviews shed the most light on their evolving understandings of wiki and of its potential in their classrooms. As well, the initial questionnaire and scavenger hunt became important pieces of information for both the teachers and I throughout the unit.

Finally, the third question asked "To what degree does the diverse context contribute to the findings?" This question was best answered by focussing on the everyday classroom observations and on the conversations with the students and the teachers in the two different contexts.

<center>**Data Analysis**</center>

Hermeneutic Phenomenological Framework

Hermeneutic phenomenology focuses on illuminating aspects and seemingly trivial details of the human experience as it is lived. The goal of such investigation is to create meaning from these trivial details and to achieve a deep sense of understanding about a particular situation as a result (Wilson & Hutchinson, 1991). This method of research seeks to understand peoples' perceptions of events, emotions, programs, organizations, and cultures in their natural contexts (Moustakas, 1994; Patton, 2002; van Manen, 1990).

Phenomenology becomes hermeneutical when its method is interpretive rather than purely descriptive. Heidegger (1962) argued that all description was already interpretation. Every form of human awareness is interpretive. Through the act of writing the two richly descriptive narratives, I was able to think deeply about the experiences that they described. This method of analysis echoes van Manen's (1984) third activity to guide phenomenological activity which is to articulate critical themes that characterize the phenomenon. While both case-study descriptions in chapters four and five present the "story" of the lived experiences of these teachers and students, the researcher response section (described below) presents the reader with my interpretation of these events with a focus on particular actions rhythms that I noticed. While these are not themes, per se, they are insights that highlight the aspects of the lived experience.

The fourth activity for phenomenological data collection mentioned by van Manen is to describe the phenomenon using the art of writing. I have chosen to present my data as richly descriptive narratives. However, once written, they also needed to be re-read with the intention of uncovering additional meaning(s) and connections I may have missed. This act

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of reading for meaning relied on the principles of hermeneutics. Gadamer (1998) detailed

four central insights about the role of language in informing our understanding of our

experience. The first insight is that we are historical beings who, through a "unity of the flow

of experiences" (p. 245), make sense of our world. This means that, as one encounters a new

experience, s/he draws on past experience and projects into the future to inform and find a

place for the current experience. Gadamer argued that our perspective on the world, or our

"horizon" (p. 245), is created through language. He stated that all experience is articulated by

and defined in language. As I have done with my initial descriptive narratives, I translated

my experience into language. In addition to living the experience while I was in the

classroom collecting the data, the written description of this lived experience provided

additional insights into the subtleties and complexities of those lived moments. As

Richardson (1997) stated, writing is not just something one does as the final process in

research, but rather, it is a way of knowing. Therefore, as Merleau-Ponty (1962) described, I

attempt to "give a direct description of my experience as it is, without offering causal

explanations or interpretive generalisations" (p. 8). My first task, therefore, was to pay

attention to detail and be specific when describing the events. The ability to acknowledge and

disregard assumptions in phenomenological research is known as epoche, "to refrain from

judgement, to abstain or stay away from the everyday ordinary way of perceiving things"

(Moustakas, 1994, p. 33).

The field notes provided me with information about how the teachers, students and I

were feeling at the time of various incidents. The entries were read from a hermeneutic

perspective and examined for insights into the phenomenological question being researched.

They informed the narratives that I produced for this dissertation. I spent time reading my

field notes, reflecting on my experiences, listening to and reading through the interview data, and writing my narratives.

Gadamer's second insight is that understanding is circular. He argued that we project previous experiences onto new ones and then constantly revise as the new experience differs from the old one. This constant circular progression of experience, projection and revision is known as the hermeneutic circle. As I spent time with each of my participants, I started with a previous conception of "the classroom experience" and "the teaching experience" and made constant revisions and projections as the study unfolded. The unique characteristics of each teacher's experience are the salient details outlined in my narratives. These details are really times when I had to revise and project to create the narratives of these individual teachers.

The third insight is that understanding is always self-understanding. On a very basic level, this research deepens my understanding of the phenomenon of learning and then teaching using wiki. Through writing, close reading, projecting, revising and, ultimately sharing my findings, I provide my readers with a better sense of how I came to know more about this phenomenon.

The fourth insight is that understanding is never complete. Ultimately, it is my hope as a researcher that this conversation and exploration of the phenomenon of teaching ELA using ICT continues to be revised and expanded. These four insights mentioned above meshed well with my method of data analysis. Through the use of hermeneutics, I was able to think deeply about the individual moments in the two classrooms that informed the phenomenon as a whole.

My reading inspired reflection that ultimately shaped my writing. The use of researcher response allows the reader insight into my projection and revision process. In so

doing, I was able to create meaning from the complexity of the lived experiences of my two participants. I then went on to think about the situation from new perspectives and consider possibilities that I had not considered before.

Yin (2003) stated that in case-study research it is important to revisit initial propositions and to link data and discussions about data back to these initial propositions. In this way, the researcher secures the focus of the case study and data informs the initial questions being considered. Within my research and data reporting and analysis, I have tried to allow for natural patterns to emerge within each case data and have used rich description to identify the learning process for each teacher. Yin (2003) borrowed the term "pattern matching" (Campbell, 1975) to talk about the comparison and discussion about data patterns across individual cases. I have used this approach to discuss some of the noted similarities and distinct differences between the two case studies. These similarities and differences were then compared with constructs found in the research literature on teacher implementation of ICT.

Reader Response

While the initial interpretations of my data are in the form of narratives (one narrative for each of the two classroom contexts), Rosenblatt's (1938) reader response theory was useful for me when thinking about my close reading of (or hermeneutic approach to) these narratives. Rosenblatt talked about the act of reading as being a personal interaction between reader and text. It was this personal interaction with the text that allowed me as a researcher to acknowledge my own place within the analysis and interpretation of the shared,

lived experiences I had with my two participants. As I began to use reader response theory to unpack my various experiences, I was able to see what was in front of me with fresh eyes.

Reader response acknowledges that each reader is unique and will read the text through their individual lenses. These lenses are conglomerations of past experiences, cultural backgrounds, and personalities. Central to the theory of reader response is Louise Rosenblatt. Rosenblatt's (1938) work is primarily interested in describing readers' processes of engagement and involvement for composing their own "poem" [the reader's construction of a text] (p. 35). I am responding to the language of the research literature and the language of my narrative – my "poem" is my reader response to both of these forms of data. Rosenblatt's 1978 publication entitled *The Reader, The Text, The Poem* examines more closely this literary transaction. Rosenblatt provided a useful distinction between two opposing modes of experiencing a text—the "efferent" and the "aesthetic." When responding from the efferent stance (from the Latin effere to carry away), readers are motivated by specific needs to acquire information; they basically just want to understand what the text is saying. This was the first step in writing my response to the narrative...what information is here that I need to answer my research questions?

On the other hand, when readers are responding in the aesthetic stance, Rosenblatt (1985, 1986) stated, their own unique lived-through experience or engagement with a text is primary. It was in the aesthetic reading of these texts that I brought my own experiences of those moments in the classroom as well as my understanding of the current research to inform and contextualize this information. In this light, I borrowed Luce-Kapler's (1997) discussion of the various levels of text to inform my aesthetic reading.

Once a reader has read for literal meanings – the efferent stance, there are three levels of text that I considered. The pre-text is the "before the text." Pre-text is the opportunity for the researcher to explore her situatedness within the text and the impact this may have on the data and the research. This is evident in my references to my role within the teaching of the wiki as well as in my thoughts and opinions about each of these teachers, their students and their larger school contexts.

The sub-text is the "hearing the echo below the words" (p. 10). It is the critical reading of the text, to look beyond what is said and to discuss the "unsaid" (Chambers, 1996, p. 50). This is the reading I focused on most heavily during my reader response to each narrative. I wanted to put actions, words, and experiences together to provide my interpretations of the deeper meaning of what was really happening.

The re-text is the revisiting of the text, "the returning another time" to reread and perhaps attach new meanings to the data presented. The possibilities for revisiting and rereading a text are endless. The data collection process, my analysis and my final discussion of the data are all examples of this iterative process with the data. As Rosenblatt argued, "There is no such thing as a generic reader or a generic literary work; there are in reality only the potential millions of individual readers of the potential millions of individual literary works" (1938, p. 32). In this light, I urge you, as a reader with your own insights to read this text with fresh eyes and to actively engage with the texts presented to create your own poem.

Contributions of this Study

As mentioned above, my decision to conduct two case studies for this research was not taken in the hopes of ensuring the accurate representation of "the experience" of educators

integrating ICT into their teaching. Rather, it was to add depth to the research conversation about the phenomenon of teachers learning and leading learning using wiki. Mathison (1988) suggested that the image of data converging perfectly upon a single assertion about a social phenomenon is a "phantom image" (p. 17). Instead, it was my responsibility to construct plausible explanations about the phenomenon of being a teacher learning and then leading learning using ICT from the divergent, inconsistent, and contradictory findings garnered from these two cases (Mathison, 1988). There was not going to be one tidy explanation or conclusion that I could make – no one single truth. As a result, I borrowed Richardson's (1997) concept of crystallization to address issues of triangulation. It appealed to me as a researcher because it is a concept that is paradoxical: "we know more and doubt what we know" (p. 92). Like a crystal, my data combined substance and some symmetry with an infinite number of transmutations, multidimensionalities, and angles of approach. Crystals can grow, change or alter and can both reflect and refract. Lastly, a crystal changes depending on the angle from which you choose to view it. I looked at the experience of being a teacher learning to integrate ICT through my own eyes and the eyes of two teacher participants and their students. However, I also looked at the data through the eyes of a researcher, a friend, and a colleague. Had I chosen a different lens, a different angle of approach, the data could produce an entirely different text. I assume that each reader may take a different angle of approach to this thesis as well. I also hope that future researchers will continue this conversation from various angles of approach. In this case, the crystal will continue to grow, change, refract and reflect the understanding of what it means to take up the challenge placed on busy teachers by a changing society – to learn and lead learning through the integration of ICT.

Chapter Four: Ontario Data Chapter

Introduction

My first site for data collection was a Grade 6 classroom and a computer lab in an elementary school in a medium-sized Ontario school board. The school, with approximately 350 students, is located in a suburban section of the largest city within the board jurisdiction. During the first two years of this three-year study, the teacher (Ron) was invited to participate in any aspect of the research with which he felt comfortable. During the first year, he decided not to participate at all. However, after seeing his students' abilities to produce multimodal texts (adding images to help tell their stories, for example) at the end of our first year, Ron agreed to participate minimally in the second year. The third year of the study was for my doctoral research and Ron offered to participate in any way that would help. Therefore, during the third year of the study (this doctoral research) Ron and I co-planned and co-taught the wiki writing unit with his Grade 6 students. The data discussed in this chapter focus on the third year in which Ron was a major participant but makes reference to some of his actions over the course of the three years.

Ron and I met on several occasions after school to discuss and plan the 8-week unit prior to meeting with the students. My first visit with the 28 Grade 6 students started in the classroom. I asked them to fill in a questionnaire designed to get a sense of their personal and school-based computer use and knowledge. The second half of the class (approximately 45 minutes) was spent in the computer lab. In self-selected groups of three, the students completed a scavenger hunt on the Internet. This was my opportunity to see what types of ICT skills the students possessed.

The following six visits involved short pre-lessons in the classroom to outline what the students were going to do in the computer lab. Pre-lessons included topics such as story planning, downloading images, creating links, and linking to a friend's story. While the students were busy in the lab, I was observing and helping students who were experiencing difficulties. Ron was at the computer that was linked to a large television monitor at one end of the lab that allowed the students to observe his wiki development. Following each classroom visit, Ron and I would touch base (sometimes informally in a quick conversation, sometimes after school when we had more time and privacy) and talk about his impressions and any questions/concerns.

During this final year of the study in which I focussed the research on Ron, I formally interviewed Ron at the beginning, middle and end of the study and used recorded conversations and field notes during classroom visits. In addition, I informally moved from group to group during the lab times, recording observations in my field notes and I met with focus groups of students at the end of the study. They walked me through their wikis and talked about the writing process.

The narrative that follows details the time spent with Ron and his students. While the unfolding of events was fluid and the learning iterative, I have chosen to structure my narrative in terms of the logical progression of the study. Therefore, the first section discusses my entry into Ron's teaching and into the classroom. The second section details Ron's and the students' interactions with the initial survey and the scavenger hunt. The third section describes how the students formed and worked within their groups. The final sections discuss the early, middle and late work done on the wiki by Ron and the students.

Entry

Walking into Ron's Grade 6 class was an overwhelming experience. Just about every inch of wall space was taken up with colourful projects created by students. Large cut-outs of new vocabulary words overwhelmed the top third of two vaulted walls. Wedged into the far corner of the room, vying for space with the 28 desks and the built-in bookcases were a piano, a microphone, and a guitar. Both Ron and his students regularly used the instruments for small presentations and for sharing new information. The room was crowded, noisy, and busy. The energy level was high and on any given day, some personal drama transpired that took the focus off learning for certain students. There was no front of the classroom. Rather, Ron seemed to fluctuate between two blackboards on the walls framing the piano. Students were accustomed to moving desks into groups and looking in all directions to find their teacher.

Within the class of 28 students, there were two students with very basic English proficiency. In addition, there were four students identified with learning disabilities. The students represented a host of visible minorities and a variety of cultures and socio-economic backgrounds although for the most part, they would be considered middle-class.

Classroom rules were well understood by students although they were not obvious to me. For example, the bathroom rule involved students leaving one at a time and taking a pass with them. There was no asking necessary and so at any given time, students were coming and going from the classroom seemingly without permission. As well, one creative project was assigned daily and students kept this on their desks. They could revisit this project when they were finished other work or needed a break from the current academic task. Some

students chose, instead, to spend time finishing homework. This meant that at any given time, students were involved in a wide variety of tasks.

In the midst of this classroom of seemingly endless learning potential, sat two wildly outdated but functional computers beside the sink where space would allow. The rolls of extra poster paper were pushed aside just far enough to make room for the aging 26-inch monitors. There was no Internet access in the classroom; for that, Ron's students needed to use the computer lab down the hall.

The computer lab represented its own set of limitations. There was one class set of 35 computers in one lab for the entire population of 350 students. One of these computers was connected to a large television screen so that students could watch what was being typed onto the screen of that computer. Clearly, this was designed for the instructor so that the students could observe a lesson being taught. School policy stated that in order to spend time in the computer lab the teacher had to reserve it well in advance. The lab was a room off to one side of the library and had no walls separating it from the regulated quiet space of the library. If an administrator or a student with special needs required access to the computers, they could enter the lab at any time. Thus, unlike the traditional learning space of the classroom, the computer lab was still an area that others could use even when it was booked by a specific teacher.

Ron was an experienced elementary teacher of over 20 years with a depth of experience and a wealth of patience. He was extremely attentive to his students as individual learners. He was an ardent supporter of these learners and believed strongly in his obligation to foster in them the skills they needed to meet with success. Because many of his students were of lower socio-economic status (although perhaps considered middle class, they would

be "lower" middle class), had learning disabilities and/or were new immigrants, Ron taught from a place of genuine concern and interest in these students. Literacy, he believed, was critical to their future decisions to stay in school and to find meaningful careers afterward. He admitted he was often frustrated by board-mandated assessment policies and standardized tests that "handcuffed" him as a teacher. He worked hard to engage parents in his learning goals for their children and to provide consistent, positive, high-but-achievable expectations for each learner no matter their starting point. Ron was comfortable teaching in the midst of chaos – noise, emotions, movement, and cramped spaces. He was extremely adept at classroom management.

Ron was aware of the increasing role that ICT was playing in society and he saw a need to teach about ICT to his students but could not find anywhere to learn about it. He was not familiar with theories about digital literacies. His computer experiences consisted mostly of using systems mandated by his school board such as a computerized grading program, email, and word processing. Ron had attended in-service workshops and talks organized by the local school board but found them "lacking in the specifics like what would I teach on Monday?" When he tried to follow up with additional learning/training sessions, there was nothing to be found. Ron admitted that he felt "over [his] head" when it came to ICT. For a teacher like Ron who had the best interest of his students at heart and was motivated to teach them what they needed to know to meet with success, this lack of clear and accessible support became a source of disillusionment. He came to the conclusion that the people calling for the inclusion of ICT in the classroom had no clear idea of how to do it either. Instead of giving up, however, Ron began to create small manageable tasks in the computer lab for his students. For example, word processing a story rather than writing it.

When I initially approached Ron about my research ideas for this year's class, he responded with a sense of hope. He told me that he "would be very much enamoured with any kind of literacy that encourages children to actually communicate with each other as opposed to just, hey do what you're supposed to do." It was clear that Ron was enthusiastic about exploring new methods to motivate his students to read and to write and that he liked the collaborative aspect of wiki writing. It was less evident, however, that he understood that his students would be engaged in learning new literacies that were still outside of the domain of the curriculum documents.

Student Survey and Scavenger Hunt

At this early stage of the research, Ron felt "that what wiki will accomplish will be to make them better writers overall" and therefore will help his students to become more literate in the curriculum-mandated skills of reading and writing. In our initial meeting with the students in which we handed out a questionnaire about their current use of ICT, Ron wanted to know if we had asked anything about "what do you do on the computer between 4 o'clock and the time your mother comes home from work that type of thing?" He thought that there might only be a small number of students actually involved in literacy-related activities. Ron said, "Well obviously some of them are probably doing these interactive literacy related things you know, *some maybe*."

Ron assumed that most of the students were using the computer outside of school and had far better understandings about the skills related to using the computer than they actually did. When he introduced the unit to the students he told them that this was something that they would not be able to do if it was not for the research project. He told them that he knew

they were "already doing all of these things outside of school but now they got to do them here." When I asked Ron if he really thought that they were doing these types of things outside of school he said yes. He thought that "many of them are using the computer at home and they are pretty good at it. Some really good."

During one of my initial meetings with the class, I took them to the computer lab and asked them to complete a scavenger hunt to find a variety of information on the Internet. The scavenger hunt was helpful in bringing to light some of the additional types of literacies Ron's students needed that were not specifically mentioned in the curriculum and, therefore, he had not been teaching to that point. One of these literacy skills was navigation. I made notes about how the students were not efficient in conducting searches on the Internet. I wrote in my field notes that many students stumbled their way through the scavenger hunt by typing in "entire questions to Google search." They "often have a hard time finding the answer." They did not seem to know how to use keywords to search and seemed to skip whole pages of text once they found particular web sites.

In a follow-up interview, I showed Ron specific examples of the wide range of abilities and skills related to ICT that his students possessed. Three girls spent the entire class time trying to complete three of the 27 tasks. Ron began to understand that when students spend time in the computer lab, there are new skills related to the computer that need to be considered. He stated that what we had done required more from the students than his previous efforts in the computer lab.

I thought it was a step above what I've done because I've used a database called

Student Link and it's literally divided into the strands of mathematics or social studies

or science or the arts and I can make my treasure hunt sheet idiot proof like 'go to the

pink triangle and click on.'

Previous to our time in his class, Ron's version of navigation was to tell the students exactly

where to go and how to get there. However, even though he saw his students being

challenged by our approach to teaching about navigation, Ron still believed that "many of

[my] students have generally sophisticated Internet navigation skills."

When we asked the student focus groups to tell us what, if anything, they found to be

difficult about creating wikis, the boys overwhelmingly agreed that inefficient navigation

skills led to frustration with the design process. One boy admitted that "finding the pictures

you want is frustrating." His friend explained, "You get all these pages and the picture that

you want is somewhere in there." "I know," concurred another boy, "one time I got over 30

pages" and "I got 900,000 when I was searching." The boys talked about how when they are

at home "fooling around on the computer, you don't notice how long it takes to find

something or you just give up. But when we had to do it for our wiki, it was frustrating

because we only had so much time and we needed a picture."

And while the majority of the students, even the brightest among them, seemed stifled

by the navigational process, some excelled at it. I described an example to Ron to illustrate

the types of competencies some students possessed:

I noticed with KD [a student] for example, one of the questions had a question about

an acronym and he didn't know what an acronym was but he very clearly went to

Google and put in 'define acronym' in the search phrase, it took him to a page of

definitions about acronyms and he went 'oh yup that's what an acronym is now I

know' and it was really great I mean to see how clearly he knew how to do that and figure that out.

Interestingly, this student did not excel in the school-mandated, ministry-defined conceptions of literacy. Ron commented on this boy's performance to date. "Yah I noted that about him and you know he will be a C to a C minus student in reading and writing by the way."

Ron saw value in teaching the students to rely on a new literacy skill of navigation to find their own answers to questions or images to download. He decided to "reflect that challenge that you've thrown out…you can find stuff if you just use your noggin without a lot of help from other people." He went on to concur that, in the future, he would "be doing Google searches from here on in as opposed to Student Link."

Forming the Groups

Because the wiki was going to challenge the students to think and write differently, Ron and I decided to have the students write their stories in groups. We wanted to eliminate some of the risk the students would experience when trying this new way of writing. All groups were self-selected and ranged in size from two students to six. Even with the few stragglers, everyone ended up in a group without teacher interference. We wanted to get a sense of how these groups were selected and how the students assigned individual roles within each group.

As Ron pointed out, the students created their own "social affinity groups" to begin the wiki. One of the smaller groups was based on the fact that the one girl was not welcomed into any of the other girl groups. "Well, I wanted to be with the other group of girls but they didn't want to be with me so I had no group so I asked Joshua if he would be a group with

me and he said he would." And Joshua added: "Usually I would have gone with my friends in the boys' group but I said I would work with Rhianna because she didn't have a group. Then Bobbie didn't have a group either so we asked him if he wanted to work with us."

Some groups began to sort by social affinity but also selected by ability. Charlene's group was the first one to form and it was because they were all friends. Marion joined the group a bit later because, as Charlene stated: "like her group wouldn't let her type or anything and she is a really fast typer." Marion added that all she was allowed to do in her original group was to "sit there and watch." When I asked if the group felt sorry for Marion, they revealed their ulterior motives "oh, like, she's not very good all the time with her school work so they didn't trust her on the computer but we knew that she is a very fast typer so..." Marion added, "Yeah, like they didn't think I had any good ideas and like Marsha, she wouldn't even let me type on the computer even though I am faster than all of them." Charlene admitted, "Yeah, they were saying things like you're dumb and stuff and so we said Marion do you want to come in our group? And she typed almost everything we have done."

However the groups managed to sort themselves, what seemed most amazing to me was the way they worked within their groups. Each student was a contributing member in his or her own way. No formal decision-making took place and yet each person seemed to be "in charge" of the things they were "good at." Some members were in charge of typing the main story, others created the links and still others found the images to put into the links. Each task was as important as the other and each person was valued for their contribution. Many of the students who did not seem to do well in regular English class excelled on the wiki. Ron commented on the fact that even the weakest members of the group "hung in there" and contributed right up until the end of the unit. During focus-group interviews, "no one person

wanted the glory. They all complimented one another for their specific contributions to the wiki." When we asked who did most of the work, we got responses like, "Well, we all did some of everything." Or, when I asked one group who chose the pictures the students answered, "Well, we all kind of did. We wouldn't talk about everything all the time, we just did it. So, like, while I was writing something on one page, Cindy would be making all the links and then Marion would be looking for the pictures and we all did stuff at the same time." There was no clear understanding or acknowledgement of who had done more or less than another.

When I asked about the specific breakdown of tasks within the groups, the fastest typist was initially elected to type the beginning of the story for each group. However, beyond that, students engaged in the tasks that they thought were of most interest to them or represented an individual strength. For example, Rhianna admitted to being a faster typist, but immediately countered with "Joshua and Bobbie were great at finding pictures and stuff like that. They helped with some ideas too." When I asked if the guys in her group were in charge of the ideas and pictures, Rhianna's answer was, once again, not clear-cut. "Well, kind of…but we would all decide together…one person would say they wanted a link and we would all pretty much say ok." When talking about finding images, "Well, we kind of all did this but Joshua and Bobbie would find them together and then show them to me and we would decide…but they did most of that." Marion described her group's process: "I just started doing what I wanted to do because I was good at it and then we all seemed to do that and we didn't mind because we were getting lots of work done so…So yeah so there were six of us and then we broke up into three groups and everyone started to work on links and stuff."

