

DIGITAL STORYTELLING IN WRITING:
A CASE STUDY OF STUDENT TEACHER ATTITUDES
TOWARD TEACHING WITH TECHNOLOGY

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DIGITAL STORYTELLING IN WRITING:

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DEDICATION

For Mom, who inspired a deep love of learning from the first time she read the Rubaiyat of Omar Khayyam to me...

For Dad, who would have been so proud.

For my support network, Yos and close friends alike – happy hours were more than toasts, the much-needed laughter often the best escape in times of immeasurable stress.

And for Marsha, because you believed I could...and should.

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ABSTRACT

This case study investigated how preservice teachers taught digital storytelling to students who often possessed more technology skills than the teachers.

During the spring semester of 2011, two secondary-level language arts teaching interns and their cooperating teachers taught a digital storytelling project.

The participants and their students were observed in a constructivist atmosphere, while data was gathered from classroom observations, interviews, surveys, and daily email correspondences with interns and their cooperating teachers. Many lenses were used to view data, while crystallization offered an additional perspective to the coding process.

A key finding was that interns discovered that student-centered learning, like that which takes place during project-based digital activities, allowed for facilitation, differentiation, and created a learning environment that fostered expertise to come from anyone in the classroom. Additionally, interns (digital immigrants) experienced uncertainty when teaching technology to digital natives who were more digitally experienced. Interns observed that technology options motivated students to engage, and stay engaged, but it was not a universal cure for apathy.

Pedagogical recommendations include motivating teachers to embrace the digital literacies students are using, encouraging teacher preparation programs to better prepare future teachers for the technologies K-12 students interact with on a regular basis, and viewing digital storytelling and digital literacy as more than a project but a way of thinking.

Chapter 1

***“There is a general consensus among teachers and researchers that reading and writing are changing, driven by the pressures of emerging technologies”
(Herrington. 2009. n. 1).***

Today’s teachers are expected to meet the continually changing needs of digital learners. The Common Core State Standards (Corestandards.org, 2012), the updated educational expectations that enable teachers to provide students with the best opportunity to learn and master appropriate skills, have included a digital goal in every content area and at every level. Teachers, like the standards, are expected to evolve to include relevant ways in which to do that, and the most recent innovations include digital tools and applications that include computer and web-based technologies.

Early this century, technology experts and scholars surveyed by the Pew Research Center about the future of the internet were awed by the explosion of the web, but they admitted to being startled at how little higher education institutions evolved to meet the changes, despite widespread expectations that they would (Rainie, Fox, & Anderson, 2005). Even though educators understand the importance of staying relevant with today’s youth, it has taken time to enlighten teachers about the value of incorporating digital literacy and digital compositions into their curriculum. Writing – whether research, narrative, expository, or any other type – is a perfect starting point to introduce digital literacy.

Writing has become a social activity – more so now than ever – and one need only log on to Facebook for ten minutes to witness that. Composing digitally can enhance student writing and learning in a variety of ways. What was once a solitary act can now be interactive, collaborative, multi-genre, and authentic. But before we can bring innovation

to the classroom, teachers must first understand, experience, and embrace the challenge. To be able to do that, future teachers must bridge the gap between those who have always had technology at their fingertips and others who came to know these innovations later in life. The key to this process starts with teacher preparation programs and the effectiveness with which they train future teachers to educate today's digital writers.

Roschelle, Pea, Hoadley, Gordin, & Means (2000) recognized over a decade ago the ever-increasing demands students faced as they entered the 21st century workforce. Roschelle et al. touted the benefits of computer technology in the classroom, noting that it supported learning and helped develop critical thinking, analysis, and scientific inquiry. The workforce these students and their teachers prepare for stems from and includes the cyber world. A recent report by McKinsey & Company (Gomez, 2011) found that the Internet has become a catalyst for job creation, creating 2.6 jobs for every one it eliminated. However, they noted that students need online skills for which teachers often are not preparing them. The issue may be that teachers themselves do not possess the skills to educate students or feel they do not have the time in the curriculum. According to Hudson (2011), early researchers believed that only middle and upper class kids were part of the digital native community, but now we know "the digital divide [is] not between the haves and have-nots...[it is] between kids and grown-ups" (Hudson, 2011, p. 1).

In light of everything we are learning, the one thing that has emerged that few debate: teachers must stay relevant with today's digital learners. So too, then, must teacher education programs.

How This Study Began

As a teacher, I have always been eager to try new things. After teaching for two

years in a small, rural school, I transitioned to a larger school district and taught reading/writing workshop in the late 1990s. I was part of a cohort that helped the district revamp the language arts curriculum. During that process, we invited Cris Tovani to speak to our language arts' teachers. When talking about her recently published *I Read It, But I Don't Get It* (2000), Tovani said that the most important thing, in her mind, for a teacher to be is *relevant*. That resonated with me then, as a junior high educator, and I embraced the adage, feeling I had already chosen that as my mission.

Staying relevant in 1999 involved using cutting edge texts like the *Harry Potter* series, *Speak* (1999), *Life in the Fat Lane* (1998), and *Smack* (1998), to name a few books that continually stayed checked out in my classroom. My bookshelves were relevant.

In 2001, Aureo Castro wrote about the current educational trends in technology, about a concept he referred to as a “digital age.” He had not coined the phrase, but it was the first time I had read an article that expressed how the Internet was breaking down the physical barriers of the world (Castro, 2001). I was intrigued enough to bring the article to my department chair for us to discuss how technology could be used in our classrooms. The use of the Internet and its inherent technologies would inspire people to stay relevant themselves and to stay with what was current (Castro, 2001). Learning was no longer limited by a person's memory or encyclopedia set, because they could Google it. There were fewer limitations, and many worried what would happen if education failed to keep up; could it keep pace with the ever-evolving trends?

I believed then that technology was going to keep us relevant. We know it now. “Technology requires changes in the way humans work” (Mulcahy, 2003, p. 4), and that mindset fueled an interest in staying relevant as a teacher and a writer. When I left public

school teaching in 2005 to be a full-time author, I took classes at a Midwest university. I enrolled in an online literature class, as well as an advanced fiction course. That spring, I took a Media Literacy class. Much of what we discussed, from Fiske's *Television Culture* (1987) to Jackson Katz' "Tough Guise" (1999), was enough to engage me and open my eyes to new ways to be relevant, as a teacher, an author, and as a lifelong learner. But it was the final assignment for the class, to create a digital composition, that altered my perception of writing, learning, and creating. I chose to make a commercial for my newly published thriller *Slipping*. I had dabbled with Windows Movie Maker before, but I had never spent much time with this type of software, because I had never had the motivation, time, or inclination. For this digital composition, a window to a whole new way of thinking had opened. This class had introduced me to digital literacy, and I wanted to know more, to do more.

I signed up to participate in a National Writing Project summer institute that June, and I engaged in writing in a different way – as a teacher, writer, and student. I embraced writing for writing's sake, not for an assignment, not for a deadline. So instead of finishing the institute and returning to my life of being a full-time author, I enrolled in the Master's program, and I decided that staying relevant meant continuing my education. Digital literacy had moved from being something of intrigue to a focal point of my future.

Within two years, I was teaching education methods courses, and I incorporated digital compositions into my curriculum. I embraced technology as an extension to writing. The more I watched these college juniors and seniors struggle with things many elementary students were becoming proficient at, the more I started noticing the gap, that digital divide that existed between the college students and the elementary children they

would be teaching. How could the education methods students become relevant, both as teachers and learners?

How would college students keep learning to write relevant in their classrooms full of elementary children who were hardwired differently, who had used Pulse pens, done podcasts using Audacity, created cartoons with Xtranormal, and designed photostories to illustrate writing assignments?

A second area of interest had emerged: prepare preservice teachers to use the skills their future students were enjoying and employing already. The relevance, I discovered, was not limited to language arts, but for this research, I wondered: how was digital immersion (being surrounded by digital games, activities, and current technologies) impacting the writing of young children? Could digital literacy and its tools change the way we teach? Were we preparing future teachers to be effective with students who were so digitally adept? My interests became multi-faceted, but most notably I started focusing my research on digital literacy related to student writing, as well as teacher preparation and keeping future teachers relevant with students.

Once I had discovered digital literacy, it was only a matter of time before I chose it as the focus for this dissertation. Though I had considered other topics, one of my committee members, Dr. Jill Ostrow, said, “Why are you looking at other topics when you are so interested in digital learning?” My thinking shifted immediately. Because I was teaching methods courses and already incredibly interested in how teachers learned and the best ways to keep them relevant, I focused my research on digital literacy and writing in teacher education programs. As I narrowed my research, I began to wonder, *How can future educators teach writing, digital or otherwise, to students who are more digitally*

literate than their teachers? How can we support and create environments for preservice teachers to become more digitally relevant?

Research Problem and Rationale

Why is it important to prepare future teachers (interns) for digital literacies? How do we educate those interns to engage students with digital literacy applications? All teachers – preservice, novice, and tenured – should want to know and understand what motivates today’s youth. What motivates students of all ages to want to write? How can conversation play a role in learning to write, whether digitally or otherwise? How does the digital component enhance the writing process? All throughout my study, I followed Troy Hicks’ blog and those of other digital literacy advocates, and I embraced the adage: Teachers must be embracing and teaching with digital tools or options to stay relevant with today’s students. To do that, teacher education programs must be the conduit and catalyst to make that happen.

My study is designed to help educators, especially teacher preparation educators, understand what engages K-12 students who immerse themselves with new literacies every day; they surround themselves with these new literacies and value them (Franklin-Matkowski, 2007; Alvermann & Heron, 2001; Bean, Bean, & Bean, 1999; Guzzetti & Gamboa, 2005). My research is inspired tremendously by the research of Troy Hicks (2009; 2010; 2012), Stephens & Ballast (2011), and the work of several National Writing Project advocates, including Aidman-Aadahl and DeVoss (2009; 2010). While I found numerous studies stemming from what is right about technology in the classroom, I was also intrigued with Postman’s *Technopoly* (1992) and the notion that as we embrace these new literacies, we become too intertwined with them to find the beginning, the end, or a

way out. Postman's assertions were prophetic when he began to discuss how new technologies altered what we think about, what we think with, and the forum where our thoughts develop. He classified three different types of cultures on the shifting technology landscape, the third being technopolies. Interestingly, he wrote this two years before the Internet existed, and said that in a technopoly, alternatives to itself are eradicated. "It makes them invisible and therefore irrelevant" (p. 48). Our society was prime for this type of immersion into the cyber world, and his words, pre-cyber explosion, ring more true now than they did when he said them:

It consists in the deification of technology, which means that the culture seeks its authorization in technology, finds its satisfaction in technology, and takes its orders from technology. (1992, p. 71)

It is the youth of America who live in the technology-saturated environment, though many adults do as well. With the continual updates of software, a new fad hits the technology world annually, from Facebook to smart phones to Pinterest. This study will examine how teachers, both preservice and practicing, navigate the digital world with students as they teach writing. The pros and cons of employing a digital literacy focus will be addressed, and the tools to facilitate writing, digital literacy, and learning to teach will be explored. While Postman may have prophesized that we were losing ourselves in technology, we have no choice since our children are already there.

Research Questions

The questions that guided this qualitative research emerged during work with both digital literacy and teacher preparation, as I previously discussed.

1) What happens when student teachers who are relatively inexperienced with technology engage in the teaching of digital literacy? How does their teaching change, or *does* it change, at the end of the digital storytelling unit?

2) How do these experiences affect the teaching of non-digitized writing?

3) How do these experiences affect their teaching in general?

4) What impact, if any, do the cooperating teachers' attitudes toward technology have on the interns' attitudes?

Several sub-questions emerged, including:

- In what way do the experiences of the cooperating teacher influence the intern?
- How does a cooperating teacher influence an intern's digital literacy growth?
- What role can talk play between the cooperating teacher and the intern while implementing and experiencing digital skills?
- How can talk between teachers, teachers and students, or students with one another facilitate the process while composing digitally?

Theoretical Framework

Several theories informed and guided my thinking as I completed the study, but most specifically I focused on these areas: social learning theory, a modified transactional theory, thinking and writing, a cross-curricular lens, the role of the workshop in the digital writing process, and teacher preparation and reform. I go more in-depth into each of these in my literature review, but below is a quick overview of each.

Social Learning Theory/Constructivism

To say that writing is a social activity in today's world is an understatement. What

was once perceived as an isolated activity has been altered permanently by the cyber world. One need only grasp the sheer volume of social network writing occurring every day; on Twitter alone, there are 230 million daily tweets (Dugan, 2011). To extend that into the context of learning, the foundation of many classrooms, especially writing workshop, embraces the social component of the learning process. An effective strategy in digital writing is to use Vygotsky's (1978) social learning theory, akin to his predecessor Dewey (1933/1997), who had explored similar theories on active learning. The idea of social learning, or social constructivism, centers around collaborative, social interactions that allow the teacher to be more of a facilitator and for students to be in charge of their own learning (Vygotsky, 1978). Pairing students with someone who has more knowledge or skills allows students to enter the Zone of Proximal Development (ZPD). This is an area in which students maximize learning through collaboration with a more knowledgeable peer or teacher. While in the zone, students make sense of what they are being introduced to, work through the concept with another person who understands it, and ultimately emerge with comprehension of the topic.

To put it in simpler terms, as students navigate digital literacies on computers, the more knowledgeable other may likely be a peer sitting next to him, and teachers must learn to facilitate that situation.

Modified Transactional Theory

Another lens I viewed my findings through was a modified version of Rosenblatt's (1976) Transactional Theory. In *Literature as Exploration* (1976), she described a reader's response to literature and the transactional relationship between the reader and the reading. She explained that the transaction between a reader and a text is based on what readers

bring to the reading, and she viewed student responses along an efferent-aesthetic continuum. Few readers sit at one extreme of the continuum, focusing solely on either the efferent (reading to take away information/facts), or aesthetic (reading for pleasure and living through the experiences). They likely move back and forth on the continuum while reading varying types of texts. An example would be students reading an article they have chosen that they must write a response to for a class; they are definitely reading for facts, in order to write the report, but because they were allowed to choose, they likely enjoy it, may experience moments of true interest, and are therefore moving along that continuum. They are taking meaning away but there is a pleasure derived from it. Teachers, Rosenblatt said, generally ask for efferent, what-the-reader-takes-away-from-a-reading, responses. Aesthetic responses, or emotional reactions, she argued, are a more experiential response and are usually more important than most of what students take away from the text (1976), though students will always take something aesthetic away, even if it is that they hated doing required reading.

Writing has much the same continuum for students. In the current academic climate, teachers are incorporating choice and digital opportunities for students when responding to academic texts. Students interact with these texts, especially when they create their own response and writings, so activities with literature that ask them to go beyond the efferent expectation allow them to move along that continuum. To have students read an article on a topic of interest and then illustrate their thinking by writing a digital composition allows them to have that same continuum experience as a writer. To write digitally about another person's writing engages them in what Hicks (2009) describes as meeting them in their world, and allows students to illustrate their thinking with images,

represent it with music, and then interact with it on differentiated levels. That kind of writing and interaction would move them continually along Rosenblatt's continuum, from efferent to aesthetic or vice versa, as they apply their thinking to the factual information they need to get from a reading, to a pleasurable interaction as they respond in a way that is meaningful to them. This imagic response is what Anderson and Rubano (1991) describe as the sustained imagery production that is activated while reading and can be further illustrated when writing using those images.

Thinking and Writing

Writers think while they write, they write as they think, and all aspects of the writer get brought to the writing. According to Reither (1985), what writers do while writing “cannot be separated from the social-rhetorical situations in which writing gets done, from the conditions that enable writers to do what they do, and from the motives writers have for doing what they do” (p. 621). In other words, writers bring their day, their intentions, and their past experiences into the context of what they write, whether they mean to or not (as noted in Figure 2.1).

Regardless of the type of writing, whether on paper, on a laptop, or in a collaborative document online, the writer brings himself to the writing, perhaps on a metacognitive level as he tries to consider how his thinking will impact the writing. Some writers even admit that they work through their writing as they do it, and if done collaboratively or online in a public forum, Vygotsky (1986) might argue that the writer's consciousness of the audience would play a social role in the thought process. Elbow (2011, 1987), on the other hand, believed that writers can ignore audience. Even if writing and language are originally social, Vygotsky (1986) acknowledges how inner speech gets

more individualized and privatized as the child matures. A child first uses self-talk as a way to think aloud, especially in social settings, and interestingly even tapers when children are around deaf children or alone. As the child matures, he internalizes that self-talk, “it goes through an evolution, not an involution. In the end, it becomes inner speech” (Vygotsky, 1986, p. 57). Online writing might always have an audience, but privatized forums like Google Docs or Typewith.me allow the writer to think only about the collaborative aspect of the writing, and not the potential audience once it is complete. Writing before there is an audience, Elbow would say, allows the writer to compose purely for writing sake, and that by ignoring audience, it can lead to bad drafts but improved revisions (2011). His belief that a disregard for audience could lead to better writing immediately requires researchers to consider what metacognitive forces are at play for this to be true. How does not considering audience free the writer? Perhaps the writer’s thinking is channeled more deeply into the writing and less is spent worrying about an audience, but Bean (2001) would argue that thinking about audience rhetorically while writing is a skill that must be taught. He asserts that more experienced writers consider audience sooner than a novice writer, and in order for an inexperienced writer to hone that skill, he must first reach a level of comfort with his own writing (Bean, 2001).

Linda Flower (1979) suggests that for writers to be effective, they must do more than just relay their own thoughts or interpretations of a concept. The ineffective writers are merely producing “writer-based prose” – these writers do not consider their audience; they are simply writing for themselves and not adequately developing an idea or thought so that a reader can get it. Would Elbow agree that it is only writer-based because it is underdeveloped? In his thinking, writer-based prose can be a good thing, but Flower makes

it seem “lesser” than reader-based prose, which is writing that shows the purpose of the writer’s thought and is a specific attempt to say something to a reader. Elbow wrote an article on the argument for ignoring audience (1987) (and his look at the various experts and what they consider *audience*), and in many regards, a writing that ignores audience does not mean a writing that is not fit for an audience. He even addressed Flower in the article and said that sometimes, in relation to reader-based prose, writer-based prose could be better. While Flower acknowledged that writer-based prose may be a step of the creative process for many writers, she still worded it in a way that suggested *good* writers can start right away with reader-based prose. She stated (1979):

In *function*, Writer-Based prose is a verbal expression written by a writer to himself or herself. It is the record and working of his own verbal thought. In its *structure*, Writer-Based prose reflects the associative, narrative path of the writer’s own confrontation with her subject. In its *language*, it reveals her use of privately loaded terms and shifting but unexpressed contexts for her statements. (p. 19-20).

She goes on to tout reader-based prose and its deliberate attempt to communicate to a reader. Elbow, on the other hand, offers insight to a time when audience/reader may be inhibiting us, and therefore we must push them out of our head so it doesn’t hinder our writing. “When I am talking to a person or a group and struggling to find words or thoughts, I often find myself involuntarily closing my eyes as I speak” (Elbow, 1987, p. 50). Perhaps in the learning stages of writing, ignoring audience is preferred over allowing it to intimidate the writer.

Critical thinking is reflected in current theories of best practices that include a basic philosophy of consistent writing practice, of coaching writing rather than focusing on the correct mechanics, but instead helping students learn content as a skill (Nardone, 2005;

Nicosia, 2005). Dickinson (1995) also explains how when children talk about their learning, they are brought to an understanding about their thinking. Weaving together thinking, writing, and talking will inevitably improve students' skills at each, and not just in language arts classes. In his *Development of Writing Abilities, 11-18*, Britton came to the conclusion that students cannot grow as writers just by writing (1975). By crossing content area lines, all educators are taking on the onus of developing students as writers, and as Britton explains, the learning process of writing will not be just the responsibility of the English teacher (1975). Writing is a continuum, and no matter whether it is digital or on paper, writing in and across content areas is rooted in a radical movement of what being a writer means (Bean, 2001). To truly embrace Bean's philosophy places a great deal of potential on using digital compositions that transcend content areas and links learning in a way not always maximized in education.

All of this can be considered when teachers allow students to create digital compositions, to think while they write, to write while they think, and even discard entire drafts and start again. To show them that digital writing can be subjected to revision, whether with an audience in mind or before an audience is considered, allows them to create with just the digital writing in mind.

Cross-curricular Lens

As the first decade of the 21st century moves into the next, education faces critical hurdles. The data-driven, teach-to-the-test mentality of administrators and politicians has impacted today's classrooms, but technology may be the key to clearing those obstacles. With President Obama's focus on the Science, Technology, Engineering, and Mathematics

(STEM) Initiative, it is more important than ever to interweave content and digital curriculum:

Reaffirming and strengthening America's role as the world's engine of scientific discovery and technological innovation is essential to meeting the challenges of this century. That's why I am committed to making the improvement of STEM education over the next decade a national priority. (Whitehouse.gov, 2009)

No matter the plight of education, there is always an innovation to pave the way for reform, and staying on the cutting edge of possibilities helps teachers relate to students – in any and every content area. The perils of blinking in today's technology boom may be the difference between a relevant classroom and one full of disconnected students. Often, students know more about what is on the horizon than teachers, but the general theory in the classroom should never change. The best teachers share the kids-learn-by-doing philosophy and take it one step further; they embrace change and become part of the movement. Rosen (2011) describes the iGeneration mindset:

To [iGeneration kids], the smartphone, the Internet, and everything technological are not 'tools' at all – they simply *are*. Just as we don't think about the existence of air, they don't question the existence of technology and media. They expect technology to be there, and they expect it to do whatever they want it to do. Their WWW doesn't stand for World Wide Web; it stands for Whatever, Whenever, Wherever. (p. 10)

The need for innovation in writing is not limited to an English or language arts classroom, nor is it relegated to a specific age in the K-12 curriculum. Teachers of all types of writing, at all levels, and in all curricular areas have to recognize the shift in paradigm. Hairston argued that “teachers who concentrate their efforts on teaching style,

organization, and correctness are not likely to recognize that their students need work on invention” (as cited in Perl, 1994, p. 117). Invention – being innovative or creative – as Hairston states in Perl, changes by era; in her article, the shift she is speaking about is in the 1980s when research was indicating the need to take writing away from its traditional product-oriented trend to focus on the writing process. Now the newest shift in the paradigm revolves around a process that involves so much more than a paper and pen. When technology and visual writing are brought together, “we invent a new electronic rhetoric” (Rice, 2007, p. 3), but Rock (2009) believes that to merely give a student access to a computer, without any guidance, does not teach digital literacy skills or make a writer digitally relevant. As with any medium or format, students must be taught to analyze and use the technology effectively in a way that traditional schooling has not been doing (Rock, 2009).

To now embrace that mentality in teacher education programs, to lead future teachers into the possibility of how they can be part of the shift, is imperative. If we are not preparing future teachers to be effective instructors in a digital world, then we are not fully preparing 21st century educators.

The Role of the Workshop in the Digital Writing Process

A fundamental key to writing workshop is its focus on the writing process (Calkins, 1994). In classic writing workshop, students guide their own learning and move at individual paces, but the essence is that the best way to become a better writer is to do it. The teacher is a facilitator to aid the process of writing, peers play a significant role by giving feedback along the way, and all participants employ the concept of formative assessment throughout the process. To add a digital aspect to the mix can be done two

different ways. The digital composition can be the product, or the process itself can be digital.

When the product is digital, students are allowed to meet components of the Common Core State Standards (Corestandards.org, 2012). However, the future of digital storytelling is in its role in the writing process. Teaching with technology is only effective if it is applied to skills that matter, to writing that goes past the technology, into the writing workshop mindset of teaching the writer, not the writing (Calkins, 1994). That is not to say that teaching the skill of digital storytelling is not important, but the technological component (whether it be a digital composition, podcasting, website building, or so many other possibilities) can be part of the process (Hicks, 2009). With the process as the approach, Langer and Applebee (1987) explain that the context is created so students are allowed to explore new ideas, experiences, and meaning making. Through the trial and error of the digital composition process, regardless of their content, students learn much more than just about writing. They conduct research, develop revision skills, make transitions, and consider audience. William Zinsser, in *Writing to Learn* (1988), admitted that he learned much more about being a musician by writing about music, that it made him think harder about the structure of music and without realizing it, the learning process itself.

What does that mean for teacher education programs? To get preservice teachers relevant as teachers of digital literacy, they must themselves dabble with it to become comfortable with its possibilities. They must be familiar with the technologies they use in the classroom, but they can experience the process as their students do and learn from one another.

Teacher Preparation in the 21st Century

Teacher preparation has changed, and with new standards that include digital strands, education in the new century has taken on a whole new meaning. To stay relevant, programs are modifying the student teaching experience. Changes for some include moving the internship to the fall to allow preservice teachers the opportunity to build relationships with students from the beginning of the school year, others have gone to year-long internships so that student teachers have the opportunity to work with various ages. Some programs have implemented an induction year to support first-year teachers and battle teacher attrition. Many are recognizing the need to better prepare teachers for the digital driven era. No matter the length of the student teaching experience or whether it is completed in the fall or spring, Hardin and Ziebarth (2000) state that colleges of education need to lead the way for computer and information technology for future teachers and the K-12 community. They add that university administrators must create a 21st century vision, to focus on how to better prepare today's teacher for students engrossed in information technology and collaborative learning environments (Hardin & Ziebarth, 2000).

The primary issue facing digital immigrants entering the profession is how to provide authentic and relevant learning experiences for digital natives without mastering the digital skills themselves. Higher education programs face the hurdle of preparing teachers to be innovative, and to motivate future teachers to embrace changes happening on the digital landscape too fast to stay up-to-date. Whether teachers know every innovation that emerges at a rapid-fire pace is not the only issue. The Common Core has included digital standards in many strands, including writing, science and technical subjects, speaking and listening, and research (Corestandards.org, 2012), so teacher

preparation programs will need to adapt with the change in K-12 expectations. In order for future teachers to understand updated student expectations, their preparation program needs to integrate those technologies that will help them in their future teaching.

The International Society for Technology in Education (ISTE) focuses specifically on helping teachers integrate technology in the PK-12 classrooms and improve learning by effectively using technology in the curriculum. The ISTE standards (Iste.org, 2008) outline how teachers can implement digital lessons and skills, but they also guide teachers to take technology to another level: to create digital citizens and digital environments.

What many new teachers learn quickly is that K-12 students have a broader view of the Internet than their teachers. Teachers often see digital possibilities as a project, one unit or even one lesson that allows them to integrate technology, but they do not see the overall shift in thinking about digital possibilities as a continual option. The U.S. Department of Education's Technology Plan (Atkins et al., 2010) offers alternative ways of thinking about instruction, about embracing technology as readily as an ink pen or a textbook. The researchers found that the more innovative teachers are and are trained to think, the more likely they will be to facilitate the seamless integration of technology. According to Atkins et al. (2010), technology in the training of teachers creates a foundation of collaboration and communication.

Teacher preparation programs are at the center for innovation and readying educators for their digitally adept 21st century learner and must see past these obstacles. Students *do* have access and if the work is relevant, they will find a way to get the work done. According to Aaron Smith, senior research specialist with the Pew Internet and Life Project, and a 2011 Pew survey of 2,277 adults, the very students researchers once believe

did not have access – blacks and Hispanic Americans – are more likely to be accessing Facebook on a daily basis than their white counterparts (Eversley, 2012). Teachers, therefore, may be able to integrate technologies and feel comfortable knowing their students have Internet access but simply need the motivation to do so. “Among cell phone users, 39% of black, non-Hispanic Americans and 35% of Hispanic Americans access social networking sites daily compared with 24% of white, non-Hispanic Americans” (Eversley, 2012, p. 3A). According to an Internet-use supplement to the Census Bureau’s Current Population Survey (2010), with a total sample size of around 54,000 households, lower socio-economic status Americans may not have computers at home but most have cell phones, many of which are smart phones. William Winter of Change.org said that these students are applying their heritage’s word-of-mouth mentality with social networking as their forum. For future teachers, being aware of the digital trends of today’s youth and tapping in to them is the key to being a relevant educator.

Teaching interns entering the educational world have to be prepared not only to address the issues of today’s learners but also have the skill set to incorporate strategies in their classrooms that will be relevant for current practices. Teacher preparation programs addressing the youth of today while readying teachers for tomorrow must recognize these needs and not only incorporate them into education classes but do so in a real-world application. With the implementation of standards to help teachers better educate their digital students, whether the ISTE’s, the strands of the Common Core, and also the Next Generation Science Standards that seek to interweave science standards with the Common Core, it is no longer about whether to prepare our future educators to teach with technology. It is now a matter of how.

Organization of the Study

Chapter 1 outlines what inspired the research, the rationale for the study, the theoretical framework, and the chapter's organization. Chapter 2 describes the literature review for the areas important to understand this study. Chapter 3 explains the methodology of the study, and data collecting procedures. Chapter 4 includes results based on my research questions and the data analysis. Chapter 5 outlines recommendations for future studies and implications of the research.

Chapter 2

Review of the Literature

Literature examining digital storytelling, the evolving world of technology use in the classroom, and the role it plays in the teaching of writing for interns, is relatively new. While the photo essay and other forms of visual representation of textual messages have been around since images have been used to tell a story (arguably since cavemen drew on walls), digital storytelling as a computer-generated method of composing has emerged in the past decade. It is at the confluence of numerous studies and theories revolving around media, communications, and new literacies. Gathering the literature on a topic as new as digital storytelling involved looking at a great deal of recently published material, as well as considering past research and how it indirectly applied to the newer digital trends. As noted by Gordon Brown, former dean of Massachusetts Institute of Technology, to be a quality educator is to be a prophet – you must think continually about preparing learners for a world thirty to fifty years from now (Senge, 2000). As phrases have emerged like “watch this book” (Hicks, 2009, p. vi) and “make me a story” (Miller, 2010, p. x), the time has come to embrace the changes digital literacy and its tools have to offer, both for students and the teachers faced with the challenge of being relevant in the rapidly changing world of computers and their associated technologies.

This research study is an attempt to consider what is occurring in our digital world, evolving at an exponentially rapid pace, and projecting where we are headed. Jerome Bruner (1963) described young children approaching a new subject or problem being similar to a scientist operating near the edge of his selected field; so too, with digital

literacy, are we operating at the edge of the field. The key is to venture beyond to consider where we have been, where we are right now, and what direction the data is telling us we may be headed.

Research Questions

The questions that guided this qualitative research emerged during work with digital literacy applications and teacher preparation.

1) What happens when student teachers who are relatively inexperienced with technology engage in the teaching of digital literacy? How does their teaching change, or *does* it change, at the end of the digital storytelling unit?

2) How do these experiences affect the teaching of non-digitized writing?

3) How do these experiences affect their teaching in general?

4) What impact, if any, do the cooperating teachers' attitudes toward technology have on the interns' attitudes?

Several sub-questions emerged, including:

- In what way do the experiences of the cooperating teacher influence the intern?
- How does a cooperating teacher influence an intern's digital literacy growth?
- What role can talk play between the cooperating teacher and the intern while implementing and experiencing digital skills?
- How can talk between teachers, teachers and students, or students with one another facilitate the process while composing digitally?

The primary areas explored in my literature review are digital storytelling and the subsequent digital divide, as well as the modeling and communicating between interns and

cooperating teachers during teacher preparation. This chapter also outlines the theoretical lenses that provide the framework for my study. These include: 1) social learning theory; 2) a modified version of transactional theory; 3) thinking and writing; 4) a cross-curricular lens; 5) the role of the workshop in the digital writing process; and 6) teacher preparation and reform.

Before reviewing the areas and lenses, it is first necessary to define the terms involved in the study and look at the history of digital literacy.

Introduction to Digital Literacy

In order to discuss the role of digital literacy, we must consider its impact on teaching and learning, and what it has to offer education. If the digital divide truly separates young students from the teachers who attempt to educate them, then this study strives to bridge that divide with the tools to provide authentic, relevant teaching. To do that, it is necessary to define the terms used and establish a common language for this research.

Defining the Terms

In order for teachers and writers to understand how to integrate digital literacy activities including digital compositions, they must first understand the terms. In studying the history and evolution of digital literacy, the terms have existed long before the current meanings. Historically, *literacy* is the ability to read and write. United Nations Educational, Scientific and Cultural Organization (UNESCO), in 2004, defined *literacy* as "the ability to identify, understand, interpret, create, communicate, compute and use printed and written materials associated with varying contexts" (UNESCO, p. 13). Later in

the same document, they acknowledge literacy as an expression of communication in a variety of forms, including written, spoken, visual, and digital. This later addition notes that written language is no longer just about text as we have traditionally thought of it. An important transition is also occurring at the state level with the Common Core State Standards Initiative, a state-led movement co-coordinated by the National Governors Association Center for Best Practices and the Council of Chief State School Officers (Department of Elementary and Secondary Education [DESE] website, 2011). Within most content areas, technology has been added as a requirement, using terminology such as *diverse media*, *technology*, and *digital literacy* (DESE website, 2011).