Although Ron and I spent time talking to the groups about making plans and ensuring that all members of the group had tasks to accomplish while in the computer lab, once the fastest typists had begun the stories, the group members naturally gravitated toward certain tasks and original ideas. The links provided opportunities for all members of the groups to contribute in meaningful ways to the stories. Even the ideas that were not popular enough within a group to be included on the front page were welcomed additions within the links. As Marion described, once her group had come to a consensus on the front page, "The others could go off in a completely different direction." Steven added, "The links are the fun part where you can add almost whatever you want as long as it has to do with something in the story. I liked it when I didn't read it for let's say the whole class and at the end you got to go and read all the new stuff and there was a lot there and it was like a puzzle!"

Early

Ron and I engaged in discussions over basic classroom management issues such as getting the students' attention. We quickly realized that it was almost impossible to keep the students working at the same pace. In addition, the computer lab was not conducive to whole group instruction. As we introduced the initial ideas behind the wiki in session one, we found it difficult because, as Ron described, "We wanted to walk them through all the different things but you don't want to be yelling at them all the time 'ok be quiet again...be quiet again' but you almost had to." Ron and I changed the method of delivery by preparing the students ahead of time. "Give them the instruction sheet in the classroom and say here's what we are going to try, downloading an image and making links…Here's how you go about them. All of the instructions are on here." This also helped Ron have a sense of focus for the

class. "Sure, I mean, I know what I am going around looking for and they do too. If we can't figure it out from the instruction sheet...you can come by and help." I was happy to provide 'backup' for Ron as I saw his willingness to try the initial problem-solve as encouraging.

The physical set-up of the computer lab had obvious implications for Ron and his classroom routines. I was able to walk around the room helping students who were experiencing difficulties with the task at hand while Ron sat at a computer that was attached to a large screen at the back of the lab. This allowed the students to watch what Ron was doing while still receiving the help that they needed. Again, Ron was willing to model the fact that he was learning too, and that he might not get everything perfect the first time. However, I could not help but consider what a teacher would do alone. I asked him if he would be able to do this lesson if he was teaching the class by himself "because of the way the lab is set up, you have to sit down at their level and do it. What do you think?" Ron was quick to respond that he was "sure" at that time, that he "could not do this alone and do it properly...You know, helping everyone and keeping an eye on things." Not even the basic classroom routines that Ron was so comfortable and proficient with would transfer effortlessly into the computer lab.

In addition to the classroom routines changing, some of the language used within the class was new. In the first year of the three-year study, Rebecca and I were amazed at the speed at which language surrounding ICT was slowly developing and being used in the classroom. Rebecca noted, "It surprises me how quickly things around ICT become part of the language—especially how words become verbs, like favourite and Google. Many people now talk about being 'Googled'." As one student demonstrated, this was the case within Ron's class. When we asked one of the boys how he was able to access the wiki homepage

so quickly, he responded, "I don't like how you have to type it in so I favourited it." This student was talking about the long URL that they were required to type in each time they entered the "grade6 wiki page." This manner of dealing with his frustration with the length of the URL was in direct contrast to the way that Ron dealt with it. His first response was to let the researchers type it in for him. "Well uh, well I don't know, go to where I was first. I'll give you the pleasure of typing in a huge URL." Next, when he asked about saving it for next time, his language use was subtly different from his students' language. "It makes sense for me to put it under favourites or?" He did not use "favourite" as a verb like the student had.

Another example of language use occurred when Ron was surprised at how many students were comfortable with the acronyms used on the student survey. When we commented on how the students responded to the questionnaire, we made note of how many students played Role Playing Games (RPG's) on their home computers. Ron asked "They were talking about that?" and "They know the term RPG?" When we told him about some students' interactions with us about this specific term, Ron was genuinely surprised. "Unbelievable," he marvelled, "I didn't even know that term before you mentioned it." Although Ron believed that the students were using computers outside of the classroom, he did not have a sense of the kinds of activities with which they were engaged. As he admitted many times throughout the study, he certainly had no sense of the language related to these activities. He would often ask the students questions such as, "Really? How do you know that, Marion?" or "I'm amazed that they all know these things, where are you learning this stuff?"

The class and Ron were required to learn additional skills aside from the new literacy skill of navigation. Some of the taken-for-granted assumptions that are currently being taught

in English Language Arts classes, for example, Freytag's Pyramid (the plot graph), are being challenged and changed. Ron noted that in wiki writing, the plot structure did not follow the typical plot graph that he taught to the students. Ron struggled with understanding how the wiki stories were different from the short stories his students would typically generate. He asked several questions like "so, these stories have more than one plot, really, eh?" or "I wonder how these guys are going to do with this...do they all have to link together or are they separate stories? I am sure some will want their own stories..."

One day at the beginning of a class, Ron walked up to me with an image drawn on a piece of paper. He had spent time the night before really thinking through what this new wiki story structure *looked* like. He actually needed to be able to visualize it to understand it. He compared the multi-linear plot structure of the wiki, as depicted in Figure 1, to what he called the *volcano structure* typically taught in school as the plot graph (or Freytag's Pyramid), as seen in Figure 2.

In our first year of the study, Ron was concerned that his students would find this new structure too difficult to understand. Rebecca and I used the example of Johnson's idea of "multithreading" (2005) to suggest to him that the students might not find it as difficult as he thought. The multi-linearity of the plot structure of the wiki was a new concept for Ron. Although he could sense its importance to what the students were learning, he could not explain it to them. Instead, he called on us.

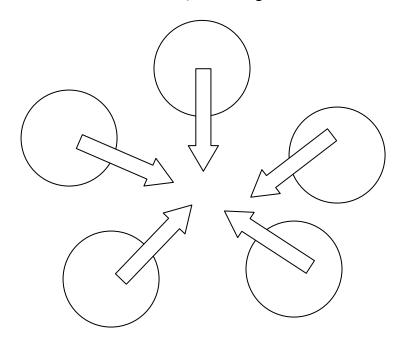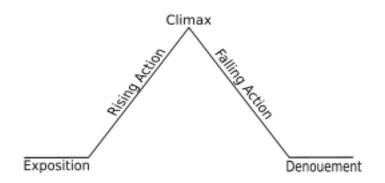Figure 1 – The Multi-Linear Plot Structure (Ron's image of the wiki structure)

Figure 2 – The Plot Graph (Freytag's Pyramid typically taught in schools)

The next class started with Ron telling us that he had tried to explain to the students

what Rebecca had told him about multi-threading in today's T.V. shows like *The Simpsons*.

However, he wanted Rebecca to try to explain it because he was not sure that he was "getting

it." The students understood what Rebecca said and were able to provide examples from the shows they regularly watched on the television. I mused about the implications of this newness in my field notes:

> What interested me about this entire interaction was that Ron had obviously walked away from a previous conversation with Rebecca and I and had done some serious thinking about the idea of multi-threading. As well, he wanted to share it with the kids but didn't quite know how to articulate it.

Through our interactions both during the class times and during our interviews, it was evident that although Ron was participating and was creating the beginnings of a wiki, his understanding of the wiki and its structure was still elusive to him. So, he asked questions such as "What, are they sharing now this one codename for the rest of the time or are they getting their own sites?" I explained to Ron that they would make their own pages but would always be connected to their collective front page. Ron's response of a simple "uh huh" indicated to me that I needed to continue to find ways to teach this new way of thinking about writing to Ron and his students.

One of the initial tasks at the beginning of a lesson in the lab one day was to take time to access and read your classmates' wikis. It was in this act of actually taking the time to access and to read others' work that Ron began to grasp the complexity and the non-linearity available to this mode of communication. While in the lab reading each others' wikis, Ron stood up, slapped his hand to his head and exclaimed "I begin to see!" As he read through some of the kids' stories, he, for the first time, began to understand how the links worked and how the kids could create more than one page of text per group at the same time. Previous to this, he thought the only links that they could make were to images within their own stories.

He was elated to finally grasp the basic premise of this wiki writing unit. Until that point, almost midway through the unit, Ron did not fully understand the potential to link all of the stories within the class together.

Middle

Contrary to what Ron thought, many students did not have computers at home (about 1/3) and many who did, still did not know some very basic skills related to using the computer efficiently. Internet searches were poor and slow, and creating a balance between image and text was a problem for most. For those students without a computer at home, they were the slowest in the group and did the least amount of work directly on the computer at school. They did the brainstorming of ideas or the editing etc. So, those without computers were definitely feeling inferior throughout the unit, those with computers were using them for a wide variety of personal activities and had no identifiable group of skills that one could safely assume children learn on their own. Sharon, for example, talked about being a slower typist: "I was really slow. I didn't like the wiki as much as these two because I have lots to think about and I didn't really understand it very well sometimes."

Her friends talked about having to explain things to her a second or third time. Sharon also talked about the stigma attached to students who do not know how to use computers. "I wouldn't ask for help right away because I didn't want to look dumb. Everyone is using computers so you think you should too but it isn't that easy to me."

As a result of this stigma, these students who did not have access to computers at home were not given the same access as others within their groups while at school. For example, Janice did not have a computer at home and had very little experience using a

computer and, as a result, although she liked looking for images and creating new link ideas, she "did most of the talking and Syl did most of the typing and searching and stuff" because Syl was faster. Janice expressed her frustration with feeling "behind and kind of not cool. Like everyone else is doing this and I am not. I get mad at my mom and dad sometimes because I want them to get a computer." Janice's frustration points to one of many effects of the digital divide.

And while Janice expressed anger, Jeff had already resigned himself to life without a computer: "I am not very good at using computers. I don't really like them and I'm not very good at it. I like to use a pen and paper and I will probably just do that instead…I probably won't use the computer unless I have to." When I asked him if he thought he would like to learn how to use a computer better, he believed that it was already too late for that. "Well, I think it would be pretty hard for me to learn everything, ya know? I could try to learn the wiki and then I would know that maybe but I don't think I could learn everything." I asked what he thought everything was to which he replied, "I don't know, like, everything."

This attitude reflected a bit of Ron's beliefs when he talked about his students knowing so much about the computer. "Like look at Steve there, he is smart as a whip on the computer…weren't they changing the pictures and well…I know they asked me a couple of questions and I couldn't answer them…I saw you over there later…"

However, when I talked to the students about using the computer outside of class, there was no singular list of tasks that they all knew how to do. Many of them were not using the computer to research ideas or homework tasks; they were also not using the computer to run efficient searches for specific information. Most of the students were using the computers at home for fun in whatever way they defined fun. So for many of the girls that was MSN,

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Webkinz, email and the odd dress-up game like Barbie. The boys liked to use MSN, role-playing games, and some of them liked to work on the creation of their own web pages. When I asked if they were using the Internet to search for information for school projects, many of the students were like Caroline and seemed to find that to be a frustrating task:

> Sometimes I look at web sites or I look for information but if we are supposed to look for stuff like that we usually do it at school because the teacher tells us where to look and stuff. If we do it at home we have to look for it ourselves and it's like I don't know what I am looking for, really…

Susie agreed and added that "there is a lot of good information but you have to look at hundreds of places and it takes so much time and you don't even maybe get the right stuff that the teacher wanted. And then they say *'don't plagiarize'* and stuff like that..."

Ron talked about the students' comfort levels on the computer being so much higher than his own. There was evidence to suggest that this was not true for all of his learners. However, for the most part, he was right about that. Even the students, who did not know as much about using a computer, were, for the most part, eager to learn. Ron stated, "They are not afraid of the computer the way many of my generation are!"

Many of the students who were using computers at home found the wiki unit to be exciting. Their comfort levels on the computers were high and we were actually giving them instructions and showing them how to do things. As Trent pointed out,

> Well, it was pretty easy because we had you guys telling us what to do and then once you told us we just had to go and do it I mean that is not hard, so like adding links and pictures and stuff, and then once we did it we would just try new things once we

knew what to do. Like when we showed you that we resized the pictures or stuff like that. We usually have to try to do ourselves at home so…this was much easier!

Students who had at least one parent at home who used the computer a lot also seemed to benefit. Nancy, who was the "best person on the computer" in the large girls' group talked about her mom using the computer all the time for work and for fun. "I do some MSN but I also watched my mom at home because she uses the computer a lot and so I would watch her and she began to show me how she does it and then I tried to type like her and find things like her so…" Rhianna also talked about her father's use of the computer at home and his encouragement of her use as well. As a result, she worked on her groups' wiki from home and got much of the work done there. She talked about her parents liking to see her using the computer and so she would often use it to "write some things for final copies or for projects and stuff or look for information sometimes…And I used it to write our wiki!"

When one rethinks conceptions such as literacy and learning in an English Language Arts context, the nature of assessment necessarily must be revisited. The traditional focus and forms of assessment no longer fit with these new modes of communication and of learning. The challenge, however, is great. One must overlook mandated approaches to assessment with no clear alternative in its place. Ron struggled with issues of assessment throughout our study.

During our initial two years of the wiki writing unit, the focus was on the students and on how they used the wiki and on what they were able to produce. None of the work done in the first two years of the study was graded or assessed in any way related to their report cards. However, during the third year (this doctoral research) with Ron, when we began to plan the unit, his first question was, "How will this be assessed?" Ron reminded me

that for assessment purposes, students were always being asked to demonstrate what they could do as individuals. Ron was concerned that he would not be in a position to assess the final products of the wiki with individual grades. This individualization went against the collaborative nature of wiki writing. I promised to provide a rubric that he could use to help with assessment. However, he was still concerned with assessment. When I probed a little deeper, Ron mentioned that this new wiki writing was great but that his students still needed to be assessed on the basic literacy skills that they would eventually be tested on when writing the standardized literacy tests used within the province. Ron stated that "perhaps there is a potential transition happening between two distinct paradigms of literacy development." He believed that what the students were doing outside of the school had no direct connection with what they were expected to do inside of school. The school conception of literacy was "relatively static and prescriptive, with assessment approaches built-in." The digital literacy with which students were engaged was "emergent, undefined in terms of assessment, clearly looking for different outcomes, and inevitable." Ron had a very clear sense that these new literacies were right outside the walls of the classroom, circling but not quite landing. He believed that it was only a matter of time before they would be expected to be taught in every ELA classroom.

When I suggested to Ron that we introduce wiki writing by ripping up the rules of story writing they are used to following, his first concern was the impact that this might have on students' writing of the Grade 6 standardized test. "You need to do me a favour though and tell them this is another way to do it." Ron believed that if we didn't do so "then they'll say 'oh we don't have to do this' but when they come to the big test and see the plan page… they'll be in trouble because there is literally a page in this [exam] booklet [for planning]."

Ron expressed his unwavering motivation to help these students meet with success as it is defined in school because "that is their ticket." He felt he had no choice but to teach these mandated skills. "I hate it because it's not the way I write and I told my kids just today you know this isn't the way I write either but some of us like to plan so let's learn." Although this was clearly a frustration to him, to fit writing into a *one-size-fits-all* approach, he was willing to teach it so that his students could score well on the mandated forms of assessment.

In the process of participating in our study, Ron began to question his position in relation to the teaching and learning of new literacy skills. While technology had broadened the definition of literacy, "literacy expectations in education have remained constant. Spell it out. Demonstrate that you know the conventions and how they work." Ron believed that bridging the gap between these two distinct types of literacy was becoming unmanageable as traditional paper forms of media used in schools had been replaced by new forms (e.g., Internet, chat rooms, instant messaging, blogs, etc.) in society.

When Ron asked me to compare the EQAO literacy test questions to the new literacies being experienced by his students through our research study, we found little congruence. Ron concluded that "digital multi-modal literacy is clearly outstripping EQAO's ability to stay connected with and accommodate emergent pre-adolescent literacy practices." Ron's stance was that the government's obsession with standardized, criterion-referenced assessment tools was "serving to intimidate classroom teachers into avoiding the serious inclusion of new technological applications to their literacy agendas."

Ron was clearly torn about the lack of inclusion of these new literacy skills and the new technologies such as wiki in current curriculum documents. On the one hand, he understood that ICT was being used by his students outside of the classroom and in the

workforce and that his students should be learning how to engage with ICT. Yet, on the other hand, he did not know how to use ICT himself. His main reasoning behind not teaching using ICT was because they were not in the current curriculum documents. Consequently, he was not ready to entertain seriously the inclusion of these new practices into his teaching and assessment. During our initial planning session with Ron, he asked, "What writing conventions are being abandoned for playing with wiki?" Ron illuminated some of the thinking behind his notion that wiki was for play when he said, "A teacher's sense of accountability runs deep. Sooner or later, one is visited by the spectre of linking to the mandated curriculum and the implications therein." Ron believed that no matter how important a teacher may believe something (like wiki writing) was to his students, the "tyranny of assessment" (Van Braak et al., 2004, p. 407) could cause teachers to "capitulate to the notion that something should only be taught if it can be formally assessed." In other words, while Ron recognized the inevitable need to include these new literacy practices into classroom teaching, he did not necessarily believe that he needed to learn and teach them at the time of this study because they could not be assessed on the standardized tests. Instead, the engagement in these digital literacies could remain as play. Ron stated, "Given the fluid and varied nature of such technological applications, it may be problematic for parts of these emerging literacy manifestations to be included into formal assessment rubrics." Without a clear conception of the types of changes to demand from the formal curriculum to include these types of literacies, Ron concluded "in the end, perhaps this emerging and inevitable form of literacy should be (a) embraced by teachers, but (b) left unencumbered by accompanying assessments restraints." Instead, Ron argued in favour of teachers being left to decide what their literacy classroom should look like. In this way, "teachers can play with the

wiki and figure out how to get students engaged in it at their own pace." As a result, he concluded, "[the students] won't miss out on those literacy skills we know they are going to see on the EQAO stuff down the road."

Ron's ability to see value in teaching new literacy practices was evident in his willingness to support this research about incorporating ICT into his teaching through the engagement with my study. However, as long as students were deemed successful based on their achievements on the Paradigm One-built OSSLT, he was not going to take his focus off of teaching those basic literacy skills of reading, writing and comprehension. He wanted to set them up with the best chances for school success. The absence of mandated curriculum guidelines regarding digital literacies created both a conflict and an opportunity for him. The conflict arose from the dual role of teaching new literacies when, in fact, the provincial literacy test focused on the more traditional definition of literacy. The opportunity arose from the lack of clear, mandated assessment practices to correspond with the new digital literacies. Without being mandated to try these new skills, Ron could participate in my study and give his students the opportunity to 'play' with the ICT in meaningful ways.

However, this lack of clear guidelines also opened possibilities for thinking about assessment in innovative ways without having Ron feel accountable. So, for example, when Ron was trying to articulate the basis for assessing the students' use of the wiki, we could question some of his basic assumptions about assessment. "How are we going to ensure that everyone in the group has done everything we have asked them to like created a link, found and imported an image…etc." I didn't have an answer for him, but I did have a question: "Do you think we should measure this? Why?" Ron believed that each student still needed to provide evidence of the same level of involvement with each task – everyone must create a

link, everyone must choose and import an image and add text to that image, everyone must type (a certain amount), everyone must edit the work, etc. When I would ask questions to probe this thinking, it sometimes surprised him. For example, I asked him a question about the creation of links within the groups: "What is more important…that they are part of the conversation about what should be a link or that they should learn how to create a link on this particular wiki?" I am not sure I know the answer but Ron felt that they should do both to get the most out of the class, to "level the playing field." When I asked him why, he said that for him, he didn't really get it/learn it until he did it for himself. "I know that if I was sitting at the table beside the person doing the link, I wouldn't be learning it so."

As the unit progressed, however, and Ron saw, firsthand, how the students were managing to delegate tasks within the groups and call on the various strengths of individual group members, Ron decided not to require each student to complete each task. Instead, the official Front Page of the class wiki was left blank with the exception of vague daily instructions for the writers. So, for example, when students logged in to the wiki, the very top of the Front Page might read "We are adding links today" or "Try looking for images today" and "Refer to your handouts on what to put into a link and try making some today." We had no exemplars and very few guidelines for the students to follow. The wiki was essentially their blank canvass. The lack of mandated assessment objectives in relation to ICT made this decision possible. Without the need to be accountable, Ron could have his students 'play' with the new technology within their groups without having to worry about defining clear outcomes or about assessing their individual efforts.

Ron and I noted that the students knew that there were not going to be any grades assigned to the wiki, and yet they still had a great deal of ownership and pride about their

work. Students wanted to follow our instructions and they took work home to finish if they felt like they were behind. Many students claimed that they had tried harder on their wiki stories than on previous writing assignments. Rhianna said "Yeah, I actually wanted my wiki to sound cool and I tried hard to make it good. I wanted my friends to read it and like it." Other students enjoyed creating stories in a format that resembled the types of texts they spent time reading. "I liked writing this story on the wiki because I felt like I was making something really cool, like, something my friends and I might make at home," said Melissa. Doug stated, "I know that you were just trying this for research in our group but I wanted to do a really good job because it was fun and I think it is the kind of writing we will probably have to learn. I don't get to try this at home and I wanted to really try my best now while I could."

In addition to being unencumbered by the demands of formal assessments, Ron and I were also not tied to any demands from his administration. Neither Ron nor I were expected to report any of our activities to the main office. The principal acknowledged my presence and greeted me each day but beyond that, physically stayed out of the room. In this way, we never felt under pressure to produce something in the form of a final product or any other types of pressure from his administration.

Late

Although this was Ron's third year doing the wiki and although I could tell that he really understood a lot more about it, he still had very little confidence in his ability to teach the wiki to the students. He often deferred to me to explain things when he had just done a great job explaining something on his own. For example, he had some great ideas about how

to explain a link to the students. He asked them to consider websites they had visited and asked them for examples. Once they gave examples, he had them brainstorm important words or ideas about that subject. They then decided that these might be good words for links. At the end of the lesson he deferred to me to really explain it to the students. I had little to add. Ron had taught the students what they needed to know but still felt that somehow his explanation was insufficient on its own. As the unit progressed and this deferring of expertise continued, I worried that my presence would continue to generate this same response. I wrote about this frustration in my field notes: "Ron is still deferring to me for most of the wiki instructions – he knows this stuff and we have gone through it but because I am there – he is worried about not doing it 'right' – frustrating."

Though my initial response was frustration, I soon came to appreciate that he was starting each class with his best attempt and I saw how far he had come in his understanding of and knowledge about the wiki. Ron still needed reassurance. The final step seemed to be the confidence to actually teach it. Once I viewed his actions from this new perspective, I saw Ron show confidence that he had not shown in the past. In the initial two years of the study, Ron would not have attempted to lead the instruction of a mini-lesson of any description related to the wiki.

He circulated around the computer lab with a level of comfort I had not seen during the previous studies. He answered student questions when he could; when he couldn't, he deferred to me. He began to sit down and play with the student wikis a bit and take time to learn from the students who had a greater level of competence on the wiki. I also noticed that the types of questions he was asking demonstrated an evolving understanding of the wiki. For example, I would hear him asking students questions like, "Nice image there. Ok, so, did

you guys find that picture or are you linking to that one from someone else's wiki?" To ask this question, he had to understand that the wikis were not stand-alone efforts and that the image did not necessarily come from that group's individual efforts to locate it from a Google search. Rather, the group had made a sound design decision that the image another group had used would work well within their story too.

However, there were other barriers to leading learning that were difficult to overcome. For example, Ron could still become frustrated when he could not readily decide if students were on task or not. Looking for the 'right' image could take a while and it appeared as though the students were not working. In such a situation when Ron would see a group of students huddled around one computer talking and laughing and disagreeing he would question whether work was getting done. "So, tell me what you are all working on." Sometimes he would 'recommend' other tasks such as editing for a portion of the group so that they were not "wasting precious time" all huddled together finding images.

Just as Ron had to adjust to the new routines involved in using ICT in the classroom, so, too, did the students. Although the links encouraged collaboration within the groups, the students rarely used links to collaborate among groups. They could not adjust to the idea that others would be writing/rewriting parts of their stories. Graham laughed as his group told me that others stopped linking to their story. "We erased things if they added stuff…We didn't let people add or change things." Even though they liked finding surprises in their stories, that was only the case if the contributor was a member of their group. Sylvia agreed, "Yeah, some of the other people tried to put stuff in but we thought it was kind of lame…Like, it didn't go with what we wanted so." But when I asked if the "lame" change had come from a

member of the group, it would not be erased because "they were part of the group and so that was different."