In defining *text*, the National Council of Teachers of English (NCTE) includes graphics, spoken language, and technological communications (1999), while Kress (2003) defines text as communication in any mode or combination of modes possible. One important indicator as to how the idea of text has changed is in the 2007 AP Language and Composition test (College Board, 2009), which had students analyze images as a type of text for their essays.

What we now think of as *digital literacy*, as pertaining to helping students become literate through the use of digital software and gaining an understanding of digital tools and skills, has only been prevalent during the past six or seven years. From 1999 to 2004, most references to digital literacy involved being literate about the Internet and information published online (i.e. understanding how to read and interpret web content). The concept has evolved, as digital storytelling software like Photostory, Picasa, Windows Live Movie Maker, iMovie, Animoto, and Frames has emerged. With the 2005 creation of YouTube, the immediacy of sharing captioned photos and video set to music for someone across

town or on the other side of the world created an enormous popularity for digital software.

For the sake of my research, *digital* is defined as the use of computer technology (American Heritage Dictionary, 2000) and *digital literacy* is the understanding of the integration of texts, images, and sounds using digital software images, words, music, and any other form of media to convey a message (Literacy Through Technology, 2007). With the expansion of the idea of *text*, other terms similar to digital literacy have been emerging over the past decade. Media literacy may have elements of digital literacy within it, though it is much broader than that, defined as the ability to analyze, evaluate, decode, and even produce various types of media, from print to electronic (Fox, 1994; Aufderheide, 1992). Tallim (n.d.) adds that media literacy also includes the ability to critically think about messages that bombard us everyday, whether to inform or entertain, and forces the viewer to consider who the message is for, what perspective is being used, and what voices are present and absent. Additionally, according to Bowen (1996), the goal of media literacy is to transform our passive relationship with media into an active, critical engagement. While these veins of media literacy might include digital (web and computer-based technologies), it is more of an umbrella over many types of text and visual imagery. The newer terms that are associated with the Internet boom and more closely associated with digital literacy are new literacies (Gee, 2000; Kist, 2005; Leu, Kinzer, Coiro & Cammack, 2004), visual literacy (Kress, 2003), and multiliteracies (New London Group, 1996). These different labels often overlap with digital literacy; while these literacies have other facets and the definitions of each vary, their emergence signifies how thinking has changed over the last fifteen years. The New London Group (1996) describes the different ways people communicate with the decade's changing technologies, using the term "multiliteracies" (p.

64) to encompass all the various literacies that the digital world allows. Visual literacy (Kress, 2003) includes any form of visual medium, from cave art to comic books, and its relationship with words, while for this study, digital literacy specifically includes technological literacies and their connection and application of images and words to synthesize new meaning in a digital realm.

Digital storytelling or *digital compositions* are the short narrative or informational videos created on a computer through digital storytelling software (Davis, 2002; Tatum, 2009). Previous uses of digital storytelling have been mostly limited to narratives, autobiographies, and creative ways to convey information and have rarely been used to address academic issues (Tatum, 2009). By and large, digital compositions remedy the ancient practice of storytelling (Bolter & Grusin, 1999) but are rapidly evolving as an education tool. On University of Houston's specialized Educational Uses for Digital Storytelling site, they list The 7 Elements of Digital Storytelling (Hofer & Owings-Swan, 2006):

- (1) Point of view/perspective of the author
- (2) A dramatic question
- (3) Emotional content
- (4) The gift of your voice
- (5) The power of the soundtrack
- (6) Economy – providing limited content to prevent “overloading the viewer”
- (7) Pacing

With these tools, students can use the seven elements for reading, writing, or technology-based activities (Tatum, 2009). As a growing area of interest, digital literacy and the tools and applications associated with it are now a topic of study at universities, as well as the center of research and practice, similar to University of California at Berkeley's

Digital Storytelling Center and Syracuse's Center for Digital Literacy. Digital storytelling, as an evolving art form (Ohler, 2006), has become the focal point of numerous research studies, and is transforming as a technological teaching tool (Tatum, 2009).

When discussing *technology*, the term may be referring to current trends of using technological tools, such as iPads, iPhones, Pulse pens, and the cutting edge capabilities computers present. Technology may have once been an ink pen, but we are educating the iGeneration – the “*i* represents both the types of digital technologies popular with children and adolescents (iPhone, iPod, Wii, iTunes, and so on) and the highly individualized activities that these technologies make possible” (Rosen, 2011, p. 16). Other content literacies, especially science literacy, are forefront in the technology movement in education today – one need only google “science literacy” to see the explosion of information on the Internet and the current push to embrace the digital era. According to science standards, scientific literacy actually lists written, numerical, and digital literacy as central to understanding science and its methodologies (National Science Teachers Association, 1996). The technology focus in mathematics education has been to use digital cameras to capture images in the world around them and then use those images in the classroom (Ventress, 2008) and incorporate the information to illustrate mathematical concepts.

Regardless of the content area or the curricular goal, learning with or about digital literacy is a major focus in today's classroom. Whether the objective of the lesson is to create a digital story, or the objective of the lesson is to demonstrate a mastery of content through a digital story, the evidence of need is present in today's technological society and with the adoption of the Common Core State Standards. Digital storytelling, according to

Robin (2008), can be adapted to meet student needs, while also fulfilling district and state requirements to use technology-based activities.

Why Teach With or About Digital Literacy?

Early in the 21st century, technology experts and scholars surveyed by the Pew Research Center about the future of the Internet were “startled that educational institutions have changed so little, despite widespread expectation a decade ago that schools would be quick to embrace change” (Rainie, Fox, & Anderson, 2005).

An average teenager surfs well over two-thousand web pages and nearly 1500 Facebook profiles in a year; every day, they watch about two hours of television, spend almost four hours online, two-and-a-half hours listening to their iPods, and at least 3.5 hours on their cell phones either talking or texting (Wesch, 2007). When factoring in hours in school, eating, working, studying, and sleeping, teenagers are well over twenty-four hours in a day, which lets us know how they are consumed with multi-tasking, even if it means scratching the surface on more things rather than understanding fewer things more deeply. It also shows that they are willing to do whatever it takes to have their daily dose of the digital world. In light of this, teachers must realize they do not have to know and understand every aspect and every available technology out there before they can implement it into their curriculum (Hicks, 2010). Literature teachers do not have to have read every classic ever written in order to teach a quality literature class; we embrace that students may have read books we have not. It is the same with technology. Students quite likely are going to know things their teachers do not, and vice versa.

Gardner’s multiple intelligences (1993) was at the root of exploring learning through digital literacy, as we have begun to understand that students learn in many

different ways. Likewise, allowing the participants to be creative throughout their teaching and to be introspective about their experiences allows them to learn about themselves and to also be open about how students learn. Gardner believed that the “quest for creativity has not been a major goal of the American education system” (p. 177), but through these multi-modal activities, creativity could play an important role for teachers.

Moffett believed that thought was not visible until it was translated into actions, words (1992), and one of the most meaningful ways teachers and interns could do that was what Gee described as their means of developing a sense of identity, through visual representation (2003), or any creative outlet that allowed them to express themselves. When Burke said, “...the imagery could be said to convey an invisible, intangible idea in terms of visible, tangible things” (1969, p. 86), he explains exactly what the interns are doing when they are assigning objects to describe how they view themselves as teachers, learners, thinkers. We write to discover, and by asking participants to write about their experiences in various genres, they were given the opportunity to explore their thoughts in meaningful ways.

James Paul Gee (2003), a researcher who has worked in discourse analysis, sociolinguistics, and literacy, believes writing should be viewed as more than just a mental task occurring inside a person’s mind. Gee also suggests that writing, like video games, should be seen as a social practice with historical, even political implications (2007). As we delve into a world in which writing itself bridges cyberspace (Hicks, 2010) and no longer happens in isolation, it can be collaborative and the focus of social get-togethers. As for writing and the teaching of writing, Hicks (2009) has stayed true to writing workshop in his journey into the digital realm. While some worry about technology changing writing,

many National Writing Project authors advocate using emerging technologies to strengthen the teaching already being done (Stephens & Ballast, 2011; Hicks, 2010; Miller, 2010; DeVoss, Aidman-Aadah, & Hicks, 2010). So if conferences and collaborative writing groups are part of the writing workshop process, then they still should be. Teaching in a digital writing workshop keeps a focus on instruction, not on the technology (Hicks, 2010), allowing teachers to simply supplement the process with digital tools. Using Google Docs or Typewith.me to edit or revise, share thoughts on a writing via class blogs, or create a digital illustration using Mixbook allows students an innovative way to collaborate. Even corresponding with students by email engages them in a relevant way.

Teaching with technology has put a new focus on students maximizing their words and saying as much as possible in as few words as possible. While naysayers worry about the plight of grammar in the future, others wonder if the current trend of text-driven communication is inspiring new appreciation for writing among teens, who spend a tremendous amount of time doing it (DeVoss, Eidman-Aadah, & Hicks, 2010; Dillon, 2008).

Another reason to implement digital literacy skills into the curriculum is that reaching current teen writers may mean broadening their horizons on what writers do or should do when they write. Theoretical and practical exploration from experts like Graves (1983), Emig (1971), and Calkins (1987) who focused on the process of writing triggered a paradigm shift in how teachers view writing and its instruction (Stephens & Ballast, 2011). In digital literacy, much like with writer's workshop, writers move through five stages, though revisit various stages and not in a fixed order: prewriting, writing, revising, editing,

and publishing. Peter Elbow (1973) and Donald Murray (1982) both advocate allowing think time intermittently among those stages.

As a computer tool, digital storytelling technology emerged in 2000, when Windows Movie Maker was part of the Windows Me version. Photographer/art teacher Deirdre Portnoy, who wanted to give children a more interactive way to experience photography, founded Photostory in 2000. Though the software has been around for nearly a decade, many people do not realize these programs are part of their Microsoft package, and until about five years ago, teachers had yet to discover the educational value of them. It would take time for teachers to see the potential for a learning experience, one that empowers students to be creative and to contribute to, all within the context of current expectations of what they should know and be able to do in this web 2.0 world (Jakes, 2006). Not only what they know and do, but the experiences give students a compelling voice and break the boundaries by allowing them to communicate with a potentially worldwide audience (Jakes, 2006). The idea of multi-media projects is not to replace traditional writing, but to open their world, to give them an outlet applicable to their modern lives (Herrington et al., 2009). For some teachers, the digital component is an end product, the publishing phase. But with evolving software and greater capabilities, the entire composition can be told digitally. Whether a portion of or the entire project is done digitally, it is often the first experience that alleviates much of the stress that students feel when faced with technology.

Both Sides of the Technology Coin

Even though evidence supports adding technology to curricula, many have exposed the ups and downs of going “all in” when it comes to new literacies. Even before the dawn

of the Internet age, Neil Postman (1992) shares that our constant desire to infuse technology into the classroom may be the demise of education as we know it. He describes three stages of a culture's dealings with technology (1992) and its tools (tool-using, technocracy, and technopoly) and challenged people to consider what our culture would become if we allow technology consumption to go unchecked. A lack of gatekeepers in cyberspace worried Postman (Public Broadcast Service Interview, 1996), echoed that same year by Eric Schmidt (quoted in Taylor, 2010), who said:

The Internet is the first thing that humanity has built that humanity doesn't understand, the largest experiment in anarchy that we have ever had. (p. 1)

Postman recognized our obsession with the Internet, and predicted the impact of computers on our way of life, on society as we know it, and he described our future as a result of our worship of technology. His argument stems from the idea that uses of technology are shaped by its characteristics, akin to McLuhan's (1967) *the medium is the message*. Borrowing from Thoreau, Postman explains that technology, once it has done what it was designed to do, leaves its users "to be tools of our tools" (Postman, 1992, p. 3). In a later interview, he advised that we learn from history and "use technology rather than being used by it" (Postman, PBS Interview, 1996).

Despite the evidence Postman offers, during the surge of the Internet in the mid 1990s, personal computers and the World Wide Web overtook homes, businesses, and classrooms (History of Technology in the Classroom, 2009). With the dawn of the Internet came the surge of digital literacy and the possibilities of what writing with technology has to offer.

Digital literacy and the skills associated with it have taken different forms in recent

years. Gee (2007, 2010) and Prensky (2004, 2005) both discovered that video games not only entertain but allow us to see how students grasp meaning, as well as evaluate and follow commands. This has opened people's eyes in the education world as to how innovative electronic activities have a positive impact on learning (Gee, 2010).

Review of the Digital Storytelling and Technology in Education Literature

Technology innovations and their educational impact have been the focus of research well before the boom of the Internet. While digital compositions as a classroom instructional activity are a newer innovation (Banaszewski, 2002; Bull & Kajder, 2004) and peer-reviewed studies focused solely on digital storytelling are limited, research geared toward technology and its use in the classroom has been a consistent and continued topic of study. The bulk of the existing information on digital literacy is featured as practical application for teachers, yet over the course of the last decade, digital storytelling has emerged as a focus of research studies and dissertations. For this research, I used the term "digital storytelling" to conduct a search on the NCTE website in various journals, including *Research in the Teaching of English*, and over thirty articles emerged. The majority were practitioner articles published in teacher magazines. Several articles were published in peer-reviewed journals, and many more were posted on online resources like Edutopia.com, Technology and Learning Magazine, EdTech Magazine, or SchoolsArts. Broadening that search to include technology in the classroom and technology as an educational innovation proved that digital storytelling is just one spoke on the wheel of technology research. While there is also research in various other aspects of digital literacy and technology, especially in digital rhetoric, my research focused on technology specifically for the classroom. Therefore, I chose to limit my search on educational

technology research in this literature review. Because of the wealth of research that focuses on technology in education, the following research will be divided into two sections so the emerging study of digital storytelling can be easily isolated: 1) research on technology in education and 2) specific research on digital storytelling.

Research on Technology in Education

During the 1990s, extensive research was conducted on the prospect of computers and other emerging technologies in education. Other research existed prior to that time, but once the cost of computers made it affordable for the average American classroom to access them, researchers pondered the impact the barrage of new possibilities would have on education and on teacher preparation programs. They also began exploring in detail how the new technologies could affect the future of classroom teaching and curriculum development. While the following is only a glimpse at the research on technology in education, these studies were selected due to their close relationship to this dissertation's topic. Themes emerged while researching educational technology, so it was divided into the following sub-areas:

- Impact of technology on education
- Technology training for teachers and administrators
- Integrating technology in the classroom

Impact of technology on education. Research that dealt with the impact of technology on education varied from the more general impact technology has had or may have on education (from theory to practice) to the more immediate impact of a specific technology tool or skill in the classroom. The following studies made significant contributions to digital literacy and affected implementation in 21st century curriculum.

Kent and McNergney's *Will Technology Really Change Education?* (1999)

examined the current push toward the early 2000s for teachers to embrace the possibilities of classroom computers. Their research delved into the profound impact computers and the Internet were beginning to have on the landscape of technology. They also spotlighted that without adequate training for future teachers, their adeptness or lack of would directly impact the promise of technology. “Teacher educators must train tomorrow’s teachers in a rapidly changing world with an increasingly uncertain future” (Kent & McNergney, 1999, p. 50). The topics of the book and their research highlighted what are still current issues in education more than a decade later: challenges for teacher preparation programs to integrate technology, how practicing teachers feel about current trends of educational technology, past efforts to integrate technology in education –from lower technologies (notebooks, ink pens, chalkboards) to higher technologies (radio, television, film), the potential for technology to improve and complement instructional models, and the future of technology in education, including teacher preparation and the K-12 classroom.

Kent and McNergney’s research (1999) included an educational address by then-President Clinton that highlighted what the educational system needed to do with what was looking to be a shift in thinking and pedagogy.

In order to make effective use of educational technology, teachers will have to master a variety of powerful tools, redesign their lesson plans around technology-enhanced resources, solve the logistical problem of how to teach a class full of students with a smaller number of computers, and take on a complex new role in the technologically transformed classroom. Yet teachers currently receive little technical, pedagogic or administrative support for these fundamental changes, and few colleges of education adequately prepare their graduates to use information technologies in their teaching. As a result, most teachers are left largely on their own as they struggle to integrate technology into their

curricula. (President Bill Clinton, President's Committee of Advisors on Science and Technology, 1997, p. 47).

In essence, President Clinton was addressing how administrations and teacher education programs were not preparing teachers for this major shift in the educational world. Technology emerged but without giving teachers the tools and skills to implement them, Kent and McNergney predicted the possibility that teachers would struggle to stay abreast of the surging trends.

Where Kent and McNergney's research focused on the outlook of the future of education and the struggle teachers might have in staying current with the trends, the Apple Classroom of Tomorrow (ACOT), a ten-year research project (Dwyer, 1994; Sandholtz, Ringstaff, & Dwyer, 1997), studied those trends in five specific classrooms throughout the United States. Researchers provided all five classrooms with technology tools, related training for each teacher, and a site coordinator who provided assistance with technologies. The primary purpose was to determine how the consistent use of technology and computers influenced learning. Analysis of more than 20,000 entries addressed the question: What happens to students and teachers when they have access to technology whenever they need it? The answer: the researchers found that technology had a profound effect on converting to a student-centered classroom and facilitating a constructivist environment. Teachers encouraged collaborative work and cooperative learning, and students completed more complex tasks that lead to performance-based evaluation. Dwyer and his research team with the ACOT project concluded that further research was needed to explore the link between teachers' technology use and their classroom instructional practices.

Karen Cator, the director of the U.S. Department of Education's Office of Educational Technology, took what numerous researchers, including Kent and McNergney, the ACOT project, and many others, and partnered it with President Obama's initiative to compete globally for educating our citizens (Scherer, 2011). She applied the research from the nation's new National Education Plan directly to how it would meet students' digital needs (Scherer, 2011; Atkins et al., 2010). She believed that not only did teachers' technology use need to be enhanced but that students needed their own digital devices. They needed to be able to use the information they access, and teachers should help them develop the skills to collaborate and communicate online as often as possible, so they could understand what it means to live in the digital world. Cator added that to achieve the new national vision for technology in schools, every educator must be highly connected and schools must supply teachers and students with broadband so they can effectively integrate technology. Her belief that teachers must be prepared to teach with and through technology mirrored what the experts at the U.S. Department of Education were advocating (Atkins et al., 2010). In their plan, *Transforming American Education: Learning Powered by Technology* (Atkins et al., 2010), the Office of Educational Technology discussed extensive research conducted on the role of technology in education. Atkins and his team of researchers found that developing technology use in the classroom would improve assessment options, while also shifting teachers' thinking about instruction. They also revealed that collaboration across the curriculum served as a better model than solo instruction, and that connected classrooms benefited students and teachers. Having that expectation for quality teaching and the accountability of it, they explained, was imperative to being innovative and strengthening the teaching profession. The outcome,

they believe, would be to raise the standards of teaching so as to attract the highest quality educators to the field. “Just as leveraging technology can help us improve learning and assessment, technology can help us build the capacity of educators by enabling a shift to a model of connected teaching” (Atkins et al., 2010). Ultimately, Cator, along with Atkins and his team, believed that educating our digital citizens and finding ways to reach all students, not just focusing on the cream of the crop, would raise the expectations of American education (Scherer, 2011).

These studies focus on the future of education in separate research projects, but Kent and McNergney, the ACOT project, Cator, and Atkins et al. share a common vision for American education: to prepare our youth for a digital world and to inspire our teachers to educate with the technologies that relate to them. From single researchers to the Department of Education, the nation is exploring how to move education forward, and there is no mistaking that technology should play an important role in that initiative.

Technology training for teachers and administrators. To embrace Cator’s push to bring the United States to the forefront of technology innovation and a leader in educating its citizens, researchers have focused on how to best train teachers to support and implement technology in the classroom. The following studies dealt with two sides of that training. The first addresses the top-down philosophy of training administrators so that they are inspired to integrate technology into their schools and advocate training for their teachers. The other side is the important for-the-classroom training of teachers that prepares them to incorporate technology skills and tools in their daily teaching.

Interestingly, Rakes was involved in two separate research studies that investigated the impact the amount of technology training principals or teachers received had on the

integration of technology in that school or classroom respectively. He explored that top-down philosophy with Dawson (2003) when they investigated whether the amount of training a principal received impacted their integration of technology in their school. In their article, *The Influence of Principals' Technology Training on the Integration of Technology in Schools*, they examine how much technology is incorporated into the K-12 curricula and its correlation to how much training, as well as the kind of training, principals received. What they found was that not only did the amount of training impact how much integration occurred, but the age of the principal had an effect as well. The older the principal, the less technology was integrated.

Dawson and Rakes (2003) also found that technology would only affect teaching methods positively – and thus improve student learning – if teachers possessed a modicum of technology-related skills that they would actively use. Principals, therefore, not only needed to be trained but also needed to pass that training on to their teachers. In order to encourage technology use, teachers and principals should receive appropriate, research-based training, along with the opportunities to practice the skills. The encouragement and support administrators provided to teachers had a direct impact on the school's adoption and utilization of technological skills (Dawson & Rakes, 2003).

In his second study, Rakes conducted research along with a colleague and a PhD candidate, and their project focused on teachers rather than principals. Rakes, Fields, and Cox (2006) looked at a teacher's technology experience and skills and how much he or she used in the classroom. Following the lead of Papert (1980, 1994) who asserted that computers could be a powerful and important learning tool for all teachers, Rakes, Fields, and Cox took Papert's beliefs a step further and employed a Moersch instrument, the

Levels of Technology Implementation (LoTi). They administered the LoTi with fourth and eighth grade teachers from eleven districts to determine whether levels of technology use in the classroom correlated with personal computer use, and if that predicted a teacher's use of constructivist classroom practices. They found that there was a positive correlation between personal computer use and instructional use, as well as constructivist activities. The strongest predictor, they found, was with personal computer use. In other words, the more comfortable teachers were with computers at home and the wider range of programs they used, the more likely they were to bring similar programs into the classroom and facilitate learning in a student-centered environment. They reiterated Papert's assertion that teachers ignored the broader possibilities of computer use in the instructional process across all areas of curriculum, and by embracing the constructivist approach, they would allow students to integrate their own computer skills and experiences into the classroom.

Authentic and relevant technology use, they found, could reinforce greater cognitive skill development, as well as complex thinking skills like reasoning, decision making, problem solving, and scientific inquiry (Rakes, Fields, & Cox, 2006; Moersch, 1999). "Teachers use existing technology to transform classrooms into dynamic centers of purposeful and experiential learning that intuitively move students from awareness to authentic action" (Moersch, 1998, p. 53). They further advocate the constructivist classroom that uses communication and visualization tools to increase student achievement by creating collaborative environments (Rakes, Fields, & Cox, 2006).

Like Dawson and Rakes, Langran's dissertation (2006) focused on the impact of principals' and technology coordinators' experience and training, and how much technology was integrated into a K-12 curriculum. In her dissertation research, Langran

studied one school district's attempt to build technology leadership among administrators – primarily principals – and technology coordinators in seven schools. Langran focused on how well the school integrated technology into the classrooms by first establishing a foundation of strong leadership. Results indicated that once technology coordinators had a defined role and the teachers understood the expectations of the coordinator, the essential component to the district's success was the principal's expectation of technology use, training, and modeling. Frequent planning meetings and consistent communication between principals, technology coordinators, and teachers were keys to technology implementation and integration and played a significant role in maintaining similar goals and expectations for classroom technology use. By building leadership in teachers, the principals and technology coordinators created a model of sustained leadership even if personnel changed. Langran also found that trust played an important role in increasing technology risk-taking in teachers. If teachers trusted administration to support their technology goals, then they were more likely to continue trying new innovations with their students.

Langran highlighted the administrators' impact on sustaining the level of technology training across a district. Frank, Zhao, and Borman (2004) addressed specifically the role training and communication played in teachers' perceptions of new technologies and their implementation. Langran pointed out that if the technology coordinators and other administrators were trained, then new personnel could be easily trained as well. Frank, Zhao, and Borman argue that many districts are controlled by district policies and philosophies that make it difficult to go from training teachers to guaranteeing implementation of skills acquired.

Using longitudinal and network data for their study, Frank, Zhao, and Borman (2004) explored computer technology in schools in a research article in *Sociology in Education*. They focused on the standard model of diffusion that suggested that people's perceptions about an innovation change through communications, and these perceptions drive implementation. Implementation, however, can be impacted by more instrumental forces. Frank, Zhao, and Borman point out that even though we have learned a great deal about improving educational practices, far less is known about the process for implementing new practices (2004). The authors discovered that the access to experts for training and help in facilitating technology implementation was most important to teachers, and if that did not happen, the pressure to stay up-to-date increased but the effort to do so did not.

At the crux of the training issue are the students. Researchers agree that training is imperative to integrating technology in the classroom, and digital natives know the difference between what they are doing at home and what many of their teachers are doing – or not doing – in the classroom. Doherty and Orlofsky (2001) conducted a study of 500 students in seventh through twelfth grade that centered on how teachers used computers for learning. The students revealed that their teachers did not use computers in sophisticated ways, and the researchers found that if teachers were not offered useful support to integrate computers, then students were unlikely to use them in a way that improved learning (Fuller, 2000). This supports the studies mentioned in this section and reinforce what we have learned in the decade since this research: teachers must be prepared to teach digital natives and motivated to integrate digital opportunities.

These studies point out that simply training teachers is not enough. Sustaining

professional development, devising plans to guarantee classroom implementation, and building teams to assist teachers may be keys to making that happen. One point of consensus remained clear: teachers needed training, support, and an open line of communication to transition to frequent users of technology in the classroom. For students to become productive digital citizens in a digital environment, teachers must be given the opportunity to enter that digital world.

Integrating technology in the classroom. While research on the future of education and on training teachers is not only important but imperative, the following studies focused on the step that Frank, Zhao, and Borman (2004) found to be the most difficult: implementing technology in the classroom. For teachers to transfer what they learn into their curriculum, they must not only buy into it but understand it well enough to integrate it into daily practices. Where previous practices allowed teachers to use technology in isolation (whiteboards and clicker systems, for example), today's push is to embrace and create a digital environment. The following studies address education programs and preparing future teachers, student and teacher perceptions of technology use in the classroom, and how an expert teacher masterfully integrates technology in her curriculum.

A growing number of studies have focused on today's classrooms and the role technology can play in it, but one of the most prominent has been Sara Kajder. She published technology-focused work prior to her PhD work, but her dissertation (2005) targeted preservice language arts teachers and their beliefs and practices when using technology during student teaching. Similar to my research, Kajder studied secondary English preservice teachers who were faced with the challenge to incorporate multiple

technologies in the multi-modal classroom. She concentrated on the shift in national technology standards, the raised expectations for including a broad range of technological experiences for students, and the application of content and pedagogical knowledge while taking advantage of technology tools. While she addressed the need for teacher education programs to integrate more technology in undergraduate preparation, her study of five preservice teachers focused more on the student teachers' ability to work in a technology-integrated setting. Analyzing the data using analytic induction, Kajder made several empirical assertions: the cooperating teacher's instructional beliefs played an important role in a student teacher's integration of technology; and no matter a student teacher's instructional philosophies (content-centered vs. student-centered), the ways they consider technology differed based on the technology and the way in which it was to be employed. She established in her findings that technology should be used and seen as a tool, not a goal. In the years since her dissertation, Kajder has further explored the role of technology, publishing extensively about technology in education. Her research has targeted technology in some realm for nearly a decade and resulted in her being the first to receive a technology fellowship in English/Language Arts to aid her quest in bringing digital opportunities to students and teachers (Rebora, 2012).

Similar to Kajder's dissertation, Shoffner gathered research for a journal article (2007) that explored the preservice teacher's need to construct a pedagogy that included technology use in the classroom. An associate professor in Purdue's teacher education program, Shoffner considered weblogs and how they could help prepare preservice teachers to teach with technology. She addressed that the issues of access, support, and time for students and teachers to embrace technology in the classroom. Ultimately, she

found that when language arts teachers integrate technology effectively into the curriculum, students are more positively engaged in the learning process. Likewise, she asserted that preservice teachers needed to construct a working pedagogy that included technology in teaching and in learning. A practicing English teacher educator, Shoffner explained that preservice teachers must reflect on their learning practices and the implications for their future classrooms and be willing to embrace technology and all it has to offer. Teachers, she believed, should not only ask what they should do in the classroom but be just as quick to ask why they should do it.

Both Kajder and Shoffner found that preservice teachers with active involvement in classroom technology during their teacher preparation gained a positive outlook on technology integration. While Kajder asserted that the cooperating teacher had a direct impact on the student teacher's philosophy regarding technology integration, Shoffner also found that continual self-reflection played an integral role in a shift in pedagogical beliefs.

Embracing that shift in pedagogical beliefs, Lauro (2005) focused his dissertation research on teacher perceptions of staff development for technology integration in the classrooms. Like Frank, Zhao, and Borman (2004), who looked at how training and communication affected teacher's technology perceptions, Lauro tackled not only technology training for teachers but also how to integrate it into the curriculum. Over a three-year period in one district, he analyzed what the teachers perceived as essential when it came to technology innovation and implementation. Similar to the findings of Frank, Zhao, and Borman, Lauro discovered that most teachers with a neutral or ambivalent opinion toward technology use in the classroom can alter that attitude with intensive staff development. He included findings from other researchers who reached the same

conclusions (Muir, Manchester, & Moulton, 2005; Meltzer, 2006).

On the other side of the desk, Weinberg explored student perceptions of technology use for her dissertation (2010). While her targeted participants were the different, much of what Weinberg found had a similar tone. She noted that many technology studies focused on high school or college students, including future educators, but little research had been done on elementary students who had been identified as true digital natives. Her qualitative case study was conducted in a third and fifth grade classroom in which she observed sixteen different technology lessons. Both teachers were taking courses for their Masters in Instructional Technology at the time of the study (2009-2010), and Weinberg's goal was to find out the students' likes and dislikes related to technology. She found that the children maintained a positive perception about technology even when experiencing frustration or glitches with equipment, they enjoyed schoolwork more when allowed to use technology, and the students felt it improved the quality of their work. Weinberg further suggested that teachers should take into account their students' technology perceptions when designing classroom lessons and projects, falling in step with the research done by U.S. Department of Education (Atkins et al., 2010; Scherer, 2011). The goal for teachers is to prepare students to be career and college ready, and the standards provide a guide for them to successfully do that (Corestandards.org, 2012; Iste.org, 2008).

A bridge into higher education research, Lumpkin conducted an exploratory case study that examined a university's faculty experiences with technology innovations (2012). She believed teacher educators were role models for current and future teachers, therefore designed her study to explore the experiences of education faculty when learning a new technology. The qualitative research examined faculty members' experiences while

learning LiveText as an innovation for classroom instruction, and her research outlined the teacher educators' experiences. She described the climate of change occurring in teacher preparation, including the faculty members' acknowledgment that there was a need for change. By including faculty members in the study, it revealed that teacher educators becoming experts could aid future innovations by having areas of expertise among faculty members.

This study, similar to the research of Kajder (2005), Shoffner (2007), and Lauro (2005), brings into focus the importance of teacher preparation and training practicing educators how to integrate technology into their classrooms. That preparation can begin with preservice teachers or it can serve as quality professional development, because research has shown that intensive inservice can have a positive impact (Lumpkin, 2012; Frank, Zhao, & Borman, 2004; Dawson & Rakes, 2003; Langran, 2006).

Summary. With the innovations of technology and continual shifts in educational reform, school districts will continually strive for ways to stay relevant with students and current with educational standards. The three areas discussed have played and will play a significant role in that growth. The impact of technology on education has been evident with the standards and with the continual emergence of studies focused on how to prepare teachers for all the changes on the digital horizon and the barrage of innovations inundating teachers. From Kent and McNergney's (1999) assertions that staying up-to-date on innovations was one of the toughest battles for teachers to Karen Cator's (Scherer, 2011) insistence that teachers be properly prepared to teach digital natives. In a time when many teachers had to accept students being the more digitally experienced, Cator raised awareness that schools needed to embrace the shifting times and focus on creating digital

citizens. With technology training for teachers and administrators, researchers supported the belief that the better prepared teachers are, the more likely they will be to include the innovations in their classroom. To embrace technology, the likelihood of a school integrating it into their curriculum started at the top. A technology-focused principal was more likely to be able to motivate a staff to join the movement. Integrating technology in the classroom, whether for the process or product, started with convincing teachers to transfer what they have learned about technology into their daily lessons and way of thinking. As Frank, Zhao, and Borman (2004) stated, implementing technology in the classroom was often the toughest sell. Teachers have to buy in and know the skills well enough to be comfortable with it. To teach with technology, the learning has to first start with the educators.

Research on Digital Storytelling

In the past few years, numerous studies have begun to emerge that focus specifically on digital storytelling. While this is only a sampling, a conversation on a dissertation blog site about current studies in educational research revealed digital compositions and digital storytelling as a new trend. The following studies and articles focus solely on digital storytelling.

Bringing the Outside In: Visual Ways to Engage Reluctant Readers and the *English Journal* article **Enter Here: Personal Narrative and Digital Storytelling**. Sara Kajder (2006, 2007), a practicing English teacher, describes reading in much the same way Stephens and Ballast (2011) describe writing. The reading going on outside of school is far different than what is being read in school. Kajder explains how we are forcing students to embrace print text when what they are choosing to read and write involves texting,

blogging, multi-player video games, as well as interacting in original textual worlds they have created that include images, words, and music. In her book *Bringing the Outside In* (2006), Kajder discusses how to adapt curriculum to incorporate the evolved and expanded definition of literacy and what we think of as literacy tools. Her research has centered on the philosophy Hicks (2009) embraced in realizing that we must engage students by meeting them where they prefer to work: online. Kajder furthers her work by not only advocating we meet them there but also getting teachers to draw on those cyber activities and skills when students are in our classrooms. If they prefer to text, then how can we employ texting as a mode of learning, of communicating, of turning in homework? Kajder insists teachers must adjust the way they think and realize that not only has learning changed, but teaching should as well. Integrating digital storytelling, visual think-alouds, visual literature circles, and other authentic reading and writing activities will engage the reluctant readers and writers, and that to adapt with the changing times shows that teachers are willing to learn (2007).

Crossing Digital Bridges. Sandy Hayes (2010), editor of *Voices from the Middle*, describes a project she did with 8th graders in 1990, using Apple IIe computers, that connected classrooms from across the country to discuss cultural differences. She believed that students could learn a great deal from others beyond their immediate community, and now, as she explains, those connections are far easier to make and farther-reaching. She includes a set of questions adapted from The Asia Society to help teachers employ a project similar to hers:

- Is the project driven by relevant essential questions?
- Does it develop media literacy skills, taking into account perspectives from beyond the United States?

- Does it build on existing knowledge as well as generate new knowledge?
Does it use primary sources from around the world, as appropriate?
- Does it engage a global audience through online publishing?
- Are there opportunities for genuine real-time contact?
- Does it have real-world outcomes?
- How genuine is student engagement?
- Can you harness the power of virtual simulation and serious gaming?

(Hayes, 2010, p. 48)

The research she conducted for this article revealed programs such as:

- *Global SchoolNet* (www.globalschoolnet.org). This collaborative global project teaches the importance of diplomacy and international affairs.
- *ePals Global Community projects* (www.epals.com). They partner students and teachers on projects involving digital storytelling, habitats, global warming, local culture, maps, natural disasters, etc.
- *Taking It Global* (www.tigweb.org). Students share blogs, contribute to art galleries, and the Panorama zine, as well as participate in games that help them understand other cultures.
- *Challenge 20/20* (www.nais.org). Partnered schools select from a list of twenty problems to research, and propose local solutions presented in various genres and media formats.

Hayes includes the value of gaming as global collaboration, by embracing Technology Entertainment and Design (TED) presenter Jane McGonigal's gaming expertise into how serious games can have an enormous impact on society's efforts to promote tolerance, environmental solutions, and social justice. In less than a week, Hayes notes, \$1.5 million was raised for relief in Haiti through sales in games like FishVille, FarmVille, and Mafia

Wars played on various social networking sites. Hayes points out that these games may not be contributing to solving the world's problems; however, it illustrates gamers' desire to be part of the solution. Other programs now foster the same "do-good" mentality: Games for Change, Playing 4 Keeps, Institute of Play, Toolsforstudent-designedgames, to name a few.

The value of Hayes' research is that she also includes the standards these programs and their projects support, supplying teachers with the validation to incorporate this type of learning in their classrooms. In an era of testing, it gives teachers the incentive they need to embrace digital learning.

Digital Storytelling as a Cultural-Historical Activity: Effects on Information Text Comprehension. The research Maryann Tatum (2009) conducted for her dissertation focuses on digital storytelling and the potential impact it can have on comprehension skills. According to Tatum, with "the robust roll [sic] of technology in our daily lives, research suggests that educators need activities to connect students' lack of reading skills with their growing multimodal literacy" (abstract, 2009). While participating in directed reading activity (DRA) work, students were creating digital stories based on information gleaned from the DRA. Tatum acknowledges that digital storytelling had been recognized as a tool to entice students to write and create; however, it had not been empirically studied as a comprehension activity in a classroom. Employing Vygotsky's Cultural Historical Activity Theory, or CHAT (1978), Tatum allowed this theoretical framework, along with Burke's Pentad of Analysis (1964), guide her mixed-methods study. Her questions dealt with the effects of participation in the DRA modified by digital storytelling, and ultimately, she wrote:

[D]igital storytelling does show promise as a multimodal instructional activity, and the discussion expands to several implications and recommendations of future research on this instructional activity. (Tatum, 2009, p. ii)

Important to note is that Tatum's research expanded the notion of digital storytelling as a writing activity or extension to the writing process; composing digitally could be a tool to measure reading comprehension as well, allowing students to express themselves in a multi-modal fashion.

Digital storytelling at an educational nonprofit: A case study and genre-informed implementation analysis. In 2009, Lisa Dush conducted research for her dissertation under the direction of Anne Herrington, a proponent of writing across the disciplines and more recently in the digital writing community (*Teaching the New Writing: Technology, Change, and Assessment in the 21st-Century Classroom*, 2009). Dush studied digital stories, defined by her as short videos with narration and images mostly done for personal uses, and considered how these could be broadened to appeal to education and organizations. During her case study, Dush explored an organization called Tech Year that hoped to integrate digital compositions into the Business Writing curriculum. The Writing Director at Tech Year, an intensive one-year job-readiness and college program for 18-24 year-olds in an urban community, had conducted a workshop on digital storytelling, and inspired teachers to integrate digital compositions into their curriculum. Additionally, Dush's study had a second aim that included exploring theoretically informed tools researchers and Tech Year could use to assess the implementation of digital storytelling efforts.

Overall, Dush found that educators experience extreme frustration and resistance to

implementing technology even though they understand the need for it. One of the site directors decided that digital storytelling was not academically beneficial and proposed giving up on the prospect of revamping the curriculum. However, the group, who not only launched the pilot but also completed a syllabus that included a week-long digital storytelling unit, touted successes of many students and presented digital storytelling as a powerful combination of Tech Year's three primary components – writing, technology, and empowerment skills – and believed they were a valuable means of assessing teachers and students (p. 156).

Crafting an agentic self: Case studies of digital storytelling. Glynda Hull and Mira-Lisa Katz (2006) conducted a case study on a multi-year digital storytelling project, focusing on two authors: a thirteen-year old girl and a twenty-four year old young man. The two cases looked at digital storytelling and its multimedia literacy components, as well as the social context that took place in a community center called “DUSTY” (Digital Underground Storytelling for Youth). Their research focused on how digital storytelling empowered their subjects with powerful motivation and means to create and give voice to their agentic selves. Digital storytelling, according to Hull and Katz, allows students to articulate important events in their lives and helps develop a sense of agency about their current identity and community. Further, they describe digital storytellers, including the participants at DUSTY, as using these technologies to allow themselves to play a significant role in authoring their own lives. Their research of narratives of self and how important personal storytelling can be to early socialization and self-construction (Miller, 1995; Miller, Hoogstra, Mitz, Fung, & Williams, 1993) reveals how we gain a sense of agency through exploring our past and dreaming about our future (Ochs & Capps, 2001).

Much of their framework of study was grounded in their research on how to foster agency, and a great deal of their work centers on Bruner's (1994) narrative studies about spoken autobiographical accounts and his commentary about "turning points" (p. 83), specific times when people report drastic changes in their lives and likewise depict equally drastic changes in their self-representations. These turning points become a focal point in an autobiographical digital story, and to Hull and Katz, this form of literacy can include choosing available technologies to express and communicate. They also assert that this type of expression and exploration is a powerful means of learning, as validated by Shirley Brice Heath (2000):

The swirl of verbal, visual and gestural interactions that proceed out of engagement with multiple modes of representation ensures development of abilities to focus, strategise [sic], discern and explicate components and integrate possibilities through future scenarios. The future curriculum needs to integrate visual, verbal and other representational modes as schools move closer in goals and process to non-school learning communities and organizations. (p. 121)

Additional Digital Storytelling Literature by Practicing Teachers

Aside from the previous research studies, there have been numerous teachers who have emerged as leaders in the field of digital writing workshop and the use of digital storytelling software to improve writing instruction: Troy Hicks (*The Digital Writing Workshop*, 2009); Elyse Aidman-Aadah and Danielle DeVoss (with Hicks in *Because Digital Writing Matters*, 2010); Lisa Miller (*Make Me a Story: Teaching Writing Through Digital Storytelling*, 2010); and Liz Stephens and Kerry Ballast (*Using Technology to Improve Adolescent Writing: Digital Make-Overs for Writing Lessons*, 2011). These

practical texts have proven to be foundational resources for digital writing workshops for teachers and researchers.

The Digital Writing Workshop. Hicks continues work he had started with Aidman-Aadahl and DeVoss, not only in this text but also on his daily writings. His online blog (hickstro.org/) offers insight into what is new and being discussed politically, academically, and in practical application. Hicks' ning (digitalwritingworkshop.ning.com/) allows interaction between a multitude of writing teachers' blogs and websites. It serves as a central location for teachers to read about what others are doing in their classrooms and to gain expert input and insight into those ideas. It is through this ning that many educators link to practices they would like to try but can first read about others' successes and/or failures. Finally, his wiki (digitalwritingworkshop.wikispaces.com/) is a forum for conversation between teachers. It generally serves as a platform for conversation among teachers and teacher educators, to chat about what they are reading professionally, what trends they are seeing with children and adolescents, and anything else that is being discussed about digital literacy. It is often where teachers go to discuss what they have seen or read on Hicks' primary website, or to engage in conversations about digital literacy theories and practices. Where the ning is geared toward activities ready for classroom use, the wiki often focuses on the theory and research for those considering digital writing workshop either as a classroom practice or as a focus of their own research projects.

Penny Kittle, author of *Write Beside Them* (2008), states in her foreword to his book that Hicks "unravels the labyrinth of new terms and applications...guides us toward a writing workshop for this age...and his steady, smart advice eases the transition from the elements of writing workshop we know matter to the tools that can take each to a new

place...with a decidedly updated feel” (2009, p. vi). Kittle goes on to point out that the pillars of writing workshop are not cast aside in Hicks’ text, rather he broadens the vision, encompasses what is relevant today, and guides educators through the possibilities of how today’s technologies can enhance classroom activities. Several other texts write about the online world changing writing; however, Hicks shows how to use these emerging tools students are already embracing to enhance the writing instruction teachers are currently doing effectively. Each chapter of this book is organized around the proven principles of writing workshop: student choice, active revision, studying author’s craft, publishing students’ digital writing, and assessing the process and the product. He even tackles the practicality of copyright in the cyber world.

Hicks points out that while new literacies literally develop at what feels like the speed of light, it is important to be involved in the dynamic process in a way that does not allow teacher or student to stagnate with any one thing that works today but may not tomorrow.

Newer technologies and media-rich environments are enabling what have been called *newer, multiple, or digital* literacies. We, as teachers of writing, are still coming to understand how these literacies interact with – and sometimes change – the principles of the writing workshop. A number of texts have explored the ways in which particular digital writing tools work, and ways to engage students in digital writing, yet I do not feel as if they offer a vision for what it means to teach in a digital writing workshop.

This book aims to fill that void. (Hicks, 2009, p. 5)

Because Digital Writing Matters. The National Writing Project published this book in 2010, with the help of Danielle DeVoss, Elyse Eidman-Aadahl, and Troy Hicks,

bringing a focus to the new landscape of digital writing. This serves as a manual for understanding the new frontier of writing; students are adept at the digital component but they lack the skills to craft an essay. The authors of this text offer help in bridging what students are writing digitally with the necessary skills to write academically. They acknowledge that much of the writing students are doing online does not adhere to standard writing conventions, but that they are being asked to create online projects and multi-media productions that require writing. This book gives insight into how to integrate the newer technologies into writing instruction and specific lessons, while adhering to the idea of quality writing, no matter where it will appear. DeVoss, Eidman-Aadahl, and Hicks discuss writing in the information age, and they believe that digital tools allow teachers to have a greater impact on writing (2010).

Students lives revolve around writing of some kind – they write in and for school, and 93% say they write for their own pleasure, even though they do not consider what they do in blogs, texts, and social networking as traditional writing (Lenhart et al., 2008). Writing is something they do in school, and they believe what they do online is *something else* (DeVoss, Eidman-Aadahl, & Hicks, 2010).

Once teens begin to explore writing on the computer, on the web, on their phones, their mission is varied. They write to inform, to persuade, to lure, to connect, and no matter the intent, the forum, or the format, they enjoy it. However, when those same writing purposes are set in the school context, their perception changes, even if the writing's basic purpose does not. Burke would claim that students are still persuading, that their rhetoric has evolved, but they are still persuading through text, no matter its context or form (1969). “Wherever there is persuasion, there is rhetoric. And wherever there is ‘meaning,’

there is ‘persuasion’” (Burke, 1969, p. 172). The disconnect seems to be in the students’ minds: *If it is for school*, they reason, then it cannot be the same as the writing they are doing at home that is fun. The teacher’s challenge is to bridge this perception.

When the Pew Research Center and the National Commission on Writing set out to answer the question: how do digital natives view the act of writing with words, a majority of all kids surveyed said they enjoyed nonschool writing, over half saying they enjoyed it a great deal; in striking contrast, only 17% said they liked writing in school because it was not like the writing they preferred to do at home – on the computer (Stephens & Ballast, 2011). Lenhart et al. (2008) ask the important question: how do we connect the formal writing teens do for school with the informal e-communication they exchange on digital screens? *Because Digital Writing Matters* offers a possible answer with an equation: “digital writing = writing + reading + listening + collaboration” (2010, p. 21). Writing well, the authors remind us, is hard work. It includes taking risks, exploring new avenues, brainstorming, being metacognitive, and eventually revising, editing, and publishing.

Entering the digital world, teachers and students cross into a domain without limitations. Classrooms are as big as a teacher allows it to become, and students can now have a conversation with anyone with Internet access. Within the context of the digital world, that talk takes place in many formats, and can even be face to face via programs like Skype, Google Hangout, ooVoo, iChat for Mac users, or TinyChat. Students and teachers can meet online to discuss a class project, a collaborative writing, or a homework assignment. Students are talking now more than ever, without the limitations of being in the same space.

By the same token, writing is not limited to telling a story in traditional format or in

the same mode. In the fall of 2010, President Obama proposed an initiative for kids to write and create a video game as a way to promote Science, Technology, Engineering, and Math (STEM) education (National STEM Video Game Challenge, 2011). Video games are not the first mode that comes to mind when we think of innovative writing, but the opportunity to create them motivated thousands of kids to compete in the STEM Challenge. Kids view this different kind of writing as fun and motivating, and it clearly demonstrates that new digital territories are not on some distant horizon. They are in our dens and offices, on our desktops, laptops, iPads, and smart phones.

Quality writing today must consider the writer and the reader, and being able to step in and out of a text as it is reworked for a specific rhetorical situation. When computers became a central component to writing, many believed it would make writing faster and easier, though as DeVoss, Aidman-Aadah, and Hicks note, that while it did allow writers the potential to engage in writing more easily, it also changed writing in several ways. New concepts emerged: cutting and pasting, saving multiple drafts, proofreading in minutes, and interacting on a single draft. Other complexities emerged as well, such as the idea of multi-media writing with voice recording; video applications; and layering text, voice, and visual imagery. The possibilities of sharing writing also changed with RSS-feed (rich site summary) readers, wikis, blogs, nings, google docs and its equivalents, and a plethora of social networking sites that allowed writers to share instantly. DeVoss, Aidman-Aadah, and Hicks challenge what many call the “digital revolution” and their belief that computers in the classroom are not the answer (p. 20). The revolution is not, as the authors point out, about the tools but how the tools are used.

Many technologies have changed writing and writing processes – from chalk to pencils to the typewriter. The networked computer

has *dramatically* changed writing and writing processes, and the ways in which people are using the Internet, as well as the sheer numbers of people writing on and with the Web, are having significant social and cultural impact. (2010, p. 20)

Digital multi-tasking for those who were not born with a cell phone in one hand and their computer in front of them may feel new, but for those born in the era of the world wide web, it simply *is* (DeVoss et al., p. 23). Digital tools and Internet are so interwoven into the fabric of their lives, of their existence, that there is no comprehension of a world without it. One key insight the authors of *Because Digital Writing Matters* focus on starts with the idea that quality writing is still about the scaffolding of skills and that composing still relies on stages of planning and reflecting, drafting, revising, all while still considering audience. It is still about collaboration, brainstorming, and getting feedback from others. What has changed is the space in which they do many of these things: planning may be in a concept-map program; drafting could be a word document or a website program; revising might be in google docs or typewith.me; and collaboration may be via text, email, or in the same programs in which the revising occurs. Steve Hargadon, director of K-12 Open Technologies Initiative at the Consortium for School Networking (CoSN), founded the Classroom 2.0 social network and had a webcast conversation with a fourteen-year old student who offered this advice to future teachers:

Stop being so disconnected from the technology...learn that there's new ways of learning. It's not about learning the knowledge, but learning to think. All knowledge is a Google away. (Hargadon, 2007)

Make Me a Story: Teaching Writing Through Digital Storytelling. Lisa Miller (2010) explores how the language of teaching writing has changed. No longer “tell me a

story” but the idea of using digital storytelling to show the story, not just in an illustrative way that images in a book can do but in an interactive, video-based way. Additionally, Miller describes the digital composing that can motivate deeper thinking about a text. What would a student create if she pretended to be the main character in her book? How could he compare and contrast Harry Potter and Frodo by creating a website for each? How would it change a student’s idea of writing if she knew she would be creating a digital composition to sell a story to her peers, especially if she were the author?

Miller’s research, inspired by Donald Murray’s *Write to Learn* (2004), follows a natural progression, beginning with stories and the reasoning to tell them digitally. Interestingly, she addresses taking students through the writing process, first in the truest sense. In an interview with Jane Yolen, noted children’s author, Miller followed the advice from Yolen to value the process, not the product. Though Yolen had not been the first to offer these words of wisdom, Miller lists the steps it motivated her to consider for her students:

- Write before writing
- Research for writing
- Begin writing
- Keep writing
- Finish writing

Within each of the five steps, Miller adds a digital possibility and expands on the idea of “showing.” When students create digitally, they are motivated not only to be concise with their words, it also inspires them to be creative with the video and transition possibilities (p. 51). Miller also describes how to alter photographs, clever editing strategies, as well as using effects on text-only slides to enhance student writing. After

explaining how to do voice-overs, add podcasts and vodcasts to a video, she finally addresses the important component of assessing digital compositions. With the addition of technology learning standards implemented in most states, the final chapter outlines how digital compositions not only meet the standards related directly to technology, but to traditional writing standards as well. Miller explains how seven out of twelve language arts standards listed on the NCTE and International Reading Association (IRA) websites are met with digital storytelling (p. 80). She lists each standard and depicts an example of how a digital composition met it. Not only can educators and writers grasp the standard and the related activity to satisfy it, they can then transfer that knowledge into their own teaching and writing.

Using Technology to Improve Adolescent Writing: Digital Make-Overs for Writing Lessons. In the foreword for this book by Kerry Stephens and Liz Ballast (2011), Gail Hawisher writes “New Opportunities for Writing and Its Teaching: Thinking Digitally” (p. vii). As a fellow member of the National Advisory Panel for the National Commission on Writing with Liz Stephens, Hawisher has insight into both Stephens’ work and her work ethic. The key to this text, Hawisher points out, is that it addresses the quote by Richard Sterling, Chair of the National Advisory Panel: “What would it take to turn exceptional writing instruction into everyday classroom practice” (Stephens & Ballast, 2011, p. vii). Hawisher explains how Stephens and Ballast focus on how writing instruction can be exceptional and the role digital media can play in contributing to its excellence. But the primary offering of this text is that it grounds itself in theory hoping to expand teachers’ attitudes toward learning, while simultaneously describing effective and innovative classroom strategies. In the midst of publications that fall into theory or a

practitioner's guide, this text, according to Hawisher, balances both (p. vii).

The research Stephens and Ballast have done begins with what writing looks like and can be and do in the digital age. To show the relevance of writing in the new era, they share data about the business of social networking, including the explosion of micro-blogging: Twitter grew by 1,384 percent between 2008-2009, now in excess of over 300 million users, twice what it was in 2010; statistically, teens prefer Plurk (p. 2). They also explain the dichotomy with teenagers: almost a third do not graduate from high school, yet they are e-business owners; the business start-up rate is higher among 18-24 year olds than 35-44 year olds (p. 3).

Their research purpose started as a possible look at addressing issues surrounding implementation of technology in the classroom, including the obstacles due to lack of equipment, lack of professional development, and the digital divide. They considered catering it to classroom teachers as a practical manual that offered lessons ready to use for writing instruction. Ultimately, they focused on helping educators recognize how students are adept with technology outside the classroom and what we can do to motivate them to employ the same enthusiasm at school. With that mindset, they addressed the digital divide, the chasm between digital natives and digital immigrants, and what the landscape of education could look like if we provided a bridge between the two.

Stephens and Ballast assert that digital compositions can support the teaching and learning of writing in such an extraordinary way when integrated into everyday classroom activities. They share data that signifies how our world has changed and the possibilities for the future of writing:

- 1,000,000,000,000 (one trillion) – approximate number of unique Uniform

Resource Locators (URLs) in Google's Search index (Social Media, Web 2.0 And Internet Stats)

- 112,486,327 hits of the most viewed video on YouTube (Social Media, Web 2.0 And Internet Stats, as of 2009)
- 346,000,000 people globally who read blogs (Social Media, Web 2.0 And Internet Stats, 2011)
- 2,482,745,762 total tweets on Twitter (Social Media, Web 2.0 And Internet Stats, as of July 6, 2009, 9:45 CDT)
- 230 million daily tweets (Dugan, 2011)
- 150,000,000 active Facebook users (Stephens & Ballast, 2011, p. ix)

The authors ask, "Since teens are reading, writing, and creating extensively on the Web, shouldn't educators explore how they are doing that?" (2011, p. x). By using digital media that fosters digital literacy, they state, teachers investigate how the writing process has evolved and what it can be when writing includes: text; visuals such as images, video, and animation; narration, music, and other sounds. Major universities' courses have evolved to meet the need; Stephens and Ballast were motivated by course titles like "Digital Media and English Studies (Ohio State University), "Multimedia Writing" (University of Iowa), and "Digital Literature" (Yale University). Our lexicon has also evolved to include terms like wiki, ning, blog, and multimodal; the digital age's effect on communication, they insist, is being considered in higher education. Stephens and Ballast believe we must make sure teachers are embracing the same attitude at the K-12 level, where the digital natives are.

Summary. The beauty of the digital materials available to teachers, as the previous list of both research and practitioner writings exemplify, is that educators are writing them. Many of these books and articles include ideas for implementation, even justification for

administrators for why they should be teaching with technology and what it can look like in the classroom. The ideas of making a story, of showing a classmate an illustrated characterization, and including a visual component to any writing has changed the way students and teachers think about writing. Luckily for teachers, there are now many resources to aid them, and many of them are written by practicing teachers who have written about what has worked in their own classrooms.

Meeting a Need

Technology's profound influence on kids, from preschoolers to college-age, drives the demand for digital literacy skills in education. It saturates our students' lives, and we as educators must teach them how to be aware and critical of it, rather than absorbing it blindly and being naïve about its impact on them (Rock, 2009). In the Kaiser Family Foundation's 2005 study *Generation M*, a thorough study of teen technology/media use, today's American students spend almost four hours a day watching television compared to 45 minutes reading (Roberts, Foehr, & Rideout, 2005), and over half of all American teenagers have online social networking sites (Lenhart & Madden, 2007). Additionally, we can consider the following information:

- There is a significant evolution in composition studies with “newer literacies and technologies” (Hicks, 2009).
- Currently, 93% of all teens use the Internet and 64% of online teens ages 12-17 have participated in a wide variety of content-creating online activities (Herrington et al., 2009).
- Nearly one-third of all teenagers do not graduate from high school, and nearly 50% of those interviewed for *The Silent Epidemic* (Bridgeland et al., 2006), a national

survey of self-identified dropouts, said one enormous reason for dropping out was due to boredom and disengagement from school. Over 80% said the likelihood of them staying in school would have increased had classes allowed them to use the digital tools they felt fostered real-world learning (Stephens & Ballast, 2011).

- Digital media, when integrated into school activities, can create the teaching and learning bridge needed in the American classroom (Stephens & Ballast, 2011).
- “The sheer enormity of the number of people who contribute regularly to these sites [Google, Wikipedia, YouTube, blogs, Twitter, Facebook] suggests that teachers and students need to bring these social media into the classroom as both tools and objects of study,” Gail Hawisher writes in the foreword to Stephens & Ballast’s *Using Technology to Improve Adolescent Writing: Digital Make-Overs for Writing Lessons* (2011, p. ix).

If implementing digital practices in any classroom is to be successful, educators must be trained to teach it. The terms *digital native* and *digital immigrant* have been used extensively to describe the differences of those born into the digital era, after 1995 or 96 (digital natives), while everyone born before that is an immigrant, because they came into the world prior to the existence of the world wide web and much of the digital technology that surrounds us now. Marc Prensky (2001) is credited with coining the terms, though he tributes Douglas Rushkoff (1996) with being the catalyst for the concept. Regardless of the origins, they and many others in the past few years define these labels similarly. The labels are subjective; however, as teachers can attest, the availability of technology at home determines how much of a “native” any child can be. That also is not to say that digital immigrants are technologically inept. On the contrary. As Dr. Ofer Zur and Azzia Zur

discuss in their article *On Digital Immigrants & Digital Natives*, many adults fall into a range of categories: avoiders, reluctant adopters, and eager adopters. According to Zur & Zur (2011), those who qualify as *avoiders* probably have little access to newer technology at home or in their jobs; the next stage, *reluctant adopters* see a possibility of needing newer or more technology in their lives but try to avoid it if they can (write letters still instead of emails, call on the phone instead of texting); while the last group, *eager adopters* are enthusiastic or skilled with advancing technology, which makes them every bit as digital as the natives. Likewise, for a variety of reasons, digital natives may not automatically be comfortable with technology due to lack of computer or Internet access at home, pressure from peers who are not conforming to the trend, or simple lack of interest.

Though lines blur between the stages of digital immigrants, one thing is clear: to be relevant in the elementary, secondary, or even higher education classroom, teachers must offer students the opportunity to write and express themselves in ways that are meaningful and appropriate for them. According to Prensky (2001), “the single biggest problem facing education today is that our Digital Immigrant instructors, who speak an outdated language (that of the pre-digital age), are struggling to teach a population that speaks an entirely new language” (p. 2). Although Prensky believes we will never be as fluent as the natives, we certainly can be guides for our students to become digitally literate.

Reading levels for high school texts are far below what they used to be, and American College Test (ACT) and Scholastic Aptitude Test (SAT) scores have declined steadily (Adams, 2011). Whether the scores have declined because of lowered expectations is up for debate; however with access to more challenging texts via the Internet and the possibility of incorporating them into digital compositions, teachers no longer are limited

by budgets. Perhaps with limitless resources and the motivation to learn, both educators and students can challenge one another to become fluent in a digital language with the help of higher-level texts. Prensky fails to acknowledge that digital immigrants can become fluent speakers of the new language when he assumes all instructors speak an outdated language. To make assumptions about natives or immigrants is to pigeonhole an entire population, when in all likelihood, there are variations and overlap of each, and that many who start as reluctant learners may evolve into eager learners. We also cannot assume our digital natives are eager learners, because how digitally literate a child is depends a great deal on computer access, whether in the classroom or at home.

Theoretical Framework

I introduced several theories in chapter one that guided my thinking while I completed my case study. The theories and concepts that I focused most heavily on were social learning theory, a modified transactional theory, thinking and writing, a cross-curricular lens, the role of the workshop in the digital writing process, and teacher preparation and reform.

Social Learning Theory

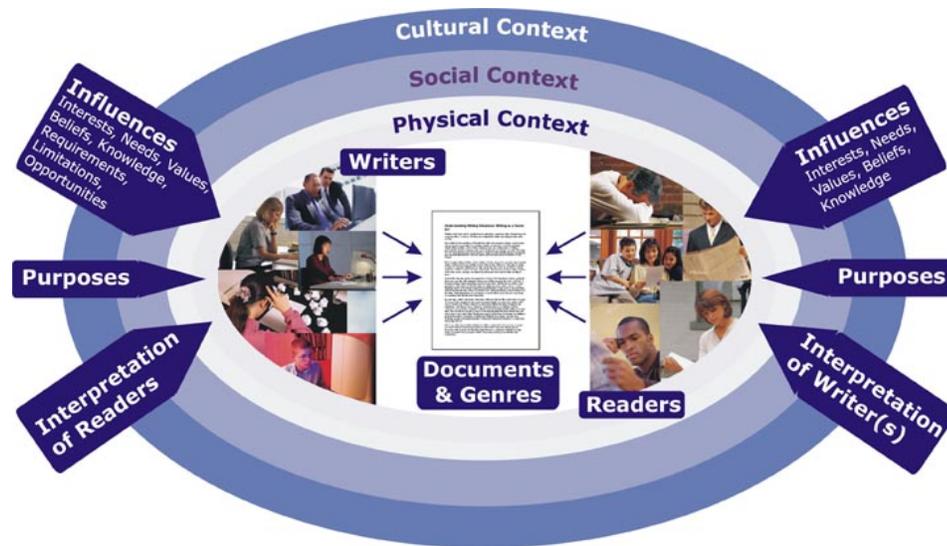
The Internet has continued to change writing, not only in how we perform writing tasks but also in how we view and respond to the writings. In the classroom, primarily in writing workshop or classes that incorporate the workshop mentality, teachers embrace the social nature of the learning process. Vygotsky's (1978) social learning theory, or social constructivism, allows the teacher to facilitate learning while students take charge of their own progress. Capitalizing on student abilities and making use of those with more skill in a

specific area, whether in writing in general or in the digital realm, allows students to enter the Zone of Proximal Development (ZPD). As stated in chapter one, this is an area in which students maximize learning through collaboration with a more knowledgeable peer or teacher. Vygotsky's research focuses on face-to-face interactions among young children, but the implications of his work can also be applied to social interaction while students work side-by-side on computers, on digital writing, and could even be broadened to work for students at their respective homes collaborating digitally in Google Docs, Zoho, Typewith.me, or any other collaborative website. Vygotsky's ideas were a lens that framed my conceptual thinking about digital and collaborative writing, not only with ZPD, but also going deeper with his notion of the More Knowledgeable Other, or MKO (1978). With digital/online activities in the classroom, the MKO may or may not be the teacher, and pairing students with peers who have a greater computer aptitude will benefit both students: the expert will gain confidence and improve his or her skills by teaching another, and the student in the zone will gain skills from being shown how to do the task and continuing to practice.

Writers@CSU posted a graphic on the Colorado State University website (Colorado State University website, 2011) that exemplified the social interactions of digital writing, breaking the model into three components (see Figure 2.1). In the first, they show that a text might be the only contact between a writer and a reader, especially when separated by time and distance; secondly, texts cannot pass meaning along to the reader exactly as the writer meant it to be perceived (and vice versa); and thirdly, the writer and reader bring their own preconceptions, purposes, and biases to a text and is also impacted by the physical, cultural, social, and historical context in

which it is shared (CSU website, 2011).

Social Interaction of Digital Writing



In Figure 2.1, the social interaction that occurs during digital writing is dependant on a great many factors; however, writers from various cultures, places, and backgrounds are able to interact in such a way that adds a significant layer of experience for all participants (Writing at CSU, 2011).

According to Knobel and Lankshear (2007), understanding literacies from a sociocultural point of view means writing is best understood in the context of cultural and social practices to which they are pivotal and integral. This is exemplified by Gee (1996) in what he calls new literacy studies and involve practices that are meaningful ways of learning how to grasp a concept. We practice to make meaning, but it is difficult to have meaning outside of practice (Gee, 1996). To carry that over into teaching interns and students understanding digital literacy, they can hear it, see it, and even superficially comprehend it, but it is not until they practice the skills that digital learners truly understand it. Additionally, the social environment within which they create and practice has an important impact on understanding: hearing a classmate at the next computer describe how to hyperlink a website has deeper meaning when the listener can practice the

skill as he listens, rather than just listening alone. As is evident in the next section, conversations, no matter whom they are with, have played a significant role in learning since the ancient Greeks:

The Greek...was able to sharpen his wits and improve his manners through constant intercourse with his fellows. Few people have been so completely sociable. Talk was the breath of life to the Greek.