Although Markus was bothered by the fact that many of the students had linked to the images within his groups' links, he also boasted about it. "Yeah, lots of people linked to our pictures like of the shelter because we had the best picture. It bothered us at first because we did the work to find it but then we knew that Mr. R could see who put it there and so then we just thought that we had the best one and no one could find a better one so they all had to use ours." It became a badge of honour to have a link that everyone wanted to link to.

The students were able to give great descriptions about their decision-making processes when it came to choosing images. They worked images into their stories in very advanced ways with little direction from the teacher. They could talk about how the image would further their stories and add to the mood/tone of the story. They talked about needing to choose the "right" image and how they still wanted to have text that "went with" the pictures. Marissa felt "a bit like I was the boss because they would always ask me stuff like what do you think and stuff. I came up with some of the ideas but then I would also say if I thought something didn't fit or like that." So when I asked what she meant by fit, she explained " Yeah, if the picture wasn't right or if something they wrote didn't go with the story or sound cool enough and stuff. Sometimes people just wanted to describe the picture...that's kind of lame."

Rhianna explained that Mark was good at finding a picture for the link. "Like he would look at the link and find a picture that matched the link - the perfect picture to match our story." By matching, they did not mean that the picture had to mirror the words that they had written. Steve explains, "We actually tried to find pictures that told more about our story

– like it showed the island to be huge and scary and we picked that one because it was a picture from the sky and that is what the people on the plane would have seen right before they crashed." Eddie talked about their group making the decision not to have too much text on their front page, "Well, we decided that there had to be lots [of images] on the first page because we didn't want everyone to read everything on the front page because it's boring…too much writing…"

"Yeah, too much writing and nobody will want to read it," agreed Travis. Ken added, "Yeah, we wanted to get into the story on the front page but then have lots of links to go everywhere once you start reading…Kind of like a real page on the Internet would look."

When I talked to Ron about the use of images, he was a little less focussed on that part of the wiki because it was really just the part that made them "...look finished. They really make the stories more attractive and the students love the way they look." Ron's Paradigm One perspective did not see the choosing of images and the use of image as part of their literacy practices within the wiki writing. So, when I told him that these choices about images were actually literacy skills related to ICT, and talked about some examples like the interaction between image and text on websites, he agreed that this would be a skill students should learn in relation to ICT. "Yep, you're right. I mean, we saw firsthand in the scavenger hunt. These kids don't read pages if there is too much writing. They are used to seeing pictures as part of the message." Although he agreed that teaching about the use of image was important, he acknowledged that "this is not something I would have decided on my own. I mean, that's why you're here, right! There are a lot of new things out there that we just are not doing here in schools yet." Ron was not sure that he had the kind of expertise to teach about design choices and found that to be "kind of second rate right now. I mean, these

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kids love that part of the wiki writing. They do not have to be told to use more images. I still think the focus has to be on the writing." Ron had a clear purpose in mind for the wiki writing which was the writing itself and he was not going to be swayed by the distractions of other, less urgent areas of the literacy agenda like the use of images.

Ron asked me at the beginning of the study if I thought that we could make the wikis a little more "fancy" as finished products this time. He asked at two different points throughout the study (same question) and began to get nervous when there were only a couple of classes left and the students still had many spelling and grammatical errors. Toward the end of our time together, the students would beg for additional lab time and would work diligently in the lab for the entire class. They had all of these wonderful ideas still to add to their stories. The links were being used for increasingly diverse purposes which was really exciting to me. For example, for the most part, early links almost always included images. These links were used to provide the reader with a deeper understanding of a thing (island, plane, shelter). Increasingly, however, the later links were being used to provide recipes of things people ate on their deserted islands, or definitions of types of planes or directions on how to make rafts etc. I was excited to see the students begin to grasp the potential of what their wiki stories could represent. However, when Ron would sit with the kids near the end, he would point out the grammar and spelling mistakes and make them fix some of them while he was sitting there. When we asked students to link to one another, he suggested that they use that opportunity to help their classmates with proofreading. As I walked around the room, I asked the students if they were linking to their classmates' work. Rhianna answered, "Yes, but not very much because we don't have time to proofread their work because we have to still proofread our own." Ron's desire to have finished products

that looked "fancy" was, he argued, with a focus on his students. He knew how excited they were about the wiki unit and he was "amazed at the level of engagement, I mean, they just worked solid for a double period in here." Ron really wanted them to have something fancy to show for all of their efforts. He wanted them to be "proud of their literary accomplishments."

As a result, I was feeling the pressure to give Ron what he wanted to see by the end of the unit. In his mind, the outcome needed to be "fancy" in order for the wikis to be "done." In my mind, I needed to see more linking within and between wiki stories and more use of images and outside sources to feel like the unit was done. I captured this tension in my field notes:

> Ron is feeling like we are not moving fast enough. He talked to me today and asked if I thought we were going to be able to get the kids' writing done because it wasn't going so well….I disagreed and asked where he thought we were falling short…he said he wanted the work to look really good this year…in the past the work was ok but it really started to get great by the end and they didn't get to make them look finished. He told me he wanted the work to look shiny and "fancy" and would we have time to get to that?

> I don't think he totally believed me but was willing to defer to me and to trust me.

However, as the unit began to wind down, students were paying more attention to "finishing" their stories than they were to editing them. They wanted to add links and images and they began to ask-- for the first time – "how does our story end?" "Can we end our story in one of our links or does it have to be on the front page?" In order to have the students try linking their stories to one another, even if they had not done so up until that point, I asked one group

to create an ending to their story and had all of the other groups create links to that ending. As students began to ask questions like "How do I do that?" and "Does that mean all of our stories are one?" they began to see additional complexity that these wiki stories presented. This new curiosity, in turn, motivated them to spend additional time on the wiki content rather than on the final edits. "If we work hard today can we have part of tomorrow to work on our ending?" Far from our concern that they may be getting tired of the wiki, the students were really enjoying the process of creating the wiki story. Once they could envision the ending, they became very excited about it. "Can we add something to what they wrote?" One group wanted to know. "Of course." My response caused a great flurry of activity for two of the groups. In the end, the final versions of the wiki stories were not as well edited as Ron would have preferred but he was very happy with the outcome: "What they were able to produce this time was amazing. These are just amazing."

In response to Ron's desire to have the students walk away with "fancy" finished products, I edited them at home, printed copies for everyone and brought them in for a final party. Ron and the students were extremely proud and very pleased with their efforts.

Response

The narrative of Ron's experience of learning and then teaching the wiki offers a first step in understanding how a teacher learns and then leads learning using new ICT. The second step is to read this narrative closely and begin to uncover the salient points within the narrative that offer insights into this complex phenomenon. Therefore, the following section of this chapter will be a response to my narrative about Ron's experiences. It represents my response as a researcher to the process of learning that I witnessed and participated in. I share

my insights into critical moments in the learning process that I believe address my research questions and could inform future support for teachers learning to integrate ICT into their classroom teaching.

Entry

The outdated computers in Ron's classroom sat in juxtaposition with the rest of the learning resources within the room. And, they served as a physical symbol of Ron's own thinking about the role of ICT within his classroom teaching. He knew that ICT was important and that it should be represented in his classroom teaching, but he had no idea how. In his attempts to use ICT in his classroom, he was really using a Paradigm One approach – one that looks at the use of the computer as an enrichment tool. These tasks reflected the "old wine in new bottles" types of assignments talked about by Lankshear and Knobel (2003). The activities did not focus on learning new literacy skills related to ICT but rather, they used ICT to replace pen and pencil to complete the types of assignments that had always been done. The computer was one additional means of presenting students' final products: the piano, the microphone, the computer.

Student Survey and Scavenger Hunt

Jewitt (2003) talked about the need to re-think the conception of literacy to include new modes of communication and their corresponding literacy skills. The students, Ron, and I were engaged in a process of moving "beyond the narrow definition of literacy" (p. 83). Using a wiki introduces a new type of text (i.e., hypertext) into the classroom and we were able to see, firsthand, some of the new digital literacy skills that students should be learning.

Skills such as navigation and the use of multi-linear plot structures were critical to the composition process in the hypertextual environment of the wiki.

Due to Ron's adherence to a traditional definition of literacy stated in the curriculum (reading, writing and comprehending, essentially), he did not see that what students did on their computers at home was actually involving the use of literacy skills. Ron believed that most of what the students did on the computer was in no way related to literacy. He also believed that since most of his students were using a computer outside of class time, they were all proficient at basic skills such as navigation. It is still the case that the acquisition of new skills such as navigating the Internet and finding information are not credited and are not given a place within the school definition of literacy (Somekh et al., 2001; Vavra & Spencer, 2011). As Ron highlighted, it is difficult to teach navigation when it is not listed in the curriculum, it has never been taught to Ron and he has never really honed these skills for himself. At the beginning of the unit, Ron would not have been able to articulate this specific literacy skill related to ICT that his students would need in order to complete the wiki story writing. He thought he was already having them conduct searches using the Student Link system.

Once Ron interacted with the wiki and engaged in the process himself, he could "begin to see." It was not until he saw the lack of navigational skills with some of his students that he recognized the potential of navigation to be defined and taught as a literacy skill. Therefore, Ron began to conceptualize navigation as a literacy skill after I broke down some of the aspects of navigation that could be taught (for example, narrowing a search or knowing why the first entry is chosen to come up first on a Google search) and after he saw his students working on searches for the scavenger hunt and the wiki and he realized that

some students had no idea how to conduct an efficient search. Left to his own devices, Ron admitted many times that he would "never have thought about that as a literacy skill they didn't know. I mean, they are on the computer a lot."

When it came to student use of ICT and, specifically, their navigational skills, Ron confused comfort level with competence. Several of the Grade 6 students were comfortable on the computer and this made it easy to teach them. They were not afraid to try new things or to "lose" something while trying to create a link or import an image. The students enjoyed their time on the computer. Ron, on the other hand, was less confident. He trod carefully and thoughtfully when trying something on the wiki. Ron assumed that being comfortable and confident on the computer meant that his students were also *competent* on the computer. Instead, it seemed that having a computer at home increased the students' levels of confidence but did not guarantee any level of competence in specific skills like navigation.

Ron and his students were actively involved in learning new literacies central to a multi-modal English Language Arts classroom. Ron's challenges as a learner of new literacies shed light on the overwhelming task of bringing such literacies into the school curriculum. The teacher must first identify, and learn these skills and then immediately teach them to their students. It became evident early on in the study that to become engaged in the design process of hypertext, Ron and the students would require a great deal more time to engage and explore.

They would also need specific details about what to teach within something like a wiki. Many of the early publications designed to help teachers bring ICT into their classrooms provided ideas of what to do with no clear instructions or explanations about the "how" or the "why" that someone like Ron would need. For example, in 2007, the NCTE

published a policy research brief about 21st Century Literacies. In this article, they provided research-based recommendations for effective instruction for teachers. Their recommendations were prefaced with a statement that noted, "as Web 2.0 demonstrates, participation is key, and effective teachers will find way to encourage interaction with and among students." So, their recommendations for effective teachers included: A) Create a website and invite students to use it to continue class discussions and bring in outside voices B) Be open about your own strengths and limitations with technology and invite students to help you. And C) Explore technologies students are using outside of class and find ways to incorporate them into your teaching. (p. 5). Now, for a teacher like Ron, would the implication be that if he did not know how to do these recommendations…he was an ineffective teacher? In addition, I question the usefulness of telling a teacher like Ron to build a website – with no clear indication of why or how. As well, the assumption that his students would be able to help him did not really play out in his classroom as mentioned above. It seems that there is a common misconception about the level of student competence. Again, this highlights the distinction between confidence and competence in young peoples' ICT abilities.

However, newer DIY-type publications (e.g., Knobel & Lankshear, 2010; Newby, Stepich, Lehman, Russell, & Ottenbreit-Leftwich, 2011) suggest possible classroom uses of ICT and then take some time to explain why a teacher might use this ICT, examples of how they used the ICT, and possible limitations. While I would argue that a teacher with no previous experience and no confidence using ICT, like Ron, would not pick these books up, these publications are evidence that there is a growing recognition of the need to break down ICT use into chunks in order for teachers to learn to use it in meaningful ways as opposed to

being used as simply an enrichment tool. Any proposed curriculum or professional development would need to recognize how learning this new ICT will begin at a very basic level (basic navigation strategies before learning wiki) and build up to more advanced applications (creating the class stories on wiki with the integration of image, text, links to url's etc.).

Forming the Groups

The wiki lent itself well to group work. Although the groups had to start on one Front Page, they very quickly created links so that more than one group member could be writing. The links provided opportunities for individuals within the groups to explore the same topic from a variety of perspectives rather than having to agree on one. In addition, the brainstorming of ideas, typing, creating links, and finding images provided a variety of tasks/roles within each group. Interestingly, the groups formed and began writing with very little help from the teacher. Once each group was in front of the computers, members seemed to engage in tasks without a great deal of conversation. If one member was good at typing, (s)he did the typing. Another member had an idea that did not make the front page so she created a link and added her ideas there.

Davis and Sumara (2006) talked about the role of decentralized control and neighbouring in complexity theory. They argued that it isn't so much *who* your neighbour is but rather *what* your neighbour is. They stated that the right ideas, when able to interact, can create new and expanded ideas. In this case, the students engaged in the act of neighbouring to create a powerful collective of talents and ideas with very little in the way of explicit interaction with one another. These groups relied on diversity in the form of ideas and

abilities. They deferred to the members of the group best suited for individual roles. However, the redundancy of the groupings was also critical to how well they worked together to produce their wikis. More than one member of the group could type. They could all create stories and they were all familiar with the concept of creating a link. In this way, the groups worked organically. While it may have looked like some people were not 'busy', they were all working and collaborating in useful and effective ways.

Davis and Sumara (2006) talked about the fact that diversity and group work cannot be assigned or legislated as is often the case in classroom group work. These groups offered a rare glimpse into the effectiveness and authenticity of complex groupings in action within the classroom context.

At the same time, however, these same groupings proved to be a problem for Ron. In order to assess his students and to feel like he *taught* them the wiki, he really wanted to see everyone do everything at the same time. It requires a shift in thinking to begin to see learning differently within the classroom. Ron was only willing to go so far with this shift. Again, this seemed to relate to his firm belief in his responsibility to his learners: all of them deserved an equal opportunity for success. While allowing the strong typists in the group to use their strengths, it did, indeed, mean that the students who had the weakest typing skills had the least opportunity to type.

Early

One aspect of the wiki writing unit that surprised Ron and me was this element of the unknown. Almost every aspect of classroom structures and routines related to both management and academics had to be adjusted. Ron was very adept at managing his students

and yet when we were in the lab, I could see his frustration at times with the noise levels or with our inability to use tried and true approaches to getting the students' attention and giving instructions. We were in the lab that was a different physical space, but we were also competing for student attention with the computer and all it had to offer. The novelty alone of being in the computer lab was enough to make soliciting and maintaining student attention very difficult. There were also several small problems at once and keeping students busy while they waited for the teacher was difficult. As soon as they were stuck (and this was often) they would Google search something else and sometimes become side-tracked from the assignment. In addition to this, the stress level for Ron was high because there were many questions that he could not necessarily answer. Each question, therefore, took time to address as he had to try to figure it out with the students, or as he often did, call me.

The act of literacy, Gee (1997) argued, impacts on one's identity. Rather than simply being involved in the practice of reading or writing text, participants are shaping their identities in relation to the Discourses within which they are participating. Socially constructed hypertexts (wikis), for example, require a certain amount of specific knowledge about terminology and spatial organization. Someone who is a novice to this type of writing will be identified by their lack of specific knowledge about the language and organization of the text. Therefore, as noted in Ron's case, he identified himself as a novice when it came to the teaching of new literacies. For example, I could see how his use of language provided insights into where his thinking and comfort levels were with ICT when he was using the word favourite as a noun rather than as a verb.

Academically, the approaches to writing were different. Right from the start, the students engaged in large group work instead of pairs or individual efforts. As well, the

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traditional volcano plot graph story was unrecognizable, and the use of image and supplemental information in the form of URL's, recipes, additional facts and the potential linking to one another's stories was brand new to Ron's conception of story writing.

New ways of thinking go hand in hand with the new skills required for ICT. Having moved away from the volcano plot graph in his mind, Ron had replaced it with a new concrete structure. Ron needed a picture--a roadmap of the wiki to help him to make sense of it. Although he understood the iterative nature of the wiki with its links, his plot graph was still the representation of a self-contained narrative. He could not visualize the links connecting one story to another. In this way, his vision fell short of the almost endless possibilities for story plots that the wiki offered. In addition to becoming competent navigators, he and his students would need to begin to think in multi-linear ways about the texts they were creating. Although perhaps Ron's self-generated diagram of the plot graph did not perfectly capture the essence of the wiki, his deep thinking about this new structure of writing and his attempt to make it explicit demonstrated the huge shift required in Ron's thinking simply in order for him to understand the basic premise of the wiki. Before Ron could begin to see student interactions with the computer as literacy experiences and begin to redefine the term literacy to include the new skills students needed in order to meet with success when using ICT, he first had to conceptualize the underlying premise of non-linear text creation. At the end of the three years spent working around the wiki, Ron had a basic understanding of this non-linear text concept. A deep understanding of when and how and why to write in this format was still elusive to Ron.

Ron had also never written a story with links before. The myriad decisions about what students could include in their links and how to judge what was a relevant link within

their stories proved to be another challenge for Ron. However, as indicated by the lack of attention paid to this issue in the narrative, Ron did not focus a lot of his attention on this issue. When I asked him why this was the case, he told me "Oh, hey, I just realized halfway through the unit that they could put other stuff besides images in them so…Unless I see something inappropriate, like rude, I am not going to worry about that this time." Ron was indicating that the wiki interrupted his traditional Paradigm One views of literacy in many ways. So, if things seemed to be going well, he did not feel like he was in a position to ask the students for anything different. If students refrained from posting anything rude in their classmates' wikis, he would not question the content that they actually posted within the links they created.

Middle

The inclusion of links challenged Ron's and his students' thinking not only about story plots but also about story authorship and collaboration. The wiki presented a different type of type of collaboration not typically seen in classrooms. The students were engaged in the traditional kind of collaboration we often see in school when they were taking on roles within the groups – one looking for images while another created a new link etc. However, the wiki was challenging students to go beyond this level of teamwork or participation and explore the possibility that they could offer substantive contributions to stories created by their classmates in other groups. Ron was very concerned that students might go into their classmates' stories and erase pieces of their writing or write nonsense rather than offering something useful. As a result, we were very slow in introducing the linking between stories and we really pushed students to think of themselves as contributing to the class story overall

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rather than to the story of a specific group. At no point in the study was Ron comfortable with this kind of collaboration. He felt very uneasy about allowing students to author any text but their own. This obviously presents a real hurdle for future integration of ICT in authentic ways. Research is clear about the ways people collaborate on the Internet (Cole & Pullen, 2010; Kress, 2005; Lankshear & Knobel, 2006) in that it is shared, unbounded, iterative and collective in nature. Bringing this kind of collaboration into the traditional classroom and curriculum represents a huge challenge. It requires teachers like Ron to adjust taken-for-granted assumptions like those about authorship in the teaching and learning of writing. How will Ron gauge who is learning what if they do not produce individualized, bounded, final products? This remained a challenge throughout the study with Ron.

This type of collaboration asked students to give up a certain amount of control over their final wiki stories and this proved to be difficult. Most would not try to contribute and those who did often had their contributions erased. Although the links served to encourage collaboration within the groups, the students rarely used links to collaborate among groups. The students noticed that wiki did not lend itself to clear cut roles and measurable outcomes. If others contributed to their stories and they did not get a good grade, they would be upset. They wanted to be sure that they were still going to be assessed the way that they always were when working in collaborative groups – on their final product and on the measurable, individual part played within that final product.

The lack of consistency in skill acquisition and levels of ability among students provides a sound argument for the formal inclusion of the teaching of digital literacy skills in the curriculum. Ron, I believe, is representative of many teachers who cannot determine which skills need to be taught (as noted with navigation) because they do not know what they

are. Many teachers will not know how to do some of the required literacy skills related to ICT and will have to learn them first. At the moment, there is no clear means to assess prior knowledge and/or teach digital literacy skills. Therefore, these students who are not as competent on the computer will continue to fall behind the peers who have access to and help with their computer use outside of school. Also, this impedes teachers' abilities to tackle the undertaking of a new unit related to ICT like the wiki writing. If they have no sense of where to begin, what needs to be taught and what students already know, there are additional and unnecessary obstacles standing in the way of the meaningful integration of ICT.

If there is no common understanding of where to begin and what skills to assume students have, there are a myriad of challenges facing teachers when they consider how to assess student-generated hypertext. Ron's language provided important insights into what he was thinking about the research. This was playtime for his students, and as important, they were missing something they were supposed to know. One necessarily came at the expense of the other. Although I offered him a rubric to use with his students to assess what they had accomplished during the study, he never seemed to find the time to look it over and/or implement it. These new skills were important for his students to learn, but only as a form of play. Including it in his assessment, Ron believed, was doing a disservice to his students. These digital literacy skills held no status within school learning. They were not on the OSSLT, they were not the skills that were going to determine the success or failure of his students within the confines of the school walls. That, he believed, had to come above all else in order to give his lower SES students the greatest opportunity for future success.

The students seemed to be highly motivated by the audience of their peers. Although the wiki stories were not being assessed in any formal way, the students knew that their peers

were going to be reading what they wrote and they wanted to make sure that it impressed them. Rather than trying to guess what the teacher wanted to see, these students could take control and know what they had to do to receive praise from their peers. It gave them an additional level of motivation and of expertise because they knew better than anyone (including Ron) what they would have to write and the kinds of images they would have to find to receive that praise. In the focus group interviews, the students talked about how proud and excited they were to have their friends and even some family reading their stories or linking to their images.

Late

The ability of the students to talk about images in relation to 'fit' was impressive. Although none of them had learned this in school, many of them had a good sense of what images matched the text and what kinds of images fit into which links. However, they had no common/shared understanding or language with which to communicate this understanding. Ron had no language to teach them about basic visual literacy or about elements of design. In this case, there was actually no teaching about the role of image in the wiki other than one mini-lesson that told them to look beyond the first image they saw and to try to find images that added detail to their writing. The use of images was yet another aspect of literacy with which people outside of school are increasingly engaging and yet it received little to no attention in the literacy classroom during the wiki unit. Once again, Ron did not see the use of image within the wiki story as a literacy skill that he might teach. He saw it as the 'shiny' finishing touches that kept student interest high and made the final writing products look better.

Ron was uncomfortable with the students huddled around the computer looking at images. He was not sure if they were working or not because the very nature of 'work' and what that looks like was being challenged and changed while writing on the wiki. Not all students were physically busy at all times and there was often much discussion about an image on the screen as the group debated the appropriateness of the image for a link within their groups' story. In addition, it was not unusual to see a group of students sitting beside one another, each with an open page of the wiki in front of them, working on some portion of the story but then leaning over and consulting on someone else's image choice or link idea. This kind of multi-tasking did not always look like traditional classroom versions of work. Also, because there were times when Ron could not imagine the next step in the wiki writing process, he was less relaxed in the classroom and would hover over students to be sure that they were working to complete the next step – he needed to see a final product to know that they had been using their time wisely.

Ron's goal this time around to make the wiki stories look nice provided valuable insights into his thinking about the wiki unit overall. He was frustrated because the students were spending all of their time and effort creating and filling the links within their stories and they were not taking time to proofread and edit their work. Even after making it mandatory that they spend time editing, Ron and I noticed that they would hurry through a bit of editing so that they could get back to the business of creating more wiki text. While the process of creating the wiki stories opened up myriad possibilities for learning digital literacy skills and expanding Ron's and his students' notions of literacy and of texts, Ron saw the wiki as, essentially, a new way to get the students engaged in the act of writing (as he stated early on the study). By the end of the unit, this goal had not really changed. His traditional views of

literacy were still staunchly in place. If the wiki provided an additional motivation to get them writing, he was all in favour of it. However, at the end of the day, he was still interested in seeing a final story written, edited, and put on display. Whereas the goal of the wiki unit in my mind was to introduce and engage students in the creation of new digital literacy skills – the process, Ron's goal was to get the students to write stories that he could assess – the product.