(Kitto, 1979, p. 36)

The Role of Talk in Teacher Preparation

I considered Vygotsky's ZPD and Social Development Theory (1978) to explore the role conversation and collaboration played between the interns and their respective cooperating teachers. I observed the learning that took place as the intern listened and followed the lead of the more knowledgeable cooperating teacher. While U.S. Secretary of Education Arnie Duncan may believe that most of America's teacher preparation programs are doing a mediocre job of preparing future teachers (Foderaro, 2010), student teaching is still recognized by researchers as the most important and influential component of teacher preparation (Katz & Voss, 2011; Lortie, 1975; Berry, Montgomery, Rachel, Hernandez, Wurtzel, & Snyder, 2008). Darling-Hammond (2006) admits that student teaching placement is haphazard at best; however, as interns observe and talk with their cooperating teacher, they gain a great deal of skill as a future educator. Modeling is a tremendous tool for learning how to teach (Koskela & Ganser, 1998; Weasmer & Woods, 2003), but interns learn how to teach not just through their observations but through the conversations that take place afterward that establish purpose and reasoning for what the cooperating teacher did. The rich discussions during conference periods, while planning, and within the scope of the day enhance the experience in what Bakhtin (1981) and his dialogic theory describe

as group conversation, unable to separate the individual from the community.

A school and its individual classrooms constitute community in a way few other professions experience, and once interns (student teachers) are embedded in them, conversations with colleagues and more knowledgeable others shape them as educators and human beings. Lave and Wenger (1991) discuss situated learning, a theory that overlaps with constructivism, and is particularly applicable to the classroom. Situated learning values the context of the learning, no matter the activity, instead of learning out-of-context. In considering Lave and Wenger's (1991) apprenticeship model, situated learning occurs when the intern watches her mentor, collaborates and has conversations about the classroom practices, and learns through those interactions and continual hands-on experiences. The very idea of student teaching revolves around the idea of situated learning. The student teaching experience could never be implemented solely by reading a book; a major portion of interning to become a teacher must be done in a classroom, experiencing real-world situations, talking continually about what is happening each day, learning from in-class issues, and having the successes and failures that only being in that situation can teach.

There is also a great deal an intern can learn by observing the talk going on between students, in order to understand the learning process (Gilles, 1993). While talk is an instrumental tool for student learning, teachers and interns listening to that talk can play just as significant a role. During digital workshops in the computer lab, an intern can listen to the conversations between students and continue to develop lessons based on those interactions. She can learn a great deal about what her students already know, what they seem most interested in, where they lack in knowledge and experience, and build on the

skills and collaboration she sees going on in the classroom.

While talk and much of its research is applied to student learning, the benefit of conversation on teacher preparation and continued teacher development is instrumental in improving classroom practices, teacher retention, and overall attitudes toward teaching (Darling-Hammond, Ancess, & Falk, 1995; Schon 1991). Gilles (2010) reminds us that talk is one of four skills in language arts, along with writing, reading, and listening. The one we take for granted, that is so much part of our lives that it is invisible to us, is the talking. She also points out that there is little focus on teaching the art of talking and listening, both of which play an enormous role in being an effective teacher (Gilles, 2010).

The Role of Talk in Learning

In addition to the role of talk in teacher preparation, it can play a significant role in learning, especially in the writing and digital writing process. Johnston (2004), Wells (2001), Barnes (1992), and Halliday (1973) are key theorists for using talk in the classroom, and they promote the power of student learning when conversations among peers play a significant role in it. Academic conversations contradict what teachers and students have always thought of how school should go, but talking to students and getting to know how they think and how they talk about their thinking facilitates learning in an important way (Zwiers & Crawford, 2011). In Zwiers and Crawford's *Academic Conversations: Classroom Talk That Fosters Critical Thinking and Content Understandings* (2011), they outline structured activities to guide how to begin using conversations as a way to learn, from "stand and converse" to "conversation lines and circles" (p. 28). These activities, if begun on day one in the classroom, can change the way teachers and students think about talk.

Embracing the theories of Vygotsky, Barnes (2008) says talk is “working on understanding” (p. 4) and that an environment that is socially supportive allows for meaningful learning to occur, while “the term *common knowledge* reminds us that the construction of knowledge is essentially a social process” (Mercer & Hodgkinson, 2009; Edwards and Mercer, 1987) believe the act of constructing knowledge is a social process they call. Either way, talk in a social setting is playing a significant role in student and intern learning. Bakhtin’s (1981) famous phrase: “the internally persuasive word is half-ours and half-somebody else’s” (p. 345) exemplifies how we as readers and writers incorporate what others say into our own internal dialogue that then becomes part of our external, social dialogue (Sloan, 2002). Watson (1993) describes the tension that goes on between the more personal, internal dialogue and the social, or external, dialogue that encourages intellectual growth.

While writing, students often have problems translating what they understand onto paper, and this breakdown between thought and speech has to be resolved (Moffett, 1992). Daniel Meadows, noted photographer, educator, and self-dubbed digital storyteller, describes the current trend of digital composing as modern students’ mode of expression (2009). One enormous benefit of digital storytelling is that students whose voices are rarely heard in the classroom suddenly have a platform (Meadows, 2009). These students can express themselves in a way they might not be able to in the classroom, either because they are not comfortable or feel qualified, or because they are too inhibited to participate, and they do it in a way that is unparalleled in most writing assignments (Meadows, 2009). As interns witness this, it helps them see the value of incorporating such talk in their future classrooms. Literacy revolves around uninhibited conversations, especially digital

exploration where trial and error are part of the learning process, and the talk that enhances and accompanies this workshop mentality lends an authenticity hard to replicate when a teacher leads the conversation (Hicks, 2010). Open conversations during a writing workshop, whether traditional or digital, help students explore the text as well as their own thinking (Ciccione, 2001). Gilles & Pierce (2003) describe how talk is not just a means to interact, it is a way to learn. Vygotsky's social learning theory (1978) embraces learning as an active process, and children learn best when they are allowed to do so in a social context. While discussing their writing, digital or traditional, with classmates, the group itself is integral to the learning process, because each individual brings his own knowledge that ultimately informs the group as a whole. Writing workshop embraces the idea that the presence of an audience increases engagement both with the writing, but also with the depth of writing (Bull & Kajder, 2003).

This sense of an audience right in the classroom or outside of it has boomed with the evolution of the Internet; the possibilities for using technology in the writing classroom are limitless (Hicks, 2009; Eidman-Aadahl, 2009). A pivotal part of the social learning that applies to learning to write is the role of conversation, whether between teacher and student, student-to-student, or even with oneself. With traditional writing, experts agree that talk can be instrumental at every stage of the process, and that when children talk and write, they are working on understanding (Barnes, 1976). Talking to learn takes planning and purpose. Teachers have to do more than tell students to talk; what has historically been used as a tool to check comprehension (Fisher, Frey, & Rothenberg, 2008) can now take its place as part of a daily lesson plan, especially in writing workshop. For teachers, "talk is the central tool of their trade. With it they mediate children's activity and experience and

help them make sense of learning, literacy, life and themselves” (Johnston, 2004, p. 4).

When writing, no matter whether students are creating stories centered around themselves or imagining a planet overrun by aliens, spending workshop time talking about what they have written so far, what the plan is for the day’s writing, and a general goal for the story will offer direction and validation.

The catch with incorporating conversation in any classroom is that after years of being shushed, children need guidelines for talking to benefit learning and writing (Kelly et al., 2007). Students should be the ones to brainstorm what the rules for talk should be, including what talk and listening should look like, and how to manage their own conversations in small groups (Fisher et al., 2008). Rules provide focus and can be used to re-focus discussions that might not be as productive (Kelly et al., 2007).

During writing workshop, allowing for talk time can help students consider alternate directions to take or proceed confidently with choices they have made. The notion of exploratory talk (Barnes, 1976) helps students in small writing groups discuss options in their stories, doing what good learners do: ask questions, look for possible examples, suggest alternatives, make connections, develop ideas further (Barnes, 2010; Baird & Mitchell, 1986). If the students know they are going to touch base with their writing group on a consistent basis, they can allow their writing to be dynamic and get feedback on a chosen direction before getting too much written that they cannot undo it. In Johnston’s *Choice Words* (2004), he describes how to use open-ended questions to stimulate conversation about student writing while also generating forward thinking about it: “How are you planning to go about this?... Where are you going with this piece?... You really have me interested in this character because...” (p. 33-34). These questions can serve as a

model for the members of a small writing group, and once students see the value of the responses, their writing will not only benefit but their thinking will as well (Johnston, 2004). Mercer identified useful teaching techniques in *The Guided Construction of Knowledge* (2000), observing that children emulate the teacher's higher-level model of talk. His coaching techniques, repeating what the student writer says and confirming their ideas with *yes, that's right*, ultimately enable children to become effective and reflective speakers and listeners (Kelly et al., 2007).

Talk can serve as an educational tool for guiding the development of a story, or any learning for that matter (Mercer & Hodgkinson, 2009), and teachers do not have to be the ones always doing the guiding.

The development of oral skills, or oracy, according to Wilkinson et al. (1990), will lead to increased skill in writing as language learners become more proficient, or as Britton (1983) describes it, when "reading and writing float on a sea of talk" (p. 11).

Now that writing has changed into a digital and possibly collaborative activity, so has the idea of talk. Teachers and students are crossing into a domain without limitations. We no longer have to crowd into a classroom, making sure everyone has a seat, in order to have a conversation. Within the context of the digital world, that talk takes place via texts, in Google Docs, with collaboration that may not involve a voice but a cursor. Students and teachers can meet on Skype to discuss a class project, a collaborative writing, or a homework assignment. People are talking now more than ever, without the limitations of being in the same space. Students, along with their teachers, are conversing on class blogs about literature, about their own writing, and about their own thinking. As preservice teachers and interns embrace the forum through which students are learning, writing, and

talking, these future teachers will hopefully incorporate the tool in their classrooms. They have witnessed first-hand that the MKO (Vygotsky, 1978) is just as likely to be a student as it is to be a colleague, and that often they are meeting somewhere other than inside a school's walls to talk. Learning is not just for the students; teachers must evolve with what works and what they witness to be a valuable tool, no matter where it takes place.

Modified Transactional Theory

Another lens I used focused on a modified version of Rosenblatt's (1976) Transactional Theory. She explains that the transaction between a reader and a text is based on what readers bring to the reading, whether in knowledge or that day's experiences. This efferent-aesthetic continuum, the pathway we travel up and down while reading, fluctuates from taking away facts to enjoying the process. Few readers sit at one extreme of the continuum or sit still along it at all. Most read to take away some kind of meaning, especially in academic reading, but we tend toward the aesthetic the more we enjoy what we are reading. Traditionally, Rosenblatt says, teachers expect efferent, read-for-facts, responses. She argues that emotional reactions, aesthetic responses, typically go deeper, and students experience more when they are able to read for enjoyment or at least a balance of the efferent-aesthetic (1938/1976).

As described in chapter one, writing can be experienced along the same continuum, and teachers have used digital opportunities to incorporate more choice and topics of interest for students to explore. Students interact with texts differently when they are allowed to respond to them digitally or in a way they have chosen, especially when allowed to create something digital, like podcasts, digital compositions, or websites. These assignments may require some factual, or efferent, research, but more of the experiences

may include an aesthetic response from the writer/creator. Digital storytelling allows students to move along that continuum and engages them in a way that is more relative to how they spend their free time writing (Hicks, 2009). When they are allowed to add a visual and musical element to their response, students are able to experience writing in an authentic way, move along that efferent-aesthetic continuum, and on differentiated levels.

While exploring this theory, I reverted to Figure 2.1 for the transaction that occurs for a writer while composing digitally. When interns and students engage in digital writing, one thing becomes clear: they bring something to their own digital writings as they interact with their compositions, and those compositions impact their thinking and their writing. Each digital writer brings their background experiences to each specific story they tell, as well as to the ones they watch their classmates create.

Rosenblatt argues that students' life experience with the text they view or create is more important than the details they carry away (1938/1976). This thinking is contrary to the New Critical approach of others in her era. In relation to reader response, Anderson & Rubano (1991) describe New Criticism as a dominant force in literary thinking during the last half of the twentieth century, and that it focuses on students discovering the true meaning of a specific text. Additionally, New Criticism tried to exclude author's intent, reader's response, any context that grounded a text in a culture or historical reference, or moral biases when analyzing a text. For decades, this became a dominant theme in American education, with the reader seeing the structure and meaning of a text as connected and never to be analyzed separately. The student objectives were to read a text, find specific information, and regurgitate it (Anderson & Rubano, 1991). In their chapter on practice (p. 27), Anderson and Rubano describe responses, which would include digital

compositions, that allow students to design and develop instruments that would motivate the “unarticulated aesthetic response” (p. 27). Their suggestions range from altered texts to cloze techniques. Altered texts allow students to consider a writing, like a poem, in a way that requires critical thinking on a different level. If they take a poem and write their own stanzas, change the existing stanzas, or even weave their own throughout the author’s, they respond to it on various levels, in multiple contexts. When using a literary cloze technique (Anderson & Rubano, 1991), the writer takes the words of an existing poem and constructs his own, a synthesis activity that exemplifies what happens when students compose digitally. They embrace a writing, explore their literary response, and create an interaction that is layered with images, music, and text.

New Criticism remained a dominant theory through the Cold War years and was advocated in American schools and colleges. It promoted a straightforward approach to teaching writing and literature, especially in how to teach poetry. Wellek (1978) offered a viewpoint to support New Criticism and believed there was beauty in all art. While many criticized the New Critics for their narrow view, Wellek asserted that what had seemed an old-school approach had its merits. A literary work could be seen as autotelic, or self-contained, (Csikszentmihalyi, 1996) and could be explored by analyzing its internal form. The meaning of a work of literature should be considered in its entirety, ignoring the history of the text or the reader, and usually has a singular, correct interpretation.

Rosenblatt, on the other hand, believed responses to literature are influenced by the reader’s (or viewer’s) background knowledge. She saw response to literature along a continuum from efferent to aesthetic. She found that student responses were mostly efferent, meaning that when they read they focused on information they could take a way

from the text. Aesthetic response focused on how particular students experienced texts. In her book *The Reader, The Text, The Poem: The Transactional Theory of the Literary Work* (1994), she goes into further detail about reader-response, adding practices teachers can implement in their classrooms; she also uses her many years of observing student responses to literature to describe these activities.

From these activities, there is a commonality of bringing experience to a reading that can be carried over into digital storytelling: teachers can expect students to write and view digital compositions for what can be carried away (efferent response). However, it seems almost impossible to avoid an aesthetic response to a digital composition. When students view their own digital writing or that of others, each component of a digital story elicits an individual response, from the images to the text to the music. Unlike words on a paper, from which teachers can demand a narrow purpose, it is more difficult to divorce their background knowledge and emotional response when seeing images accented with music, video, and words. This aesthetic response occurs not only for a viewer of another's digital story, but the writer of his own digital composition may continually experience that same aesthetic reaction throughout the process. An example of this would be a lesson I use in various workshops and classes called "Box-Logic," adapted from an activity by English professor Geoffrey Sirc (Wysocki, Johnson-Eilola, Selfe, & Sirc, 2004; see Appendix I/I2). Sirc's frustration and uncertainty of how he was teaching writing at University of Minnesota emerged during the rapid advancement of technology. Having recently read Gail Hawisher and Cindy Selfe experiencing the same dilemma in compositional media, it fueled his pedagogical dilemma. It led Sirc to Marcel Duchamp's *Green Box* (as cited in Wysocki, Johnson-Eilola, Selfe, & Sirc, 2004). Duchamp saw the possibilities of

composition in different mediums, intertwined with painting, with images, with the colors we see as we write, and this philosophy inspired Sirc to use technology in his writing courses as a way to allow students to see composition in a new medium, rearranging textual materials to speak for a student. He referenced Elbow's insight into that dilemma: "life is long, college short" (2000, p. 236), and it led Sirc to the question: "do we teach to life or college?" (Wysocki et al., 2004). He chose to interconnect the two with his activity he called Box-Logic, a spin from Duchamp's *Green Box*. Sirc's idea was to get students thinking visually and textually by first selecting an image of some kind that would represent the writer, then to choose a quote that had a personal connection to the writer as well but was completely unrelated to the image. The writer's task was to then take these disparate items and synthesize: write something to connect the image and the quote, whether it be poetry, freewriting, a brief essay, an argument, or any writing that satisfied the requirement.

For my example, which was done digitally, I showed a picture of the New York City skyline in two side-by-side panels: the left hand side is on September 11, 2001, with smoke billowing from the twin towers; on the other side was the same skyline a week later where there were no longer twin towers. While seeing these images, Don Henley's modified version of "New York Minute" played, with commentary from President Bush and random clips from people during the attacks on the World Trade Center added. A final image of a teddy bear lying in the ash of the aftermath, as the music fades, elicited a very different response from a younger person who might not remember that day. A New Yorker brought to that transaction a much different response, while still another was felt by firemen all across the country. Each of us brings to that aesthetic response the experiences

of that day, and though the same could be said for reading about it, there is something visceral about seeing it, hearing it, and as a result, reliving it.

Considering Different Perspectives

Appleman (2000) explores literary theory that values most defensible interpretations as acceptable; it simply depends upon which stance the reader/viewer/writer is taking at the time. She considers what might happen if students view a text through a feminist lens, a post-colonial lens, or a Marxist lens. A response varies based on the lens, and it might vary from day to day, mood to mood, and especially from student to student. To apply that thinking to a digital composition, it would change a student's perspective to view the World Trade Center digital story through an ethnocentric lens, and then to consider it through a sociocultural lens. Both responses would be correct, because they are simply that person's opinion; however, the responses would vary based on which lens they chose to view it through.

Other theorists explore how readers and writers make meaning with texts. Probst (1992), a proponent of Rosenblatt, discusses the experiential theories of response and how a literary work can cause five kinds of literary knowing:

- Knowing about self – a text can cause a reader or writer to reflect on his or her own life
- Knowing about others – focusing on individual responses to a reading or writing allows students to learn about their classmates
- Knowing about texts – considering the text itself gives the reader an opportunity to enjoy and consider the writer's craft
- Knowing about contexts – meaning-making is largely contingent upon the

context in which a reader and text meet

- Knowing about processes of making meaning – students learn about their own meaning-making processes from texts

From these five kinds of literary knowing, many language arts teachers adapted the terminology and began prompting students to “make connections” when they read, from text-to-self, text-to-text, text-to-world, and text-to-theme, all of which tie closely to these five kinds of literary knowing.

Beach (1993) discusses five reader-response perspectives and how each illustrates a particular aspect of the transaction between reader, text, and the context. Textual theorists draw on a reader’s knowledge of text and conventions to respond to specific text features; experiential theorists highlight the nature of a reader’s experiences and engagement with a text; psychological theorists focus on each reader’s subconscious and cognitive processes and how these change due to individual personalities and development; social theorists view the influence of social context on the reader-text transaction; and cultural theorists consider a reader’s cultural role, values, attitude, and the greater cultural and historical context that shapes his or her responses.

Fish (1980) explores the social theories of response. A reader does not approach a book like an object to be mined, or that the book will tell you what it means. Instead, Fish argues that a reader makes a temporary interpretation of literature, because what the reading means to a reader that day may not mean the same the next time he or she reads it. Much like Wendell Johnson (1980) and his citation of the Greek philosopher Heraclitus who said that a person could not step in the same river twice, we bring new experiences and emotions to a text every single time we look at it. Our social construct has an impact

on what we read or write.

Bleich (1980) highlights the cultural theories of response, shifting the focus from the text to the reader. When students are part of an interpretive community, they become metacognitive, and expand beyond thinking about their own thinking and learn to think about how others think as well. As a result, they are likely to become tolerant of opinions that differ from their own.

The idea of envisionment (Langer, 1995) relates closely to digital storytelling. Langer believes a reader's understanding will change as he or she goes through a text, that envisionment refers to "text-worlds in the mind, and they differ from individual to individual" (p. 9). Envisionments are a person's comprehension of the world around them, as formulated by their cultural and personal experiences. Much like in a digital composition, the text-world a student constructs is the goal of literacy instruction (Langer, 1992), and as such, these digital examples may provide more insight, since they include not only textual but visual representations as well. She goes on to assert that the best way for students to make meaning from a text, they should be allowed the opportunity to engage in activities that allow them to think about their world and themselves in a new and different way (Langer, 1992). She may not have known about digital literacy then as we know it now, but she advocates the very idea of it, when she proposes allowing students to respond and interact with literature in ways that promote meaningful and personal understanding of a text.

All of these reader-response theories explore the transaction that takes place between a reader and a text but could easily be adapted to include viewer-response and apply as directly to digital compositions as it does to literature. As ahead of her time as she

was, Rosenblatt would certainly consider the changing world of the text and the possibilities reading and viewing them brings to the classroom.

Thinking and Writing

Thinking and writing are difficult to separate. No matter whether writers of all levels consider what they are thinking about while writing or write about their thinking, to divorce the two would be virtually impossible. Britton (1975), Elbow (1973/1998), and Bean (2001) all emphasize the importance of getting students to write expressively, so they can think about writing, while Ong (1982) describes the transition from our pre-literate/oral society to a literate one, and the impact it had on how we as human beings think. Evolving from vast amounts of memorization to a dependency on pen and paper, this shift in thinking has a different kind of impact, and Ong describes how we reached a secondary orality, a level beyond the primary orality of the spoken word to a direct audience but continues saying that written text is basically unresponsive (1982). Ong could not know that twenty-five years later, a writer could sit in front of a computer generating words for an unseen group without limit and get immediate responses from any corner of the world.

The Social Role in Thinking

Vygotsky (1978) outlines how language development is enhanced and influenced by social interaction, that students of any ability level can learn from one another. Higher ability students develop stronger skills by acting as teacher and coach for his peers, while lower level students move to a higher level of thinking by working with a more knowledgeable peer (Vygotsky, 1978). This kind of collaborative atmosphere exists in an online writing environment and allows students of varying levels to participate in a writing

project or interaction, whether formal or informal. Examples of this range from chat rooms, where the writing skill is less relevant and free flowing, to flash fiction sites, in which numerous writers contribute to stories using the same characters in a popular fiction book.

Flow. Within the social role in thinking, Csikszentmihályi (1996) describes what happens when a group of people work together to help an individual achieve flow, the mental state someone experiences when they are fully involved, immersed, and experiencing success in an activity. He believes that learning involves channeling emotions and that when in the state of flow, these emotions are not only contained but positive and in line with the task at hand. For this to occur in a group, several characteristics are evident, the following of which occur during different writing formats (Hooker & Csikszentmihályi, 2003). These different ways for nurturing and facilitating the social role include:

- a) Spatial/room arrangements
- b) Parallel, organized working
- c) Target group focus
- d) Increase in efficiency through visualization
- e) Using participant differences as an opportunity, rather than an obstacle

To achieve flow, students work closely together when composing digitally, in a room arranged so that they could interact, collaborate, and not work in a vacuum. The conditions for learning are supported by one another, and they are engaged both with their own work and often with that of their classmates. Digital composers in a classroom work side by side, in a parallel, organized way, and balance what they are doing with what others are creating, often offering ideas for one another. They all have a shared focus of

navigating writing through digital compositions, they are efficient in how they express themselves by coupling text with imagery, and in doing so, they continually collaborate and seek advice from classmates to improve their digital stories. All of this often occurs seamlessly, each at their own pace and able to be differentiated, and the teacher is able to facilitate as students need it. They are part of the flow, part of the breathing process that occurs in a computer lab or a classroom full of laptops, moving from student to student to aid the fluid process of digital composing.

While participating in digital storytelling projects, students share a common objective and achieve a greater sense of flow when they get immediate feedback, as they might while writing in a collaborative setting. Ultimately, if they become internally driven, the individual student reaches an autotelic status (Csikszentmihalyi, 1996). An autotelic writer needs no external motivator, because they enjoy writing for writing's sake, for the sense of flow they experience while doing it.

General semantics. Hayakawa (1991) explains principles related to General Semantics, most notably with his ladder of abstraction. He describes a visual image of a ladder to illustrate the movement from the literal or concrete object (bottom rung of the ladder) to the more abstract (top rung of the ladder). As writers or digital composers work through this process, they might start with the most concrete concept – a specific Gala apple, perhaps given to a teacher, on a basic level. The next rungs would go from the bottom up to include the apple as an object, the name of that kind of apple, Gala, to the word “apple” as we move up the ladder. The next level could represent fruit, then up to food, then to abstract it further, it might become a crop, then means of income, and ultimately independence. Apples have been abstracted from their generalized concrete

form. This represents a way of thinking about writing, thinking, and communication, and while doing all three, we move up and down the ladder from general to specific and specific to general. Other theorists have taken Hayakawa's ladder and developed their own variations, from Odell's categories (1999) to Hillock's hierarchy (1980), and each of these have a common thread: improved understanding, thinking, and writing occur when students are able to move back and forth among the levels.

Hayakawa (1991) also developed the notion of two-valued orientation, an either/or way of thinking. When writing or creating digitally, students often view their work as good or bad, with nothing in between. Occasionally, a student will be displeased with how a digital composition is going and simply erase it all and start over, instead of revising what was already started. They also use terms in their digital stories such as: all, everyone, no one, nothing; this general semantics principle of *allness* limits the way students write and create. Another Hayakawan concept that emerged in their digital stories was the notion that the word is not the thing, the symbol is not the thing symbolized (1991). Digital composers, whether students or teachers, choose images to represent thoughts, feelings, and even literal objects or people, but those images are simply a representation. A photo of a family is not the family. A picture of the beach is not the beach but may instead represent escape or a place of great pain, depending upon experience there.

Visual thinking. Digital storytellers display their thinking through both their verbal and their visual processes; John-Steiner (1997) outlines areas that influence visual thinking, an area many creative thinkers see as an imperative component of the thinking process. Several researchers like Arnheim (1969) believe visual thinking precedes, and supersedes, verbal thinking. Because there is no single visual language, unlike verbal,

images may transcend cultures, generations, and time in a way that verbal language cannot (1997). In digital compositions, students use images to first exemplify their thinking and eventually to broaden it and think more critically. During the creation process, Odell's (1999) ideas of writing mirroring thinking show how the students' thinking strategies would be able to be identified in the creator's work. He believed that asking students to be metacognitive about their creative process, to think about what they were thinking as they made the decisions they did, would allow them to think deeper. Studying their writing, teachers can gain insight into that student's mind at work (Odell, 1999).

Cross-curricular Lens

Educational reform and the nation's focus on improving curriculum in all content areas are centered on problem-solving. For the Common Core State Standards (CCSS) that most states across the U.S. have adopted, there is a clear emphasis on process skills, an added focus on real-world skills that include technical writing and communication, and a digital component to bring learning into the digital era. While a national movement is attempting to impose Common Core testing, the platform and the implementation were founded by individual states and all but four have adopted them (Corestandards.org, 2012). Each state has its own process for developing, adopting, and implementing their standards, with Alaska, Minnesota, Nebraska, Texas, and Virginia not yet adopting them. With the initiative, the reform has put inquiry at the forefront, and is based on student-centered learning, with less emphasis placed on a didactic approach (Corestandards.org, 2012). With technical writing and digital literacy a part of the push, many teachers have embraced the cross-content impact digital compositions provide. Elementary students can do a single project that meets the CCSS for several content areas, much like the social justice project

done at South Lake Middle School. As Moffett (1992) pointed out so succinctly, students learn when they are doing, and that doing should not be limited to language arts classes. As the CCSS have made clear, literacy is part of every curricular area, and though teachers of some core content areas feel this is adding something new to their curricular demands, there is a difference for students when reading a chemistry article, an article on architecture, or one geared toward calculus. Teachers have varying expectations, and their students need to be given the skills to deconstruct these content-specific texts, just as they must be trained to compose digitally.

Henry Jenkins et al. (2006) introduce core digital skills that could be incorporated in any content area, including ideas like *play*, *performance*, and *simulation*. By integrating these skills into writing assignments across the curriculum, teachers provide students with skills necessary for 21st century jobs that require the intelligence and collaborative ability to contribute to discourse in any academic area. Digital literacy and its applications are not an add-on content, which many educators fear, but digital literacy should be integrated into the content area with every teacher contributing individual expertise (Jenkins et al., 2006; Rock, 2009). Most instructors agree that students should learn skills that cross content boundaries. They should read and write in all classes, a reform movement for the past two decades, because we have learned that when students see a connection among the disciplines, schools become more connected and relevant (Rock, 2009). Incorporating digital applications to teach the content can satisfy the objectives of an area, connecting it to other core standards, while not adding to the already-full curriculum.

Past president of National Middle School Association and current principal at a middle school in Oregon, Patti Kinney observes:

We live in a world where all our learning is connected... Students need to see that everything is connected and reading and writing are not just for English class; they must be practiced across the board. Then the skills become part of their daily life. I strongly believe that reading and writing have to be infused into everything we do and teach in schools.

(qtd. in Paterson, 2007, para. 4)

While Kinney is still seeing literacy as more traditional reading and writing, her statement applies to digital literacy. Reading and writing are ways to promote critical thinking, and to add another layer of writing, of another avenue of creativity and illustration, then critical analysis can only go deeper. At Northwest Regional Educational Laboratory, Brewster and Klump (2004) believe that “writing in the disciplines is premised on the idea that students become better readers, thinkers, and learners in a discipline by working with the forms and conventions specific to it” (p. 19). Having students create digital compositions to accompany and/or illustrate their writing also helps them become better readers, writers, thinkers, and learners. Even though research is still striving to prove this is true, it seems evident to those supplementing their writing with digital compositions that it would improve student thinking in many areas (Rock, 2009).

Implementing digital applications in content instruction may offer entertaining lessons for the teacher and students, but if it does not accomplish educational goals then it is not serving the right purpose. Language arts teachers have less difficulty with augmenting their instructional texts with digital literacy and media analysis to fulfill core standards, just by the nature of the curriculum. Traditionally, digital and media literacy applications have been used in the language arts classroom where teachers guide students to critically analyze new literacies, regardless of what “new” in that generation entails – a

typewriter was once an innovation that had to be introduced to a classroom. Digital compositions are simply other texts. The worry is that placing a digital literacy focus only in the language arts classroom will compartmentalize it, much like what has happened with reading and writing – students struggle when science teachers have them read articles and write responses, arguing that “this isn’t English!” Though many content areas have been integrating writing in the curricular areas, students historically assume that all reading and writing should take place in language arts (National Writing Project, n.d.).

However, most teachers in any curricular area will find goals for digital literacy – or some terminology for dealing with emerging technologies and new literacies – already in place in their core standards, and most other contents have them as well (Beach & Baker, 2011). Language arts curriculum has state and national standards for digital literacy, media literacy, and technology instruction (National Council of Teachers of English website, 1999). Foreign language instructors will find language fluency and culture awareness that is a perfect fit for digital literacy. Business teachers will find film and website analysis in their core requirements, and librarians/media specialists have strands about finding, evaluating and using information. In Missouri, many content areas like science, health education, visual art, social studies, business/ financial, as well as family and consumer science, all have digital/media literacy/technology strands (DESE website, 2011).

Many teachers, once they experience digital compositions for themselves, see how easily it can be implemented into any field of study, at any level. Often the “instructors who are drawn to teaching with writing are often the same ones drawn to teaching with technology (Townsend, 2008), so those who are motivated to try new things likely pave the way for others to see the successes of it. Once teachers see the multimodal possibilities

used within digital compositions, like podcasts or video, they understand how versatile the compositions can be. They also learn how the digital skills can bridge content areas. Podcasts and videos, for example, require technology that is available at almost any school with very little editing time needed. Most students can create podcasts on their laptops in minutes or record video with their cell phones or flip cameras, and both can be used for many purposes. Students have used podcasts in their blogs, to explain procedures in a science lab, to give a biographical sketch of a general or a tribe, or to make connections between literary characters or historical figures. Classes can use video cameras in any content area, to capture math in a real-world context, to film science in a natural habitat, to script public service announcements, or to conduct experiments in a living science lab notebook. The possibilities for podcasts, videos, or other multimodal applications are endless.

Teaching visual and digital literacy focused lessons allows students to focus not only on the content but on the construct of digital compositions and broadens classroom discussions (Rock, 2009). Teachers are implementing technological innovations – math teachers are recording geometry lessons as mp4 files so students can access them for review; biology teachers are using interactive software for students to see inside the human body; social studies teachers are illustrating texts with word clouds that allow students to see current events on a document on their computer screens (PBS, n.d.). Once educators see the wonders of technology and what it can do, becoming relevant is not only simpler but more appealing.