When we finally introduced the concept of linking to a friend's wiki, it was closer to the end of the unit and so Ron asked the students to link to the story of a peer for the purpose of proofreading for them. In this way, Ron could tackle the inevitable step of linking among stories, but he could also control what they did and therefore avoid the possibility of students writing inappropriate text within the stories of their peers. As a result, however, students believed that the reason you would link to your friend's story is to edit the story for them. Setting this instruction for the students reinforced the idea that they were not to make any substantive changes to the wiki stories; rather, they were simply to read through the stories and edit grammar and spelling.

Overall, Ron demonstrated a genuine interest in bringing ICT into his ELA classroom. He was open to trying to create his own wiki on the computer that was attached to the big screen so that all of his students could see what he was doing. Ron talked to the students about the importance of the work they were doing on the wiki and was willing to share as much of his classroom time as we needed to complete the wikis. Throughout the research, Ron would ask questions and share his learning with the students and with me. He embraced the role of learner.

There were, however, aspects of the research that Ron could not embrace at this point in his learning. For example, Ron was not able to stretch his definition of collaboration beyond the boundaries of current assessment strategies. His reluctance to allow students to truly collaborate by writing in each others' stories and instead giving them instructions to edit, demonstrated his limits as far as imagining another way to write. Ron talked a lot about the limitations that the current focus on accountability and assessment placed on his ability to really engage in this type of writing within his teaching. And yet, even when he acknowledged that his students were 'playing', he stopped short of fully embracing the collaborative spirit of the wiki.

As Ron learned more about the new literacy skills related to technology he would make an effort to implement that new skill into his teaching. For example, he talked about doing Internet searches differently to teach better searching skills and a better understanding of search engines. However, I came to realize that there was more learning that Ron did not have the time to do. He was very product oriented with a clear focus on the outcome of the wiki writing unit. He was looking for an electronic version of the writing the students would have done on a word processor. Instead, the acts of negotiating roles within the groups, searching, finding and deciding on images, and collaborating were the skills central to the wiki unit. Without a solid understanding of the new types of literacy skills, it was unrealistic to expect Ron to grasp the extent to which this wiki writing was different than what his students had done before.

There were two additional contributors in Ron's classroom that need to be acknowledged at this point in my analysis. The first additional participant that played a critical role in Ron's learning was his traditional/conventional beliefs about teaching literacy.

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Ron spoke about wanting to integrate more ICT into his ELA classroom, but without a clear conception of what that actually entailed, his conventional beliefs about what reading, writing, and comprehending were all about, could not allow him to see past what his own definition of literacy and text. However, the second contributor that needs to be acknowledged was the context of school itself. Ron had traditional views of teaching literacy and of his role within the classroom – that of the expert who was there to share his wisdom and, by doing so, provide his students with opportunities for success in school. However, these beliefs of Ron's seemed to stem directly from the school system in which he taught. Ron knew that the literacy skills that hold status within the school system are still the traditional reading, writing and comprehending. The paper-bound texts of novels, textbooks and linear stories are still held up as the standard for success in the places that indicate school, teacher and student success: standardized tests like the OSSLT. At the moment, it is unrealistic to believe that a conscientious teacher like Ron who works tirelessly to even the playing field for the low SES students like the ones he taught, would teach anything other than that which is going to be the best predictor of school success for these vulnerable learners.

Chapter Five: Mexico Data Chapter

Introduction

My second site for data collection was a Grade 6 classroom and a computer lab in an affluent, private middle/high school servicing students in Grades 6-12 in Mexico. The school, with approximately 700 students, was located in an industrial section of a large city in the Northern part of the country. I was welcomed into the classroom of a relatively new teacher named Lauren. Lauren's entire 5-year teaching career had been spent in International schools with varying degrees of ICT available within distinct school contexts. This school was particularly ICT rich with state-of-the-art computer labs, 2 class sets of roaming laptops and an entire technology department.

For the purposes of this study, Lauren and I co-planned and then she taught the wiki writing unit with her Grade 6 students. Lauren and I met on several occasions after school to discuss and plan the 7-week unit prior to meeting with the students. The following six visits involved short pre-lessons in the classroom to outline what the students were going to do on the computers. Pre-lessons included topics such as story planning, downloading images, creating links, and linking to a friend's story. While the students were busy on the laptops, I was observing and Lauren and I were helping students who were experiencing difficulties. Following each classroom visit, Lauren and I would touch base (sometimes informally in a quick conversation, sometimes after school when we had more time and privacy) and talk about her impressions and any questions/concerns.

I formally interviewed Lauren at the beginning, middle and end of the study and used recorded conversations and field notes during classroom visits. In addition, I informally

moved from student to student during the computer times, recording observations in my field notes. Additionally, I met with focus groups of students at the end of the study; they walked me through their wikis and talked about the writing process.

The narrative that follows details the time spent with Lauren and her students. While the unfolding of events was fluid and the learning iterative, I have chosen to structure my narrative in terms of the logical progression of the study. Therefore, the first section discusses my entry into Lauren's teaching and into the classroom. The second section details Lauren's and the students' interactions with the initial questionnaire and the scavenger hunt. Next, I describe the early stages of the wiki writing unit. The fourth section discusses how the students worked individually yet collectively. The final sections discuss the middle and late work done on the wiki by Lauren and her students. Rather than discussing her experiences in relation to emergent themes, the response section following the narrative highlights the moments when Lauren seemed to struggle or excel at using the wiki both within her planning and within her teaching.

Entry - Connecting by Long Distance

Because Lauren was teaching at a school in Mexico, our initial contact and planning was done via email and telephone conversations. Initial emails between Lauren and me were mainly about booking computer lab time, deciding how much time per school day we wanted (single or double periods) and about the overall time frame for the study. Given her school timetable and calendar, we could use double periods for six weeks and finish just before a long weekend holiday at the school. This holiday coincided with the end of the term within the school calendar.

Early in our email conversations, Lauren offered to talk via Skype. She told me, "If you have Skype, I am quite comfortable using that if you want." Lauren was positive and optimistic about the study as she wrote in an email conversation: "I think this is going to be great. I am looking forward to it." When I first spoke to Lauren by telephone, I wanted to know if she was using ICT in her classroom as frequently as she appeared to be using it outside of the classroom. She made it very clear that she was not using ICT in her teaching at all. She was nervous about not being as competent as I might want her to be: "I hope I will work for your study. I am not any kind of techie you know!" Although she was eager to try the wiki unit, she had real concerns about whether she would be able to do it or not. I reassured her that I was purposely looking for teachers who did not use ICT in their teaching. "Ok, then you have come to the right person," Lauren laughed.

We reviewed my plan to support her in the planning and then observe her teaching a unit of story writing using wiki. Lauren's questions focused mostly on what she needed to do before I arrived at the school in Mexico. "Should I be learning something before you get here or can it wait?" she asked. I told her to familiarize herself with the wiki and I sent her an invitation to join a wiki that I was involved in here in Ontario. "No problem," Lauren replied. "I have been looking at Wikipedia a little bit already. I have told the students about it and they are really excited!"

Arriving at the school for the first time, I was forced to stop just off the highway at the security booth, provide identification, and clip on my "Visitor" badge. I then proceeded past the rugged rock face of the canyon that provided a breathtaking backdrop to the long driveway. The school was a large, colourful, modern building. The grand hallway down the middle of the two storey school structure housed 'pods' or hallways with 6-8 classrooms

each – one pod for each grade level. Lauren and I met in the library. The library was full of students from a variety of grade levels. Most of the 25 computers were being used by a geography class. There were many students on their lunch breaks just hanging out with their friends in the sofa nooks spread out around the open space. Students were laughing and talking – not like the quiet spaces one might see in an Ontario school.

Lauren confided in me on this first day that she had volunteered to participate in my study because she wanted to use more ICT in her teaching but did not know where to begin. "Everybody thought I was crazy to agree to the study because it looked like so much work. But for me, being selfish, this is something I know I should be doing and here is a chance to learn it with someone in the room with me." She explained to me that there were many other teachers in the school who did not use ICT in their teaching and had expressed some interest in participating in the study. However, they all cited being too busy to spare the time. The school was organised around grade levels and these grade level teams planned together and had regular meetings. The administration met with grade level teams and there was an expectation that teachers help with the myriad of extracurricular clubs within the school. In addition to all of these meetings, her extracurricular commitments, and her teaching, Lauren was also in the process of securing a new overseas position in a different country for the following year. It seemed that Lauren's busy schedule was not a hurdle to her participation in the study.

Although she had little free time, Lauren was very organised. She handed me a manila file folder full of colour-coded schedules. One schedule highlighted all of her free planning times so I could pick possible meeting times for informal debriefing and planning sessions. Another schedule indicated in red the times she had booked the laptops and in

yellow the times we were in the computer room. In addition, she had made note of all of the free periods left for the computers in case we needed additional bookings.

Lauren wanted to be sure that I knew how little confidence she had about the upcoming wiki unit. She was "nervous...you know, like a little anxious because I have no idea what I am doing!" But, she had "lots of motivation" and plenty of confidence in me. When we began to talk about the wiki, Lauren seemed quite comfortable with the idea. She had gone online and found some definitions of a wiki. She had shown the students "Wikipedia" and had discussed the wiki writing project with them. "I think they are very excited about it. We have been looking at Wikipedia and they are all asking questions like 'are we going to do this?' They are psyched!" Lauren admitted to her students that she was "not totally sure of what they would be doing but that it was going to be using computers and that it was going to be pretty cool." Lauren showed a great amount of excitement on behalf of her students. She had a good sense that they were really going to enjoy the wiki unit: "I am so excited for them. I don't want any of them to get frustrated if it gets hard, you know, so I am talking it up and getting them really psyched about it."

We discussed the various options that the student writing assignment might take. Lauren was supposed to be teaching poetry and because I was going to be in her classroom for the entire term (minus one week), I suggested we find a way to work poetry into the wiki. "Oh...Ok. It doesn't matter to me. I am willing to leave it for now but...if we can do both...how do we do that?" Because she had never created a text on a wiki, Lauren could not envision a story with poetry links built into it. Lauren was willing to carry over the poetry into the final term and clear the entire 6 weeks for wiki. However, she would need to include

some type of formal assessment in the wiki unit anyway (in order to have grades to report at the end of term), so it made sense to find ways to work the poetry into the unit.

Our first order of business was to map out a rough timeline for the unit. This proved to be extremely difficult for Lauren. Without having ever done a wiki before (never mind a wiki unit), she did not have a good sense of how long things might take to learn and what this writing was going to look like. So, she could provide little insights as far as timelines went. "Well, will the writing take about the same amount of time as it usually would or does it take more time or...? Sorry, I'm not really sure." We broke the unit down into parts and planned from there aware of the fact that time might act as a barrier in that we had a finite amount of it to get through the unit no matter how slowly or quickly Lauren and her students learned the wiki.

The first part was the story planning. Because she was going to formally evaluate the students and I told her that eventually many of the wikis would end up linked together, Lauren decided that each student needed to begin a wiki story individually. We decided to give the students a topic about which they would have to write so that when they did link their stories later in the unit, it would be easier because they would all be similar in nature. Lauren decided on an inanimate object that comes to life. Each student was given story planning sheets that would need to be completed and given in to her before they could log on. The planning sheets required students to think about the typical characteristics of a creative writing story: character (and its particular characteristics i.e., sock that could hop etc.), setting, the catalyst for bringing this object to life, events that might happen to this object that lead to the problem and, perhaps, some kind of resolution/solution to the story. I then

prompted Lauren to add a section that required them to think about the kinds of items (descriptions, events, maps, etc.) they might put into links within their stories.

Within these links, I informed her, was where the students would demonstrate their knowledge and use of poetry. "Ok....(long pause)...I am just going to go with you on this one. Not really seeing this yet." Lauren was a relatively new teacher who was very conscious of the need for conformity and accountability when teaching in this large private school with high expectations placed on the teachers. The curricular objectives that Lauren was working within were very prescriptive. Perhaps due in large part to the fact that she was teaching in an international school context in which many teachers would come and go, the school wanted to ensure some sort of consistency. However, the result was that within this poetry unit, there was very little room to "experiment" and have the students produce any original writing pieces. Therefore, trying to imagine writing stories, using wiki and still accomplishing curriculum goals was beyond Lauren's imagination at that moment.

Although Lauren had never created a story on the wiki, nor could she imagine what the story was going to look like, she put together a planning sheet to help students think through all of the content and structure-related questions they would encounter early on in the wiki writing process. Again, she wanted to be sure that "the students feel like they know what they are doing and that they buy into this without too much frustration."

We then discussed the initial steps to setting up the wiki. We decided on a meeting time at the end of that same school day in her classroom to actually log on to PBWorks and set it up. Much like the story planning sheets for the students, Lauren and I made a checklist of the various characteristics of the wiki that the students would need to learn and we listed

them chronologically in the order that she would teach them. First, would be the invitation to join the wiki. Because teachers at her school communicated with students electronically, she had a class list of email addresses. Lauren decided that she would send this invitation out to all of the students at the same time and that she would do it the night before the first day they were going to log in as a class. In this way, she felt like she could better control their initial access. She wanted to be sure that they all had their planning pages in first. "Otherwise, I know there will be a few who already know what they are doing and will go ahead and get in from home." Lauren needed to feel a tight sense of control over the introduction of the wiki. She wanted everyone learning at the same pace.

Following the invitation to join, the next step was beginning the writing of the narrative. Lauren was confident that she did not want to introduce any "bells and whistles" until they had enough text to signify that their plots were well underway. "Almost every single one of these kids is ESL and there are a few who will not write one sentence more than they have to so...I need to make them do that first before we even teach them how to link and stuff or that is all that they will want to do."

The next logical step when writing on the wiki would be to teach the students about making links. Again, because Lauren was going to assess their writing, she decided that they would only be taught how to create a link within their own stories. We would save linking to another story for later on in the process. Next in the process was adding images. Lauren laughed and said "I think I will just put 'images' here [in her planning] because I really have no clue at this point!" Finally, we added linking between and among stories. Interspersed within the teaching of the wiki would be mini-lessons about poetry, narrative writing and any wiki-related questions that arose.

With our loose unit structure in hand and a meeting in place for that afternoon, we ended our 90 minute meeting so Lauren could get back to teaching. Before she left, I asked her if she would be comfortable introducing and teaching the unit from the first day. She was: "Sure. I mean, I will introduce you, right? And then you can have my back if I forget something or screw it up!" I was impressed with Lauren's willingness to take on this challenge of learning and teaching the wiki almost simultaneously. I left our conversation with confidence that Lauren had a very good sense of what would transpire over the next week: "So, we're good? Any other questions?" I asked before leaving her to teach. "No. I don't think so. I think we are ready. I will see you after school?"

Later that same day when Lauren and I met to show her how to login and begin her class wiki, I was met by a small group of four teachers. "They were asking me stuff about the wiki but I told them 'I don't know yet!' so I invited them to come and watch. Is that ok?" Lauren's grade level team was meeting and they decided to make the wiki learning session optional in lieu of the scheduled meeting. Most of them came to listen. I walked the group through the basics of wiki and then showed them where they would go if they wished to start a wiki of their own. After the group had gone, Lauren began asking questions: "Oh, so you just click on edit? Hmm. That's pretty easy." Or "So, tell me again how this story writing is going to happen on this?" and "How will I know who is writing what?" "Can this keep track of how often the students logged in and worked? Like, will I know if they worked on it at home, too?" "How do I do that link again?" "Oh, so we're gonna have to remind them to save all the time...they'll forget" What I realized in that moment was that although Lauren had told me that she understood the wiki, she had a loose idea at best. It was only once she actually sat down and tried to use one that she even knew what questions she wanted to ask.

I asked Lauren if she wanted to try setting up her own wiki so that she would know how to do it in the future and she was willing to try. She walked through the steps without a problem but asked me several process questions along the way, "So, click here?...ok...now...oh, click on this?...just my regular email?...ok..."-- process-based questions did not surprise me. However, as she was setting up her wiki, she turned to me and asked, "I'm still not sure about how a story fits in here. You are going to show me that, right?" Once the class wiki was officially started, Lauren smiled. She informed me that up until we had walked through the actual wiki together, she really had "no sense, no idea of what the wiki was going to be like." I was surprised, given her level of confidence and apparent understanding earlier in the day, that she had no vision for all the planning we had done. However, she exuded a level of confidence higher than I had seen even earlier in the day. She was asking more detailed questions and was able to articulate the difference between her feelings at that moment and those she had felt at our earlier meeting.

> I feel really good about the wiki now that you have sat down and
> gone through it with me. I had gone on and looked at the other
> class wiki that you had sent to me and I thought it looked great but
> I didn't have any sense about how I was going to do that with my
> students. I researched the wiki, like, showed the kids Wikipedia
> and stuff, but until we sat down and walked our way through it, I
> couldn't picture how it was going to work.

Walking into the bustling energy of the Grade 6 pod, I found Lauren's classroom halfway down the hall. While the students were running into the room and back out again (forgot their notebooks, had the wrong book, needed a pencil) Lauren calmly stood at the

doorway greeting students and taking it all in stride. Her classroom was both her English class and her science lab. The front portion of the large room housed five rows of desks with space for an overhead projector and a large teacher desk in the corner near the window. This window looked out over the sprawling campus, the perfect sunny days, and glimpses of the mountains. The back portion of the room was a fully equipped science lab with enough individual work stations for each child. During English classes, this space served as an ideal spot for students to separate themselves from one another while working on projects or group work.

The school-issued computer was the nerve centre of Lauren's class. All teachers were expected to read the announcements each day which were sent via email. Parents made contact with individual teachers using email and all scheduled school events were posted within the school's website on the appropriate calendar. Meetings were set and cancelled using internal email and any correspondence throughout the school day, including attendance, was posted on this internal mail system. In addition, all grading was done electronically and all major assignment descriptions and rubrics had to be posted within the individual teachers' webpage. As a result of this expectation that teachers use their computers for ongoing communication throughout the day, a regular portion of both Lauren's prep routine and her classroom routine was spent checking the computer. I noticed this immediately and kept a running count in my field notes, "Since she has entered the classroom, Lauren has visited her computer 4 times – the bell hasn't rung yet!"

The computer was front and centre for administrative purposes, and Lauren also used this computer at the end of the day to "Skype" home to friends and family, find information, search for future employment, and to book vacations. Although the computer played an

important role in Lauren's classroom administration and in her personal life, she had not found a way to incorporate it into her teaching: "It's really a bit embarrassing to me." As with many good teachers, Lauren knew she could be doing more to bring ICT into her teaching but, she admitted, she had not found "the time to learn or the confidence to try." Lauren also expressed her skepticism about the role of ICT in her teaching. "If I can do it on an overhead, why would I use a PowerPoint? I mean, what's the difference?" She went on to explain, "It's not that I don't want to learn it. I do. I just think that there has to be something *new* isn't there? Or are we putting all the time and effort into learning about computers so we can do the same kinds of things? I still use my good ol' overhead projector!" I assured Lauren that there were new literacy practices associated with ICT and that those are what we would be exploring throughout the wiki writing unit.

My first day of class brought a lot of excitement. The students liked having me as a guest in the room. They knew that I was there to help them with the exciting project Lauren had been promising them. They were warm and friendly, happy and personable. They asked me questions about myself and about my research and then we settled into the class. The first two double class periods (approx. 70 minutes each) were spent on initial story planning. Lauren did not talk about the links page but, instead, asked them to save that part of their planning for a few days from now and that we would revisit it. She sent them home at the end of the second day with instructions to finish the planning (if they had not already done so) and with notice that she would be emailing them invitations to the wiki. When the students arrived on that third day, they were noticeably excited. They were asking both Lauren and me all kinds of questions about the wiki. "I got my invitation...was I supposed to do it from home?" "Are we going to start on the computer right away?" "I told my parents we are using

the wiki today. My dad says he uses one at work!" We were inundated by excited students. The laptop cart arrived with one person from the technology department. He stayed with the cart until Lauren had started the lesson and introduced the wiki. As the students anxiously awaited their turns, got their assigned laptops, and sat down again, there was excitement and energy in the air. The technology person left and Lauren got started on the lesson.

Lauren began by prepping the students with specific instructions (both verbally and on handouts) on how to accept their invitations from their email accounts and then log on to the wiki. She described the first day of the wiki unit as unfolding like "the classic stereotype...teacher goes to teach and the computers won't work." Almost immediately there were signs of confusion and frustration coming from the students. They could not seem to log on to the Internet. Lauren looked at me as I felt a small wave of panic. I was not sure what was happening but I was sure that I was not a computer technician and neither was she. We both hovered over the computers trying everything we knew how to do. Nothing worked. Lauren, remaining perfectly calm, announced with a sense of humour, "Well, isn't this always the way with computers? They are always there until you need them! Let's not worry about it. While we are getting this looked at, could you please take out your story planning pages and fill in the first poetry box or other parts that you are missing."

Lauren called the technology department on the intercom and they arrived quickly. However, even they could not solve the problem. The head of technology arrived and apologized for the glitch. Soon, even he was frustrated.

I looked at Lauren. She was working with the students and keeping them focussed and interested in their stories. "Remember, these will be better stories if they are planned well anyway. So, let's use this extra time wisely." The students were visibly disappointed

and some hovered over the technology support people asking questions and trying to help them fix the problem. The entire first double period of the unit that was supposed to involve the computers accomplished nothing. Lauren was calm and remained optimistic about the process. She announced to the students that "these things happen sometimes" and that we were going to try again tomorrow.

For Lauren, the unknown was whether or not this was something she/her students were doing wrong or something that was wrong with the computers/Internet connection. "What do you think? Was it the invitations? I don't think so. I think this must be an IT problem...don't you?" I assured her that this was a problem outside of our control. The tech team worked on the problem for most of the afternoon, cancelling other meetings. Eventually, the head of technology discovered the there were some compatibility issues with the version of Firefox the school had been running and so, without hesitation, upgraded the school's version of Firefox school wide. Any computer that we used in the school from that day forward would be compatible. "You will not have this problem again. Sorry about that you two." I was amazed at the level of support offered to Lauren and me for this study.

I was equally amazed at how calm she remained throughout that first day. She would have had every reason to be frustrated, to have second thoughts about the study or to want me to take over teaching until the wiki was up and running. However, she was not fazed one bit. She was ready to try again the next day. "Well, let's see what happens, shall we? Ready? Hahaha!"

The following day, as students logged on and began to write their individual stories, I was surprised to find a long, tidy list – like a table of contents – on the Front Page of the wiki. This list contained all the names of the stories and the student names beside them. They

had all been made into links for the students. So, when they logged on successfully, they could click on their personal links and immediately begin writing. After the class, I asked Lauren about this. "When did you do this?" "Last night, actually. I wanted to try it myself before asking you to do it for me. I knew I didn't want to teach them about making a link yet but realized last night that they would need one. So, I got on the wiki and played with it using all the instructions that you had given me. I'm pretty proud of myself," she laughed. Lauren demonstrated her willingness to pay time and attention to the wiki on top of all of her other personal and professional obligations. She found the information she needed and proceeded to create the links.

Our happiness was short lived, however, when after about 10 minutes into the class, we found out that there was another glitch with the system. Lauren had made a point of reminding her students that if they didn't click on SAVE, they would lose their work. So, she cautioned them to click the SAVE button often. When students began trying to save their work for the first time, they were unable to do so. When students did save, all the text switched to html code. I had never seen this before and neither Lauren nor I nor the computer department trouble-shooters could fix the problem. We ended the class without a single student being able to save anything. They were back to starting over again. The second day of the wiki unit and the students still had not been able to accomplish anything on the computers. Although I was worried about what this might do to Lauren's enthusiasm and support for implementation of wiki in her classroom, she continued to encourage the students and to laugh about the glitches in front of them. "Here we go again! So, please sit in your seats and continue planning what you are going to write so that you can make up for lost time when we do get the problem fixed. I will come around to answer questions. We will use this

time for a scavenger hunt, ok?" The students were beginning to ask if they could try their own laptops or if we could go to a computer lab down the hall. Lauren and I made a lot of jokes, and used the time to complete the questionnaire and scavenger hunt.