The Role of the Workshop in the Digital Writing Process

The general philosophy of reading and writing workshop is a process-centered,

student-guided environment (Calkins, 1994, 2006). Teachers facilitate and differentiate in a way that non-workshop classrooms often cannot accomplish, and they are able to conduct formative assessments along the way with a quick conversation with individual students. Digital writing workshop is no different, as one DESE administrator noted at a technical writing workshop, saying she believed that what students do when they create digitally might perhaps be the ultimate learning experience that teachers do not have to plan every second of (S. Hoge, Personal Communication, March 2012).

Teaching the skill of digital composing can be equated to teaching children how to hold a pen and write. What they write at first is irrelevant. Once the skill is acquired, it is where students go from there that exemplifies thinking, learning, and synthesizing. One need only look at Bloom's Taxonomy (1956) and its revision (Anderson & Krathwohl, 2001; see Appendix F) to understand the role "creating" plays in today's classrooms, and technology can be instrumental in that. However, to take what a teacher has always done and throw technology into the mix is not the same as being innovative with technology in the classroom (Kajder, 2007). To integrate technology into the writing process, teachers can best do that in a writing workshop setting, where students and teachers all practice and spend time doing it (Hicks, 2009).

Experts ranging from Donald Graves (1983, 1994), Donald Murray (1982, 2004), Nancie Atwell (1987), Katie Wood Ray with Lester Laminack (2001), Jim Burke (2003), and Ralph Fletcher (w/ Portalupi, 2001) all put their fingerprints on writing workshops that can now be transformed into digital writing workshops, and thus fostering digital literacy (Hicks, 2009). Teachers who want to incorporate a digital component into the writing process must explore how to change traditional mind-sets in literacy practices (Hicks,

2009).

Writing, in whatever forum and format, is a significant key to learning (Elbow, 2000). With digital composition being the lens through which writers look, it only enhances the kind of writing students do, but it should not replace it. The object behind getting students to write, and ultimately for teachers to assess, is to see their thought process reflected in their writing (Odell, 1999). Odell goes on to explore thinking as a process and that the product itself can tell us much about that process. In that regard, the digital composition exemplifies not only the writing process the student goes through (with text panels and/or narration), but it also gives a visual product to illustrate that thinking.

The computer as a writing tool changes the way students see writing, especially for struggling readers and writers. Tasks involving grammar and conventions can be handled with word processing software, leaving the writer to focus on higher-order tasks like clarity and meaning-making (Mulligan & Geary, 1999; Raynie, 2005). Not only does using digital tools create a more engaging learning environment, using technology in the writing classroom, especially for the middle and lower level students, gives learners skills and abilities that impact their future employability (Bruns & Brien, 2003). Students can be digital composers with little instruction and feel comfortable trying something new if it is on a computer (Eidman-Aadahl, 2009). Using Elbow's philosophy of writing as cooking (1973/1998), the early stages of creating digital compositions are the gathering, the mixing, and perhaps even the simmering. But it is not until they begin to place the pictures, music, and text into the storyboard that they begin to see a product, a "dish" (1973/1998, p. 54). As they create, learn through trial and error, and continue to master skills by exploring, the teacher is an essential component of the process but as facilitator and audience. Much like

the process of learning to write, there will be mistakes, stops and starts, and with a quick click of a button, students can get feedback from both the teacher and classmates in a more efficient and enticing way than pen-to-paper writing often has.

Hicks, a pioneer for the digital writing workshop, advocates changing the way we view writing within the constructs of new technologies (2009). Embracing Moffett's kids-learn-by-doing mentality (1992), writing teachers are not debating whether to teach with technology any more, but they are now asking how (Hicks, 2009). Instead of seeing it as a replacement or the undoing of traditional writing, most workshop practitioners understand Calkins advocacy of teaching the writer, instead of the writing (1994), and that philosophy, Hicks and his Chippewa River Writing Project cohorts believe, has evolved into "teach the writer, *then* the writing" (Hicks, 2009, p. 7). As he embraced digital writing and the future of writing workshop, Hicks took it one step further: "teach the writer, *then* the writing, and then the technology" (2010, para. 6). While the latter two do not have to necessarily occur in that order, the idea of first focusing on the writer remains the focal point of writing workshop. Likewise, a major component of digital composing is that the writing continues to be central to the process. Elbow asserts that writers cannot help but write, but in paraphrasing Chomsky, he adds that sometimes writers have no intention of communicating (2000).

Giving students a new and innovative venue may push reluctant writers to step outside their box quicker than they would with more traditional writing assignments. Regardless of its context, many experts agree that the simple act of writing can improve student thinking and learning (Emig, 1977). For any teacher, this hits a cord of importance in learning; that by being a part of the learning process, that if you want to learn to create

or to write, do it (Garrison, 1985), which is the very foundation of writing workshop. “Writing serves learning uniquely because writing as a process-and-product possesses a cluster of attributes that correspond uniquely to certain powerful learning strategies” (Emig, 1977, p. 89). Doing the writing within the construct of a digital composition entails those same characteristics and taps into their world of technology, making the writing and creating both engaging and relevant. To synthesize in such a creative format, to write without fear of red checkmarks, and to have a finished product that can be seen worldwide puts a whole new perspective on polishing a draft.

The positive side of the digital writing workshop evolution is that students are using digital writing in the process of their academic and private lives. It benefits teachers that not only are today’s students consuming digital literacy, they enjoy creating it (Stephens & Ballast, 2011; DeVoss, Eidman-Aadah, & Hicks, 2010). Tapping into that motivation can be key to overcoming the bridge they see between home writing and school writing. If we can incorporate the Web 2.0 culture in today’s classrooms, then writing does not have to be met with a groan of disdain when required in the classroom. To open K-higher education students’ *and teachers’* eyes to the possibility that writing has changed, it can be creating a website on Weebly, producing a video, or doing a podcast, then further educating them about writing in any content area should be less of an obstacle.

To continue with the idea of writing workshop and process-centered learning is to explore the essence of learning by doing.

Teacher Preparation and Reform

The CCSS have embraced reform in teaching, and the preparation programs training future teachers must evolve to better prepare future teachers. While some

programs have adopted yearlong internships, others are focused on preparing teachers to educate in the digital era.

Hardin and Ziebarth (2000) believe the innovation starts at the top with college administrators, who must establish programs that prepare teachers for a new way of thinking. Whether wikis, nings, tweets, Facebook, or creating their own websites on Weebly, students under the age of fifteen or sixteen spend a majority of their lives on the Internet. They meet friends, do homework, and clock *at least* thirty-one hours a week online (Roberts, Foehr, & Rideout, 2005). Left out of the equation are hours watching TV, texting friends, talking on the phone, and listening to music. A single day for many

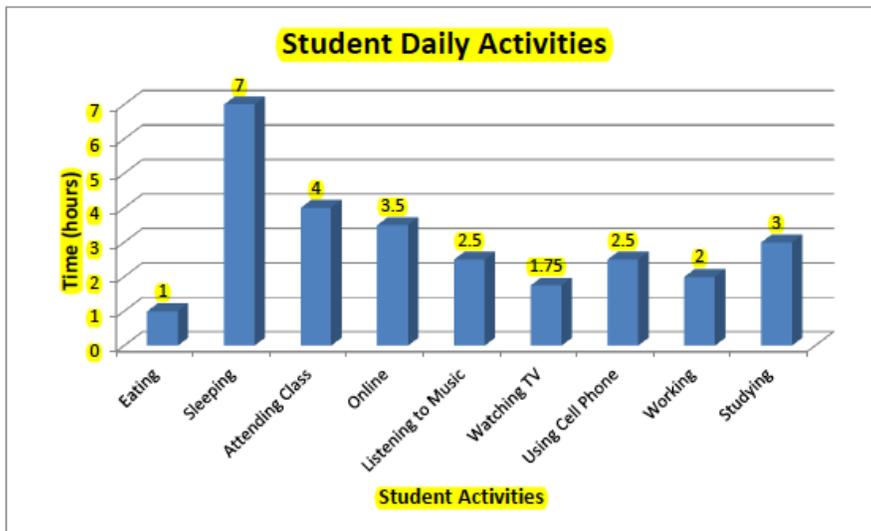


Figure 2.2 Student activities done on an average day.

students is a layered experience of balancing work, friends, studies, and family, often at the expense of the latter (see Figure 2.2). Today's average student no longer goes to the library to select resources and find information; Wikipedia is their source of choice, and Google Scholar is their most off-used search engine for reputable citations (Roberts, Foehr, & Rideout, 2005). Is it because the Internet is easier or because their day simply does not allow the luxury of old school, time-consuming research? What does this mean for interns

and future teachers? Students are plugged-in and have to juggle more things to do in a day than there are hours (See Figure 2.3), but because they have been so enmeshed in the digital era, they are able to balance and multi-task in a way that digital immigrants either

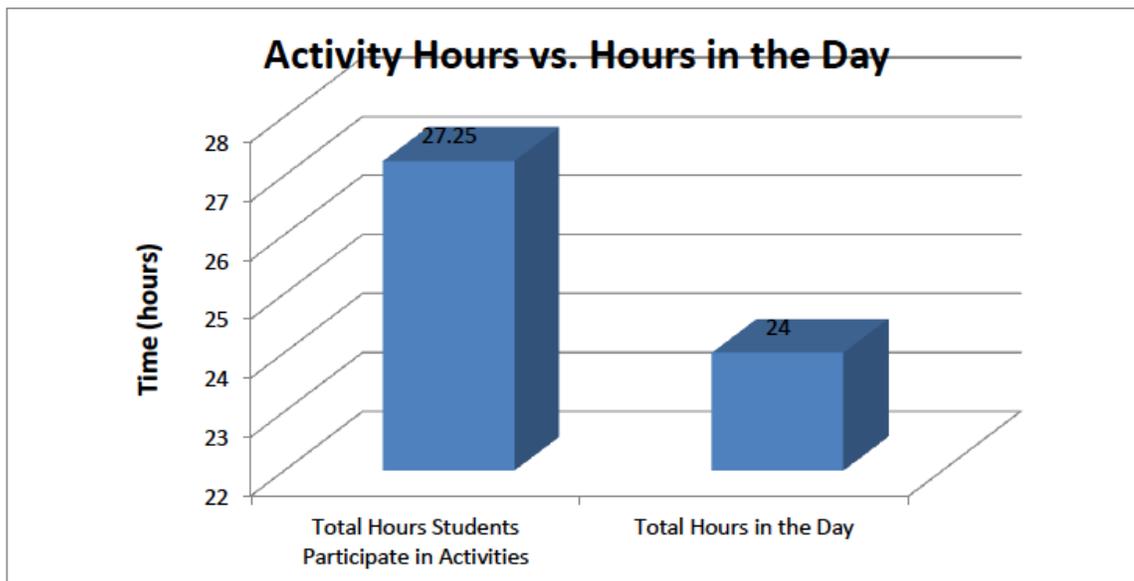


Figure 2.3 Time spent on the activities in a 24-hour time period.

cannot understand or had to learn (Prensky, 2004). For future educators to reach them and create an authentic learning environment, their teaching must relate to the worlds these students have come to know (Stephens & Ballast, 2011; Hicks, 2009). The reality of these students' school life does not compare to their home life, because even though they are plugged in, many of their teachers are not. Seventy-six percent of these same students' teachers have never used wikis, blogs, podcasts, Skype, and /or nings; only 14% of their teachers allow students to use technology to create stories, papers, or projects; 63% percent never do, and 61% of reading teachers never use digital storytelling software (Nesbitt, 2007).

Today's child is bewildered when he enters the 19th century environment that still characterizes the educational establishment where infor-

mation is scarce but ordered and structured by fragmented, classified patterns, subjects, and schedules.

(McLuhan, 1987, as quoted in *A Vision of K-12 Students Today*)

In a nutshell, this century's students have to find a balance in their learning, juggling their technology-centered lives with their traditional classrooms. Writing experts have been saying for decades that the more students write, the better they get at it (Elbow, 2000; King, 2000). Now that writing has taken on a new look, and according to a study conducted at Michigan State University, "people are spending more time writing now than ever. In order to interact on the web, you have to write" (Keller, 2009). The point for most students is that since it is online, they feel differently about it. Kathleen Blake Yancey, Florida State University English professor and former president of NCTE, calls this current era the age of composition, because new technologies are driving a greater number of people to compose with words and other media than ever before (Keller, 2009).

Today's universities, and many high schools, now offer distance learning courses online; a majority of state universities offer entire degrees online, and a growing trend is Virtual High School, where students can get their diploma online or supplement their high school experience (Donlevy, 2003). The Virtual High School began as a two-year pilot program for the Department of Education, and arose from a 14-year old Massachusetts based consortium; it offers 336 online courses to 13,000 students in 31 states and 34 countries around the world (Pierce, 2011). The New York Times reports that America's largest public schools offer a wide variety of online high school courses, with some states, like Michigan, requiring students to take at least one online course in an effort to prepare them for college or technical training (Pierce, 2011). With evidence showing the

effectiveness of virtual high schools (Cavanaugh, Gillan, Kromrey, Hess, & Blomeyer, 2004), some even argue that these virtual schools can be a design that answers the needs of the future of education and learning (Donlevy, 2003).

That shift in teaching is recognizing the changes in today's educational world, and the way we prepare our teachers must continue to do the same. How we teach, especially how we embrace the changes in the way students compose, must not disregard how students are choosing to learn. A great deal of digital composition research is emerging, but one element of study that must not be overlooked is on writing itself. As we "expand our sense of what the word *writing* might include in this new century" (Herrington, Hodgson, Moran, 2009, p. 198), one thing has changed: writing no longer has to contextualize or "capture onto the page some substitute for all those vocal and visual cues for listeners that we give without effort or attention in speaking" (Elbow, 2000). Digital composing allows writers to give the reader a visual, and while it may eliminate a component of imagination, it also eliminates many potential misconceptions (Herrington, Hodgson, Moran, 2009, p. 202). Individual inferences would still occur and therefore still leave room for misconceptions. Much of that would depend upon the purpose and goal of the assignment, and for many teachers, room for inference and personal interpretation is not necessarily viewed as a negative.

Teaching interns entering the educational world have to be prepared not only to address the issues of today's learners but also have the skill set to incorporate strategies in their classrooms that will be relevant for current practices. Teacher preparation programs addressing the youth of today while readying teachers for tomorrow must recognize these

needs and not only incorporate them into education classes but do so in a real-world application.

Limitations of New Literacies

Several obstacles stand in the way of digital literacy and other new literacies becoming mainstream in today's classrooms. While there are several limitations, the primary ones in this study are accessibility, ethics, student vs. teacher abilities, and time.

The first is accessibility, whether an issue for the schools with hardware and software, or students' computer and/or Internet access in the home. Computers themselves are no longer the central issue, with there being one computer per four students in American classrooms (Statistical Abstract of the United States, 2010). Internet connections are now the biggest problem for many. In urban schools, students may have the Internet connections needed to use the programs written about in this chapter at any given time. However, in rural communities simply going online can be an obstacle. Connections may work, they may come and go, or they may be affected by the weather. This unreliability makes it difficult for teachers to consistently complete projects that rely on these Internet connections.

Another limitation is the possibility of students accessing and engaging in and with inappropriate materials. Numerous articles have highlighted schools' clashes with social networking because of students speaking out against schools, teachers, classmates, and policies on Twitter, Facebook, and MySpace. Things students do at home, if they have a connection to school, have become subject to reprimand (Gomez, 2006). Students do not grasp that what they post on the Internet is forever or that it is accessible to the entire world.

Cyber bullying has emerged as one of the toughest obstacles not just in education but as parents and human beings, and the crisis faces a critical stage. Educating children and teenagers about their cyber behavior is of utmost importance, but for parents concerned about Internet use in schools, it is possible to compose digital stories in closed cyber settings, like Wikis, Nings, and private websites. Teachers can avoid the possibility of students engaging in inappropriate behavior while online by operating digital assignments in these closed programs; however, it should also be part of the curriculum to address expected behavior.

As indicated in this study, a significant limitation of implementing digital literacy in the classroom is the disparity between students' computer skill level and that of the average teacher, not to mention the teacher's ability to make the technology pedagogically relevant (Salaway & Caruso, 2008). Aside from skill level, simple access to computers is a major limitation for many teachers, even in schools with numerous computer labs. Though the number of computers per student has improved, schools that have a laptop or iPad for every student skew this statistic. Rural schools have a comparable number of computers per student (Editorial Projects in Education, 2007), though overcrowded schools may have competition for use of those computers, with technology-based classes having greater utilization and others with much more limited access.

Another limitation that many teachers are voicing is that technology-use may be more engaging for students and involve much-needed skill development, though the time necessary for these activities is often prohibitive.

Meeting students in their world, in their preferred space, does not automatically mean all will learn and the education world is cured of all that ails it. Abilities and skill

sets will still vary, maybe more so than with writing and reading abilities, and the issue of home accessibility will remain as long as there is disparity in social income. While the socioeconomic barrier is disintegrating with the availability of computers in libraries and before and after school access to computer labs, there will still be occasional students who do not have computer or Internet access. Teachers who use these in-class strategies will need to be aware that whatever activity they are doing, there must be sufficient time to complete all work at school.

Conclusion

The review of the literature confirms two things: writing and teaching writing are social activities and writing has entered a digital age. Writing is part of every curricular area, involves collaboration and communication, and as technologies develop, so too must our approach to today's youth. In an era when improvements to existing technologies and teacher practices occur so rapidly, staying up-to-date takes on a whole new meaning. With the help of computers and their many opportunities, writing has taken on a new dimension, from blogging and website text to social networking. Writing has been so impacted by the availability of personal computers, a tool that has revolutionized editing and revising, and the "integration of the microcomputer into writing curricula seemed a natural outcome of our interests and prevailing ways of teaching: it offered students a screen on which they could manipulate texts, but they could still print out their writing and turn it in on paper" (Anson, 2003, p. 800). The act of writing itself does not necessarily have to change. In 1976, William Zinsser stated that writing was merely thinking on paper (2001), and several decades after he said that, the only thing that has changed is the paper – writing is still thinking. No matter in what context, medium, or format, it begins with thought. Author and

artist Edwin Schlossberg believed that the skill of writing relied on the ability to create a context that inspired people to think (1977). That context today has morphed into the screen that Anson (2003) mentioned; as Peter Elbow so aptly puts it, we need only movies of people's mind while they read our words (1973/1998), and now our words can paint literal images, not just figurative ones. So what does that mean for today's classroom? How can we better prepare future teachers to meet digital learners in their world? How can writing and thinking and visual imagery combine to motivate students to want to write? Or better yet, how can teachers use digital compositions to improve students' writing?

Chapter 3

Methodology

This case study involved the two interns and their respective cooperating teachers during digital composition units in the spring of 2011. I observed preservice teachers (interns) and caught a glimpse of how the digital world could change the process and the product of writing. More specifically, my research focused on two interns, both of whom admitted to feeling insecure about teaching a digital storytelling unit, and how they faced the digital age and bridging the gap with their students (Considine, 1995).

I participated as an observer to conduct this research, and during the study, I focused on describing and analyzing the impact teaching digital literacy had on interns who had little experience with educational technology. This research also included the roles writing played in that digital process and how the digital aspect affected the way the interns taught the writing component. By negotiating through the process with their cooperating teachers, the interns reflected on how technology affected their insights into their own writing, whether digital or traditional.

Research Questions

The research questions that guided this study included:

- 1) What happens when student teachers who are relatively inexperienced with technology engage in the teaching of digital literacy? How does their teaching change, or *does* it change, the end of the digital literacy unit?
- 2) How do these experiences affect the teaching of non-digitized writing?

3) How do these experiences affect their teaching in general?

4) What impact, if any, do the cooperating teachers' attitudes toward technology have on the interns' attitudes?

During the actual study, several sub-questions emerged, including:

- In what way do the experiences of the cooperating teacher influence the intern?
- How does a cooperating teacher influence an intern's digital literacy growth?
- What role can talk play between the cooperating teacher and the intern in digital literacy implementation and experiences?
- How can talk between teachers, teachers and students, or students with one another facilitate the process while composing digitally?

While the students were not included in the study, it was always forefront to observe how writing in a digital context improved their enthusiasm to create. Even though the last sub-question was interesting, it would only be a focus if it included conversations with the intern or the cooperating teacher.

For this research, the interns shared their insights, as did the cooperating teachers, and all described the impact they felt digital writing had on student willingness to participate when the assignment involved digital/technological possibilities. In turn, it would better illustrate the potential for improved reading/writing skills if the students were more actively engaged in activities that involved those digital options.

Several of the questions played a subordinate role to the initial five, but they allowed me to consider future research possibilities. Likewise, they gave me several things to consider when observing the teachers and analyzing my data. Aside from keeping these questions in mind for the benefit of organization, it helped to consider how each question

could be answered.

The following sections describe the rationale for methods selected to guide my research. Also included are my data collection methods and instrumentation, the participants and associated demographics, and my procedure for data analysis.

Rationale for Research Methods

For this qualitative research, I studied participants in a natural setting, tried to make sense of what I saw, read, and heard, and then interpreted the information based on the context of the information and the research (Denzin & Lincoln, 2005). I used constructivism to see multiple sides of the information I observed and to get the participants' perspective (Hatch, 2002), and I also was aware of investigating subjects in a real-life context (Yin, 2003).

Schwandt (2000) stated that researchers do not make interpretations in isolation but within a clustering of shared practices, understanding, conversations, and writing. With that same philosophy in mind, I considered all aspects of the information before reaching decisions or making speculations about what the research meant.

While my goal each class period was simply to watch the interns and cooperating teachers and take notes about what I saw, at times, students asked questions that I was able to answer. Otherwise, I observed the interns and cooperating teachers not only as the project unfolded in real-time but also as interns dealt with the issues students were researching.

Being a non-participating observer freed me to take continual notes, to record what I saw going on both between the intern and the students, and to study the interaction

between the cooperating teacher and the intern. I had little interaction with students and therefore minimal impact on the classroom environment, though having an outsider in the room could create issues with reflexivity because my presence could cause the dynamics to change (Yin, 2003).

Due to the bounded nature of my research – two classrooms, with two sets of teachers, during a digital unit – a case study was warranted, because the idea of case studies, as Stake describes, is to catch the intricacies and complexities of a single situation (as cited in Merriam, 1998). For this research, I borrowed grounded theory, since I investigated the participants in an authentic context. As researcher and observer, I was not an active participant, therefore making this a preferred research strategy (Yin, 2003). I documented what I saw, surveyed the interns and the cooperating teachers, and conducted three inter-views throughout the process with each intern. All four participants also did multi-modal, expressive exercises that allowed them to explore themselves as teachers, as thinkers, and as writers in a different way. These exercises included freewriting/stream of consciousness about their day, exploring their learning and growth through the eyes of an object, artwork, or by simply reflecting on the process as teacher, writer, and digital creator.

The history of case studies has shown that, during the 1930s, this methodology was criticized for being unscientific, and likewise during the following decades, there was a decline in its use (Tellis, 1997). However, in the 1960s, Glaser and Strauss's (1967) grounded theory idea brought case studies to the forefront again, and the methodology regained popularity with social scientists (Tellis, 1997). With grounded theory, explains Charmaz (2009), “systematic inductive guidelines for collecting and analyzing data...build

middle-range theoretical frameworks that explain the collected data” (p. 509), and that allowed me to develop my own theory about my research. The variety of the data to be collected allowed many ways to look at both physical set-ups, as well as the nuances of the individual communities within the school and classroom and the relationships the intern established.

When I decided to conduct research on teaching interns, I organized the process into two stages over two separate semesters: 1) choosing the student teachers to focus on and 2) conducting the actual research. To select the interns, I spent the semester observing their final methods course. By the end of this term, they would be assigned a student teaching placement. I conducted surveys (Appendix B) on all 26 students and had multiple conversations to determine research participants. Important criteria included:

- Location – within driving distance to make daily observations feasible
- Technology comfort level on survey – the study would target students who had a moderate to high level of stress regarding technology use in the classroom
- Willingness to participate – due to the amount of journaling and reflecting, participants needed to be willing to spend the extra time for this research

The second stage – conducting the research – involved meeting with each preservice teacher and her cooperating teacher to arrange when I would be in the classroom. Once cooperating teachers agreed to be part of the research, we discussed units that would include a digital component and arranged dates for me to observe. Once arrangements were made, approval was obtained from the Institutional Review Board (IRB) at the university, the school district involved in the study, and the teachers and interns.

Detailed, in-depth data collection included the following elements: interviews,

surveys, observation notes, audio recordings, and intern/cooperating teacher reflections (Creswell, 2007). Crystallization, an analysis technique developed by Richardson (2000) and broadened by Janesick (2000) and Ellingson (2009), provided numerous lenses for viewing the changes in the interns' digital expertise, attitudes about teaching it, and the collaboration between the cooperating teacher and intern. Richardson (2000) describes:

What we see depends upon our angle of repose. Not triangulation, crystallization... Crystallization, without losing structure, deconstructs the traditional idea of 'validity' (we feel how there is no single truth, we see how texts validate themselves), and crystallization provides us with a deepened, complex, thoroughly partial, understanding of the topic. Paradoxically, we know more and doubt what we know. Ingeniously, we know there is always more to know. (p. 934)

I used multi-modal exercises to learn more about the participants but also for the participants to learn more about themselves as educators. All research was done at the convenience of the participants and required minimal outside school time from them – Monday through Friday's daily reflections took approximately ten minutes each evening.

While crystallization was one lens to analyze my data, I also viewed my information through the eyes of numerous experts, as I note later in the data analysis section.

Participants and Setting

In this section, I discuss how interns were selected and offer background on the schools in which the study was conducted and the cooperating teachers with whom the interns were placed.

Selection of Interns

As previously stated, I observed the potential participants in their final methods course, just prior to their student teaching assignments, so this was an ideal setting to find a match for all the variables (location, digital experience, cooperating teacher agreement). The class focused on media literacy (which is the only class that specifically included digital composing). While other courses might have some digital elements included, this one focused more on learning and implementing technology, whether it was for digital experiences or online interactions, experiences many of the students had yet to have. Also, the instructor and I already had a working relationship. She and I had taught at the same school, and she agreed that I could sit in on her Monday evening class. During the 2010 fall semester, I observed students engaged in digitally relevant activities, I got to know and develop a working relationship with them, and I surveyed them about individual experiences and attitudes toward digital literacy and digital compositions (Appendix B). This played a significant role in potential participants, since the scope of this study involved exploring how digital immigrants (those born before the Internet boom of the late 90s) would teach digital natives (those born after the Internet boom) (Prensky, 2001; Rushkoff, 1996).

When the students returned their surveys, I was not surprised by how few of them had experience with digital storytelling programs. Most had a considerable amount of stress when thinking about teaching these skills to students who could possibly have significantly more experience and comfort. One factor played an important role for my research: location. When I narrowed down who those students would be, with the help of the media literacy instructor and the placement office, I chose to focus on two students

with different levels of digital comfort: Molly and Lindsay (both pseudonyms). Each fell between many of their peers on a spectrum: technology experts to avoiders of technology (along the continuum was *eager adopters*, near the *expert* end, and *reluctant adopters*, closer to the *avoider* end of the spectrum). Molly and Lindsay were neither avoiders nor experts, so they were willing to try new strategies and programs. They accepted that many secondary students would have more knowledge than they would when it came to digital innovations, and that was the root of their stress. Molly ranked her teacher-centric stress level high (9 out of 10), admitting to fairly significant stress when thinking about teaching with technology. “I know students will know waaaay [sic] more than I will when it comes to all that stuff, so it really scares me” (Field Notes, December, 2010). Interestingly, her outside-the-classroom stress level was far lower (4 out of 10). She felt that in her personal life, she was willing to spend time playing on Facebook, Twitter, and the iPhoto application on her MacBook Pro, and it was okay to not know all the new innovations. When asked to consider the differences between her attitudes toward using technology *in* the classroom versus *outside* it, she said that she felt far more comfortable limiting her personal choices, and that she was intimidated by exploring new technology in the classroom because she might not teach it correctly to students. Additionally, she admitted she often would not try new innovations until a friend taught her how to use it, and that she seldom explored technologies to figure them out (Field Notes, December, 2010).

Lindsay ranked her stress at using technology in the classroom fairly high (7 out of 10), saying that even though she felt she could figure programs out, it was the fear of “screwing up” with students that worried her most (Field Notes, December, 2010). She added that when the lessons had to do with digital literacy, she worried that she would not

know the newest innovation to use and that “keeping up with the trends” was her biggest stressor (Field Notes, December, 2010). As for using new technologies outside the classroom, she said her stress was low (2 out of 10) and claimed she was “willing to explore anything” (Field Notes, December, 2010). When prompted to consider the difference between that mentality and her reluctance for classroom use, she conceded that trial and error with no consequences was the best way for her to learn, but that some children might not be as resilient with failure (Field Notes, December, 2010).

Another student rated herself a ten out of ten, saying that nothing worried her more about teaching than being relevant when it came to technology. I initially chose to work with her, but her family needed her to return to her hometown to student teach there, so she chose not to intern locally.

Once Molly and Lindsay had been selected, I met with the cooperating teachers, both of whom I knew, and asked if they would be willing to let me conduct research in their classrooms and be part of my study. Both agreed. When I had their written permission to not only study their interns but to include them in the study as well, I proceeded to find out what their goals for digital literacy were. When each talked about a digital project they would be doing that semester (one in January, the other in April), I scheduled my visits accordingly.

Molly and Lindsay were both upper-middle class, Caucasian student teachers, or interns. Molly was getting a middle school certification in language arts and social studies, while Lindsay was a secondary English education major getting middle school certification. Each excelled academically and socially in college, and both admitted to being intimidated by the idea of teaching digital natives.

Each intern was twenty-one years old, owned a smartphone, but admitted to being self-limited in the applications they chose to download and use – neither chose any apps they did not already know how to use or that would frustrate them. The primary purpose of their phones was to text, to surf the Internet, to use social networks such as Facebook and Twitter, and to make phone calls. When they agreed to be involved in my research, Molly said she hoped it would help her be more open-minded about her technology use in the classroom; Lindsay said she planned to think of technology from a teacher’s perspective and not just as a social tool (Field Notes, January 15, 2011).

The next section describes the cooperating teachers and the setting involved in the research, as well as the shared characteristics between this and other studies.

Research Sites and Cooperating Teachers

Students in the community attended kindergarten through fifth grade at one of the nineteen elementary schools, approximately a third of which fed into South Lake Middle School, one of the sites of research. After middle school, students go to one of three junior high schools for grades eight and nine, and then on to one of two different high schools, with a third alternative high school for students with special behavior or legal needs. These schools are part of a district with 17,550 students enrolled. This study includes one of the middle schools and one of the junior high schools, and the cooperating teachers are Pam Downing and Beth Todd (both pseudonyms).

Pam teaches sixth grade language arts at South Lake Middle School, and is on a team of five teachers who share the same group of students. She is a non-traditional teacher, coming into the profession in her mid-forties after many years working in business. At the time of the research, she had been at her middle school for only two years,

though she had taught previously at other schools for a total of six years. As a middle-class white female, she represented a majority of her student population. At the time of the study, her middle school had an enrollment of 901 students, 69% of which were Caucasian, 14% Black, 8% Asian, and 4% Hispanic. Of the school's population, 27% received free and reduced lunches, according to the district's website. In Pam's class, there were 11 boys and 14 girls, with 19 being Caucasian, three African-American, and three Asian.

Beth teaches eighth grade language arts/reading workshop at Washington Hills Junior High. At the time of the study, she had taught for four years, and had ten years experience prior to that. According to the school district's website, Beth's school had an enrollment of 889 students, with 73% being Caucasian, 15% Black, 7% Asian, and 4% Hispanic. Of the school's population, 25% of the students received free and reduced lunches. While Beth is a middle-class, white female, she is not representative of the majority of her students. In her 6th and 7th period classes, 14 of the students were African-American, seven were Caucasian, six were Asian, and one was Hispanic. In her 6th hour, she had six girls and 10 boys; her 7th hour consisted of six girls and seven boys.

The cooperating teachers were chosen because the interns I targeted were placed with them by the College of Education. I had gotten to know Beth as a colleague in graduate classes, and I had met Pam several years earlier at a conference and got to know her through mutual friends. Each cooperating teacher indicated she would be teaching a unit using digital compositions at the beginning of the student teaching internship.

Since I had only known the interns for a semester, I set up a meeting with both prior to conducting my research in order to build a comfortable rapport that consequently facilitated obtaining data from them (Rubin & Rubin, 2005). Because I was a former

teacher and had taught university classes, I was viewed as an insider by the cooperating teachers and the interns, which improved the research process (Rubin & Rubin, 2005). The drawback to that, however, was that during the research, the interns would often look to me for assistance, when I was trying to remain a non-participating observer. On several occasions, even the students asked me for help, perhaps noting the comfort the interns and cooperating teachers had with me.