Questionnaire and Scavenger Hunt

Because this was a private school that catered to wealthy families, and because the school relied so heavily on the use of technology to communicate with the students and their families, all of the students at the school had access to computers at home. As a result, it seemed to be common practise within the school to assign homework that relied on the use of technology. Students were using computers at home and all of them were carrying cell phones with Internet access. However, it was not clear to me what the students were comfortable doing on the computer. When I talked to Lauren about her students' computer use, she was confident that they were all comfortable using the computer. They spent a lot of personal time on the computer and were always on their cell phones even in the hallways between classes. Lauren laughed, "It is just a part of their everyday lives. Their parents all use it and they have access to it everywhere they go. I am sure that they will have fewer problems than I will! Most of them answered the questionnaire in ways that indicated a high level of confidence and competence in a variety of ICT.

During that second day when the computers would not save, we asked the students to search for stylistic devices or for types of poetry and examples on the Internet in the form of a scavenger hunt. During this process, it became clear to me that most of these students did not know how to conduct an efficient search of the Internet.

While they were searching individually on their laptops, I walked around and asked them to tell me how they started their searches, how they had narrowed their searches (if they had) and how they ended up finding what they were looking for. It seemed that, although they were using computers at home and they were accessing the Internet, many of them were not acquiring basic skills related to searching the Internet for information.

While the students were searching, the curriculum coordinator and the head of technology entered the room and began to ask the students questions about their tasks. They politely said hello to Lauren and then made their way over to me. They began asking about what the students were doing and why we had them doing it. I explained that we were trying to help the students learn to navigate the Internet and that they would need these skills for the rest of the wiki story but also for other projects in school and in their personal lives. I asked them to stay and listen to some of the conversations.

Enrique was looking for the definition of the word metaphor and for an example of a metaphor. When I asked him what he had found, he replied, "Well, I got a definition but I don't really understand it and so now I am looking for an example." The definition was wordy and formal and not the easiest for a second language learner to understand. When I asked him how he found and then decided on the definition, he told me "I did a Google search and then I took the first one that came up on the list" I asked him why he chose the first one on the list and the answer was "because it is the best one, no?" How, I wondered, was he going to find a helpful example or a better definition? His plan was to go down the list of options on his Google search list until he found a good one. How many choices does he have, I wanted to know. "Oh, uh, well, it looks like I have 26,000," Enrique laughed.

Juliana, on the other hand, admitted that she spent most of her time on MSN, Facebook or YouTube. "I don't actually do that much other stuff, like, school stuff, at home. If I need to find something I usually just Google search and then if I don't find it I ask my dad!" Juan Jose laughed and added, "I usually make my big brother help me! Or sometimes I just go to the library and they show me where to find stuff." I then asked if they used the Internet."No. I just want to get the stuff and be done, you know?" "I use the Internet" Gabriella said, "but it can be frustrating to find things, you know?"

Also, when the students were able to find examples of the particular poetic devices, they often did not put them into their own words. Lauren would circulate around the room and ask the students about their choices, "So, can you tell me what that means? What is a metaphor?" Most often the students had simply cut and paste their answers taking no time to try to understand what the terms meant. Furthermore, we watched the students pick the first example they found and use it even after specific instructions from Lauren and me to find examples that fit with the tone/mood/ ideas of their narratives of their wiki stories. Very few (three students) picked from a variety of options and chose the one best suited for their stories. The rest of the group needed extra help to search through all of the possible options of web pages, find a suitable one that they could understand and could match with their stories and then add to their wikis. Because most of the class needed help with this process, we allowed them to work in pairs or in groups of three to help each other find what they needed. This worked very well for all groups.

At the end of class, the administrators approached Lauren, spoke to her for a few minutes and then they left. When I asked her about the conversation, she told me that

they applauded her for taking on this research study and that they wanted her to share some of what she was learning with her colleagues on her grade team. She explained that she had already started doing this by inviting them to the first session on how to start a wiki. "I am just glad they are gone! I would love to sit down and talk to them about this...WHEN IT'S DONE and I know what I am talking about!"

During the focus group interviews, the students talked about finding terms, definitions and images as being the most difficult part of the unit. "Like when you go in and just find like a million pictures and they don't even match what you asked for!" "Yea" says Liliana, "or, like, it takes forever to find one definition and then you still have to find an example because it doesn't really make sense just from the definition. It took a long time to find all of that."

When I talked to Lauren about these comments from her students, she responded, "I am a bit surprised but then again, I guess I shouldn't be, really. I mean, I use my computer outside of my classroom all the time but I didn't know what to do with it in here either, so...! I do feel, after working on this wiki unit, that I do have a lot that I can teach to my students and I hadn't really thought about basic stuff like searches and that but I know that I will use this again next year and I will include things about searches and images and stuff for sure." It seemed as though Lauren saw very clearly that even though she was a teacher who did not use ICT in her classroom up until that point, there were basic skills and concepts that she could introduce to her students.

We also decided that, to help maintain their level of interest, we would teach them about linking and get them planning some possible links for their stories. This helped them refocus some of their energy. We apologized to the students at the end of the second double

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period as they left the class without having started the wiki. While they were disappointed, they seemed to remain excited and interested in the wiki project. "Ah, that's ok, miss. When they get it working you have to read my story...it's funny!" "Yeah, they'll get it working, miss. Gabriele's story is funny. I'm going to work on mine tonight, too. He gave me a good idea...." They left the room trying to help Lauren feel better.

When we were alone, I apologized and explained that I really had not seen this before and that I would work with the IT people to get things worked out. However, Lauren's response was "Oh, well good, at least I feel better that I am not the only one learning! You can do some learning with me. I am sure we will figure it out. I think I would be a mess right now if you weren't here! "

When I talked to Lauren about her ability to laugh with the students and not to panic, she had two responses. The first response was that I was there with her, "I knew you were there and so I thought that you were obviously going to help me fix it as soon as possible so it was out of my control a bit, really." The fact that I was in the room and did not know what was happening assured Lauren that this was unusual and that someone was going to fix the problem soon. I asked Lauren what she would have done if I was not there and this happened during the first two days of her wiki unit. Lauren laughed and said "Give up. Well, maybe not give up but I mean I probably would have given up for now and tried again another time or something."

Lauren's second and more pressing concern about the initial two-day glitch was "that the students were going to give up on it. I had built up the unit to be something new and fun and I was worried that since they had tried to start twice, they might get frustrated and give up before it ever got started. I didn't want them to feel frustrated to the point where they were

not interested anymore." Part of Lauren's brave face, she admitted, was to "keep the students from getting too frustrated and wanting to forget they ever heard the name wiki!"

After these two frustrating days, trouble-shooters were assigned to the class each day and arrived with the set of laptops. If a problem could not be solved by the trouble-shooter, with the push of an internal Public Announcement (PA) system, Lauren could talk directly with the technology department and tell them her problem. They would immediately take control of her desktop and walk her through the solution. Having access to this kind of support for on-the-spot help and mentoring was reassuring. (One day she asked them, "show me how to get into the Internet again?" And they took control of her mouse from a remote location in the tech wing, and walked her through it).

The beginning of the third class began with the class set of laptops arriving with two trouble-shooters from the technology department, the head of technology, the high school principal and the director of the entire two campus school. They were all there to ensure that the class ran smoothly. Lauren was visibly nervous for the first time. She was fidgeting at the front of the room and her voice trembled when she spoke. She, once again, assigned the same task of logging on to the wiki. The tech people and administrators moved around the room talking with the students and with Lauren. They stood over the students and watched them as they logged on to the wiki. Aside from wanting to make sure the students were successful, these administrators were curious about the wiki writing unit we had planned. The students were finally able to log on and began their writing. The students spent their time writing for the remainder of the double class period. They were on task and excited about the beginning of the wiki writing unit. All of the adults in the room continued to ask students questions about their stories and about the characters they had decided to create. Many of these

administrators were people I knew and so they also spent time talking to me about the research.

Early

By the end of the third day with the computers finally working, the students were logged on to the wiki and all of them had begun writing their individual stories. Lauren, however, seemed less at ease in this class then she had in the previous two when everything was going wrong. I asked her about this: "How were you feeling today during the class when we were finally able to get things up and running?"

"Great! They all worked so well. Nobody was goofing around. I have never seen them write for so long in my life!"

"Yeah, they were really quiet and on task...I noticed at the beginning of the class, especially, you were a bit fidgety and your voice was trembling...were you nervous about the computers?...you can tell me if you were. I wouldn't blame you!"

"No, surprisingly, I wasn't nervous at all about the computers. I was really nervous having all of those administrators there! I mean, I am not sure if the Director has ever been in my class before. And the last time my principal was here it was to evaluate me....I don't know...I just got nervous. I thought they were watching me and, remember, I don't know what I'm doing!" The Director of the school was a friend of mine from the days when I used to teach at the school myself. He was there to offer his support and to ensure the problems got worked out. However, it was interesting to note the added pressure that his presence placed on Lauren.

The fourth day began with another surprise. When I opened up the wiki to check on student progress, the front page had several new additions. The first addition that I noticed was a picture of Lauren holding up the planning sheets that were due (she had taken a silly webcam picture of herself peeking over the planning sheets and had posted it into the wiki). Also, there was a crooked chart full of due dates pasted underneath the photo. Lauren was reminding students that their planning sheets were due into her and then she had set page writing requirements so that the students knew they would not get to learn the next step of the wiki until they completed the designated amount of writing. Once again, I talked to Lauren "Wow! You have been busy!" "Yeah, but for the life of me I cannot get that chart to look right...can you show me how to do that later? I asked my housemates but none of them knew how to do it either." Lauren was keen to learn how to use the wiki and how to integrate this use of ICT into her teaching. Each night she would "play" with the Front Page and within three days, the front page that once housed only a title for the main wiki page was now full of deadlines, links to individual student stories, lists of tasks for the students, even images.

The level of enthusiasm and acceptance of this wiki was high. Our greatest indicator of this enthusiasm was that students were opening up the wiki and working on it from home until late into the evening. In addition, the students in Lauren's class were talking about the wiki to their friends in Grade 6 who had a different English Language Arts teacher and were not doing the wiki. These friends in the hallways were asking to see the wiki and were telling Lauren's students how lucky they were to be working on it. Lauren's students were actually grateful to Lauren for letting them try the wiki. "Thanks Miss...You're the best." "We have the best English teacher in the whole school! No but

seriously miss...thanks a lot. This is awesome and fun." The students were not just excited about the fact that they were using computers, they would brag about the specific aspects of the wiki, like being able to include images. Paolo boasted to his friends in the hall one day, "You should see my picture I'm going to use! I found at home last night. We get to put them right into the wikis. I'll give you the link when I put it on." Erica was excited to tell her friends that they could all read each others' stories. "I already read Vero's story and I told her something she could add to it. You can write stuff underneath in the comments and they can read it when they open their stories. It's cool."

In addition to its popularity with students, the wiki project was gaining popularity with administration. The vice-principal of the high school invited me to his office to discuss a couple of research articles he had found on Web 2.0. He had questions about references within the article and about possible practical applications. In addition, I was asked to sit in on the Grade 7 team meeting and demonstrate the wiki to them. We were all surprised by the response to our writing project. Lauren, especially, felt overwhelmed by all of the attention. While some teachers were seeking her out to ask questions about the wiki, others were beginning to show their resentment toward her by not showing up to meetings or ignoring her in the halls. I talked to her about her feelings about this type of attention. Lauren told me, "I believe I am doing a good thing. I'm glad I did it and I don't really care that much what some people do. I guess they are a little intimidated. But, at the same time, I am no expert on this! I wish they would wait a while and stop asking me to talk about things I don't really know. I just gave some mumbling answer in our staff meeting the other day! I don't know what I'm talking about people!" Lauren laughed.

Working Individually yet Collectively

At this point in the process, the students were getting anxious to be more collaborative. They could see the possibilities for collaboration that the wiki presented and they wanted to try but were not yet permitted to do so. The students, however, found a way to circumvent this no collaboration rule. Reading through the wiki in the evenings, I noticed that students were talking to each other using the comments section at the bottom of each page. Students would visit each other's stories and write comments like "I like your story. I fixed your spelling for you, Nico." "Nice work, Che. You're story is very funny." "Hey Nico, I fixed some spelling for ya!" "CiCi, why don't you add a burglar to your story? I think that would be funny, no?" "Maria, you rock at proofreading, thanks, mi amiga." The students were going home and working on their wikis until late into the night and then spending time in the comments sections of their friends' stories. Over time the comments became more and more complex. Students were offering ideas for stories, suggestions on where their friends could add more details or description and even fixing definitions if they saw that a classmate had written the wrong poetry definition or example. Some wiki pages had more than 20 comment boxes underneath them. Each morning when Lauren and I would go on to check what had happened the previous evening, we were finding new text that had been written, proofreading by other members of the class and lot of action in the comments section. Lauren realized that the moment the students were on the wiki there was little she could do to ensure individual efforts.

One student in the class taught himself how to add their photo beside their name in the comments section and the next day everyone in class wanted to know how he did it. The students were so interested that Lauren gave him a few minutes of class time to show the other students how to do it. Lauren went home that night and added her picture as well. When I asked Lauren about letting the boy in the class teach the others, she said, "Actually, I wanted to know, too. It seemed like an insignificant little thing that wouldn't hurt anybody's wiki so I thought I would let him be the expert on this. He isn't the expert very often in here so...it was kind of nice. I think he liked it." The fact that Lauren felt comfortable enough to let one of the other students run a mini-lesson told me that she had come a long way since the unit had started. She no longer needed to hold on to control of the progression of each step of the unit. Instead, she was willing to allow one of her students to guide the learning of his peers.

Middle

Just about midway through the process, Lauren came running in to the classroom almost jumping off the ground as she told me about her latest endeavour on the wiki. "Just wait 'till you see this! I am so proud of myself! The tech teacher up the hall showed me this...it is so cool!" Lauren and I quickly logged in to the wiki and I was shocked at what I saw. Lauren had created a "how to" video showing the students step-by-step how to create a link. She had the mouse moving across the front page of our class wiki as her voice gave instructions. Lauren had left class the day before and went looking for one particular teacher who taught a course on social networking applications. Lauren wanted to find something else to try related to the wiki and felt comfortable asking this particular teacher. "She's super nice

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and knows a lot about computer stuff so I wanted to see what she had to say." This teacher had shown Lauren how she could make the tutorial using free Jing software. Lauren "watched her do it once, got her to write the steps down and then I created it while she was watching. It wasn't that hard at all. You just have to know the steps to follow. There are quite a few steps." At this point, I had never tried anything like this myself. I was amazed at the comfort level and initiative about the wiki that Lauren was exhibiting. This Jing software and the resulting tutorial was practical to learn from a teaching standpoint, useful to her students in that moment, and showed a great deal of confidence and enthusiasm for this ICT.

With each new idea she tried, Lauren gained confidence with the wiki. She would share this enthusiasm with her students by circulating around the room more and fielding more difficult questions. Lauren talked about how much fun she was having with the wiki because "for the first time I can really see how I can use the computer in my classroom to teach differently than I had before. I mean I am playing around and finding more ways that I might use it to fit my personality and my teaching style. Like, I am not just Googling a lesson plan idea or finding information, I am finding ways to use my own ideas in new ways. It's fun!"

As the wiki progressed, the student stories were beginning to be text-heavy. Lauren had posted very specific daily page requirements which the students needed to produce in order to move on to the next mini-lesson, "I want to see more writing first, then we will move on to the wiki stuff...keep writing." I asked her what her plans were for an acceptable amount of writing. Her answer directly related to Freytag's pyramid- - the volcano-type plot graph traditionally used in schools to teach short story writing. "The students need to have a definite beginning and middle at this point. They need to

have planned their climax, they need to have used descriptive words and they should have some sense of where they think their stories are going."

Once their writing progressed to the point where they were ready to add links, questions emerged for Lauren. Throughout our formal and informal planning sessions, we had discussed asking the students to create multi-genre stories in which they wrote a narrative about an inanimate object but they used the links to write poetry (which would satisfy Lauren's need to cover a poetry unit while I was there). As we were talking informally about the next day's plan, Lauren was sheepish about asking some of her questions. Although poetry links were always discussed, when it actually came time to creating the links, Lauren was at a point in the process where she could not envision what they would look like. She could, however, articulate her next set of questions: "How are they going to create the links? Like, how would be the best way to teach them to make links?" "Should I teach the poetry lesson first and then the links...or the other way around? I guess I am trying to get a sense of how this is going to look." We chatted our way through these questions and she went home that night to plan her lessons for the coming days. Lauren was able to grasp the overall ideas theoretically, but could not, in a practical sense, "see" how these poetry links would "fit" into the wiki stories. This inability to "see" the links was not just because Lauren had not used the wiki before. In addition, she was being asked to envision a new style of writing that she had never done before: multi-genre writing on the wiki. She had not written that way herself, and had not taught writing that way either. Creating a narrative and then adding links that are poetic and then doing all of this in hypertext was challenging for her.

The links required not only a new way of thinking about writing but also a new way of thinking about the content of the narratives. "How much writing should I ask them to do?" "Will they sketch their stories out with a plot graph?" "What will happen if the links change the way the stories go but they don't want that to happen?" "Can they do a link within a link?" "Can they even use those original plot graphs or should we just kind of through them out and start over again?" Lauren was trying to think through the potential pitfalls of each step without actually knowing what those pitfalls would be.

This wading into the unknown was a recurrent process for Lauren throughout the wiki writing unit. Lauren would have a good idea about what the students were going to do in the next day or two but no sense beyond that. Even the specific aspects of the wiki that she was about to teach, she described as "throwing it out there and seeing what happens. I really have no way of predicting what is actually going to happen until it happens!" Lauren explained that each new task, each new step along the process, was "stepping into the unknown all over again. As teachers we very quickly get used to setting out a task for our students and being able to predict, with a fair amount of certainty, what we are going to see at the end. But, with this wiki thing...that was definitely not the case!"

I became acutely aware of this inability to see beyond the current phase of the wiki when, in our formal interview midway through the unit, I asked Lauren if she had any other questions she wanted to ask me. Her question was telling: "Yes. How will this end?" Being well into the writing of the stories, Lauren was trying to envision how the wikis would end and she could not do it. "I mean, I know that is probably not the question you were hoping for!" Lauren laughed but to me it was such an important

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question that I was happy she had mustered up the nerve to ask it. I tried to walk Lauren through the process for ending the narrative and provided her with a few options for how she could make that happen. Rather than one common ending, Lauren was fine to let them end with the various linking that they would be doing to one another's stories. "Yeah. Let's let them link where they want and that's good. They can choose how and where to end their own stories. I like that option."

Meanwhile, Lauren's students had become famous in the hallways as the wiki writers. We would catch them bragging about the wiki to their friends, "Yeah, my dad looked at it and he said he uses the same thing in his business so, it's pretty cool." This made both of us smile. Students who were not in the class were using their friend's email addresses and were going in to the wiki and leaving comments for their friends. It was a big deal to be involved in the wiki writing.

Lauren was constantly making connections between what I had shown her previously and what was happening at that moment. As the students began to make links, Lauren began to see that their stories were not going to be "typical" short stories done in the past. The non-linear structure that the links introduced caused her to supplement the lessons or instructions given to her students in previous classes. For example, from the beginning of the unit, Lauren had been telling her students that these stories were going to be new and innovative and not like anything they had done before. This was a time to tell the students what that meant. "Remember when I said you were going to be doing some cool stuff? Well, listen up..." Until the point when she was actually teaching about links to poetry, Lauren was not clear on exactly how these stories were going to be new and innovative, she was just sure that they

would because it involved the use of ICT and mutli-media and Lauren understood these to be characteristics of new literacy practices that, up until then, she had not been teaching .

Although the stories were new and different, the need to address specific assessment criteria was clearly beginning to get in the way of student innovation and creativity. There were a number of prerequisites put into each link. Story links were required to have a definition, an example and at least one poem. These prerequisites were in direct response to the prescriptive Grade 6 poetry curriculum. The students commented on the number of constraints placed on their writing. Juan Jose said, "Well, the wiki was so fun, you know, but we had to write so much. I wish we had more time to play around with the pictures and stuff." Most of these prerequisites did not lend themselves to other forms of expression. Text became the only option for these first-time wiki users. Therefore, in addition to the large amounts of text required in the student stories, the links within these text-heavy stories were almost exclusively written text as well. Maria agreed with Juan Jose "Yes, like I really wanted to try to link to all of my friends but we didn't have time. We had too much writing to do like all the poetry definitions and examples."

Late

Images presented the next opportunity for envisioning a new type of story writing for Lauren. Again, we had talked all along about introducing the use of images, but until it was actually time to do so, they were a vague notion hovering around an ever-evolving wiki. A whole new crop of questions emerged from the introduction of images.

Her initial questions related to image size and appropriateness. "I think I should have them show them to me first." "What, exactly do you mean about the file size of the image? Can you show me?" Next, Lauren had questions about quantity, "How many images do you think they should have? Is there such a thing as too many?" Also, she wanted to be sure that they were going to choose appropriate images so, in addition to the brief set of instructions that she handed out to them (and put a copy on the wiki front page) we added some guidelines for choosing images. We asked them to choose an image that in some way furthers the story – perhaps it shows the object doing something or next to something else etc. In this way the image helped them with their stories. Lauren also wanted them to be sure that the images were ones that they would show their parents (to be sure that they were suitable for school). In the end, Lauren also decided to limit the number of images on their Front Pages to one per story. This meant that the front pages with all of the text from their narratives would remain text-heavy. Readers would have to follow the links to find images.

Once the students had included images, they really wanted to show them off. We let the laptops stay in the room for the beginning of the break after class so that they could show their friends. They were proud of the look of the wikis and of the content. "Here...read mine...it's funny!" and another student would add, "Yeah, I couldn't believe I found that picture. It's perfect, no?"

I asked the students about this attention to their writing in the focus groups at the end of the study. Students acknowledged that they were putting forth greater efforts in their writing. "Well, we knew that we had an audience so...." So, this meant that they didn't want to embarrass themselves. "If my friends are going to read it, I don't want it to be some lame kind of story, you know? Like, I don't want to just write something

quickly and hand it in...uhm...like I would usually do," Ale laughed. Carolina agreed: "We loved it when our parents would read them or when our friends would ask us to see them. So, you wanted to try hard, you know?" They were very forthright in their admissions about not personally investing in most of the writing that they were doing in school.

By this point, close to the end of the unit, it was clear that Lauren was gaining confidence in her abilities with the wiki. At this point in the unit, a student asked Lauren a question about a certain button on the toolbox row of the wiki screen. "Miss, is this a shortcut for getting to the Internet?" Lauren responded by saying, "I don't know for sure, Gabrielle, let's try it and see what happens." Students who were tech-savvy asked Lauren if they could draw their own images instead of importing them from the Internet. They had learned how to do this in a computer class a few weeks earlier. Lauren was not sure what to say at first. She came over to ask my opinion but when she got to me, she already knew she was going to let them try. "This is what this unit is all about right? I mean why not let them excel if they can." Once the two students began to draw their own pictures in a different program and then import them into their wikis, more students wanted to do it. So, Lauren made those two students the experts and had them show their peers how to do it. Lauren also watched, "I think I might try that but...not right now!"

One student called Lauren over while the class was working on their links and images and asked if she could link off her friends' images. This question opened possibilities that Lauren could not have foreseen. Lauren needed to think this through and so she asked me, "How will this change the look of the wiki stories?" But once again, she had her own answer. The lesson on linking to each others' wiki was still days away and so, even though she knew

it was coming, for Lauren the answer to this question had to be "no." The progression of her learning to that point did not include linking from story to story. Her inability to stray from the set plans for the unit may have also been an indication that Lauren viewed curriculum from a just-in-case model in which teachers push a certain amount of information at their students in a prescribed order. Rather, new literacies call for a just-in-time model in which students and teachers pull the resources they need as they need them.

As Lauren was introducing the lesson on linking from story to story, her curriculum coordinator and the head of technology came into the classroom. Again, they were there to support the work we were doing but it also made Lauren visibly uncomfortable. They stood at the back of the class (so as not to interrupt Lauren's teaching) and waited until it was appropriate to talk to the students. Lauren barely had to get the words out of her mouth introducing the idea of linking to a friend's story and the students were cheering. They were out of their seats heading toward the laptops. When Lauren asked, "Wait, don't you guys want me to tell you what you need to do?" They told her that they already knew how to link and that they had been waiting for some time already! In our planning session, she seemed worried about letting the students choose who they were going to link to so she gave them some rules about linking. She asked that each person choose one boy and one girl to link to. After they had done these expectations, they could link to anyone that they wanted to. The students were a little disappointed by this rule. They had been waiting for the opportunity to link to their friends and now they had to follow more rules: "Ah, it's ok...I mean I'm excited about linking to the stories because it's going to be fun. I just wanted to link to Pepe and now I have to wait. I mean, I just want to play with this wiki because it's so fun!" Another student said, "Cecilia, Maria and I have been planning our link for over a week now! I am sad. I

guess we can still do it but first we all have to find a boy." Lauren believed that they would only link to their friends and that they would not read other stories or make the effort to find stories with the best fits for their links.

The administrators who had entered the room earlier, were busy circulating around the room looking at the links people were making, asking the students questions and reading some of their wikis. Lauren, once again, was visibly nervous. She was acting calm but I could hear the tremble in her voice. The administrative team thanked Lauren and I and the students and left the room. Once they were gone, Lauren turned to me and laughed, "Phew. I wish they would stop supporting me like this!"

Time was running short and all of the aspects of the wiki had been tried: the narrative front pages, the poetic links, the addition of images, and the linking from story to story. We decided to wrap it up by letting the students decide how to end their own stories. We completely opened it up and let them link to anyone and add anything they wanted in order to finish their stories. At this point, they were fully collaborative and really enjoying it. Students were going in and editing each other's work. They were adding text underneath a friend's image and they were having fun "hooking up" with other characters. For example, the living soccer ball became buddies with the hopping sock and they ganged up on the walking running shoe. It was a pleasure to watch.

At the end of the seven week study, when I asked Lauren about this ability to "go with the flow" and learn during the process of the wiki writing unit, she said:

Well, you're here right? I mean I didn't do this on my own. I guess I relied on the

fact that you were here and if I was really screwing up you would have told me! I

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wanted to do this and I just kind of went from one day to the next. I had you here

and that made all the difference.

Knowing that I was there to support and observe made taking the risk a

manageable one. However, when I asked her about the types of new literacy skills that

we witnessed (choosing an image, navigating the Internet, creating links), she was not

completely sure she knew how to teach them. "Um, I think I learned a lot about how to

use a wiki to think about things in a new way."

"So," I asked, "What do you mean by that?"

Well, like, I think I understand how this story is different but in a good

way. I like the fact that students can think about a narrative the way

they read stuff on the Internet. I think they added more and really

interesting ideas because of the links. I will definitely use the wiki

again next year. I am thinking about all of the ways that I can use it in

my science class as well. I am very excited. As for the literacy skills, I

think I would have to go play-by-play on those next time. Kind of like

what I did with the whole wiki this time. Now that I am aware of them,

I think I would take a little more time in the planning stage to allow for

mini-lessons on navigation and linking for sure.

As a final question, I wanted to ask Lauren if she felt like this unit had helped her with

her goal of getting over the fear of using more ICT in the classroom. "Oh, yes," she said,

"It is actually just slightly embarrassing at how long it has taken me to try this...and it

wasn't even that hard. In my mind I have always had the 'big white light' of technology

looming and it seemed too intimidating. But now, I am totally over that. I will definitely use more ICT in my teaching."

Response

The above narrative of Lauren's learning process highlights the complexity and myriad issues that faced Lauren as she tried to learn and teach the wiki. However, Lauren's actual daily lived experiences were outward manifestations of her views on this process of literacy learning and teaching. The following section provides the reader with insights from a close reading of the daily experiences of Lauren presented in that narrative.

It became clear early on in the progress of Lauren's learning that she was comfortable using ICT. She would go home in the evenings and spend time learning/reviewing for herself what she was going to teach the next day and she would come in prepared for every lesson. Still, Lauren needed to work her way through the wiki unit step-by-step. She described her early learning about the wiki as "wading through the unknown" because she could only envision so far ahead. Articulating the questions she needed to ask was difficult and then envisioning the answers was even more so. Walking through the process with her students and learning along the way meant that she had to hope and trust, at times, that she was taking her students in the right direction. This was evident as early as the initial planning meeting. At the time in a unit when most teachers can layout their thinking and put a clear plan in place, Lauren knew the least about what she was going to be teaching. Going into a unit with no clear idea about what to teach and no idea how it will play out is a daunting proposition.

Although Lauren and I would sit down and plan together and I could explain and demonstrate what each step in the wiki process was (i.e., linking), until Lauren actually did it herself, taught it to her students and saw the links in their stories, she could not envision it. As a result, Lauren used the Front Page to try the wiki herself. "Yea, this is like my wiki." She used the front page as her 'playground' to try new ideas and skills. She relied on her postings on the front page to teach her how to post text, tables, images etc. At the same time, Lauren demonstrated through the use of that Front Page, her comfort level using ICT outside of her classroom. This was obvious in the way that she took up the use of the wiki.

The first night she went home and posted a webcam picture of herself holding up the story planning page that was due at the end of the week. Lauren would try out aspects of the wiki that she was going to teach by playing around with them on that Front Page. This was an attempt, on her part, to try to think through what she needed to teach when she showed it to her students. However, because she was not entirely sure what needed to be taught, "Often I would be just about to teach, like, going to bed the night before, when I would think of something I needed to know but didn't!" For example, when she created all the links to the students' stories off of the Front Page, this was because she realized they were going to have to create links themselves and she didn't want them doing that yet.

When she came running in and showed me the Jing software piece, this reinforced the fact that all Lauren needed was support to bring ICT from outside the classroom in. She was not lacking in confidence or ability outside of the classroom – but she needed someone to support her through this first learning/teaching endeavour. Even

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once we were midway through the unit and it was going well and the students were on task, Lauren was not able to envision the next steps as was evident in her question about how the wiki was going to end. Interestingly, however, Lauren was not at the point where she could allow her students to completely take control over their learning of the ICT. She still needed to feel a sense of control and pacing when it came to what they learned and when they learned it.

Lauren's ability to identify the things she wanted to know, find out where to get the resources to learn, and then engage in trying it very much reflected a Paradigm 2 model toward learning. Rather than waiting for me to 'push' information to her and then use only that limited information, Lauren 'pulled' information from a variety of sources. When she wanted to post her picture on that first day, she took a webcam picture, which she already knew how to do. Next, she asked her roommate how she could save that image. Finally, she referred to my instruction sheet to figure out how to post the image. Again, when she posted the tutorial using Jing software, she found the person who knew how to do what she wanted to do, learned how to do it just-in-time rather than just-in-case. As soon as she learned how to do it, she created the tutorial and posted it to the wiki. Multiliteracies researchers (Gee, 2007; Knobel & Lankshear, 2010) talk about this just-in-time learning as being at the heart of a new kind of learning resulting from sweeping societal changes. With so much at a learner's disposal because of ICT, it is no longer necessary to engage in just-in-case learning. Rather, Lauren's examples of just-in-time learning signal a new kind of complex relationship between a learner's interests and motivations and the vast amount of resources available and accessible at any given time. There is so much information at a learner's disposal that it is no longer reasonable

to consider learning all of it. Instead, learners can engage with information at the time and in the ways that motivate and interest them (Hagel & Seely Brown, 2005). In Lauren's case, she, as the teacher, was also in the role of learner. This dual role of teacher/learner may be a new characteristic of 21st Century classrooms.

Lauren demonstrated a desire to learn beyond the wiki basics. It seemed to me that she put that pressure on herself. Almost instinctively she understood that there was more she could do beyond the basics that I was showing her. She waded into unknown territory within the wiki – adding sound, images, video clips with little hesitation. Lauren's comment that it was "mildly embarrassing" that she had not been using more ICT in her teaching to that point, made it clear that she had a high comfort level with ICT.

Lauren realized two important aspects about the unknown and the use of ICT: First, "Just have a plan B – like we needed those first few days." Lauren talked about needing that backup plan to keep the students interested in learning even when the ICT was not cooperating. It seemed interesting to me that Lauren was worried about her students losing interest in the wiki because of the glitches getting started and I worried that Lauren might lose interest for the same reason. Yet, for both Lauren and her students, no one seemed to be overly concerned about it. Perhaps both of these generations have a higher tolerance for technical glitches given that they engage with ICT more and probably see this happen more often.

The second important lesson to remember, according to Lauren, was to "let the kids show you stuff when you don't know it! Ha ha!" Lauren's acknowledgement of the shift in her role during the wiki process seemed more instinctual and less explicit to her.

When I asked her about this shift in her role from "sage on stage" to "facilitator" she thought about it, and responded, "Oh, yeah, I mean I hadn't thought about it but I guess so. I know it took me a while to make the shift because early on I was clinging to a set routine and I could not handle someone asking me to do anything except what I had asked them to do. I needed them to all be on the same page that I was on." This was certainly the case throughout the early and middle stages of the study. Lauren wanted to be able to control every action the students did on the wiki.

So I asked her when she thought that began to change. "Well, I think I realized that it was pretty hard to completely screw it up. I mean we had people to help us even if that happened. So, you know, I became a little more familiar with it. That would be one thing. But I really think it was when I saw that students wanted to figure this out as much as I did and so I remember that moment when Domingo figured out how to add the image beside his name...he suddenly got to be the expert for a few minutes and isn't that what we want for our students as teachers? It really was a nice feeling. And he taught me something new, too!"

And while this is certainly the case that we want our students to feel like experts, the scavenger hunt illustrated the students' low levels of basic skills related to ICT use like the skill of navigation. Students did not know how to narrow searches and simply cut and pasted answers without reading for understanding. Yet, Lauren talked about the students' use of computers outside the classroom as being frequent and so mistook the confidence that comes from frequent use of ICT for competence which comes from a deep level of understanding of why and how they were doing things like searches. So, while students did have new ideas to teach Lauren, Lauren also saw, through the

assignment of the scavenger hunt, that she had skills she could teach the students as well.

While Lauren certainly demonstrated learning and teaching from a Paradigm Two perspective, when it came to her understanding and thinking about the teaching of literacy skills, she demonstrated conventional Paradigm One ideas about student literacy practices. From the beginning of the unit, she told me that the students were ESL learners and so she was going to require a certain quota of writing from them. This provided insights into Lauren's thinking about literacy instruction and the purpose of the wiki writing unit. She still had entrenched, conventional ideas about what counted as writing instruction, what she expected from her students to demonstrate their literacy, and what she could assess.

While Lauren wanted the wiki to be the focus of the unit, over time, she cited the demands of accountability for both the story writing and the conventional poetry unit as obstacles to this focus. However, although Lauren cited the demands of the curriculum, it was her decision to insist on as much text as she did. The stories were not part of the poetry unit and therefore, did not need to be the focus of her attention for that particular reporting period. However, Lauren needed to see evidence of the plot graph in the form of text before she would allow the students to move on to the digital literacy skills like importing images and creating links.

 "It seems like this could get messy so let's get them to the point where they have done their five poetry links and their story is well underway and then we can open it up to linking." Wiki became the carrot that Lauren dangled to get her students to produce more written work. In order to assess the stories, they had to look like stories that Lauren

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could assess. When I asked her what that meant, Lauren talked about Freytag's pyramid - the volcano-type plot graph that is typically used to teach story writing in school. "The students need to have a definite beginning and middle at this point. They need to have planned their climax, need rich description and some sense of where they think their stories are going."

Although the planning sheets that the students needed to complete before beginning their stories included a plan for the types of links they might create within their stories, and although the poems they were writing were going to be housed within links, Lauren still wanted to see a "story" on the front page of each students' wiki stories. When I asked Lauren about the written requirements, she said, "The quantity of text was a requirement really for assessment purposes. I knew they were going to write poems and that I would have enough to assess with that but I couldn't imagine just a few sentences for the story that they were writing. I just thought they needed stories and I couldn't imagine what they would look like if they didn't look like that!" she laughed.

In addition, Lauren decided that, because she was grading the poetry aspects of the wiki stories, she wanted the students to write individually. Although the wiki is designed to have students work cooperatively, they were asked to start each story on their own without being introduced to the cooperative aspects of the wiki. The prerequisites for all of this writing were so time consuming that the students had less time to engage in the aspects of the wiki that were actually related most closely with digital literacy – linking to other stories, importing images, navigating the Internet and collaborating.

While Lauren's ambition to play with the Front Page demonstrated a comfort level with ICT, the end result of that Front Page demonstrated her conventional views of the learning process and her role as teacher. Through the use of tables, images, and other such attempts at creating digital text on the Front Page of the wiki, she transformed it into a reference page for the students for due dates and expectations and evaluations. What eventually emerged was a text-heavy, assessment driven introduction to the wiki. The tone of the wiki page, over time, became very performance-based. The process of the wiki was being ignored and the focus was entirely on outputs and content. While Lauren and her students were pleased with the wiki unit, and Lauren was able to learn and teach the wiki (which was a personal goal of hers) the actual result, the quality of the wiki, was impeded by the demands of conventional assessment.

However, without anything to replace these conventional assessment targets, it should be no surprise that Lauren relied on what she knew. Lauren's lack of knowledge about digital literacy skills hindered her ability to assess anything different than that final product. Lauren demonstrated a typical pitfall in thinking about the introduction of ICT in the classroom. Much of her attention was focused on how to engage with the wiki software itself. Instead, as researchers like Kress (2005) and Lankshear and Knobel (2011) have been arguing, the enduring aspects of the wiki unit are the transferable digital literacy skills like understanding what a link is and when to use one, or the learning of elements of design that allow students to create multimodal messages that rely on the interaction between image and text. Given the fast pace at which actual software becomes obsolete, the wiki was never meant to be the centre of attention. However, without a deep understanding of this distinction, Lauren focussed her attention

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on assessing the literacy skills involved in writing short stories and poetry, and on teaching the students how to engage with the wiki software (how to create a link, how to import an image). So, if Lauren had been taught and could envision these new literacy skills, she would have spent more time on teaching the balance between the use of text and image to communicate their stories and less time on showing them how to import the actual images. In addition, rather than quotas set out by the teacher on how much text versus how many images had to be in each story, these design decisions would have been up to the individual authors.

Context played an interesting role in Lauren's case. The amount of support for her learning actually added to her stress. As a younger teacher exploring something new at the same time as her students, the presence of senior administration was intimidating rather than supportive in the eyes of Lauren. As she stated, typically, the only times senior administration was in her classroom were when she was being evaluated. In addition, these administrators generated a tremendous amount of "hype" about the wiki writing unit. Within staff meetings Lauren was asked to talk about our work with the wiki. Teachers were expected to talk to Lauren and me and to make strides to try something similar. A certain amount of resentment from the other staff members developed toward Lauren and it caused Lauren to grow increasingly uncomfortable.

Lauren was keen, eager, and conscientious in her approach to learning and teaching the wiki. However, her colleagues represented something quite different. Initially, many of her peers talked about the amount of work and cautioned her about signing up for the study. In addition, some of the people with whom she worked, put a lot of pressure on her not to share her learning. These teachers were not interested in having to try the wiki themselves. I

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was amazed that Lauren still wanted to continue with the study and remained excited about it even with that kind of pressure from her colleagues.

Other kinds of support, however, like having access to standby help from IT experts was a tremendous sense of support. Even if she wasn't totally sure what might happen as with the student who wanted to know what the shortcut button was for, she could just give it a try. When people were there who could clearly indicate that the 'glitch' that was holding up the learning was not because of something she did, or was not something she should know how to fix, it eased her level of anxiety and allowed her to run with her "Plan B" mentioned earlier.

Secondly, although Lauren was keen to learn and teach the wiki, she repeated several times how critical it was that I was there from start to finish. She could not envision next steps and oftentimes simply needed some reassurance for her ideas or plans for the next day's class. She needed to have someone to offer just-in-time support which was ongoing throughout the unit.

Context was also important in the lives of the students. Within the school these students were treated in the halls like rock stars. All the students wanted to see what they were doing and the students in the class were caught at times, almost bragging about what they were doing. Students would ask if they could log on and read the wikis and many wished they could be the ones using the wiki. Parents were sending notes in to school to congratulate the teacher on the use of the wiki. Parents were reading the wikis and friends in other classes were asking me when I was going to come into their class. The students would thank Lauren for supporting me and my research study in the class.

As a result of this new attention from their peers to their writing, students acknowledged that they were putting forth greater efforts in their writing. "Well, we knew that we had an audience so...." So, this meant that they didn't want to embarrass themselves. "If my friends are going to read it, I don't want it to be some lame kind of story, you know? Like, I don't want to just write something quickly and hand it in..uhm...like I would usually do (laughing)" The students admitted that they would not spend time thinking about what they would actually like to write about. Instead, "We just pick something we think the teacher wants us to do and we do what she says...you know. It is not for fun or anything. But the wiki was fun." Yeah, says Carolina, "we loved it when our parents would read them or when our friends would ask us to see them. So, you wanted to try hard, you know?" It seemed to be an important reminder for Lauren as an ELA teacher that audience can have a huge impact on student writing. By Lauren making the audience more authentic, the students made the writing more authentic.

Lauren was clearly comfortable learning and leading learning using ICT in her classroom. Her enthusiasm and comfort toward the use of the wiki was a bit surprising to me given her initial tentativeness about her ability to handle the wiki. However, even young teachers like Lauren have been taught literacy skills in school in a very conventional sense. Lauren had never been taught about digital literacy skills and had never engaged in the meaningful integration of these skills in ELA. Therefore, even though her ability and comfort levels with ICT were high, her teaching ended up resembling very traditional literacy practices because that was all she could envision assessing her students' writing. Her school was driven by assessment and expectations

were high that teachers would deliver the prescribed curriculum and be able to report clearly on the individual student learning that resulted. Very little space was left for Lauren to experiment. This focus on accountability was an obvious obstacle within Lauren's attempts to teach story writing using wiki and take advantage of all that the wiki offered.

Chapter Six: Discussion, Limitations, and Implications for Further Research

One of the impacts of rapidly changing social practices related to literacy is an increased demand to explore ways to bridge the disconnect between current teachers' ICT knowledge, skills, uses and understandings and the types of literacy practices that are increasingly necessary to be taught in schools. This study provides insights into this complex process of learning and then leading learning that will be required of many teachers if we, indeed, are to bridge this gap.

Although the two participants for my research study were similar in that they taught Grade 6 and both were interested in learning about the wiki, they were at very different points in their careers as teachers. Ron, the teacher from the Ontario context, was one year away from retirement. Lauren, the teacher from the Mexican context, was in her fifth year of teaching. Ron had minimal interaction with ICT inside and outside of teaching. His understanding of and confidence with ICT was self-described as being low. Lauren, on the other hand, was immersed in the use of ICT in every facet of her life outside of the classroom. However, she still felt uneasy about bringing it into her teaching. As a result, their uptake of the use of the wiki illustrates very different processes. However, underlying these differences are some critical commonalities as well. The following discussion focuses on these differences and similarities as they relate to the original research questions. Where appropriate, I then refer to the research literature to provide plausible explanations/insights to deepen our understanding of these responses. Finally, the limitations of this research study and implications for further research will be noted.

The first research question asked "What are the experiences of two teachers with dissimilar backgrounds when trying to lead learning in creative writing using ICT?"

To answer this question I had the great privilege of entering two brave teachers' classrooms for extended periods of time to experience the daily, frenetic, lived experience of teaching ICT for the first time to Grade 6 students. My decision to conduct two case studies for this research was not taken in the hopes of ensuring the accurate representation of "the experience" of educators integrating ICT into their teaching. Rather, it was to add depth and breadth to the research conversation about the phenomenon of teachers learning and leading learning using ICT. In my initial thinking about how to report my findings, I was trying to provide one tidy answer to this research question. In doing so, I found myself generalizing about this experience to the point of providing very little specific information about the details of these two teachers' learning experiences. As mentioned earlier in Chapter 3, Mathison (1988) suggested that the image of data converging perfectly upon a single assertion about a social phenomenon is a "phantom image" (p. 17). Instead, I used the insights developed from my analysis to construct plausible explanations about the phenomenon of being a teacher learning and then leading learning using ICT from the divergent, inconsistent, and contradictory findings garnered from these two cases (Mathison, 1988). As noted in the narratives of the complicated conversations (Pinar, 2004) from each classroom, these teachers faced a constant inundation of new and different when they attempted to integrate ICT. For example, throughout the cases, the specific moments when the teachers had responses worth discussing seemed to be similar (i.e., when learning to link); However, their actual responses were rarely the same. I have used the points of

similarity: Lack of Modeling and Issues of Assessment to organize my discussion around this first question.

Lack of Modeling

Neither one of my two participants had any formal learning about a computer at all. Both learned how to use personal computers from friends and colleagues. Although Lauren went to the Faculty of Education when there was a course offering of computers in the classroom, it was an elective course. Because Lauren was only granted one optional course and she knew that she was planning to teach internationally, she felt like she needed to use her optional course to take English as a Second Language. "It's hard because even though I know now that I could have really used that course, I still feel like I have benefited a lot from what I learned in the ESL course. So, I am still not sure that I would have taken the computer course if I did it over again. It's hard." Ron, on the other hand, tried a few Professional Development (PD) sessions and searched for other options of ways to learn to integrate ICT but could not find any that seemed to meet his needs.

Although ICT has been a growing and evolving aspect of communication in society for several decades now, as recently as one decade ago, several researchers concurred that ICT was being delivered as stand-alone introductory courses, was being marginalized within programs and was suffering from a lack of modeling (Duhaney, 2001; Pierson & McNeil, 2000;Vannatta & Beyerback, 2000). Not having confidence in their abilities with ICT in the classroom and not being able to visualize each step in the composition process left these teachers "wading into the unknown" time and again throughout the study.

Ron and Lauren represent a unique generation of professional teachers. This generation of educators is being asked to engage in and teach literacy practices that did not exist when they began their teaching careers. In this way, they are, perhaps for the first time, not able to teach the way that they were taught. They have no personal experiences being taught using this ICT and have no formal education in the field of digital literacy. It is not simply that they are being asked to envision a new way to read a book with the class, or show a film rather than read a novel. They are being asked to teach a new type of text using a new type of ICT that they have never seen in the classroom before. This fundamental change in their thinking about literacy is what I have been referring to throughout this study as a shift in Paradigms.

Lankshear and Knobel's (2006) argument that there is new technical *stuff* to consider when discussing new literacies (for example, software programs, keyboarding etc.), and there is new ethos *stuff* to consider (for example, seeing the world as changing in fundamental ways and needing to change our literacy practices to stay current) were both evident in these two teachers' classrooms. The technical stuff of learning the actual wiki software (ie.g. importing images) represented a hurdle for Ron as he had to take his time, read through the instructions and still not feel completely comfortable with the various functions of the wiki. Ron clearly relied on the traditional "push" system of education that had me providing instructions and Ron and his students following them. Lauren, on the other hand, "pulled" information from a variety of sources to go above and beyond the basics of wiki that I had shown to her and to use this new learning to produce multimodal messages that were meaningful to her in the moment; for example, when she learned how to create the tutorial for creating links.

However, in both cases Ron and Lauren had no idea from day to day, what the wiki was going to look like, what students were going to produce, nor how the wiki might change. In this way, both seemed to follow a similar path when it came to planning. Although they planned the unit with my assistance and assured me that they understood the wiki, they could only envision small chunks at a time. After leading their students through the completion of a stage like creating the front pages of the stories, they would need to ask me what was next. Both teachers continued to ask these technical questions right up until the end of the unit. Neither one of them could envision how the wiki stories would end even though they had been a part of every aspect up until that point in the process. Until they had experienced the wiki once – from start to finish – they could neither imagine nor articulate nor imagine what it would look like.