Classroom Schedules & Layout

In the middle school with Molly, class began at 8:00 a.m., and the average morning was structured as follows:

8:00-8:05	Announcements
8:05-8:20	Silent sustained reading time
8:20-8:45	Reading Workshop – mini-lessons that addressed needs of students/read alouds to model the strategy needed first, then an activity to practice
8:45-8:50	Transition into Writing Workshop (put away books, get folders/binders, etc.)
8:50-9:30	Writing Workshop – throughout the year, students would work on various writing assignments/during this unit, they often left for the computer lab at 8:45 during transition time to then do their research work and digital compositions in the computer lab

Students sat in pods, each at a numbered seat, except for a few who were assigned seats by themselves. One pod had no numbers, and two or three students spread out to work at this table during assignments. The back wall was filled with windows facing west. Students were also allowed to work at either of the two student computers whenever they needed to.

The junior high school classroom usually followed this schedule (for 6th hour and

followed the same routine in 7th hour):

- 1:00-1:05 Warm-up – students had weekly warm-up sheets that they kept in their student folder, and they would respond to a prompt that was given either on the Smartboard via a website or on a PowerPoint presentation.
- 1:05-1:25 Mini-lesson – during this unit, the mini-lesson focused on the skill/objective of the day and only lasted about five minutes. Students were told what they needed to accomplish that day.
- 1:25-1:50 Work time – when students were not working on a project, this was reading time.

On the days the class was in the computer lab, there was no warm-up. Students met in the lab, got their file folders that had their guideline sheets and any research they had printed, and sat at an assigned computer. When the dismissal bell rang, they returned the files to a crate before they left. These crates sat on a table in the classroom.

This classroom, which was in a trailer, consisted of four tables that sat 3-4 students, while individual desks were in the center of the room, facing the Smartboard. Along the walls were bookcases and one long table that had crates on it where student folders stayed.

Digital Project as Unit of Study

To best answer the research questions, I analyzed data collected from the interns and the cooperating teachers during a digital storytelling unit. Because this was both teachers' first time doing a digital project, they had spoken with other teachers about doing digital storytelling projects. Each cooperating teacher had designed her project with the collaborative effort of colleagues. The middle school project with Molly in Pam's sixth grade classroom focused on social justice issues and lasted 15 school days, from mid-January until late February (due to snow days). The second part of my research was at the

junior high in April with Lindsay in Beth's classroom, where they completed a thematic digital analysis of a selected novel that took 11 school days to finish.

For the social justice unit, students chose an issue (see Appendix E for topic suggestions) to research, found at least 20 facts about it, selected images to represent their issue, and then created a digital composition with their data using Photostory 3 (see Appendix C for rubric). They included information about how they might "solve" this issue and what they, as sixth graders, could do to help fix the problem. The finished digital compositions were presented to parents during parent/teacher conferences, as well as to peers during class.

The junior high project required students to choose a theme in the novel they were reading, were instructed to create a soundtrack for their book and character, and had the option of either creating a cover for their soundtrack or a movie of the character's life using Photostory 3, Movie Maker, or PowerPoint (see Appendix D for project guideline and rubric). When the photostories were finished, the students presented them to each other in class, and the cooperating teacher invited parents and other teachers to attend.

Data Collection

I collected several sources of data: interviews, recorded conversations (between interns and cooperating teachers; interns, cooperating teachers, and me; and between interns and their students), surveys, observations, and documents, all of which are commonly gathered in case studies (Creswell, 1998; Denzin & Lincoln, 2005). The middle school and junior high students were not part of the study; however, I did observe digital compositions (in progress and finished) that both interns discussed and thus became part of

my field notes. I employed a variety of data-collecting methods to allow me to create an in-depth picture of the study (Creswell, 1998). My primary goal when I entered the classroom was to observe everything I could and take notes of those observations. Wolcott (2009) illustrates the broad spectrum of observation, but also warns that it is almost impossible to see and be everywhere at once. He continues to point out that observation is the core of all qualitative work, not just one component of it. Coupling that with Stake's philosophy (as cited in Merriam, 1998) that by observing, the researcher creates a story of the case, I made a point of not only noting what I saw, but also audio recording to ensure I was capturing what I did not see happening.

My preferred method of note-taking was to write the details of what was happening objectively on the right-hand side of the page, and then my own opinions and internal commentary were written on the left side of the page. I did this in a composition notebook in the beginning, but I then switched to a Pulse pen and took notes in a Pulse pen notebook when the students were working and talking in groups. The Pulse pen also recorded audio when activated and would transcribe to a computer screen when connected via USB. All of the information was used to measure intern growth related to technology: How did Molly and Lindsay handle technology issues with students? How did (or did) their talk evolve to emulate the modeling done by their cooperating teachers? How did they handle students being the more knowledgeable other? The recordings were also used to consider the intern's professional growth: how they managed student behavior while answering questions, juggled the overlapping demands of teaching and assessing, and incorporated the suggestions and modeling of the cooperating teacher.

On the inside of each notebook, I recorded my research questions to keep them

close at hand and to remind me of my focus.

Sources of Data

Five major procedures were used in collecting data 1) Interviews; 2) observations; 3) email reflections; 4) multi-modal responses; 5) audio recordings of conversations between each intern and students, as well as collaborative talks between interns and cooperating teachers. I also collected digital compositions, two created by students (who gave them to Molly for her university synthesis project), and Molly and Pam shared theirs. Email reflections and multi-modal responses differ not only in content but in form. Email reflections were usually straightforward reactions to the day's teaching, to digital issues that arose, and/or thoughts and feelings about the lesson, the class, and/or the interning experience. The multi-modal responses allowed participants to express themselves creatively. Even though they could have, and occasionally did get creative in their email reflections, the multi-modal writings were metaphorical exercises that allowed them to see their teaching and learning in a different way. To expand on previously described activities, they compared themselves as teachers to an object, thought of their teaching self through the objects in their home, or as an animal or a city, and described their road to teaching on a metaphorical map.

The following table (3.1) illustrates the questions and the related data source used to answer those questions. Note that the collaborative conversations are the discussions the interns and cooperating teachers had during conference hours, while the classroom interactions are the chats the interns had with students.

Table 3.1 Data Sources Used to Facilitate Research

Questions	Data Sources
1. Intern attitudes toward technology/digital literacy	Technology surveys, interviews, observation notes, email reflections, audio recordings, collaborative conversations and classroom interactions
2. Experiences and their effect on writing instruction (digitized & non-digitized)	Interviews, observation notes, email reflections, multi-modal responses, audio recordings, collaborative conversations and classroom interactions
3. Cooperating teacher attitudes toward technology/effect on intern attitudes	Technology surveys, interviews, observation notes, email reflections, audio recordings, collaborative conversations and classroom interactions
4. Impact of cooperating teacher attitude on intern teaching	Interviews, observation notes, email reflections
5. Cooperating teacher experience influence	Interviews, observation notes, email reflections
6. Cooperating teacher's willingness to try new technologies/impact on intern's use of technology	Technology surveys, interviews, observations notes
7. Role of talk in teacher development and digital process	Interviews, observation notes, audio recordings, collaborative conversations and classroom interactions

Interviews

I interviewed both interns before starting the first day of research (Appendix N), and then did a mid-way interview via email to allow them to spend more time with the questions and answer at their leisure. I was also asking periodic questions for them to reflect on each day (Appendix K). On each intern's last day, I conducted a final interview. Throughout the project, Molly and Lindsay wrote quick ten-minute email reflections on the day's teaching. These were all important sources of information (Yin, 2003; Rubin & Rubin, 2005), and getting the interns to continually self-reflect not only provided essential data; it also generated their own metacognitive thinking (Feathers, 2004; Salvatori & Donahue, 2005). I conducted interviews with the cooperating teachers as well (see Appendix O) and had ongoing conversations with all four participants during their

planning hours. I met with Molly and Pam during their conference hour 3rd period, during which time I took Field Notes (January 31, 2011; Feb. 5, 2011; February 9, 2011). I joined Lindsay and Beth after school for planning sessions, during which I asked occasional questions, listened to their collaboration, and took Field Notes (April 7, 2011; April 14, 2011; April 19, 2011).

Observations

I observed Molly for 15 school days, going to her middle school every day throughout the social justice unit, from 7:45-9:45 a.m. I took Field Notes on each day I observed, and I took notes as earlier discussed. When students worked silently, I recorded notes, capturing what I observed the intern doing, comments she made while she taught or interacted with students, and even noted her body language. During conference periods or while students worked, I often asked either Molly or Pam the questions that came up, but more often they were rhetorical.

On the days Molly and Pam planned, I stayed and took additional Field Notes for their 3rd hour conference period. For Lindsay's unit, I attended 6th hour from April 5-27th, going on the days they worked on the project or on presentation days (April 18th and 27th). During this unit, we had to work around state testing. At Lindsay's request, I added 7th hour on April 8th and attended both classes on seven of my 11 days there. For a more detailed look at my time spent in the classroom, see Tables 3.2 and 3.3.

Table 3.2 Number of days and hours researcher observed Molly/Pam’s classroom (includes time spent observing 3rd hour conference/collaboration)

Week	Total number of days	Total amount of time
1	3 (short week due to snow days on Thurs./Fri.)	5.5 hours
2	3 (short week following MLK holiday/Fri. snow day)	5.5 hours
3	1 day (snow days Tues.-Fri.)	1.5 hours
4	4 days (P/T conf. on Fri)	8.5 hours
5	3 days (1 catch-up day/2 presentation days)	7.5 hours
6	1 day (final interview day)	3 hours

During week 1, 2, and 4, I met with the intern and cooperating teacher two different days during their 3rd hour conference period. Because of the snow days, they needed to spend significant time collaborating on how to keep the students fluidly moving through the project. Recording these interviews became an excellent source of research for how their planning evolved in a short period of time.

Table 3.3 Number of days and hours researcher observed Lindsay/Beth’s classroom (includes time spent observing after-school collaboration)

Week	Total number of days	Total amount of time
1	4 (school testing on Wed.)	5.75 hours
2	2 (short week due to state testing)	5.5 hours
3	2 days (started new lesson Wed.)	5.5 hours
4	3 days (presentations/interview day)	9.5 hours
Total	11 days	26.25 hours

Email Reflections

I emailed each intern every evening to prompt self-reflection of the day, and these general questions were usually the same for both interns unless there was a project-specific prompt. The questions were generally open-ended, to allow the intern to expound on the day (see Appendix K). I also emailed the cooperating teachers once a week to get feedback and insight into how they felt the interns were developing, and an overview of how they thought the unit was progressing. There were no explicit questions, only a simple prompt

to share how they felt the unit was going and an open-ended prompt to describe the progress for their respective interns.

[P]owerful education requires that teachers...be able to analyze and reflect on their practice. Individually and with others, they need to assess the effects of their work and to refine and improve their practice.

(Schon, 1987, as quoted in Morgret, 2002, p. 1)

Reflection is important to help teachers, preservice and veteran, improve professionally. Dewey (1933) laid the groundwork when he suggested teachers be reflective and take “active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further consequences to which it leads” (p. 9). Schon (1983; 1990) renewed the emphasis on educators reflecting in order to improve their teaching.

For the daily emails, the questions stimulated the interns to reflect on the day’s lesson, on their teaching, and on possible improvements if applicable. They often they wrote about many key details other than what I prompted. The following is one of Molly’s initial reflections:

Tuesday, Jan. 25, 2011

How did it go today?

The students are doing WAY more with technology than I anticipated. I figured as teachers [we] would be using youtube videos and Smartboards during instruction, but this Photostory is something I did not expect. While taking a media class I only did one assignment with technology (the movie maker assignment) and that is a college level class. I did not think that 6th graders would be doing basically the same assignment and have more skills. I know people were telling me they would but it was hard to imagine until I saw it. “Jared” asked me how to embed a podcast, and I thought “uh-oh...they told me I’d feel this way.” I did NOT like it. I can honestly say that college did not prep me enough for this. I not only did not know how to do any embedding, I was not even sure what a podcast was. I wish that I had gathered more ideas of possible assignments and possibly exchange ideas with students/teachers. I also wish I had asked more questions in

media class. These kids are not like me. They fear nothing. I fear it all.
(Email Reflection, 1/25/2011, 8:35 p.m.)

After a week, I asked Molly fewer questions, and her responses got longer. With Lindsay, since her project was not until two months later, I had learned more about how to elicit less limited responses. The goal was not to prompt an answer but to motivate an honest look at the day's evolution and how she felt about it. Could she grow? What could/should she do differently? How could these reflections help her with that? The first email reflection from Lindsay:

Tuesday, April 12, 2011

The first day in the computer lab was an adjustment from the classroom setting. A lot of the students seemed at a loss at where to start. It took a long time for them to get started and they did not seem like they knew what to work on. Additionally, they took a lot of time just making a decision on what option of the project to choose and which program they wanted to work in. Besides that, students seemed energized to be out of the classroom and able to use the computer for their projects. The change in pace seemed to be good for them, even if it did seem to throw them off at first. Our project guide was not explicit enough. They knew more technology than we did, so we did not know what to expect. We did not, however, give them a 'where to start' so many just starting showing off what they knew, and that wasn't really what we wanted.

As for problems I saw, I am pretty familiar with the programs that the students are using (Word, Powerpoint, Paint, etc.), but I am quickly realizing that I can't troubleshoot for them. If a program is not doing exactly what it should, I am completely at a loss for how to help a student. It has been frustrating at times, because I simply just don't know what to do or usually as much as they do. I feel like I am lacking experience, and I don't like when students are able to tell that I can't help them. It is especially scary when none of the other students can help, and I am left floundering around with no solution. I wish my college prep had covered more technology. (Email Reflection, 4/7/2011, 10:47 p.m.)

Along with the continual correspondence with the interns, I asked cooperating teachers to do a quick appraisal of the intern's progress weekly (Appendix K is a sample of reflection questions). Similar to the interns, I emailed the cooperating teachers a pre-survey on technology and post-survey on technology (Appendix B).

Multi-Modal Responses

One method I used for analyzing my data, crystallization, motivated the interns to consider alternatives when doing their email reflections. For example, when exploring possible responses, the interns came up with ideas like writing an imitation poem of Silverstein's "Whatif" or doing a wordle to represent being overwhelmed by her students' understanding of the digital process. The option to choose how to respond allowed both interns to express themselves differently each time, and those choices taught me as much about them as the words and images they shared.

After the first week, I prompted all participants to consider less traditional ways to express themselves. They were motivated to freewrite, to write poetry, and to think metaphorically about themselves as teachers. After the first week, each attempted poetry to describe her day or herself as a teacher. Midway through each study, participants did a freewrite about how they felt the unit was going. They also did a metaphorical writing to consider themselves through a different lens. The following were prompts used as options at periodic points during both case studies (each chose to complete all options by the end of their respective studies):

- If you were to describe your teacher self as an object, what would it be?
- What kinds of writings could you do to reflect on your teaching day? Poetry? Freewrite? Artwork?
- If teacher-you were a city, what city would you be? (Paris? Dallas? Auxvasse?) Why?
- If teacher-you were an animal, what animal would you be? Why?
- If you went around your house and collected ten items that helped represent you as a teacher of writing, what would they be? Obvious ones are pens/pencils, but what about a mirror to show reflection, a comb to show that you sift through things, etc.

- If I gave you a blank map and said to describe/draw the road that brought you to teaching, what would it look like? It might be in a mountain range because it started rocky, or would it be in the middle of a river because it's a fluid process? Just ideas to get you started.

After working with the participants on multi-modal activities, I utilized Gee's (2003) research on the role of video games and imagery to analyze what they had written and said. I explored his idea that "...meaning and knowledge are built up through various modalities (images, texts, symbols, interactions, abstract design, sound, etc.), not just words" (Gee, 2003, p. 111). Fox (1994), as well, described that when students encounter imagery, they feel they are "constructing their own meaning" (p. 70). For these multi-modal writings, the participants were in essence utilizing strategies that could also transfer into their teaching.

Once we started using a variety of ways to reflect on the day, I did not have to prompt the participants to do this. On day three Molly wrote a self-reflection poem; on day five, Lindsay drew a representation of how she felt at the end of the day and said coloring it allowed her to release the stress of the day while also learning more about herself both as a teacher and a thinker (Field Notes, April 14, 2011). Scott (2012) described one of the ten best ways to relieve stress is drawing, so to couple that exercise with one that causes self-reflection serves a dual purpose. On several occasions, participants admitted that the multi-modal activities helped them not only express themselves but that the writings relieved stress in a way they had not anticipated.

Audio Recordings

When the interns walked around helping students with their digital compositions, whether in the classroom or computer lab, Lindsay and Molly both carried an audio

recorder. While I might transcribe only a few minutes of what would ultimately be nearly 80 hours of audio recording, the ability to go back and listen to conversations, to relive the classroom dynamic, and to situate the written material in the context of what was going on with the rest of the class served as a memory aid. It also provided the opportunity to fill in gaps for what I did not get written down. In addition, while I sat in on collaborations between intern and cooperating teacher, I recorded those talks, as well as all interviews. At the completion of my research, I had nearly 60 hours of audio data. I filled two observations notebooks during my time with Molly, and one and a half while researching with Lindsay. I wrote what I saw, what I heard, and often asked questions, anything that went on during class time. Because half of my notes were done with a Pulse pen, I had more than 20 additional hours of audio recordings to listen to and analyze. These interviews, observations, email reflections, multi-modal responses, and audio recordings are multiple methods of data collection intended to enhance the quality of the study (Lincoln & Guba, 1985; Creswell, 2007).

Data Analysis

I borrowed grounded theory, because it focused on data collection and analysis procedures that required the researcher to read and reread the data to find the potential stories and ideas grounded in that data (Corbin & Strauss, 2003). My initial goal was to observe interns as they transitioned into classroom teachers, and to analyze the influence of the cooperating teacher on that intern. I took Field Notes of what I saw, and I read through my notebooks and the transcripts between intern and cooperating teacher. I wrote extensive notes in the margin, coded data to see emerging patterns, and I hoped to gain insight into what that intern felt when she taught a digital lesson to students she believed were more

digitally literate than she was. I also considered how prepared the intern seemed to be with teaching a digital lesson.

I used crystallization to analyze my data. Richardson (2000; Richardson & St. Pierre, 2007) described a qualitative methodology that allows the researcher to look at the same data from different angles, seeing in multi-dimensional ways and understanding that the more we look at something, the more we can learn – there is always more to know. Observing an intern lead a lesson on digital storytelling can be viewed through the lens as a teacher, but then it can be re-viewed as a digital storyteller, as a student, and as a reader. As stated earlier, Rosenblatt (1938) believed that students needed a variety of ways not only to respond to the written word but also to question the relevance of what is being taught in school; interns also benefit from that way of thinking.

As the observer, seeing the same data through a different lens offered insight into how the intern was growing as a teacher, but also how she was developing as a digital storyteller. Researchers can crystallize and see it with all its infinite possibilities, from the angles and background we as researchers bring to the table (Richardson, 2000). Interestingly, to analyze using crystallization takes analysis deeper, because as researchers learn more, they also doubt more, motivating them to be continual learners; it provided an alternative view of data collection and analysis (Richardson, 2000). Janesick (2000) explains: “Crystallization recognizes the many facets of any given approach to the social world as a fact of life. The image of the crystal replaces that of the land surveyor” (p. 392).

Coding

Borrowing from grounded theory, I read and reread the data, waiting for patterns to emerge (Bogdan & Biklen, 1998). I read through notes and observations the first time with

various lenses in mind, thinking like a teacher and noticing the modeling, the workshop process details, and the collaboration going on between students and teachers. I also noted research I had been studying, thinking about the social nature of the learning and the role talk played in both the digital process and the classroom dynamic in general. When I began going through my notebooks, I first started with open coding, jotting in the margins with those lenses in mind and also considering Odell's categories (1999). I wrote in the margin a one- or two-word summary for notes I had made or, on occasion, a phrase that captured the sense of what I had observed. For example, I had written about a conference period in which Molly and Pam discussed modeling for students the next day how to save to the school share drive, and they brainstormed what the storyboard transition to digital composition could look like. They both agreed there would be little focus on grammar or punctuation for now, that the important detail was to transition to the digital format. In the margin next to these notes, I jotted *brainstorming*, *modeling*, and *collaboration*. Below that, I added *written to digital* and *selecting*. For only a few lines of text, I had five codes. I did this through all my notes, and when I finished, I went back and re-read the codes and made a list for each notebook (Appendix M) of all the codes I had written. I studied the list, noted repetition, and started listing potential umbrella categories on chart paper, having a separate piece of chart paper for each research question. When it became too tedious to pigeon-hole the codes to fit research questions, I charted the codes by intern, using highlighters to color-code into broader categories. Because I had read Odell's article *Assessing Thinking: Glimpsing a Mind at Work* (1999) in three different classes, his categories seemed to emerge as a natural fit. On the third reading of the codes, I used a different color to highlight places that showed evidence of Odell's categories: dissonance,

selecting, encoding/representing, drawing on prior knowledge, seeing relationships, and considering different perspectives (1999).

In Table 3.4 below, I created a quick-reference chart for reflecting on the categories.

Table 3.4 Odell’s Codes Applied to Research

Code	Brief Definition	Sample Data
Dissonance	Noticing items or events that are incongruous or do not add up	Teacher advocates a way of learning but doesn’t teach that way
Selecting	Specifically observing certain things and deemphasizing and/or ignoring others	Teacher focuses more on topic of digital lesson than the technicalities of digital process
Encoding/Representing	Represent what we are observing, feeling, thinking with images, music, numbers, etc.	During digital compositions, using a specific image to portray feeling (picture of lightning to symbolize chaos, for example)
Drawing on Prior Knowledge	Relating experiences using what we already know	Teachers use their own digital skills
Seeing Relationships	Considering how one thing causes another, interacts with another, similarities and differences	Teachers explore the cause-effect of teaching a digital skill they have not mastered
Consider Different Perspective	Considering others’ perspectives or interpretations and how they differ from our own	Teachers allow students to create digitally and use tools students prefer, even if the teacher is unfamiliar with them

Initially, I had as many as 15 codes per page, in the four notebooks (one Pulse pen notebook and one composition book per intern). Through the lists of codes I created for each notebook (see Appendix M), I looked for patterns keeping Odell’s categories in mind, and attempted to collapse codes into related groups. Using axial coding, I considered causal relationships, put similar concepts into like groups, and found basic connections between potential codes (Charmaz, 2006). I took my lists of codes and charted them to record patterns that emerged and how they correlated to each research question. I categorized my information, knowing that the codes would allow me to interpret the

information in new ways (Glesne & Peshkin, 1992). While categories such as *modeling*, *technology as a motivator*, *selecting*, *dissonance*, and *community building* emerged, there were hundreds of codes per notebook, and the volume of codes seemed unmanageable. In an effort to get a better handle on them, I employed crystallization to view the codes in a different way and to help sort them in a more efficient way.

Crystallizing the Codes

Because I was analyzing my data from multiple perspectives and through many lenses, crystallization gave me a deeper way to analyze. While I gained insight by considering an intern's comments through a teacher's lens, it was re-considering the same comments through a student's lens or a writer's lens that forced me to turn data over and see it differently. I was able to grasp a deeper understanding not only of what the intern said but of possible implications of her statements. Crystallizing interns' comments, interactions, and conversations further allowed me to explore and consider interns' and cooperating teachers' views, self-reflections, and self-analyses (Richardson & St. Pierre, 2007).

Richardson and St. Pierre (2007) referred to crystallization as experimenting with evocative writing. One approach they suggest is to "write your 'data' in three different ways" (Richardson & St. Pierre in Denzin & Lincoln, 2007, p. 494). To get a handle on the enormity of the codes, I selected three ways to write about them. The first strategy I used was to create a Wordle, which will be described and illustrated in Chapter 4. I used Wordle because it would give me a fresh way to see my data, and because one of the options was to create a version that made words used most often more prominent. The more often a word was used, the larger and bolder it appeared. Another strategy implemented was a free

verse poem, to write casually about all the different emerging categories and the idea of coding in general (illustrated in Chapter 4). The third writing was a dialogue between two fictional characters in which they discuss teaching and technology. I did not directly address the codes, but was trying to make sense of the entire process with the third writing. I had used the two characters in a research class, during which they discussed Wendell Johnson's *People in Quandaries* (1980). This is illustrated and discussed in Chapter 4 with the other writing strategies.

After completing the three different writings, I learned from the writings, primarily from the Wordle, what the broader codes were. I began to consider these umbrella categories, some of which ultimately included teacher development, digital growth/technology attitudes, and talk in the writing and digital process.

I discovered that by using crystallization, I would continue to learn something new every time I looked at it, because the day had changed, I had changed, and my views altered how I saw the results. The Wordle, poetry, and a dialogue between two fictional characters offered insight and emerged as a result of my thinking. I would not put away the previous experts when utilizing crystallization – they had become part of my background knowledge, and therefore a part of the prism of my own personal crystal. What I viewed one day through a basic narrative approach, I might view differently the next if I chose to consider my data through art or poetry or a concept map. I might also try thinking about my data as a teacher, then as a student, and one more time as a digital learner. Though crystallizing was done specifically for my research and to analyze the data, it also motivated me to have the participants reflect on their teaching and learning in a variety of ways. They reflected in a way that allowed them to not only consider how they had

learned, but how they might continue to learn (Richardson, 2000; Ellingson, 2009). Using crystallization to analyze the interns' and cooperating teachers' narratives allowed me to learn more about the attitudes and philosophies of each intern and cooperating teacher and to see my data in a different way (Richardson, 2000; Richardson & St. Pierre, 2007). Permitting participants to interpret their experiences and share concerns and successes during the digital storytelling process with multiple responses showed that there were many stages and experiences in teaching and learning. While I initially used a social constructivist lens to consider the personal roles of both the interns and the cooperating teachers and share their experiences and values (Charmaz, 2009), it was with crystallization that I explored the data more deeply.

Other Coding Lenses

Once I had my broader categories and was making sense of my codes, I considered other lenses. Because I had observed interns balancing being learners and teachers, often interchangeably, I started with Hayakawa (1991) to study how they moved up and down the ladder of abstraction while facilitating and learning about digital storytelling. I also kept Odell's codes in mind while navigating the data. For the interns to be able to interact with the technology on a basic level, but to then move up the ladder to the more abstract concepts of modeling and facilitating student learning showed a deep level of thinking. Likewise, the ability to move up and down the ladder of abstraction allowed for conceptual thinking, as well as interaction with the technologies involved.

Creating digitally and assisting students to find the proper images and materials required abstract thinking, to consider how the viewer would feel when an image or a song elicited a certain emotion, an example of Odell's *encoding*. Likewise, they had to select

basic images, exemplifying Odell's *selecting*, that defined and/or established the facts in a digital composition. For example, during my research, a sixth grader was creating a digital composition about poverty in urban America. He chose to play the song "Man in the Mirror" by Michael Jackson. He said it would make people think about the kind of life they were leading, and whether or not they were doing enough to help people less privileged than themselves. While he was thinking and applying this to his digital composition, he was moving up Hayakawa's ladder of abstraction (1991), but in the exact same breath, he added, "And that picture of a homeless man will remind them what it means not to have money." That literal depiction of poverty showed his ability to come back down the ladder, and while doing his digital composition, he frequently went up and down the ladder. The intern added that this student was from a wealthy family, so the student possibly drew from prior knowledge and might also experience dissonance about his home life and the irony of him not connecting to that fact. Whether the intern experienced or witnessed the abstracting or the dissonance, she benefited from what she learned while interacting with students, likewise continually moving up and down the ladder.

For Hayakawa's two-valued orientation (1991), the concept applied in many facets during digital storytelling. "This isn't writing," one student said, explaining that if it was on a computer, it was more like research or playing (Field Notes, January 24, 2011). Likewise, even one of the interns, Molly, admitted that while the students were working on their digital compositions, all she was doing was facilitating, so she did not really feel like she was teaching (Interview, February 10, 2011). Her perception that teaching was direct instruction, or at the very least occurred in front of a classroom, did not translate to being a

facilitator and allowing students to be in charge of their own learning. She applied her own prior experiences to her expectations and considerations as an instructor.

These examples show how they have an either/or attitude, not just about learning but teaching as well. It also includes some dissonance, as students overlook the idea that learning in certain classes can be fun (cooking in FACS) but not in content areas like this one or science and math. While these are being touched on during the data analysis, further examples will be discussed in Chapter 4 as they connect to individual findings.

A few other lenses were employed throughout the study, including talk. I analyzed the talk between interns and students, as well as interns and cooperating teachers. I went back through my codes and added a red T in places that focused on talk. From that re-evaluating, I considered the five types of talk that Alexander discussed in Mercer's *Exploring Talk in School* (2009, p. 103):

1. Rote – drilling of facts, ideas, and routine through repetition
2. Recitation – stimulating recall
3. Instruction/exposition – telling students what to do, imparting information, explaining
4. Discussion – exchanging ideas to share information and problem-solve
5. Dialogue – reach common understanding through discussion and questioning

The first three bullets above fit the traditional drill-and-lecture mentality and, while those were observed, it was the last two that served as a lens during this research. I analyzed the discussions going on between interns and cooperating teachers, whether it was while they were teaching, planning for the day's lesson, or reflecting on one they had taught. I considered how their conversations helped the interns learn and develop, and what was gained during their discussions. For example, I considered what changed after the intern and the cooperating teacher talked. The problem-solving led to a push for students to think

as critically as the teachers while composing digitally. When Molly asked Pam what about some of the topics, Pam replied, “Don’t ask me, ask them...we want THEM to think about this, not us” (Personal Communication, Feb. 7, 2011). Questioning motivated the intern to try to determine how she could challenge her students and herself. For example, Molly asked Pam a litany of questions regarding the final stage of the social justice project: How long will students present? Should we invite parents? What if there is a technology issue? Should we ask the administrators to come? How do we assess the intangibles, like improvement? Pam waited until the barrage of questions ended and said, “You tell me” (Personal Communication, Feb. 22, 2011). Pam believed she forced Molly to think about the questions, to guide the students to possible answers, and if the students had no answer, then Molly concluded that she needed to stop looking to Pam for answers that she might be able to reach on her own (Personal Communication, Feb. 22, 2011).

I also observed the dialogue that went on between interns and students while students composed digitally. I noted when questioning and talking led to a deeper understanding by how the students moved forward, by how they asked questions that showed they were thinking critically about their material, and occasionally by how they successfully maneuvered through a technology obstacle. On several occasions, I was able to see when the discussions improved both student learning and intern development, especially when the intern blurted that she understood something they had been working on. These observations motivated me to study the debate between Vygotsky and Piaget on how children learn. Though the two psychologists saw how children acquire language differently, they agreed that thinking and language development were intertwined (Vygotsky, 1978, 1986; Piaget, 1959). Vygotsky (1978, 1986) also believed children need

the opportunity to talk about a new idea or concept in order to understand and use it (McGee & Richgels, 1996), and he described the scaffolding that teachers do by presenting learning within the Zone of Proximal Development. He suggested that language was not only a psychological tool but a cultural one as well (1986). His *more knowledgeable other* (1978) during a digital composition could be a classmate, not a teacher, especially since the culture of a classroom can revolve just as readily around students as the teacher. It could be observed during the digital process that the teachers, especially the interns, worked within the zone of proximal development, as the cooperating teachers noted the intern's potential while teaching a skill not yet mastered and not necessarily the intern's actual growth as a digital learner or educator (Wertsch, 1985). Much of what the intern learned both as a teacher and a digital learner occurred within the zone of proximal development, as she problem-solved with more capable peers: the cooperating teacher *and* the students.

Research Ethics

Qualitative research necessitates a code of ethics, the following of which aids in the process of keeping participants comfortable taking part in studies (Denzin & Lincoln, 2005).

Triangulation & Trustworthiness

To increase trustworthiness, I debriefed each participant at the end of every interview/email correspondence, asking the interviewee if she had anything else to add that we had not otherwise talked about or that she wanted to supplement. By doing so, she could include insights I might have missed and likewise add to the collegial relationship. I utilized multiple data sources, such as observations, interviews, surveys, documents, and recordings, all of which resulted in triangulation and helped to insure trustworthiness in a

research study (Lincoln & Guba, 1985). Additionally, I was in the classroom every day during each project, I positioned myself within my study, and I considered my personal biases as a teacher in an effort to maintain credibility of the study (Merriam, 1998).

Autonomy: There was no coercion to join the study. I reviewed the consent forms with the interns and reminded them throughout the data collection period that their participation was voluntary, that they could have chosen not to participate in this research study or withdraw at any time, and that they would not be penalized in any way if they had chosen not to participate or to withdraw.

Beneficence: To maximize the benefits and minimize the harm, I reminded the interns that the study provided a safe environment in which they could talk about how they felt in a digital literacy unit. Participants could enjoy the opportunity to explore their teaching and learning experiences in a thoughtful, critical way. They could better understand how they thought and how they engaged with technology. I also told interns that this research could contribute findings to the field of education that might assist teachers in working with student teachers and students and improve the quality of teaching.

Justice: To equalize our roles, I told the participants that for this study, I was a student at the university.