As challenging as this technical *stuff* was, by the end of the wiki, both teachers seemed to have at least a basic understanding of the surface features of the wiki – they knew what the wiki could do and how they could do it. However, the ethos *stuff* , the deep principles at the core of the wiki, presented a far more challenging hurdle. Previous personal experience using ICT in their own lives seemed to have no effect on whether these teachers initially chose to use it in their classrooms. Lauren had a wealth of experience on the computer for a variety of reasons but was just as nervous as Ron about bringing it into her teaching. There did, however, seem to be a measureable difference in the speed and comfort with which the two teachers began to integrate the ICT.

Ron spent three years working on the wiki study in one capacity or another and during this time his understanding of the wiki grew incrementally. He demonstrated at least a basic level of understanding, most importantly of how a wiki story was different than a pen

and paper written narrative (the non-linearity, the use of images, the links). Ron noted that navigating the Internet and choosing and using images were literacy skills that he could teach to his students. He understood from both his own classroom observations and the data gathered from the student focus group interviews, that his students were inefficient at these basic skills and that he did have a set of skills that he could very easily teach and continue to reinforce. He had a growing understanding of the various ways in which students could carefully choose to use links and images to further their stories. He also understood why he should be integrating ICT like wiki into more of his everyday teaching to stay relevant to his students. There was certainly growth in Ron's understanding and awareness of the use of ICT. This growth was slow and steady and measured. Ron was not at the point in the study where he felt comfortable to lead the group through the wiki writing process. I believe that this was partially because he wanted to be sure that I got "good data" for my research. However, I also believe that it was because, in addition to needing to be able to envision the role of the wiki within his classroom, he needed to be able to envision his role within the teaching of the wiki when some of his students may be more efficient users of the wiki than he was.

This shift in thinking spilled into almost every aspect of his classroom during this unit. For example, beyond simply being more efficient users of the wiki, his students worked from a "pull" perspective in which they would find what they needed- - both in terms of personal expertise within their groups and from other locations like Google, classmates' images and asking Ron or me. While his students could engage from a "pull" perspective, Ron was still very much looking at the wiki from a "push" perspective. He wanted all the students to engage in every aspect of the wiki creation regardless of personal expertise and

interests. Ron defined the learning of the wiki as playing with wiki because he could not imagine how to begin to think about individual assessments of traditional literacy skills for the report card. Although no one person can be said to sit squarely in Paradigm 1 or Paradigm 2, Ron's position along the continuum would be much closer to Paradigm 1. This transformation in mindset is an ongoing process for Ron.

Lauren, on the other hand, needed the support and encouragement to bring the ICT across the threshold of the classroom and she needed someone to explain to her what was new and important about the use of ICT. Until someone could explain to her that what she was doing on the computer was different than just using an overhead, pens and a blackboard, she was not buying into its use. Lauren instinctively seemed to have a Paradigm Two understanding that ICT should be used for more than what we can already do with pen, paper, and overhead projectors. Once she walked through the entire process from the early planning stages to the finished wiki, Lauren was "slightly embarrassed, actually" that she had not been teaching using ICT sooner. Her comfort level was of great benefit to her as she began to learn because once I showed her the possibilities of the wiki, she went home and experimented therefore continuing her learning in ways that were meaningful and useful to her. And she did this learning in ways that reflected a natural disposition to "pull" characteristics. For Lauren, her learning was not so much about "what do I need to learn" as it was about "where do I go to find what I want to learn?" Once she found a person who knew what she wanted to know, for example, the Jing software, she was able to learn it and apply it in an appropriate way. In addition, Lauren was able to walk around the classroom with a personal sense of confidence that allowed her to experiment with clicking keys on

students' wikis even if she had no idea what it would do. She could model that comfort and spirit of experimentation for her students.

Issues of Assessment

Ron decided not to assess the wiki writing at all but rather, he was going to let his students "play." As a result of having no restrictions or mandated skills that needed to be demonstrated, the students could organically divide tasks and decide on workloads. Ron stated often that he did not believe that the high stakes testing and high levels of accountability within his school board could possibly leave room for any type of formal assessment of something like the wiki. However, when given the opportunity to discuss ways to introduce assessment practices, he wanted to leave it alone and continue to play because, as he argued, ICT continues to change so rapidly that he cannot imagine (again from a "push" perspective) how teachers could decide on common aspects of the wiki to assess. Ron's focus was still very much on the surface aspects of the wiki which is what prohibited him from imagining common underlying literacy skills.

Bruce (2009) echoed the concerns over accountability on standardized tests by claiming that until teachers are not overburdened by standardized curricula for standardized assessment, there is no room in the curriculum for teachers to experiment and begin to implement ICT in meaningful ways. Ron argued that the various forms of assessment were handcuffing him to teach in traditional ways. Although this may not be completely accurate, Ron raised a critical issue in the discussion of the integration of ICT in ELA classrooms. As noted above, Ron had no previous experience and no modeling of the integration and meaningful uses of ICT in classroom teaching. Ron's response to issues of assessment draw

attention to the need for innovative assessment strategies that mirror the types of literacy practices associated with the wiki. In raising this concern about the types of assessment and about the role of collaboration in classroom learning and assessment, this study points to a much larger issue than simply the lack of an appropriate strategy to measure the learning done on the wiki. Instead, it points to a disconnect between the types of learning inherent in the use of ICT and the means of assessing it. In addition to expanding our notions of text and of collaboration and learning in relation to ICT, the institution of school also must question its reliance on a system that promotes and rewards individual accomplishment. The very structures of schooling, in other words, are being challenged to change in relation to these new ways of communicating.

Lauren, on the other hand, tried to assess the wiki writing using traditional types of assessment used in pen and paper story writing. She did not account for student collaboration or for the shared ownership and intertextuality the wiki afforded the Grade 6 writers. Essentially, the wiki unit really began in earnest when Lauren had completed her grading of their individual student stories and of the demonstration of poetic devices. Once the students were allowed to link with whomever they wanted, the wiki flourished. It seemed that Lauren's attempts to assess the wiki greatly stifled the very functions she was so excited to introduce.

If, on the other hand, these teachers were to apply elements of the assessment strategy like the one mentioned by Kalantzis, Cope, and Harvey (2003) for example, they could have thought about the wiki task in three different ways: first, project assessment, designed to measure broad knowledgeability and a flexible solutions orientation to knowledge, could have assessed the plan for the story and for the group work itself created by the students, the

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types of information they choose for their links, and perhaps the overall presentation of the wiki. Second, performance assessment would assess organization and problem solving skills that occur in the planning, doing, and completion of the assigned story. Third, group assessment would measure the collaborative skills of the students and the collective work of this learning group by discussing with them the roles of the various group members and their initiative in adding to the work of peers' stories outside of their own.

This issue of assessment was a critical factor in both classrooms for both teachers as they tried to learn and teach the wiki writing units. This hurdle to the integration proved to be impassable in both cases. Ron abandoned any notion of assessment early on because he could not imagine giving something up to make room for the assessment of the wiki. His focus was squarely on teaching his students the school-defined notions of successful literacy practices so that they would continue to encounter success in their future schooling. Lauren tried to place the proverbial square peg in a round hole. She was actively engaging her students in the creation of Paradigm 2-type multimodal texts and trying to assess them using Paradigm 1-type assessment measures that focused exclusively on their textual work.

My second research question was to consider: "How do these teachers conceptualize what's important to learn?"

When Ron and Lauren began to learn, and, ultimately teach these new literacies, they were not only being required to learn new skills related to ICT (like navigation, the creation of links and the use of images), but also to reconsider their own interpretations of literacy, to broaden their definition of literary texts and to consider the role of context within that learning. While they demonstrated varying degrees of proficiency with these tasks, both showed great difficulty articulating skills and concepts that they had never imagined were

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literacy skills. To address this second question, I refer to two areas of similarity: Navigation, Links and Images and Student Collaboration, Groups and Authentic Writing Experiences.

Navigation, Links, and Images

Navigating the Internet to find useful information or images was a skill that students recognized was increasingly being asked of them to do, but could quickly become overwhelming for them. They wanted to conduct searches on the Internet using search engines like Google, but had no formal learning in how to best go about this. As demonstrated by the students in this study, and echoed by researchers like De Ruiter (2002), it is not enough to simply allow students the opportunity to surf the Internet when they are trying to search for specific information. "Instruction should be aimed at giving insight into two characteristics of the Internet: the nature of the information it provides and ways to navigate this information" (p. 210).

Lankshear and Knobel (2012) make a distinction between two groups of ICT users. The first group, the outsiders, are the newcomers. The second group, the insiders, are the experienced users of the ICT. Insiders, they argue, can navigate the software in sophisticated ways, use insider/specific and relevant language, and generate new connections and ideas to enhance the use of the software. In the case of Ron and Lauren, both were outsiders to the wiki. Although they learned various basic characteristics of the wiki, they did not have the experience to be able to talk about it from an insider perspective and it meant that they could provide a basic, but limited level of engagement with the wiki and, more importantly its requisite digital literacy skills. Therefore, it is no surprise that they both felt the need to manage student use of links, for example.

Initially, Ron thought that the students could only create links to their own stories and would use the links for images. As he began to understand the full potential of linking within and across stories, it actually made him nervous because he could not imagine students engaging in this kind of collaboration and not ruining their peers' stories. In his process of thinking about the use of links and how they impact the structure of the stories, he needed to replace the concrete structure of Freytag's pyramid with a new concrete structure, his own diagram. This diagram provided a great amount of insight into Ron's thinking. I could tell by the image that he still could not see how far these links could stretch and the unlimited potential for the forms of his student stories. All the arrows on his diagram still pointed inward, implying one central text at the heart of all of the other links. Instead, the actual possibility of this hypertextual software is that his arrows could have been placed in all directions with some overlapping others.

Lauren, on the other hand, could see the potential, predicted a huge amount of interest on behalf of her students, and so put tight controls in place to curtail and manage the use of the links. She needed to be able to keep track of individual efforts for assessment purposes. Otherwise, she predicted, it would have gotten "messy."

Student Collaboration, Groups, and Authentic Writing Experiences

Integrating the wiki into their classroom teaching provided Ron's and Lauren's students with a writing experience that they saw as relevant and authentic. In several ways, this type of writing reflected the type of text and the specific skills about which students were interested in learning. Writing creatively using hypertext software like wiki, expanded the students' compositional choices. They were able to express their ideas using text, information

found on the Internet, links and images. These are all resources commonly being used to convey meaning in messages created outside of school walls. Even though these choices opened up new decisions and additional learning for the student writers, student interest in this form of writing was extremely high in both classes. In Lauren's case, the wiki writing created a sort of celebrity status among their peers for these young writers. Both Ron and Lauren cited this level of interest in the ICT as one of the reasons they wanted to bring the wiki into their classrooms in the first place.

Student collaboration was another authentic aspect of the wiki writing unit. Although in school teachers tend to ask for individualized efforts, in the world outside of school, there is a movement toward increasingly collaborative writing, communicating and publishing of 21st Century skills (Giampapa, 2010). In addition to some of the specific literacy skills involved in using wiki (like navigation, links and images), the social aspects of wiki were authentic to the social experiences happening in relation to writing outside of school. Imagine, the students working side by side, talking to one another while working on a common document – each on their own screens. In addition, they were talking to other classmates using the comments section of the wiki. While they were creating text, they were reading and commenting on their friends' texts and finding links to connect their thinking to create even newer texts.

Gee (2007) talked about the "affinity spaces" (p. 100) connected to online gaming in which there are multiple forms of participation and status. Within these groups, participants can gain expertise and status by playing the game well, obviously. However, that is not the only way. In addition, participants can organize social networking groups within the game site, they can write additional code to prevent hackers, or they can offer other skills that

reflect their interests and expertise. Gee (2007) proposed that schools could borrow from this model and provide a task, for example, and then let students find personally meaningful and relevant ways to gain expertise and status. In many ways, the students involved in the wiki writing found ways to do just that.

As well as working in this collaborative context, the students were writing for an audience of their peers rather than simply for their teacher. In this case, the approval of the teacher took a backseat to the approval of their audience of peers and the students in both classes admitted to trying harder because their friends and families were reading their writing. Their peers offered an authentic audience that complemented and enhanced their authentic multimodal texts created on the wiki.

As witnessed in Ron's class during the group work sessions on the wiki, these students naturally gravitated toward a "pull" perspective to accomplish tasks. Those students who were particularly adept at certain skills like typing naturally took on the role of typist. Lauren's students found ways to circumvent the requirement to work alone by using the comments section of the wiki. In this circumstance, students' strengths were demonstrated within these comments. The girl who was very good at English grammar, for example, offered editing advice to her peers within the comments section. Other creative students would offer story ideas to their classmates. Bruce (2009) argued for the creation of new models of composition for new types of texts. For example, in these cases of the wiki writing, there is little description in the literature to "account for recursive processes or to explain the interaction of those stages during the decision points in creating a [wiki]" (p. 429). The student collaboration and division of tasks exemplified in these units present

researchers and teachers of writing with a challenge to consider the new language and models needed to best research, understand and discuss this process of composition.

My third question asked, "To what degree does the diversity of the two contexts in this study contribute to the findings?"

As noted in the description of my two contexts, one of the classrooms was in a school in Mexico. Beyond the pragmatic considerations such as the fact that I used to work in this school and they offered themselves as a site, and that this school was a private school that catered to affluent students with easy access to ICT, I chose to conduct my study at this school because I wanted to consider the unique contributions that culture might make to this learning process. However, after carefully considering the focus of my research, and knowing the cultural diversity represented in Ron's class, I decided to disregard this aspect of the study because I thought it would take too much of my attention away from my true focus of these two teachers and their learning processes.

While I did make very conscious decisions about the contexts for this study, I was not aware of the role that context would ultimately play in my findings. All along, as I have mentioned, my interest and attention has been on my efforts to share the daily lived experiences of teachers being asked to learn to integrate ICT into their teaching with little to no support or guidance. While this is still the case, in the response approach to my analysis of the narratives, it came to my attention after many close readings that at the centre of the discussion about Paradigms are not actually the teachers. Rather, one must first situate schools and classrooms in Paradigm 1 and recognize the substantive role they play in helping or hindering the learning process for teachers. Both of these schools, as it turned out, regardless of their student populations or their geographic locations, represented traditional

thinking about teaching and learning in that both rewarded individual efforts and both regarded conventional literacy teaching of reading, writing and comprehending linear texts in high esteem. These Paradigm 1 institutions presented seemingly insurmountable obstacles to teaching Paradigm 2 literacy practices.

Support

Situating these two school contexts in Paradigm 1-type practices and perspectives should in no way negate the positive attitude that both sets of administrators had to my presence and to the research study. Ron and Lauren were both working in school contexts where their administrators were supportive of the wiki writing research. However, as noted in the narratives, there were measurably disparate views of support. Ron's principal chose to remain distant, or as Ron put it, "stay out of the way." In doing so, Ron felt a certain amount of freedom. "I think we have an obligation to inform her about what we are doing and maybe what you are finding, but we can do this how we want." There is such a high level of accountability in Ontario schools at the moment, so for Ron, this "space" to explore was really a strong show of support and confidence in his teaching abilities as well as a refreshing change for him as a teacher. Within this positive gesture, however, was a downside. By not formally acknowledging the wiki writing, the work that Ron and I did in the school was not shared with nor modelled for other faculty. The wiki writing unit came and went with no significance within the school community. As noted throughout this research, there is great value in the modelling of ICT integration. It seems that perhaps, indirectly, the message was sent to Ron and others that this was potentially not important or relevant learning.

Lauren, on the other hand, was immersed in a school culture that was very supportive and demonstrated this with their frequent physical appearances within her classroom. Lauren's administrators were constantly encouraging teachers to learn about new ideas and new theories in education so they were extremely interested in the wiki unit. They were very proud of Lauren for agreeing to participate in the study and wanted to learn as much as they could from me and from what Lauren and her students experienced throughout the unit. However, to Lauren, having a group of administrators watching her every move while she was in the process of learning it herself was extremely intimidating and distracting. In addition, unintentionally, these keen administrators put Lauren in a difficult position with her colleagues. Each public acknowledgement of our work, whether in the form of asking Lauren to stand at a school-wide staff meeting and talk about the wiki unit, or the requests for Lauren and/or me to attend various grade-level meetings to walk them through a wiki, Lauren became a bit of a target by some of her peers. They began to resent her work on the wiki because it challenged them to do the same and they did not want to. These co-workers resented the implications of them being less-than adequate for not integrating the new ICT in their teaching.

In both situations, having a supportive administrative team was important to the teachers' decisions to participate. However, learning to better identify and define positive means of support by administration will be critical as more teachers begin the learning process.

While I believed at the onset of this study that administration and students would probably have the most impact on the teachers' learning, I vastly underestimated the role of the context of school itself. While both of these teachers were at measurably different points

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on the Paradigm continuum, they expressed an acknowledgement of the benefits for their students in participating in the wiki writing. In addition, both cared deeply about the successes of their students. And while Ron struggled to really understand and engage with the wiki, he did express a high level of enthusiasm for the study. He wanted his students to experience the wiki writing.

Marshall (2009) problematized current school structures and culture in relation to research about new literacies and the integration of ICT. He argued that although researchers continue to conduct studies that demonstrate the value inherent in teaching new literacy skills like digital literacy (and, he believed, they should continue), there is no place for these kinds of literacy practices within the current model of high-stakes testing and high teacher accountability. How relevant or useful is this research if we do not begin to consciously question the role of school context in the integration, or not, of ICT?

As researchers question the effectiveness of 19th Century school structures in relation to the infusion of ICT and other 21st Century literacy skills (e.g. Hess, 2010, Chen, 2010), the role of context within this study points to the fact that there needs to be significant change within our notions of schools and schooling in order to truly support and foster these new literacy practices. Both of my participants struggled to envision new literacy practices that they had not experienced before. Unfortunately, they were asked to envision these new concepts within a framework that did not support this kind of learning. Hess (2010) noted the difficulty inherent in this challenge to change the structures and expectations of schooling as they are today and have been for generations. He argued that the structures of school have not changed and evolved because it is such an arduous task that no one wants to begin. He argued that even when we as a society recognize that old routines and assumptions do not fit

the kinds of learning students should be doing, we shrink away from structural change and potential innovations and instead promote new 'best practices' that can still fit within the old model. In so doing, we are paying lip service to change without having to make the arduous journey through real change. As a result, Hess (2010) argued that rather than revamping culture and practice (which needs to happen) we instead "attempt to construct twenty-first century learning organizations within the forms of industrial-era bureaucracies. The result is akin to Susyphus's endless struggle to roll a boulder up a hill" (p.189). In some ways, Ron and Lauren, in their acknowledgement of current assessment and other classroom practices, were really engaged in rolling boulders; the system of school within which they were working did not allow for their wiki units to end differently. This call to address the sweeping structural changes necessary within the system of K-12 schooling was echoed in both Ron's and Lauren's cases. Part of their inability to envision something new and different was a direct result of these powerful but antiquated structures and notions of school within which they were operating.

The inability of students to truly collaborate within the wiki is an example of an outdated school structure. While they were encouraged to try to collaborate, there were strict guidelines and quotas attached to this collaboration. Once again, the structures of school such as individual grades and report cards, did not allow the teachers to truly open the wiki to student collaboration. Hess (2010) also took issue with this notion of individualism so prevalent in today's schools. He argued that the status quo of schools represents a bastardized application of an industrial–era vision that is "rigid, hierarchical, and bureaucratic" (p. xi) While, he argued, today's best managed public and private institutions are far more "collaborative, participatory, and energizing than most schools or school systems" (p. x i). In

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this light, even if one argued for a model that reflects commerce and industry, schools are lagging behind. Therefore, it is misguided to assume that Ron and Lauren were the only contributors to the wikis shortcomings. Rather, one needs to study closely the significant role that the very structures of school continue to play in preventing the successful integration of new ICT and their corresponding literacy practices.

Limitations

This research studied the phenomenon of teachers learning and then leading learning using ICT. While the insights developed from this research provide detailed information about what this process of learning might entail for teachers, it is limited in its generalizability. Because I have focused this study on two teachers rather than a large group, these findings are not meant to be considered universal to all teacher experiences.

In addition, my conscious choice to study two very different teachers in two distinctly different geographical locations means that even within this study, my findings are unique to their individual circumstances and therefore, I offer no firm conclusions. Instead, this study offers possibilities to consider for future research.

Also, my role in teaching and then collaborating with the two participants meant that I became a friend and colleague as well as a researcher. In this light there are two limitations to address. The first limitation is that because I was actively engaged in collaborating on the creation of the wiki unit and on helping students within the classroom, it is obviously difficult to articulate clearly which elements of the wiki unit the teachers would have done if left to their own devices. And so, it is unclear what role, specifically, my presence and collaboration had on the outcome of the teacher learning and on the wikis. As well, because

these two participants became friends and colleagues, I must acknowledge a certain amount of researcher bias in the reporting of the data. Although not clear to me how, I am aware of the fact that their honest discussions and collegial dispositions must have played a role in my interpretations of classroom events.

Implications for Further Research

Thinking seriously about the ways to enhance teacher preparation programs to best prepare future generations of teachers to conceptualize and teach digital literacy skills will be an important step in moving our children forward in meaningful and authentic literacy learning opportunities. Some of this research has already begun. Researchers such as Lock (2007) and Hayes (2007) argue for the need to reconceptualize how and what we teach in Bachelor of Education programs to more accurately reflect the literacy and ICT practices happening in society. Further research in the form of best practice in this field will continue to provide critical insights as Faculties undertake this challenge to change.

However, when reflecting on the times when my teacher participants were challenged in their learning processes, many of these challenges can be traced back to the Paradigm 1 structures of the schools themselves. For example, both teachers struggled with assessment of the wiki writing. In this case, the Paradigm 1 thinking about assessment practices – the need to assess individual merits, the need to prepare students for the OSSLT, and, finally, the rewards schools offer to those students who are adept at the literacy skills valued within its system. Ron's self-declared mandate to provide his students with the best possible chances for success within the school system led him to decide to "play" with wiki but maintain the focus of his teaching and assessment on the school mandated literacy skills even if he didn't

agree with them because that would best prepare them for the standardized Grade 6 test. In turn, this test is one important determinant in a child being considered "successful" in school.

Lauren, on the other hand, implemented Paradigm 1 style assessment strategies on her Paradigm 2 style wiki writing unit. In the process of trying to place value on the wiki writing, she consequently stifled the students' abilities to take full advantage of all that the wiki had to offer in terms of engagement in digital literacies.

As mentioned in the beginning of this study, this research views learning from a constructivist perspective. At the heart of this perspective is the belief that for learning to occur, classrooms need to be places that foster deep learning, a mastery of relevant concepts, tools and skills, and enable students to engage in creative and productive applications of knowledge and understanding. This type of learning is the kind that happens when people, in their everyday lives outside of school, make connections and develop passions for certain interests. Oftentimes, Lankshear and Knobel (2011) argue, this connection to genuine interest and passion is lost in today's formal institutions of school largely due to the contrived spaces for learning (30 students in one room all doing and learning the same thing at the same time in the same way – sitting at desks), contrived time frames (45 minute periods, for example), and institutionally-contrived ways of doing things (sit at a desk to learn, chunk subject matter into measurable pieces at measurable times etc.). At this same time, however, Lankshear and Knobel point to the complex social changes taking place, including those related to ICT, which can challenge the existing status quo of school culture and open up possibilities for socially constructed and meaningful learning to prevail. In this regard, research studies that examine these outdated school structures and offer possible alternatives, are necessary in moving forward with new literacy instruction.

Studying literacy practices such as wiki writing from teachers' perspectives supports and enhances our understanding of the ways we can move forward within these new structures. In addition, however, further research into the structures of school and possible ways to enhance and redefine them to better reflect these new literacy practices will have to take place alongside any exploration of innovative practice. It is not sufficient to continue to study the habits, attitudes and prior learning of teachers without engaging their contexts within these discussions. The widespread changes taking place within society are not stopping. It seems that Paradigm Two schools and teachers will need to be responsive to this kind of ongoing change. As schools begin to adapt to widespread social change, research exploring new conceptions of literacy learning contexts and the ramifications of this in relation to teaching would be welcome. Identifying and acknowledging the aspects of teaching and of schooling that must adapt to Paradigm Two practices will be critical in shaping schools to handle these new kinds of literacy practices.