Dealing with potential for harm: This project did not involve any risks greater than those encountered in everyday life. Participants were not purposely deceived, and this project did not pose physical danger. Any remote chances of harm were social in nature. For example, an intern *may* feel under-prepared if students asked about an aspect of digital compositions she could not answer. Because the goal is eventual publication, interns may worry that a reader will be able to figure out who they were. However, the participants' identities will

be kept confidential, and I conducted interviews in an environment that was open, trusting, and warm.

Informed consent: Permission to conduct this study was obtained from the interns and the cooperating teachers. I also received permission to conduct the study from the school district and the middle school and junior high school principals where the study was conducted. In accordance with IRB permission, I told the research subjects that they were participating in a dissertation study for a doctoral degree and that the purpose of the study was to add to the research regarding digital literacy and its role in the writing process.

Chapter 4

Findings and Discussion

When this case study began, my research questions focused primarily on digital storytelling and its effects on interns and their strategies for teaching writing, both in a digital and non-digital context. For the purposes of this study, as stated in Chapter 2, *digital* is defined as the use of computer technology (American Heritage Dictionary, 2000) and *digital literacy* is the understanding of the integration of texts, images, and sounds using digital software images, words, music, and any other form of media to convey a message (Literacy Through Technology, 2007). The philosophies of Stephens and Ballast (2011), Miller (2010) and Hicks (2009) to teach writing workshop with the addition of technology, not the replacement of any of the important components, guided my research. Not only would I observe the interns and how they handled their personal experiences (or lack of) with digital storytelling as they taught it, but the process of teaching the student, the student writing, and then incorporating their data into their digital compositions.

Additional research questions addressed teacher preparation and the impact the cooperating teachers' attitudes about technology, modeling its use in the classroom, and how both would affect the interns' attitudes about technology and teaching (Haston, 2007). Teacher preparation became a significant factor when the interns acknowledged that they lacked the digital skills their students possessed.

Throughout the study, the role of social interaction and social learning (Vygotsky, 1978) were observed, and at many stages, that social component facilitated both the students and the teachers. According to Vygotsky, the active nature of learning calls for

participants to learn in a social environment, and that they learn a great deal from one another in an authentic setting (1978). This became evident both for the students and the interns. Central to their learning and the interactions during the digital projects is the role of talk. According to Barnes (1976), talk can play a crucial role at every stage of a project, and that when learners talk and create at the same time, they are building greater understanding. Teachers must motivate and facilitate that talk, and if they model it and allow conversations to take place naturally, like in a computer lab, there is a greater authenticity to learning (Johnston, 2004).

Prior to beginning my on-site research, I conducted surveys in an education methods class to help target potential interns, focusing on their experience with digital literacy, as well as the convenience of their placement for the spring. Once interns were selected, I collected data from the two cooperating teachers and two interns using interviews, surveys, daily reflections via email correspondence, as well as digitally recorded collaborations and discussions. Additionally, I took extensive field notes in the classroom, supplemented by digital data from my Pulse pen. From in-class computer work, I also have digital recordings and transcriptions from a handheld recorder the interns carried around.

I will discuss each intern's interactions with digital literacy, and her attitude about the role of technology during the internship. I will also focus on the impact of the cooperating teachers' attitudes on the interns, both about teaching in general and about the use of technology.

Participants and Projects

For the research done at each school, I met with both the intern and the cooperating

teacher, spent time getting acquainted with each, and learned about the project they would be doing that would include digital literacy. I will discuss each school and the applicable participants and projects separately.

South Lake Middle School

Molly Rowan, the first intern I worked with, was scheduled to do her student teaching at South Lake Middle School, with cooperating teacher Pam Downing. South Lake is one of three middle schools in the community, and the demographics were detailed in Chapter 3 on page 112. They began Molly's internship with a digital project focused on social justice.

Molly Rowan – Intern

When Molly was placed with Pam Downing at South Lake Middle School, the three of us agreed to meet, get to know one another, and discuss the digital project they would be doing. It was during this meeting at a local coffee shop that I got to know Molly as a future teacher, not just as a student, and during this meeting I realized how nervous she was about her teaching internship. She admitted to Pam and me that she was “terrified the kids would know more than” her about technology and what would she do if they needed her help on concepts she was not as confident about, like grammar (M. Rowan, Interview #1, Jan. 13, 2011). As Darling-Hammond (2006) notes, feeling prepared as a preservice or practicing teacher comes from a willingness to expose prior knowledge that might not equal that of the students being taught, that being willing to learn may be just as important as having the needed prior knowledge.

During our initial meeting, it became clear that Molly was willing to learn, but overcoming her anxiety would be her first and biggest obstacle. She admitted right away

that she was never going to “blow anybody away with [her] mad tech skills” (M. Rowan, Interview #1, Jan. 13, 2011). She talked openly about what she thought would happen when she taught the digital composition project at the beginning of her student teaching experience. “It will really help if I admit I’m not as good as they are at technology, but to show them that I’m a really good writer, and writing is as important during this project as the technology” (M. Rowan, Interview #1, Jan. 13, 2011). She advocated what I saw as a Vygotskian approach to the classroom, especially during the digital composition unit by promoting student-directed, social learning. She believed many of the students would be the ones with the knowledge to help those with less (Vygotsky, 1978). In light of continuing research that supports Vygotsky’s social theories of learning, Bourgeois (2009) points out that not only is time to play, explore, and analyze important, the social process of learning about technology should be deeply embedded within sound instructional practices. While Molly may have believed that the students would know more than she would about technology (Interview #1, Jan. 13, 2011), providing her with the theories and applications of the best teaching practices prepared her for dealing with (and accepting) that possibility. Aside from her apprehension about student teaching, Molly was excited to become a better teacher (Interview #1, Jan. 13, 2011).

An interesting observation arose during our initial meetings that carried over into the classroom, and that was Molly’s body language. When nervous, she crossed her arms and kept her body closed, perhaps in a protective gesture. Later, Molly admitted she had to focus on not crossing her arms when she felt insecure. As Pease’s research indicates (Pease, 2006), closed body language like crossing of the arms, can be a way to demonstrate insecurity or nervousness and often translates to observers. When Molly crossed her arms

early on during her internship, if students were tuned in to what that could mean, they might not have been as willing to approach her. However, as she continued her internship, the closed body language of either crossing her arms or hugging herself eventually stopped. She became more comfortable, and therefore had her hands either at her side or folded in front of her. She also witnessed the open body language of Pam, and that modeling may have been the motivator she needed to imitate.

Summary. Molly entered the experience with little confidence and a good deal of anxiety about not knowing as much technology as the students. She grew more confident daily, exemplifying what Darling-Hammond describes as on-the-job growth, that teachers learn by practicing just like with any other profession (2006). Molly gained confidence as she built relationships with students, as the digital project progressed, and as she accepted that it was okay for the teacher to be a facilitator and not the expert. As the International Society for Technology in Education (ISTE) points out in its standards (2008), simply allowing students to use digital tools promotes creative and innovative thinking while doing activities that revolve around digital learning (Iste.org, 2008). Molly continually prompted students to think about their digital work but also to reflect on the impact their research could have on the cyber community at large, a connection to the ISTE standards she was unwittingly making. While she might not have been aware of the standards, she was already building natural insight into motivating students to think and reflect.

Pam Downing – Cooperating Teacher

I had met Pam previously at a few teacher workshops, though I did not know her well. She came into the profession in her late forties, after spending many years in the business sector, and embraced teaching with enthusiasm. Even though she was in her early

fifties during this research, she had only been teaching for six years and was in her second year at South Lake Middle School. When I approached her about doing research in her class-room, she responded, “Absolutely! It will help me to reflect on my own teaching strategies, and with you in there, I’ll really be on my toes” (P. Downing, Email Correspondence, Dec. 8, 2010). This was also Pam’s first intern, so she would be learning about the cooperating teacher role. My plan was to attend her first and second hours of the day, which were reading and writing respectively. For the project, however, she intended to blend the two.

Pam taught with energy, subscribed to the idea of modeling a lesson before having students embark on it, and openly advocated for collaborative learning. If students were stuck, they consulted with one another as quickly as they did with her. She fostered an environment of risk-taking and admitted, while modeling her own digital story, that she was new to this and would likely need the students’ help to do the “fancier things” (Observation Notes, Jan. 25, 2011). She was not afraid to make mistakes in front of the students (and did), and though she allowed for student-centered learning, she was quick to assert herself if she felt the students’ conversations led them off-task. Her classroom, on occasion, got rambunctious, and she stopped them three different times to redirect their focus and tell them that, if they could not handle the freedom of the project, they would stop. Students responded, and the project continued.

Summary. Pam had a quiet authority and exuded confidence when she taught. She had a positive attitude about trying digital storytelling, said she thought new experiences kept teachers fresh, and hoped it would lead to more digital composing in the future. An advocate for innovative teaching and learning, she also said she thought she would be able

to transfer that mentality to Molly.

Social Justice Project

The project I observed focused on social justice issues and lasted 15 school days, from mid-January until late February, due to snow days. Though the project was only 16 school days, it took place over the course of six weeks, because of the eight snow days. This hindered class community, though Molly still managed to learn students' names in just two days. Because of snow days, President's Day, and parent-teacher conferences, students did not have a full week of school for six straight weeks, thus requiring review periodically throughout the course of the unit. The project ended in late February, with class presentations of each student's digital composition. The digital stories were also shared with parents during parent-teacher conferences.

During the weather interruptions, I touched base with Molly and Pam via email on snow days. These supplemented three interviews with each intern, Molly's nightly reflections, their surveys at the beginning and the end of the project, and audio recordings for three computer lab sessions and six in-class work sessions. This continual break in rhythm made it more difficult to see a steady evolution of the lesson and the intern's progression. However, it was interesting to see how effectively Molly learned student names. Ultimately, the social justice research would be a digital composition done in Photostory 3 that the students would share with classmates. They would also share them with parents during teacher conferences a week after the project ended.

For the social justice unit, students chose an issue of interest to them and had to research that topic. Key preferences were poverty, breast cancer, and child abuse. Their assignment initially was to find at least 20 facts related to the topic, then to select images

to represent their issue. They first recorded the facts on a storyboard they drew on a legal size piece of paper. On this page, they drew ten boxes with the paper in landscape position, and they wrote two facts per box about the topic – these panels would represent slides or scenes in their videos. Within each box, they either drew or described what images they wanted to represent those facts. When their was storyboard complete, they wrote out on paper what they wanted to say during their digital composition. The narration would include the facts, but also their goals for aiding their social justice issue (how could they raise awareness for breast cancer, what could they suggest for getting people to donate to American children in poverty?). When they had their narration written down, they shared it with a partner and did peer revisions – Did it sound good? Could it be improved? How? With their partners, students decided if what they had written sounded good, and then they were allowed to begin their digital composition (see Appendix C for rubric).

They used the PC-based program Photostory 3 for their digital stories, and were required to have a title page, credits for images and music they used, a resource page at the end with websites for their cause, including a page with how they might “solve” this issue, and what they, as sixth graders, could do to help with their cause. The first drafts of the digital stories were reviewed by peers, edited for grammatical mistakes, and then revised for content and interest. When they finished, their digital compositions were presented to parents during parent/teacher conferences, as well as to peers during class.

Molly and Pam aligned the project to the Grade Level Expectations (GLEs), outlined by the Department of Elementary and Secondary Education, specifying the standards that focused on writing and the inclusion of technology. Pam also noted the points of their project that would meet the CCSS, even though she recognized that the

GLEs were still her current priority. Even though the ISTE standards were not mentioned, much of their work satisfied the standards as they designed their projects and motivated students to experience creative digital learning.

Washington Hills Junior High School

Lindsay Darnell, the second intern I worked with, was scheduled to do her student teaching at Washington Hills Junior High School with cooperating teacher Beth Todd. Washington Hills is one of three junior highs in the community, and the demographics were detailed in Chapter 3 on page 112-113. They began Lindsay's internship with a soundtrack project.

Lindsay Darnell – Intern

Lindsay Darnell was a secondary English education major, and like Molly, was also obtaining middle school certification. Lindsay, other than being the same age and from similar educational experiences and backgrounds, was the antithesis of Molly. Lindsay was gregarious, a willing leader, and headed many collegiate organizations. Lindsay helmed Education Ambassadors, a student-led honorary group designed to help education majors and the department in many capacities, for two years prior to her internship semester. During the third methods course where I met her, it was obvious Lindsay was a leader.

When I gave Lindsay the initial survey to measure her feelings about technology (Appendix B), she explained that she was willing to try new technologies but, in general, her lack of experience was due to not having the time or money to stay up-to-date. She felt she had fallen behind what K-12 students were capable of and she worried she would teach them something incorrectly. Staying current, Lindsay said, would be a serious challenge

but one worth striving toward.

As I got to know Lindsay, it was clear she would do what she could to always be on the cutting edge of best practices for teachers and students, and if a digital skill was on that list, then she would work to master it. Interestingly, Lindsay was not convinced that digital skills were an imperative innovation to teaching and said she wanted to be part of my research to find out how important they could or should be to her teaching (Interview #1, April 5, 2011).

Lindsay's placement for the spring semester was a split experience to accommodate her dual certification. She would first spend ten weeks in a world studies block at Wood Lawn High School before finishing with a six-week internship at Washington Hills Junior High where I would be observing her in Beth Todd's reading/writing workshop classroom. When I met with Lindsay and Beth to discuss their digital project, both were excited about the prospect, but the focus in the unit would be first on the literature and the traditional writing, and then the digital component varied in its possibilities for the last phase. Much like the project in Pam Downing's class, various technologies were part of the process, though the digital storytelling component was part of the end product. During my first interview with Beth on March 22, 2011, she described the project and explained, "I appreciate the possibilities digital work can offer kids, but these students aren't that plugged in beyond Facebook and their cell phones. I really think younger kids are more digitally literate than these freshmen." Not having met the students yet, Lindsay told me via email that she would reserve her opinions about their technology interests when she met them, though she added, "I would think they're more plugged in than that, but we'll see...I know that varies the older they get" (Email Correspondence, March 25, 2011).

Lindsay had come to Washington Hills with ten weeks of experience at the high school level, so she did not have Molly's apprehensions. Sitting down with Lindsay was like having a discussion with a practicing teacher. She was eager and ready to tackle the last phase of her internship. She was already speculating about her future as an educator and possibly in administration (L. Darnell, Interview #1, April 5, 2011).

One thing that emerged during Lindsay's internship was the dichotomy between her weeks at Wood Lawn and the experience at Washington Hills. She described her classroom at the high school as laid-back and student directed. The atmosphere resulted in some classroom management issues for her, but overall, she rated the internship positively and believed she learned a great deal about being a facilitator as opposed to a lecturer. The high school's mantra of "freedom with responsibility" weaved its way into her attitude, she said, but it set her up for an awkward transition to the far different experience at Washington Hills. Where her cooperating teachers at Wood Lawn High School had built a strong community and felt comfortable allowing that freedom with responsibility attitude, it made Lindsay's first few weeks there a new learning experience. She described all her previous field classrooms to be ones in which the teacher had a clear expectation and ran a "tight ship" (L. Darnell, Email Reflection, April 7, 2011). At Washington Hills, Lindsay described the classroom environment as challenging, both because the students did not seem to know their boundaries and because the cooperating teacher was inconsistent with expectations and follow-through.

Summary. Before starting her internship at the junior high, Lindsay possessed the demeanor of a practicing teacher, most likely because she was in the second stage of her dual internship and already had ten weeks' experience. She exemplified confidence while

in front of the classroom, handled situations quickly, and commanded as much respect and attention as the cooperating teacher. She attempted to build rapport with the freshmen but was just as quick to correct them if they were out of line. While in a tough setting of students who continually pushed the boundaries, Lindsay maintained her composure and attempted to regain some control of the classroom. When meeting with Beth about classroom management, Lindsay maintained a positive attitude while discussing strategies to help the students succeed.

Beth Todd – Cooperating Teacher

Beth was in her fourth year at Washington Hills Junior High during the research. When placements for the interns were made, I asked Beth if she would be interested in allowing me to conduct research in her classroom. She admitted that she did not think her principal would allow it, since she was only in her fourth year. If her principal said yes, she said she would love to have me in her classroom. I contacted her principal the next day, and within a week I had written permission to do research with Beth.

As the project was ready to start, Beth said she wanted to prepare me for the behavior of many of her students, explaining that quite a few were the “trouble kids” and that this late in the school year, they had self-selected to “check out and act out” (Interview #1, March 22, 2011). She continued describing her classes, saying many freshmen who could not handle other electives due to either behavior or grade requirements ended up in her class. “It makes for some pretty interesting dynamics, but I like the tough kids” (B. Todd, Interview #1, March 22, 2011). By her own description, many of her classes were challenging, but she felt an intern would gain valuable experience from the observation and interaction with tougher teenagers. She said she had gained valuable insight from a similar

experience.

During the research, Beth displayed an easy manner and humorous interactions with students during passing time, before and after the bell outside the classroom, and in the computer lab during 7th hour. She did not demand stringent adherence to rules in the classroom, and on many occasions, she was reasonable about students who pushed the boundaries. Her class routines were consistent, beginning with a Channel One warm-up the students seemed to enjoy. Still the students often moved around during the first ten minutes of class, were off-task, and had to be prompted numerous times to finish the warm-up. Lindsay continually had to tell students to get to their seats, to get to work, and her frustration with the lack of community was evident both to observers and to the students. In numerous daily reflections, she addressed what she felt could have been done differently at the beginning of the school year, and how she would handle these situations on her own. Beth was quick to say that she had not been able to build a strong community with some of the 6th hour students, because of several who were resistant to authority.

During an after-school collaboration, Beth and Lindsay reviewed the day's activities and planned the next day. Lindsay struggled with the behavior of some students and asked Beth why many of the students did not listen the first time either of them asked them to do something. "You will learn to choose your battles, and this late in the year, you can't reverse that behavior. Some of these kids don't listen to anyone in authority, so you have to find a balance. Challenging them to meet your idea of management may only cause worse issues" (Observation Notes, April 7, 2011). Lindsay struggled with this idea, but Beth had dealt with the behaviors and understood how far she could push them, what their home life was like, and had reached a balance with the students and her own expectations.

While it did not seem ideal to Lindsay, it would only be through experience that she would learn these concessions first-hand.

Summary. Not establishing a strong community at the beginning of the school year took its daily toll on Beth and hampered the amount of content she could cover. She admitted to that being a work area, but she was quick to say that some of her classes were much better behaved than 6th hour. In observing 7th hour, it was evident she had established a much more positive atmosphere, exemplified by how the students behaved and Beth’s interactions with them. She also interacted with students more comfortably during passing time and in the computer lab, and the students, likewise, responded more positively to her during that time. She prepared Lindsay and me for the difference with 6th hour and understood the dynamics of the class and how it might impact the study. While consistency, community, and developing a sense of collaboration with students required time at the beginning of the year, occasionally teachers learn that not all classes can be run the same way.

Soundtrack as Your Character Project

The project I would be observing focused on an analysis of a chosen character through music that took 11 school days to finish. The digital portion of the project had several options, both during the process and the product (See project rubric, Appendix D). For the project, students had chosen a novel from a set of options. See Table 4.1a and 4.1b for books chosen by class.

Table 4.1a Table of book choices per students in 6th Hour

Novel	Author	# Chosen
Hit and Run	R.L. Stein	3
Blue Avenger	Howe	1
Hoops	Myers	3
Fallen Angels	Myers	2
Staying Fat For Sarah Byrnes	Crutcher	5

Table 4.1b Table of book choices per students in 7th Hour

Novel	Author	# Chosen
Hit and Run	R.L. Stein	2
Contender	Lipsyte	1
Guitar Girl	Manning	3
Elephant Run	Smith	2
Staying Fat For Sarah Byrnes	Crutcher	5

Once students chose their novel, their first objective was to pick a character in their book to analyze, and then they picked at least eight songs to represent a scene or a character in the book and listed the artist. The students considered the character's motivations and actions when choosing the songs, then they wrote a reflective letter to an imaginary listener of their soundtrack, explaining why they chose each song. The components of the letter were specified (see Appendix D) and included a quick biography of the character, explanation of the soundtrack, and more specific details about each song. The second portion of the assignment focused on the digital component. Students had two choices: 1) create a CD jacket in PowerPoint or a movie program, or 2) create a PowerPoint or video with pictures and words to outline events that occurred during the beginning, middle, and end of the book. They had the opportunity to burn an actual soundtrack with the music, if they chose, but none did. When they finished with their projects, they would show their digital product or their physical representation of their CD to the class. Several asked if they could play one of their songs from the Smartboard while they presented, but Beth said no, it would be too distracting. She reminded them they could have played music had they chosen to embed it in their presentation.

Initially, Beth instructed students that their technology skills were not being assessed and, if they felt more comfortable doing minimal digital work, that was fine. She

did not model any of the technologies students would be using to create the CD jacket, nor the possible digital storytelling programs for their presentations. Lindsay listed the options for the CD design, including Microsoft Paint, Microsoft Word, Word Art, and CorelDRAW. Beth added that they could include music from iTunes or from websites like Free Play Music to make actual CDs. Most of the students seemed familiar with the design programs both Beth and Lindsay suggested. They did not seem as familiar with digital storytelling software and, when it came to the production and presentation of their literary soundtracks, all but one student chose Power Point instead of Photostory 3, Windows Movie Maker, or iMovie. Beth did not introduce any other web-based digital storytelling programs like Animoto, WeVideo, HD Slideshow Creator, or any one of those listed on 100 Apps for Tech-Savvy Teachers. Lindsay wrote in one of her email reflections that there seemed to be opportunities missed in the project, but she admitted she did not have the experience or expertise to offer suggestions.

Ultimately, most students used Paint for their soundtrack cover, PowerPoint to present their play list, and one composed in Windows Live Movie Maker to illustrate her character's motivations and actions. Interestingly, the rubric (Appendix D) outlines the expectations for options students could choose, but the CD Jacket, Lindsay said, was much easier to do than the movie, and Beth joked that the entire class would choose that method because it was less work.

While Beth did not specifically coordinate the project to the state standards the work aligned with, in a conference with Lindsay, they discussed the fact that there were GLEs the assignment would address, with threads for literacy, writing, and technology application. Beth also acknowledged that the new CCSS would allow more work to be

done with computers, and she hoped to do the same project again because of that.

Summary. Beth's difficulty with 6th hour's classroom management impacted the way the students reacted to lessons and learning. She established a routine to which many of the students responded well, but the students often did not complete many of the assignments. Though she had reasons for not challenging several students, the uneven expectations often created a challenging atmosphere for Lindsay. The modeling she was doing may not have been optimal as a learning tool for Lindsay, but the experience could have taught the intern the importance of differentiation, even with behavioral expectations. However, Lindsay had not spent enough time in a classroom to understand the fluid dynamics of a classroom personality. What she deemed an out-of-control class, Beth understood was the necessary nature of maintaining a balance of potentially volatile situations.

During one of Lindsay's early reflections, she addressed her personal struggle with the classroom environment. "I was really surprised by how a few of the students talked to her, how disrespectful they were. And at times, others seemed to really listen to her. It was confusing. I learned a lot about classroom management...I just hope I'm able to build a better community with my students" (L. Darnell, Email Reflection, April 2011). Again, Lindsay had the idealistic notion of a perfect environment, when the actuality of a real world classroom would be finding ways to achieve a balance of the multiple personalities.

Even though Lindsay viewed part of her internship negatively, she understood the importance of building a strong community in her own classroom. She added in her post-interview that the most important component to teaching anything, digital or otherwise, is to promote a positive atmosphere, even though she might not always be able to achieve

that. Lindsay also added that she intended to advocate technology use in the classroom, because she saw that students got more excited while working in the computer lab than any other time she interacted with them (Final Interview, April 27, 2011).

Summary of Research Findings

In addressing each question of my research, I first highlighted the overview of my findings of each, broken down by category (Table 4.2), in order to outline my more detailed findings that will follow. In Table 4.2, some of the questions will apply to more than one category, but for organizational purposes, the one that seemed most relevant and prevalent was chosen. This overview gives the reader a quick glimpse and a visual abstract of the findings and an overall understanding of the research, as it applied to the questions and both interns.

Table 4.2 Research Questions and Overview of Findings

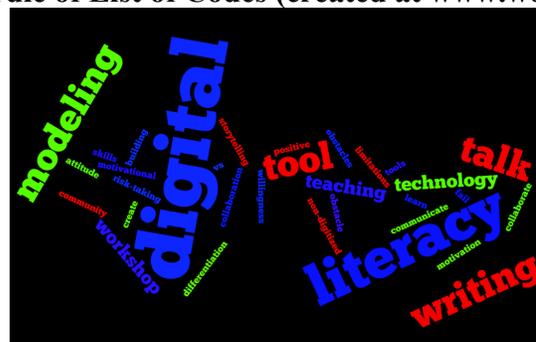
Category	Question	Finding
Digital Literacy	What happens when interns, who are relatively inexperienced with technology, engage in the teaching of digital literacy?	As both interns navigated digital literacy, they accepted that students knew more; students became more motivated and inquisitive as they were allowed to engage in digital literacies, learning became student-centered, and likewise allowed both interns to become facilitators
	How will that change, or will that change, at the end of the internship?	Both interns saw the value of teaching with technology; however, technology was not seen as a magic pill for teaching, and though interns believed that it could play a role in their classrooms, it would not replace other forms of quality teaching
	How do these teaching experiences affect the teaching of non-digitized writing?	When cooperating teachers (CT) modeled enthusiasm toward digital storytelling and non-digitized writing, the interns responded to that enthusiasm
	How do these experiences affect their teaching in general?	Cooperating teacher modeling impacted intern growth; interns learned what worked and didn't work in the classroom by observing and imitating
Impact of Cooperating Teacher	What roles, if any, do the cooperating teachers' attitudes toward technology have on interns'	CT risk-taking transferred to both the interns and the students; interns also observed student behavior during digital projects and saw the positive impact

	attitudes?	of being allowed to use digital tools
	How much of the experience of the cooperating teacher will influence the intern?	CT inexperience with technology played an important role, showing interns that teachers do not always have to be the expert
Role of Talk in Learning & Teaching	What role does cooperating teacher/intern talk play in teacher development?	Dialogue between CT and intern built community and generally transferred to a broader understanding of technology use in the classroom
	How can talk facilitate the process while composing digitally?	Advocating conversation in the classroom between students, student and intern, and CT and intern fostered learning and community building

As Table 4.2 indicates, the data overlapped, but categories and themes emerged quickly during coding. As stated in Chapter 3, I employed crystallization to view the codes in a different way and to help sort them more efficiently, doing what Richardson and St. Pierre (2007) referred to as writing my data three different ways (Richardson & St. Pierre in Denzin & Lincoln, 2007).

The first strategy I used was to create a Wordle, so that the words used most often would be larger and present themselves as potential categories (see Figure 4.1). When working with Wordles, the creator has many options, but one many educators preferred was to click on the choice that had word sizes vary based on how many times they were used in the text pasted into the box. I entered my entire list of codes, and Figure 4.1 was created.

Figure 4.1 Wordle of List of Codes (created at www.wordle.net)



In Figure 4.1, a list of codes was inserted into the template, and the result shows the words (bigger and bolder) that were used most often.

From the wordle, I recognized that the largest words indicated the most common codes entered and would therefore play an important role in the broader categories. I jotted these words on a new poster: modeling, digital, tool, literacy, writing, technology, and talk. Before finalizing those umbrella categories, I employed two more writing exercises to complete the *writing in three ways* that Richardson suggested: I wrote a free verse poem (Figure 4.2) and composed a dialogue between two fictional characters discussing the research (Figure 4.3). For the poem, there was no objective other than to explore the data with a creative writing, as Richardson and St. Pierre pointed out might offer new insight (2007).

Writing the poem did not inspire a revelation, but it did allow me to be creative with the data, which felt different and refreshing, as Richardson noted true crystallization would do (2007). To take material I had analyzed and deconstructed, and offer a fresh spin

Figure 4.2 Free Verse Poem of List of Codes

A barrage of words pelting me
Overwhelming
 en masse
With all the information, the telling, the showing
 What might be
 What could be
 But I must open my eyes to possibilities
What can it mean?
 Teaching, technology, digital literacy, conversations, collaborations,
 modeling, thinking, listening, obstacles, distractions, motivation,
 too much all of it just too much far too much
After observing, collecting, and evaluating,
 Analysis begins...
But only if I can make sense of it all.

Figure 4.2 shows the free verse poem that resulted from being overwhelmed by all the codes.

by thinking about it in a creative way felt odd at first, even contrived. But after the first few lines, it freed my thinking and in just a few minutes, I had considered the obstacles of the data and posed questions, experiencing my own dissonance having resisted creativity though believing unconditionally in it as a means of teaching and learning in almost every other context. After writing the poem and then reading it, it gave me a sense of how differently the same words could be viewed.

With the fictional character dialogue, I had used the same characters in an academic annotation during which the two discussed Wendell Johnson's *People in Quandaries: The Semantics of Personal Adjustment* (1980). Because of Johnson's mentality that a person could not step into the same river twice, it seemed to mirror the idea of crystallization, that we can see data differently every time we look at it. When making that comparison, I chose to resurrect the two characters to consider the data collected during this research (Figure 4.3).

Figure 4.3 Fictional Character Dialogue to Crystallize Coded Data

Panda Sam and Ritchie Eli, no longer human but cosmic entities, banter, about the plight of the human race, a species they often observe. Panda Sam, a philosophical wannabe, considers many things that don't quite compute for him – it's one of the things that endear him to Ritchie Eli. The latter, on the other hand, has many deep thoughts that, while he might not be Aristotle's cosmic shadow, he competes on a higher plane with most any celestial body who dare challenge him. The two ethereal beings, relegated to being eternal watchers for those who need extra guidance, sometimes get in heated debates that cause ripples, storms, and on several occasions, horrible earthquakes and tsunamis. As watchers, Panda Sam and Ritchie Eli meet deceased humans who have earned the right to become cosmic shadows rather than passing into the haze of Heaven. As a cosmic shadow, they continue to impact human behavior and thought.

On this day, the two are considering the boom of technology and its impact on education.

Panda Sam: I hear our man stepping in the river came up again...don't they know that hurts my celestial senses?

Ritchie Eli: I don't think it's designed to bother you, Sam, but we need to consider the plight of kids in this newest minute being taught in a way that is meaningful and relevant.

Panda Sam: This minute is different than that last one...but during that last one, we saw serious inventions: cars, television, airplanes, space shuttles, nuclear power...

Ritchie Eli: I think the most significant could be the radio, though that whole internet thing is catching on.

Panda Sam: I need to update my Facebook status.

Ritchie Eli: (groaning) Being relevant is important, but do teachers need to be digital or does content need to be?

Panda Sam: Is there a difference?

Ritchie Eli: Oh absolutely. Teachers can't know everything, but it's important to allow pupils to use their preferred methods to learn. After all, this newest minute has seen a boom in all things internet and computer related. I mean, heavens, there is not a cosmos they cannot reach with those little tools. I worry that they might soon gain the technology to see us.

Panda Sam: They are smart but not nearly of our caliber. There are a few of them bordering on higher intelligence. Steve Jobs comes to mind, may he rest in the ether.

Ritchie Eli: He and I had a lovely chat just a few seconds ago about the impact of the iPad on quality education. But teachers must be trained to use them.

Panda Sam: Yes, we mustn't give tools and not supply the skills to use them. The computer has been quite the revolution, but it is only as good as the teacher using it.

Ritchie Eli: I have to disagree with you there, Sam. I think for the iPad, maybe, since the teachers can replace textbooks and implement a quality lesson. But students may be allowed to create and compose on the computer using skills the teacher does not possess. Students may often know more than the teacher...I have a few good friends who would testify to that.

Panda Sam: My teachers never taught like that.

Ritchie Eli: Your teachers spoke Latin.

Panda Sam: Yes, that's a point, though not necessarily a good one. I'm practicing my Internet-ese... I just created a bulletin board on Pinterest, because I am learning to cook using the recipes I am finding there.

Ritchie Eli: I don't pin, but I have heard it is interesting. That fad will likely pass in a few seconds.

Panda Sam: You said that about the television...and YouTube.

Ritchie Eli: Yes, the television has been around for a few seconds longer. I should have recognized the appeal of this species and their voyeuristic obsession.

Panda Sam: I believe teachers are dealing with the same issue, wouldn't you say?

Ritchie Eli: Excellent point. They might be grappling with students who speak a different language, that Internet-ese, but teachers have had ELL students before. This is nothing more than adapting to a foreign-language speaker.

Panda Sam: Except that it's not just the language, it's the application of it as well.

Ritchie Eli: That reminds me, let's play a little Words with Friends.

Panda Sam: No way, you always win. How about Angry Birds?