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Appendix A – Ethics Approval from GREB

October 15, 2007

OFFICE OF RESEARCH SERVICES

Fleming Hall, Jemmett Wing
Queen's University
Kingston, Ontario, Canada K7L 3N6
Tel 613 533-6081
Fax 613 533-6806
ors@post.queensu.ca
www.queensu.ca/vpr/

Ms. Jane A. Chin
Ph.D. Student
Faculty of Education
Duncan McArthur Hall
Queen's University

GREB Ref # GEDUC-358-07
**Title: "Supporting Teachers in ICT Instruction: Understanding Cultural Differences in
the Teaching and Learning of Digital Literacy (Ontario Component)"**

Dear Ms. Chin:

The General Research Ethics Board (GREB) has given expedited approval to your proposal
titled "**Supporting Teachers in ICT Instruction: Understanding Cultural Differences in the
Teaching and Learning of Digital Literacy (Ontario Component)**". In accordance with the Tri-
Council Guidelines (article D.1.6) and Senate Terms of Reference (article G), your project has been
approved for one year. At the end of each year, GREB will ask if your project has been completed and
if not, what changes have occurred or will occur in the next year.

You are reminded of your obligation to advise the GREB, with a copy to your unit REB; of
any adverse event(s) that occur during this approval period (details available on webpage
www.queensu.ca/vpr/greb/addforms.htm#Adverse). An adverse event includes, but is not limited to,
a complaint, a change or unexpected event that alters the level of risk for the researcher or participants
or situation that requires a substantial change in approach to a participant(s). You are also advised that
any adverse events must be reported to the GREB within 48 hours.

You are also reminded that all changes that might affect human participants must be
approved by the GREB. Examples of required approvals are: changes in study procedures or
implementations of new aspects into the study procedures that affect human subjects. These changes
must be sent to Linda Frid at the Office of Research Services or FRIDL@queensu.ca prior to
implementation. Ms. Frid will seek the approval of the GREB reviewer(s) who originally assessed
your application or the GREB Chair.

On behalf of the General Research Ethics Board, I wish you continued success in your research.

Yours sincerely

Lee Fabrigar, PhD
Associate Professor and
Member, General Research Ethics Board

c.c.:   Dr. Malcolm Welch, Chair Unit REB
Dr. Rebecca Luce-Kapler, Supervisor
E-REB: c/o Graduate Studies & Bureau of Research

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PREPARING LEADERS AND CITIZENS FOR A GLOBAL SOCIETY

October 15, 2007

OFFICE OF RESEARCH SERVICES

Fleming Hall, Jemmett Wing
Queen's University
Kingston, Ontario, Canada K7L 3N6
Tel 613 533-6081
Fax 613 533-6806
ors@post.queensu.ca
www.queensu.ca/vpr/

Ms. Jane A. Chin
Ph.D. Student
Faculty of Education
Duncan McArthur Hall
Queen's University

GREB Ref # GEDUC-357-07
Title: "Supporting Teachers in ICT Instruction: Understanding Cultural Differences in the Teaching and Learning of Digital Literacy (Mexico Component)"

Dear Ms. Chin:

The General Research Ethics Board (GREB) has given expedited approval to your proposal titled **"Supporting Teachers in ICT Instruction: Understanding Cultural Differences in the Teaching and Learning of Digital Literacy (Mexico Component)"**. In accordance with the Tri-Council Guidelines (article D.1.6) and Senate Terms of Reference (article G), your project has been approved for one year. At the end of each year, GREB will ask if your project has been completed and if not, what changes have occurred or will occur in the next year.

You are reminded of your obligation to advise the GREB, with a copy to your unit REB; of any adverse event(s) that occur during this approval period (details available on webpage www.queensu.ca/vpr/greb/addforms.htm#Adverse). An adverse event includes, but is not limited to, a complaint, a change or unexpected event that alters the level of risk for the researcher or participants or situation that requires a substantial change in approach to a participant(s). You are also advised that any adverse events must be reported to the GREB within 48 hours.

You are also reminded that all changes that might affect human participants must be approved by the GREB. Examples of required approvals are: changes in study procedures or implementations of new aspects into the study procedures that affect human subjects. These changes must be sent to Linda Frid at the Office of Research Services or FRIDL@queensu.ca prior to implementation. Ms. Frid will seek the approval of the GREB reviewer(s) who originally assessed your application or the GREB Chair.

On behalf of the General Research Ethics Board, I wish you continued success in your research.

Yours sincerely

Lee Fabrigar, PhD
Associate Professor and
Member, General Research Ethics Board

c.c.:   Dr. Malcolm Welch, Chair Unit REB
         Dr. Rebecca Luce-Kapler, Supervisor
         E-REB: c/o Graduate Studies & Bureau of Research

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LF/gj

PREPARING LEADERS AND CITIZENS FOR A GLOBAL SOCIETY

Appendix B – Ontario Teacher Letter of Information

Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy

Letter of Information (Teacher)

My name is Jane Chin and I am a graduate student in the Faculty of Education, Queen's University. As part of the requirements for the completion of my doctoral studies, I will be completing research that is aimed at understanding how teachers implement instruction that will enhance the digital literacy of students, and how teachers and students respond to the teaching and learning of story-writing using "wiki" software. The proposed research study, entitled, *Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy,* has been cleared by the Queen's University General Research Ethics Board and by the School Board.

If you agree to participate, you will agree to teach your story-writing unit with the added feature of using wiki software as the platform for writing the stories. Thus, the students will also learn new digital literacy skills. You will agree to learn how to use wiki software and will interact with me by e-mail during that process (4-6 hours). Then, we will have two meetings where we will plan the 12-lesson unit (2-4 hours). For the duration of the unit, I will be present in the classroom to watch the teaching, and to assist with wiki writing as needed. The lessons will be audiotaped. We will meet after each lesson to debrief the lesson and to confirm the planning for the next lesson (12 hours). Finally, you are asked to participate in three 1-hour interviews that will be spaced out at regular intervals during this 6-8 week duration. The total time commitment outside of the actually teaching of the unit is approximately 25 hours.

The e-mail communication will only be kept in paper form and will be destroyed once the dissertation has been defended. The unit planning meetings, debriefing/planning sessions, and formal interviews will be audiotaped, and the tapes will be destroyed once a transcript have been created. Classroom observations will be audiotaped and will be destroyed once the dissertation has been defended. Only I will have access to the data that will be secured in my home office and confidentiality is guaranteed to the extent possible.

I do not foresee risks in your participation in this research. Your decision to participate is entirely voluntary, and there is no remuneration for participation. You are not obliged to answer any questions that you find objectionable. You are free to withdraw from the study without reasons or consequence at any point, and your data will be removed.

This research may result in publications of various types, including journal articles, professional publications, newsletters, books, and instructional materials for schools. A pseudonym will replace your name on all data that you provide to protect your identity.

If you agree to participate in this research, please sign the accompanying consent form at your earliest convenience and return it to me.

If you have questions, please feel free to contact Jane Chin at 613-387-1088, (chinj@educ.queensu.ca) or her supervisor, Dr. Rebecca Luce-Kapler at 613-533-6000, ext. 77267 (rebecca.luce-kapler@queensu.ca). For questions, concerns, or complaints about the research ethics of this study, contact the Dean of the Faculty of Education, Dr. Rosa Bruno-Jofré, 613-533-6210, (brunojor@educ.queensu.ca) or the Chair of the General Research Ethics Board, Dr. Stephen Leighton, 613-533-6000, ext. 77034 (greb.chair@queensu.ca).

Sincerely,

Jane Chin

Appendix C – Ontario Teacher Letter of Consent

Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy

Consent Form (Teacher)

I have read and retained a copy of the Letter of Information concerning Jane Chin's research project titled *Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy*, and all questions have been sufficiently answered. I am aware of the purpose and procedures of this study.

I understand that my participation will take the form of learning to use wiki while interacting with Jane Chin via email (4-6 hours), unit planning meetings with Jane (2-4 hours), planning/debriefing meetings after each of the 12 lessons (12 hours), and three formal 1-hour interviews (3 hours). I will teach the 12 lesson story-writing unit using wiki, and the researcher will observe and audiotape all lessons. The total time commitment outside of the actually teaching of the unit is approximately 25 hours. The entire duration of the study is likely 6-8 weeks. I have been notified that participation is voluntary and that I may withdraw at any point during the study and I may request the removal of all or part of my data without any consequences to myself. I have also been told the steps that will be taken to ensure confidentiality to the extent possible of all information.

I am aware that if I have any questions about this project, I can contact Jane Chin at 613-387-1088, (chinj@educ.queensu.ca) or her supervisor, Dr. Rebecca Luce-Kapler at 613-533-6000, ext. 77267 (rebecca.luce-kapler@queensu.ca). I am also aware that for questions, concerns, or complaints about the research ethics of this study, I can contact the Dean of the Faculty of Education, Dr. Rosa Bruno-Jofré, 613-533-6210, (brunojor@educ.queensu.ca) or the Chair of the General Research Ethics Board, Dr. Stephen Leighton, 613-533-6000, ext. 77034 (greb.chair@queensu.ca).

Please sign one copy of this Consent Form and return to Jane Chin. Retain the second copy for your records.

Please add your email or postal address to the bottom of this sheet if you would like to receive a copy of the results of this study.

Participant's Name: _____

Signature: _____

Date: _____

Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy

Letter of Information (Students)

My name is Jane Chin and I am a graduate student in the Faculty of Education, Queen's University. As part of the requirements for the completion of my doctoral studies, I will be completing research that is aimed at understanding how teachers implement instruction that will enhance the digital literacy of students, and how teachers and students respond to the teaching and learning of story-writing using "wiki" software. The proposed research study, entitled, *Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy,* has been cleared by the Queen's University General Research Ethics Board and by the School Board.

A story-writing unit will be conducted in your child's Language Arts class, with the added feature of using wiki software as the platform for writing the stories. In addition to learning story-writing (which would have occurred in the class regardless of this study), the students will also learn new digital literacy skills through their use of the wiki software. For the duration of the unit, I will be present in the classroom to watch the teaching, and to assist with wiki writing as needed. The teacher will be audiotaped so that I can capture the teacher's statements in class and any student comments will be labeled as "student question" or "student comment." The students are not the focus of this audiotaping. Towards the end of the unit, the students will be given a 20-minute questionnaire (during class time) that focuses on their computer use and on their perceptions of the wiki unit. On the questionnaire, students can also indicate their willingness to participate in a focus group interview involving 6-8 students regarding the unit. If more students volunteer to participate in the focus group than are needed, I will make selections to maximize diversity in gender, ability, and opinion regarding the wikis. Only those students for whom parents have consented will be considered. The 45-minute focus group will occur in the same classroom at a time outside of classes that is most convenient (e.g., lunch or after school). Finally, I would like paper copies of the final wiki products in order to better inform my interviews and data analysis. Only questionnaires and wikis for which I have consent will be used in my data analysis.

The questionnaires and final wikis will only be kept in paper form and will be destroyed once the dissertation has been defended. The focus group interview will be audiotaped, and the tape will be destroyed once a transcript has been created. The questionnaire and interview data will not be seen by the teacher, and focus group participants will be reminded to not disclose information from the focus group to anyone. Only I will have access to the data that will be secured in my home office and confidentiality is guaranteed to the extent possible.

I do not foresee risks in your child's participation in this research. Your decision to allow your child to participate is entirely voluntary. Your child is not obliged to answer any questions that the child finds objectionable. Regardless of whether your child participates,

there will be no consequences to the child's grades. You or your child are free to withdraw from the study without reasons or consequence at any point, and your child's data will be removed.

This research may result in publications of various types, including journal articles, professional publications, newsletters, books, and instructional materials for schools. A pseudonym will replace your child's name on all data that you provide to protect the child's identity.

If you agree to allow your child to participate in this research, please sign the accompanying consent form at your earliest convenience and return it to the teacher.

If you have questions, please feel free to contact Jane Chin at 613-766-1062, (chinj@educ.queensu.ca) or her supervisor, Dr. Rebecca Luce-Kapler at 613-533-6000, ext. 77267 (rebecca.luce-kapler@queensu.ca). For questions, concerns, or complaints about the research ethics of this study, contact the Dean of the Faculty of Education, Dr. Rosa Bruno-Jofré, 613-533-6210, (brunojor@educ.queensu.ca) or the Chair of the General Research Ethics Board, Dr. Stephen Leighton, 613-533-6000, ext. 77034 (greb.chair@queensu.ca).

Sincerely,

Jane Chin

Appendix E – Ontario Student Letter of Consent

Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy

Consent Form (Students)

I have read and retained a copy of the Letter of Information concerning Jane Chin's research project titled *Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy*, and all questions have been sufficiently answered. I am aware of the purpose and procedures of this study.

I understand that my child's participation will take the form of a 20-minute in class questionnaire, and possible participation in a 45-minute focus group interview if my child indicates a willingness to participate and is eventually selected. I have been informed that the potential focus group interview with my child will be recorded by audiotape. I also understand that the researcher will keep a paper copy of my child's final unit product (the wiki) to help inform her interview questions and data analysis. I also understand that the teacher will be audiotaped but no student statements will be attributed to specific students, and that the focus is on the teacher.

I have been notified that my child's participation is voluntary and that he or she may withdraw at any point during the study and may request the removal of all or part of his or her data without any consequences. I have also been told the steps that will be taken to ensure confidentiality to the extent possible of all information. I understand that my child should not disclose information from the potential focus group interview to anyone not involved in the study.

I am aware that if I have any questions about this project, I can contact Jane Chin at 613-766-1062, (chinj@educ.queensu.ca) or her supervisor, Dr. Rebecca Luce-Kapler at 613-533-6000, ext. 77267 (rebecca.luce-kapler@queensu.ca). I am also aware that for questions, concerns, or complaints about the research ethics of this study, I can contact the Dean of the Faculty of Education, Dr. Rosa Bruno-Jofré, 613-533-6210, (brunojor@educ.queensu.ca) or the Chair of the General Research Ethics Board, Dr. Stephen Leighton, 613-533-6000, ext. 77034 (greb.chair@queensu.ca).

Please sign one copy of this Consent Form and return to Jane Chin. Retain the second copy for your records.

Please add your email or postal address to the bottom of this sheet if you would like to receive a copy of the results of this study.

Adolescent's Name: _____

Parent's Name: _____

Parent's Signature: _____

Date: _____

Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy

Letter of Information (Teacher)

My name is Jane Chin and I am a graduate student in the Faculty of Education, Queen's University. As part of the requirements for the completion of my doctoral studies, I will be completing research that is aimed at understanding how teachers implement instruction that will enhance the digital literacy of students, and how teachers and students respond to the teaching and learning of story-writing using "wiki" software. The proposed research study, entitled, *Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy,* has been cleared by the Queen's University General Research Ethics Board and by the Director of the School.

If you agree to participate, you will agree to teach your story-writing unit with the added feature of using wiki software as the platform for writing the stories. Thus, the students will also learn new digital literacy skills. You will agree to learn how to use wiki software and will interact with me by e-mail during that process (4-6 hours). Then, we will have two meetings where we will plan the 12-lesson unit(approx.) (2-4 hours). For the duration of the unit, I will be present in the classroom to watch the teaching, and to assist with wiki writing as needed. The lessons will be audiotaped. We will meet after each lesson to debrief the lesson and to confirm the planning for the next lesson (12 hours). Finally, you are asked to participate in three 1-hour interviews that will be spaced out at regular intervals during this 3-4 week duration. The total time commitment outside of the actual teaching of the unit is approximately 25 hours.

The e-mail communication will only be kept in paper form and will be destroyed once the dissertation has been defended. The unit planning meetings, debriefing/planning sessions, and formal interviews will be audiotaped, and the tapes will be destroyed once a transcript have been created. Classroom observations will be audiotaped and will be destroyed once the dissertation has been defended. Only I will have access to the data that will be secured in my home office and confidentiality is guaranteed to the extent possible.

I do not foresee risks in your participation in this research. Your decision to participate is entirely voluntary, and there is no remuneration for participation. You are not obliged to answer any questions that you find objectionable. You are free to withdraw from the study without reasons or consequence at any point, and your data will be removed.

This research may result in publications of various types, including journal articles, professional publications, newsletters, books, and instructional materials for schools. A pseudonym will replace your name on all data that you provide to protect your identity.

If you agree to participate in this research, please sign the accompanying consent form at your earliest convenience and return it to the principal. This letter of information has been distributed to all middle school teachers, and the first person who consents to participate in the study will be selected.

If you have questions, please feel free to contact Jane Chin at 011-1-613-387-1088, (chinj@educ.queensu.ca) or her supervisor, Dr. Rebecca Luce-Kapler at 011-1-613-533-6000, ext. 77267 (rebecca.luce-kapler@queensu.ca). For questions, concerns, or complaints about the research ethics of this study, contact the Dean of the Faculty of Education, Dr. Rosa Bruno-Jofré, 011-1-613-533-6210, (brunojor@educ.queensu.ca) or the Chair of the General Research Ethics Board, Dr. Stephen Leighton, 011-1-613-533-6000, ext. 77034 (greb.chair@queensu.ca).

Sincerely,

Jane Chin

Appendix G – Mexico Teacher Letter of Consent

Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy

Consent Form (Teacher)

I have read and retained a copy of the Letter of Information concerning Jane Chin's research project titled *Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy*, and all questions have been sufficiently answered. I am aware of the purpose and procedures of this study.

I understand that my participation will take the form of learning to use wiki while interacting with Jane Chin via email (4-6 hours), unit planning meetings with Jane (2-4 hours), planning/debriefing meetings after each of the 12 lessons (12 hours), and three formal 1-hour interviews (3 hours). I will teach the 12 lesson story-writing unit using wiki, and the researcher will observe and audiotape all lessons. The total time commitment outside of the actually teaching of the unit is approximately 25 hours. The entire duration of the study is likely 6-8 weeks. I have been notified that participation is voluntary and that I may withdraw at any point during the study and I may request the removal of all or part of my data without any consequences to myself. I have also been told the steps that will be taken to ensure confidentiality to the extent possible of all information.

I am aware that if I have any questions about this project, I can contact Jane Chin at 011-1-613-387-1088, (chinj@educ.queensu.ca) or her supervisor, Dr. Rebecca Luce-Kapler at 011-1-613-533-6000, ext. 77267 (rebecca.luce-kapler@queensu.ca). I am also aware that for questions, concerns, or complaints about the research ethics of this study, I can contact the Dean of the Faculty of Education, Dr. Rosa Bruno-Jofré, 011-1-613-533-6210, (brunojor@educ.queensu.ca) or the Chair of the General Research Ethics Board, Dr. Stephen Leighton, 011-1-613-533-6000, ext. 77034 (greb.chair@queensu.ca).

Please sign one copy of this Consent Form and return to Jane Chin. Retain the second copy for your records.

Please add your email or postal address to the bottom of this sheet if you would like to receive a copy of the results of this study.

Participant's Name: _____

Signature: _____

Date: _____

Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy

Letter of Information (Students)

My name is Jane Chin and I am a graduate student in the Faculty of Education, Queen's University in Kingston, Ontario, Canada. As part of the requirements for the completion of my doctoral studies, I will be completing research that is aimed at understanding how teachers implement instruction that will enhance the digital literacy of students, and how teachers and students respond to the teaching and learning of story-writing using "wiki" software. The proposed research study, entitled, *Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy,* has been cleared by the Queen's University General Research Ethics Board and by the Director of the School.

A story-writing unit will be conducted in your child's Language Arts class, with the added feature of using wiki software as the platform for writing the stories. In addition to learning story-writing (which would have occurred in the class regardless of this study), the students will also learn new digital literacy skills through their use of the wiki software. For the duration of the unit, I will be present in the classroom to watch the teaching, and to assist with wiki writing as needed. The teacher will be audiotaped so that I can capture the teacher's statements in class and any student comments will be labeled as "student question" or "student comment." The students are not the focus of this audiotaping. Towards the end of the unit, the students will be given a 20-minute questionnaire (during class time) that focuses on their computer use and on their perceptions of the wiki unit. On the questionnaire, students can also indicate their willingness to participate in a focus group interview involving 6-8 students regarding the unit. If more students volunteer to participate in the focus group than are needed, I will make selections to maximize diversity in gender, ability, and opinion regarding the wikis. Only those students for whom parents have consented will be considered. The 45-minute focus group will occur in the same classroom at a time outside of classes that is most convenient (e.g., lunch or after school). Finally, I would like paper copies of the final wiki products in order to better inform my interviews and data analysis. Only questionnaires and wikis for which I have consent will be used in my data analysis.

The questionnaires and final wikis will only be kept in paper form and will be destroyed once the dissertation has been defended. The focus group interview will be audiotaped, and the tape will be destroyed once a transcript has been created. The questionnaire and interview data will not be seen by the teacher, and focus group participants will be reminded to not disclose information from the focus group to anyone. Only I will have access to the data that will be secured in my home office and confidentiality is guaranteed to the extent possible.

I do not foresee risks in your child's participation in this research. Your decision to allow your child to participate is entirely voluntary. Your child is not obliged to answer any

questions that the child finds objectionable. Regardless of whether your child participates, there will be no consequences to the child's grades. You or your child are free to withdraw from the study without reasons or consequence at any point, and your child's data will be removed.

This research may result in publications of various types, including journal articles, professional publications, newsletters, books, and instructional materials for schools. A pseudonym will replace your child's name on all data that you provide to protect the child's identity.

If you agree to allow your child to participate in this research, please sign the accompanying consent form at your earliest convenience and return it to the teacher.

If you have questions, please feel free to contact Jane Chin at 011-1-613-387-1088, (chinj@educ.queensu.ca) or her supervisor, Dr. Rebecca Luce-Kapler at 011-1-613-533-6000, ext. 77267 (rebecca.luce-kapler@queensu.ca). For questions, concerns, or complaints about the research ethics of this study, contact the Dean of the Faculty of Education, Dr. Rosa Bruno-Jofré, 011-1-613-533-6210, (brunojor@educ.queensu.ca) or the Chair of the General Research Ethics Board, Dr. Stephen Leighton, 011-1-613-533-6000, ext. 77034 (greb.chair@queensu.ca).

Sincerely,

Jane Chin

Appendix I – Mexico Student Letter of Consent

Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy

Consent Form (Students)

I have read and retained a copy of the Letter of Information concerning Jane Chin's research project titled *Supporting teachers in ICT instruction: Understanding cultural differences in the teaching and learning of digital literacy*, and all questions have been sufficiently answered. I am aware of the purpose and procedures of this study.

I understand that my child's participation will take the form of a 20-minute in class questionnaire, and possible participation in a 45-minute focus group interview if my child indicates a willingness to participate and is eventually selected. I have been informed that the potential focus group interview with my child will be recorded by audiotape. I also understand that the researcher will keep a paper copy of my child's final unit product (the wiki) to help inform her interview questions and data analysis. I also understand that the teacher will be audiotaped but no student statements will be attributed to specific students, and that the focus is on the teacher.

I have been notified that my child's participation is voluntary and that he or she may withdraw at any point during the study and may request the removal of all or part of his or her data without any consequences. I have also been told the steps that will be taken to ensure confidentiality to the extent possible of all information. I understand that my child should not disclose information from the potential focus group interview to anyone not involved in the study.

I am aware that if I have any questions about this project, I can contact Jane Chin at 011-1-613-387-1088, (chinj@educ.queensu.ca) or her supervisor, Dr. Rebecca Luce-Kapler at 011-1-613-533-6000, ext. 77267 (rebecca.luce-kapler@queensu.ca). I am also aware that for questions, concerns, or complaints about the research ethics of this study, I can contact the Dean of the Faculty of Education, Dr. Rosa Bruno-Jofré, 011-1-613-533-6210, (brunojor@educ.queensu.ca) or the Chair of the General Research Ethics Board, Dr. Stephen Leighton, 011-1-613-533-6000, ext. 77034 (greb.chair@queensu.ca).

Please sign one copy of this Consent Form and return to Jane Chin. Retain the second copy for your records.

Please add your email or postal address to the bottom of this sheet if you would like to receive a copy of the results of this study.

Adolescent's Name: _____

Parent's Name: _____

Parent's Signature: _____

Date: _____