Ritchie Eli: Physics over vocabulary. Somehow that fits. Kids today learn skills at levels they do not even consider. Perhaps teachers should tap into the applications to understand the way this second's iKids learn.

Panda Sam: Use technology to teach technology about technology skills they need to understand. I like it.

Ritchie Eli: You don't even understand it.

Panda Sam: Yes, but I'm learning to speak it.

Figure 4.3 depicts a conversation between two fictional characters.

When reviewing the conversation between Panda Sam and Ritchie Eli, the idea of being able to speak “Internet-ese” but not completely understand it came as a bit of an epiphany. Teachers actually do that, and it was not until writing the banter between the two fictional characters that I had acknowledged it. Teachers do many things to stay abreast of popular culture, popular music, and popularity in general, even if they do not subscribe to them (though many do), and these efforts keep them relevant with students. Speaking even a modicum of Internet-ese, I decided, would allow teachers to converse with students about what they were doing and not sound as alien as they might feel. On the flip side, some might be more in tune and speak it as well if not better than the students, and in that case, those teachers would be more than relevant with the content and the process of Internet-based learning.

After employing these crystallization techniques, I was able to better understand my data, my findings, and my ability to discuss them was enhanced by a greater overall comprehension of all of it.

As results are shared within sections, divided by research question, themes will be discussed under the umbrella of that question. Because the role of talk pertained to both areas, this chapter will focus on the two areas: digital literacy and cooperating teacher impact. The talk that impacts both areas will be addressed within those two sections.

Digital Literacy

The research focusing on the interns and the questions dealing with digital skills and application revealed additional issues that will be addressed in each individual area, though there may be some overlap as several factored into more than one area. For example, talk played a role in digital collaboration as well as cooperating teacher

modeling. Overlap was kept to a minimum as much as possible.

Interns Experience Digital Uncertainty

Molly. When Molly began her internship on January 18, 2011, she admitted to being apprehensive about starting her internship with a digital project. She considered herself technologically challenged and stated numerous times that she worried that the students would know more and could do more with technology. As Wesch (2007) pointed out, younger children do not embrace technology; their lives are simply interwoven within it. They know nothing before its existence. Molly, however, did. As a twenty-one year old, she remembered life before cell phones, being in elementary school without computers, and the slow transition to mastering them.

I'm not real crazy about stuff that I don't know how to use. It took me forever just to figure out my phone. I know it'll do all kinds of things I haven't taken the time to learn how to use. I text, and of course I use email, and quite frankly, my life would be a mess without both of those. But aside from Facebook, I can't say that I actually use technology in many other ways.

(M. Rowan, Interview #1, Jan. 13, 2011)

Molly's nervousness about teaching digital natives is evident, from the fact that she admitted to anxiety of teaching students who would know more technology than her, but also in her comment about being technologically challenged. Even if she knew as much as her students, she perceived that she did not, and that anxiety about the digital divide was real for her. Being comfortable with content or the method of teaching it is paramount to teacher success, even if the educator does not know the material better than the students. Accepting that position can foster the same comfort level. Molly repeatedly commented

about the students being the experts and knowing more about technology than she did. She worried that they would lose respect for her as a result of her not being the expert. But much more lies within what Molly actually said in the quote above. She epitomized being a digital immigrant (Prensky, 2001; Rushkoff, 1996). By admitting to not being “crazy about stuff like that,” she showed her reluctance with technology, and then she pointed out the key detail to her issue: Time. It took her “forever to figure out” her phone, and even then, she admitted to only knowing minimal features. She added, “My phone will do so many cool things, but I just wish someone would show me so I don’t have to figure it out on my own” (Personal Communication, Feb. 9, 2011). Prensky (2001) highlighted what separates digital natives from digital immigrants: immigrants will only spend a few minutes learning the basics of a new technology and quit when they get frustrated, while natives will spend hours tinkering and mastering a new tool or skill. By asserting that Facebook was the only technology she integrated into her daily life, she seemed to be establishing in her own mind that she was not an expert in technology.

As Zur and Zur (2011) described, Molly would be a reluctant adopter, because she saw the positives of technology innovation but did not always embrace them. While I observed Molly, she often balked at taking risks with technology. Fear of failure seemed to play a role, when at one point with a student, she said, “I think that would work, but I might mess it up...let me get Mrs. D” (Observation Notes, February 2011). Molly never hesitated to go help a student, but if it was a technology question, she was equally as quick to defer to Mrs. Downing. According to research, using technology in the classroom is likely to have a positive effect on the learning environment and on student attitudes, even if teachers only have a modicum of technology skills (Dawson & Rakes, 2003; Kajder,

2005). However, Rakes asserts a few years later, in research with Fields and Cox (2006), that the more comfortable teachers are with their personal use of technology, especially computers, the more likely they would be to challenge students to try more innovative programs and tools.

Molly was not the more knowledgeable other (MKO) in technology, and she would begin to learn from the students, and therefore reap the benefit of social learning (Vygotsky, 1978). However, not being the MKO affected her confidence to be placed in that position. Can the MKO be a student who educates the teacher without damaging the development of an intern's confidence? If properly mentored, perhaps. But research is divided on how comfortable a preservice teacher, or any teacher, should feel when teaching with technology. Though an argument exists for how technologically skilled a teacher should be, one consistent thread remains: teachers are continual learners. Constructivism promotes student-centered, teacher facilitated learning, and research supports that social interaction, whether between students or students and teachers, is fundamental to learning (Barnes, 1992; Edwards & Mercer, 1987; Bakhtin, 1981; Dewey, 1933). When a classroom activity revolves around conversation, like during a digital project, students and interns develop ideas, build on each other's knowledge and background, and ultimately create a more complete understanding for everyone.

As Molly's internship started, she admitted to being nervous for a variety of reasons. The primary cause of her stress, she said, was a simple fear of the unknown – not knowing the environment, the students, the content, or the tool for teaching the content. As the first project got underway, she became comfortable with her surroundings, learned the names of all her students despite two snow days at the end of her first week, and

familiarized herself with the expectations of the social justice unit. What she had not considered when analyzing her own stressors was the prospect of the students knowing the tools better than she did. Pam Downing, her cooperating teacher, assured Molly that while certain students were more tech savvy than others, a few of the sixth graders would be just as digitally uncertain as Molly. Pam also predicted that some of the students who normally did not participate would get involved in this project. For example, a student who was assigned to a seat in the front of the class because of attention issues had a tendency to turn work in late and often not at all. As soon as this digital project started, Pam and Molly witnessed the same student's excitement and active involvement. Pam explained during a conference hour collaboration that the first day of the project "was the first day Geoff got immediately to work and didn't give up or get distracted before the hour was up – it was a first" (Field Notes, Jan. 2011). However, just as she had described to Molly, two boys with near-failing grades and low motivation sat in silence when she introduced the project. Neither boy said or did any of the initial work when the class began drawing their panels onto storyboards before going to the computer lab. One of the boys, Louis, even laid his head down, saying the assignment was "boring" (Field Notes, Jan. 2011). Unlike his classmates, Louis seemed to not be motivated by the prospect of being allowed to work with technology. While it was possible that he was tired, how he behaved in the computer lab when he was able to be up and involved suggested otherwise. He reacted differently in the computer lab. He hurried to a computer, got started quickly, and he seemed to be and stay engaged. However, the excitement wore off quickly, and the second day in the lab, he laid his head down and did little work.

Being born a digital native did not mean 100% buy-in with technology, nor did

being a digital immigrant mean a fear or lack of mastery of it. Molly was born in a time that placed her in a gap, only a few years before the boom of the World Wide Web (Zur & Zur, 2010) but with a great deal of digital innovations by the time she was in late elementary school. Those born just eight to ten years later, the Pew Research Center revealed, were raised in a cyber-infused world (Rainie, Fox, & Anderson, 2005). Researchers and experts, like Postman (1993), expressed concern over how quickly we allowed a tool with no means of control to become central to so many lives. However, Molly and her fellow education majors confirmed what the Pew Research team, along with Rainie, Fox, and Anderson (2005), had asserted: education preparation programs had not evolved to keep up with the drastic changes sweeping through the lives of today's youth. Molly described technology in her teacher preparation as an option for assignments but seldom a target for learning. "We were never really taught much with or about technology...our teachers either assumed we knew it or they didn't have time to include it" (Personal Communication, Feb. 2011).

Pam, a latecomer to the education profession, admitted that her life in the world of business had been much quicker to embrace the innovations of digital literacy than the field designed to educate the youth who were practicing it daily (Field Notes, Feb. 2011).

I don't think teachers are afraid of technology – I love trying new things. The problem though is that we don't have time to mess with things long enough to feel comfortable with it, and to be honest, if it isn't going to be part of state testing, then it can wait. Kids will play online 'til they figure things out, so they're always going to know more than most of us. That doesn't bother me anymore, but I could see how it would be hard for a brand new teacher, who is on the fringe of the technology boom

but not as tech literate as the kids they're teaching. I know I hate it when kids are going crazy over a book I haven't read yet. But reading a book is significantly quicker and easier than learning a whole new way of thinking.

(P. Downing, Interview #1, Jan. 13, 2011)

While Pam was saying that teachers were too busy to learn new technology strategies, the underlying issue seemed to be more about curriculum, testing, and trends. As CCSS and ISTE integrate technology into the standards, state testing would likely follow suit with digital implementation to match the new standards. In the meantime, Pam acknowledged the time constraint on meeting the demands of preparing students for state testing, and admitted that it often trumped lessons and innovations she would make time to learn if it could be justified in the curriculum. With so little spare time to not only implement new things but to learn about them and be trained to use them is a major obstacle for most teachers.

Molly admitted that even though she had not mastered digital storytelling software while interning, during the fall of her first teaching position, she managed to learn a great deal about Pinterest and began pinning during what she described as “the busiest time of her life” (Email Correspondence, Dec. 2011). Pam’s statement included the idea of experimenting with a technology long enough to be comfortable with it, which insinuated a need to be adept enough at something to still be deemed the expert. What she understood that Molly did not yet was that if the new trend was not going to be on the state test, then it would have to be back-burnered.

After interning for five days, Molly asked during their conference hour how Pam thought she had done so far. Pam quickly praised Molly, citing situations she had handled

effectively, dealing with learning students' names after the interruption of two snow days, and teaching a concept so new to her. "It's not totally new, I guess, but it's just so stressful knowing they have skills that I not only don't relate to or understand, but to be honest, I don't really want to" (M. Rowan, Observation Notes, Jan. 25, 2011). She added that, with all there was to learn, and knowing she could not learn it all, it was safest to know what really mattered and worry about all the bells and whistles after she learned to master riding the bike. Hicks advocated in a session at a Midwest Conference (Write to Learn, 2012) with a digital literacy theme that preservice teachers have the biggest challenge. He said they were young enough to feel pressured to know it all but inexperienced enough not to be confident with it. While Molly built confidence, she was willing to facilitate and allow students to be the expert.

Although Molly did not come to her student teaching with vast technology experience, one mode of learning that helped her was continual conversations with Pam, both in the classroom with students and during their collaboration time. Conversations, as advocated by numerous experts (Johnston, 2004; Wells, 2001; Barnes, 1992; Halliday, 1973), contributed to Molly's daily growth, as she listened to students, to Pam, and to herself. Student conversations facilitated learning, as did the more academic conversations between Molly and Pam during their conference hour that allowed Molly to learn from Pam's expertise and then witness the success of her mentor's teaching (Zwiers & Crawford, 2011).

Summary of Molly. Pam's insights about teachers like Molly needing time but accepting that students would always know more about emerging technologies mirrored what Prensky (2001) described as the biggest obstacle challenging educators today. Digital

immigrant instructors must find a way to communicate with many digital natives who are speaking a new language. Both interns expressed concern over being facilitators at the beginning of their first year of teaching, admitting that they would establish control with more traditional teaching first. They had gained the experience of innovative teaching, but they each thought it would take time before they could employ projects like these on their own.

Darling-Hammond (2006) believes that novice teachers build a foundation based on practice, observation, and collaboration, and Molly was a perfect example of that. She also wanted to develop her own skill set before embarking on innovation, though she did not consider that innovative thinking could be integrated sooner rather than later. Pam, a nontraditional educator in only her sixth year of teaching, exemplified risk-taking that had perhaps come as she became more comfortable managing her classroom and more confident in herself as a teacher.

Molly, Pam, and the students experienced digital uncertainty throughout the unit. Molly learned from her interactions with more knowledgeable others (Vygotsky, 1978), whether they were students or her cooperating teacher. The social learning she observed would hopefully translate to her future school and classroom, and her own experiences would allow her to serve as the model for those who encounter the same anxiety.

Interestingly, when asked if she would teach digital projects in her own classroom, she said it might take too much time for her to master and may therefore be too much work her first few years. The idea that technology evolves at lightning speed and she intended to wait a few years to implement digital skills belied everything Pam taught her. While Molly valued staying relevant, surprisingly, she did not place as much importance on it as

maintaining control in her classroom. This could be due to lack of confidence in herself to manage a classroom during student-centered projects.

Lindsay. In early April 2011, when Lindsay began her internship at Washington Hills Junior High, she seemed more confident than Molly, but she lacked the time she believed was necessary to effectively master the digital literacies students were embracing. After her first ten weeks of student teaching at one of the area high schools, she felt she had gained insight into her future as a digital educator.

I realize that we can try to keep up with all the new trends, both in technology or with teaching strategies in general. But it would be impossible to stay up to date, honestly. I think the most important thing is to know what's going on, be aware of technology that can make learning fun but not be just about the technology, but I also think it's important to know what else is "in" with kids, the popular people, hip music, and fads that can help me reach them. I want to them to see that I'm a teacher who can relate to them.

(L. Darnell, Email Reflection, April 7, 2011)

Lindsay saw the importance of technology, but she also placed an equal emphasis on being able to relate to students and their culture. Aside from what she deemed important, she highlighted that teachers would never be able to keep up with all the newest trends in technology nor should they use it unless it served a purpose. On several occasions during the initial interview, Lindsay pointed out that she really saw herself as digitally literate but that it was not possible to stay up-to-date with the finer details of so many of the newer programs. According to Lindsay, to know what those new trends were, to know what was popular and at least be aware of them, could be enough to stay relevant with

students. Her instincts aligned her with experts who believed that simply becoming aware of and familiar with technological advances is enough (Dawson & Rakes, 2003). She did, however, group technology with new teaching strategies, saying that keeping up with both would be impossible. By saying this, she may be preparing herself for not always being up to date on the latest teaching strategies, whether they are technology-related or not. Having the mindset that she will never be able to keep up could give herself permission to be more traditional, which she admitted she would be likely to do at the beginning of her first year.

I want to be relevant, but I think student-centered learning, especially when it comes to computer labs and fun stuff, is much harder to manage, and to be honest, when I first start teaching, I need to establish control first. I might not be able to do any of that until second semester.

(L. Darnell, Personal Communication, April 27, 2011)

Darling-Hammond (2006) acknowledged that many novice teachers resort to more traditional teaching, believing teacher-led classrooms are more manageable, and Lindsay embraced that belief. Being up to date on fads and popular culture seemed an easier way to be relevant with students, since she already did much of that in her personal life. Her personal computer use, she said, included Facebook, Twitter, and YouTube, and while not as eclectic as most middle or secondary students, she said ten minutes a day connected online kept her current with much of what was going on (Interview #1, April 5, 2011).

In her quote above, Lindsay said that being aware of technology can be enough, and she practiced that attitude during the soundtrack assignment. She was willing to help students when she needed to, and on several occasions, she offered advice to students struggling with software. She helped one student figure out some of the more advanced

tools of Microsoft Paint, even though she admitted she had never even heard of the program prior to that class period. While she did not know the tools, and admitted as much to him, she was able to lead him through discovering the answer collaboratively. Calkins (1994) advocated teaching students to problem-solve, that the process served a significant purpose in quality workshops, while Elbow (1973) saw the benefit of teachers facilitating learning instead of taking control. By letting the student solve the issue in Paint, Lindsay allowed him to be in charge of his learning, and the process of the discovery would build the skills he needed to do so again in the future.

Halfway through her internship, the students used several design programs, like Word Art and Microsoft Paint, and Lindsay equated much of what the teenagers were doing to a project she had done in a class during her undergraduate work.

I was apprehensive about doing anything with technology until that class. Once I completed a similar soundtrack assignment in college, all the digital stuff didn't scare me as much. But when I watched these kids doing it, I realized they were soooo willing to take risks...having technology as a focus forced me to jump into something I wasn't real comfortable with. I thought I was tech-savvy, but they were so quick to try things and figure it out. I don't think we as adults do that. (L. Darnell, Interview #2, April 12, 2011)

Lindsay's quote mirrors Prensky's assertion about the different approaches digital immigrants versus digital natives have toward new technologies. Digital natives spend more time on a new technology, and immigrants usually do not. Lindsay recognized that her little bit of experience on a similar project in a women's studies course eased her anxiety about the unknown of teaching with technology, but she admitted that having to "jump into something" she was not as comfortable with made her nervous. While she

considered herself tech-savvy, her anxiety about teaching those who might have more technology skill still made Lindsay uncomfortable, perhaps tying to her need for control. “I do like to feel like I’m in charge, and maybe all this technology takes that away a bit,” she admitted in her final interview (April 27, 2011). Even though she recognized the need to be relevant, her need for control might supersede that when starting in her own classroom.

Afterward, Lindsay admitted that technology was not nearly as daunting as it seemed when she had no image for it in her head. The more she worked with advanced digital tools, she said, the more comfortable she felt. Stephens and Ballast (2011) predicted that many teachers saw digital literacies as much more overwhelming than they actually were, and the most daunting aspect of the digital world overall was the need to keep up.

One of Lindsay’s biggest reservations about using technology in the classroom was the worry that programs would not work or would not be accessible.

I get the benefits of doing it, and I totally see how it motivates certain kids to participate when they might not otherwise. But what I really worry about is using things like YouTube and not being able to get the link to work because it’s blocked, or starting a project and sites not being able to load, things just not working, not to mention the issue of saving work in a system that isn’t supported in another. All of that really makes it stressful to use.

(L. Darnell, Final Interview, April 27, 2011)

The underlying message from Lindsay was that the stress of not being able to control technology made it unpredictable for classroom use. Early in a teacher’s career, controlling the environment and the execution of lessons is paramount to success. For Lindsay, the worry about a website being blocked, a general fear of technological failures, connections not working, and difficulties with saving projects seemed to present enough

stress to limit her use of it in the classroom. Many teachers share that stress. The more she witnessed flawless lessons with websites, smooth class periods using videos, and no issues with saving work, the more likely she was to take risks with these programs in the future. Hicks (2009) believed that relinquishing control and allowing students to explore and even fail using digital literacies fostered learning in a way that direct instruction never could.

The last major issue Lindsay seemed to stress about was the sheer class size and lack of accessibility to computers.

With such large class sizes today, there isn't a computer lab in most schools big enough to fit all of my students. This means that we would have to reserve two different labs in order to get everyone to fit, which would defeat the purpose because I wouldn't be able to be in two labs at once. Mostly, I think my use of technology will be limited to in-class use of the SMART boards. I have gotten the impression that getting two computer labs and hauling students down there is a bit of an ordeal.

(L. Darnell, Final Interview, April 27, 2011)

Having access to a computer for every student was a stressor for Lindsay. In her mind, it was too difficult to face that challenge, so she speculated she would simply use the technologies available to her in the classroom. She was not aware of the possibilities, of mobile computer labs, or using the resources in a school. Many media specialists are willing to assist teachers in the lab, much like occurred during Pam and Molly's social justice issue project. Even if inaccessibility is use-prohibitive, Lindsay was not able to consider other options like computer sharing or motivating computer use at home. She simply saw that she would have to limit her technology use to what she had in her own classroom rather than seeing beyond the classroom walls. She never considered computer-

sharing for students or even having them complete a project as partners. This may be due to her classroom management concerns, and the idea of allowing students to talk and work together was not yet a viable option for her. She did, however, say in her final interview (April 27, 2011) that she would include periodic group work, partner projects, and student-centered learning on a regular basis, so perhaps the two separate mindsets toward integrating these options would later mesh with technology possibilities. Until Lindsay could see this done regularly in her internship, she did not seem to be able to envision it in her own future classroom.

Summary of Lindsay. Feeling adequate or mastering technology was not the biggest issue for Lindsay. She understood the power of technology yet felt limited by accessibility, the ability to control the environment, and the impossibility of staying current with the ever-growing trends. While she recognized that practice alleviated her own stress of using digital tools as a student, she had not transferred that mindset to her teaching. She exhibited risk-taking in the computer lab when attempting to help the student learn more about Microsoft Paint, a program she was completely unfamiliar with. Like Molly, she did not hesitate to admit she was not the expert.

For Lindsay, accessibility issues seemed to be a deterrent she felt would follow her wherever she taught. But often teachers have to take a gamble on discomfort in order to facilitate a risk-taking environment, both for the students and the teacher. In a keynote for NCTE, Sarah Brown Wessling (2012) described what teachers must do to embrace growth as experiencing gentle failures. Lindsay needed to accept that those gentle failures would make her a better educator. Many of the gentle failures, however, arose due to technology issues neither intern nor cooperating teacher could have foreseen or avoided.

Technology/digital uncertainty issues. Overall, technology played an enormous role in both the interns' and the cooperating teachers' lives. Throughout both projects, interns worked successfully on laptops, cooperating teachers used theirs daily in class, not just to control the Smart Board, and both communicated regularly by smart phone, email, texting, even Facebook chatrooms.

In the first week of each case study, interns and cooperating teachers wrote about the technology issues of the individual projects. Technology concepts, sites, and terms emerged during the social justice unit that were foreign either to the intern, the cooperating teacher, or both: podcasting, embedding links, phishing, video streaming, text boxes, hyperlinking, comcasting, digital animation, weebly, wordle, Xtranormal, Moodle, Flickr, and saving images to upload into a digital composition. The same held true during Lindsay and Beth's soundtrack assignment: Paint, CorelDraw, Google Hangout, text2image, voice thread, and Little Bird Tales. All four participants admitted to not knowing many of the sites and programs students either investigated or used. At one point, Molly said in an email reflection that she felt like Switzerland, hovering between the expert natives and the expert immigrants, claiming she sat in the middle of the ocean as a "nagrant" (Email Reflection, January 27, 2011). She added, "I hear them talk sometimes and wonder if they're even speaking the same language." She clearly had less knowledge about digital possibilities, and student conversations did sound like cyberish, a kind of cyber gibberish, to her. To a more digitally adept person, they were simply navigating the waters of technology. To her, the following did not make sense, because she lacked the background and experiences with the sites and strategies the students spoke of:

Did you see that new Huff Post? Check out the voice thread, pretty cool. No, don't click on that one, you'll get a phishing

message and Mrs. D will get on to you. Bet we could hyperlink that one on our weebly in Art. I like all the options to podcast or vodcast. (M. Rowan, Observation Notes, Feb. 7, 2011)

Molly had heard of podcasts and was familiar with Huff (Huffington) Post, but she knew nothing about voice threads, phishing, weebly, or vodcasts. While she understood what a hyperlink was, she said she did not remember how to create one. After listening to this conversation, she said she felt like she had ventured into a foreign country and, in a way, she had. Coming from a land of limited technology and using only what she knew, she was now in a territory in which students experimented, discussed discoveries, and offered suggestions on interesting things to do and add to their digital projects in this and other classes. Molly decided to venture into their land, to learn their language as best she could, and she did not let it intimidate her. According to Hardin and Ziebarth (2000), better preparing future teachers like Molly should lessen her stress, and the quicker teacher education programs embrace innovation, the sooner educators can feel experienced enough to facilitate authentic learning.

Molly recognized quickly into her internship that technology could and should play a role in her future as a teacher. She did not, however, embrace it without reservation. Four days into the social justice project, Molly began leading lessons, whether they were in the media center or in the classroom with the mobile computer lab. In her first reflection after being in the media center's computer lab, Molly shared her insights about the role digital literacy was playing in the social justice project and how it would impact her future teaching.

Today's controlled chaos took some getting used to. I had no

idea not being in the classroom could be so exhausting. From the minute we got in the computer lab they were more likely to ask questions they never would have asked in the classroom. It was like they suddenly found their voices when we got in there. I realized right away that being out of the classroom just itself opened them up to participating, collaborating, and being active learners. I definitely want to remember that for my own classroom.

(M. Rowan, Email Reflection, Jan. 25, 2011)

What Molly experienced in the computer lab was a shift in control. By being in a new setting, one that felt more familiar or possibly more like being at home, the students seemed to feel free to open up and ask questions. Molly had not anticipated that. She also did not foresee what becoming a facilitator would be like, that once students were allowed to be in control of their own learning, she was there to aid their journey as learners, to go through the process with them instead of disseminating it *to* them. This student-centered learning increased participation and in turn increased demands for Molly's help and attention. She saw the constant chatter, excited blurts about something on a website, and the sound of active learning as chaos, even though all students were at their computers working. She was the product of an era of silent classrooms. "When I was in middle school, you raised your hand, you waited til you were called on, and if you yelled out, you usually got in trouble.... There were times we talked – in groups, in class discussions, but for the most part, my classrooms were pretty quiet" (Personal Communication, Feb. 9, 2011). Her middle school experiences had taught her that learning was quiet, passive, and teacher-directed. She learned through observation and Pam's modeling that it could be noisy, interactive, and teacher-facilitated. Often, students simply wanted to show Molly or Pam what they had discovered or created.

The computer lab itself served as a new learning tool, while the digital literacies they employed were also tools of discovery. During this time, Molly and the students experienced the transactional nature of writing and reading their writing (Rosenblatt, 1976). As they reacted to the pleasure of creating digital stories and writing about topics of interest, as well as researching the facts needed to support their work, students moved along the aesthetic-efferent continuum. Molly observed their interactions with text, their shifts from fact-based work to adding their own opinions to what they were finding, and admitted, “Holy cow, they are reaching conclusions and coming up with insights I don’t think I was capable of at their age. Whether that’s the project or just kids today, because they bring such different experiences to the table, I don’t know, but it’s cool to see how much they have accomplished” (Email Reflection, Feb. 7, 2011). Because she witnessed a positive student-centered, interactive environment, it led to her assertion that she would remember it for her future classroom.

Lindsay encountered the same chaotic issues in the computer lab. During their first days creating the CD covers, she wrote:

They don’t seem to be able to do anything without wanting
to either ask a question or want feedback on what they’re doing.
It’s like being in the lab has suddenly freed their vocal chords.

(L. Darnell, Email Reflection, April 7, 2011)

What Lindsay saw as freeing their vocal chords was more likely loosening inhibitions. Similar to Molly’s experiences, Lindsay also said her own classrooms as a student in elementary and secondary school were generally quiet. “We talked some, but most of my classes were teachers lecturing and us listening” (Personal Communication, April 14, 2011). By taking students to the computer lab, they were free of the constraints of

a teacher-directed environment and were suddenly allowed to be active participants in their own learning. The barrage of questions and requests from students to see what they had done perhaps allowed Lindsay to see how much feedback the students wanted from the teachers, and it would counter her belief that most of the students were silent in the classroom because of apathy. “They seldom ask questions and in general don’t seem to really care” (Personal Communication, April 14, 2011). But in the lab, where they were excited to be working on computers, they suddenly wanted to share their learning, their creating, and their ideas with Lindsay. She had built that community with them, and they wanted her to be part of their digital experience. The computer served its purpose of being both a learning and motivational tool for the freshmen. Lindsay admitted during the first day in the computer lab that allowing them to use computers seemed to inspire involvement and excitement, so she might be more likely to allow her future students the same opportunity.

Student reactions could have been fostered by the social nature of the project, the allowance for conversation, for feedback from one another, and what Vygotsky (1978) described as a higher level of thinking by working with peers. The positive energy could also be a result of Rosenblatt’s continuum (1976), that students brought their personal background to the project and experienced pleasure at working with music they liked, even when applying it to an assignment that took them from aesthetic to efferent periodically. They continually moved from aesthetic to efferent and back, as they researched their books’ characters, found music that applied to them, and connected their own lives to those of characters. Interestingly, from day one when both Lindsay and Beth were in the lab, students were equally okay with consulting with Lindsay as they were with Beth. They

learned quickly that Lindsay listened to some of the same music they did, so they saw her as more of a peer. Conversely, in the South Lake classroom, it took several days for students to seek Molly's help, because students had a strong allegiance to Pam, either because they were younger or were part of a strong classroom community. Students in that environment were open with the intern, yet were not as quick to accept help from her.

Both interns originally labeled themselves "eager adopters" when it came to technology use and willingness to try new tools, but early on Molly admitted she probably fell more into the "reluctant adopter" category (Zur & Zur, 2010), for no other reason than she generally lacked the time to master much of the technology that surrounded her in her everyday life. During her second day, she discussed her first encounter with that realization:

I came across a problem with Photostory when Sami could not get her headset to work. I went over to her and tried to attempt to tackle the problem. We began to check the volume and go through the introduction just as I had done with other students that day in class, but for some reason the headset was still not working. I checked to make sure nothing was muted and checked the sound on the computer instead of Photostory. I honestly did not know what to do from there and was feeling a little panicky. I didn't want the students to think I didn't know what I was doing, so I continued to mess around with the sound but was getting nowhere. I became really frustrated... Thoughts raced through my head that Sami does not see me as a superior and she won't ask me for help because I won't know how to help. Zach came over and figured out what was wrong. Otherwise, I'm not sure what I would've done.

(M. Rowan, Email Reflection, Jan. 19, 2011)

To start her internship with a project in which the students would be doing so much work independently, Molly wanted to establish herself as an authority figure, but she was not sure how when she was not a master of technology. “Teachers can let kids work on their own, but I think they have to establish that teacher-student relationship first and see that the teacher is in charge. And then when you have classroom management established, there can be more collaboration and group work” (Personal Communication, Feb. 9, 2011). When she admitted she did not want the students to think she was not the expert, she even went on to equate that worry with Sami not seeking Molly’s help again. She believed that teachers were experts, and students learned from teachers. During her internship, Molly would make the shift to accepting – and embracing – that teachers and students could learn together. During the technology glitch in which the headset did not work, Sami, Molly, and Zach worked collaboratively to figure it out. That was perhaps a first step to Molly’s change in attitude toward working collaboratively with students and student-centered learning, as she realized that not only did she not have to be the expert, but she also did not always have to be the only teacher.

“I realized really quick[ly] that letting students be the expert can be a great esteem-building tool, not to mention, I could learn from them” (Email Reflection, Jan. 26, 2011). She added how surprised she was that children were doing so much with technology in school, and that the South Lake teachers seemed adept at using it in a way she seldom saw as an undergraduate or when she was in high school. In that same evening reflection she added, “These teachers see technology as a way to do so many different things. I may have always used it as a way to produce work or look things up, but they even take those uses to another level. They really explore the possibilities a computer can offer the classroom”

(Email Reflection, Jan. 26, 2011). As Molly watched Pam and other teachers at South Lake model, she was immersed in learning through experience. The more Molly saw other teachers accept their varying roles in different settings, the more willing she would be to accept it as well. With an internship being the epitome of situated learning (Lave & Wenger, 1991), being in the classroom, exploring the role of teacher in its various contexts, would be the ultimate means for Molly to eventually become the kind of educator she envisioned.

Lindsay's experience was not as much about being the expert but about being in control. In an earlier quote, she talked about her worries about connection issues, blocked sites, and digital glitches while teaching, along with the likelihood of not having the accessibility to computers. Whether these were excuses for her future non-use of digital literacy or a rationale in her mind in case she fails to follow-through with them remains to be seen. Lindsay claimed that she would be an eager adopter if the resources were available. Technology, she said, did not intimidate her, but dealing with the pressures of having equal materials for everyone and adequate connections stressed her out. This continued to exemplify her need to not risk using a strategy or tool that she might not be able to control.

Interns Experience Effective Digital Teaching/Learning

While interns accepted technology and digital literacy as effective, they discussed the roles the digital literacies served, admitting that with so many, they could not deny their need in the classroom. However, both clarified that the sheer enormity of digital literacy was daunting. After analyzing the data of what digital literacy facilitated and fostered, these categories emerged:

- Digital tools motivated interns and cooperating teachers
- Digital tools facilitated communication for participants
- Digital tools allowed interns, teachers, and students the means to collaborate
- Digital tools offered interns and participants the opportunity to access limitless information and interact as a group
- Digital literacy allowed participants the opportunity to connect
- Digital literacy served as a modeling tool for students and interns

Each intern, and usually her cooperating teacher, experienced a situation in each of these categories.

Digital tools motivated interns and cooperating teachers. Digital tools motivated interns and cooperating teachers in some way, and they acknowledged that the use of technology engaged their students. As soon as the digital project was described at South Lake Middle School, students started asking when they would get to use the computers. Students who often waited until the last minute to work, according to Pam, jumped right in and got started on their storyboards. “I have never seen Johnny work so hard; I’m lucky if he turns anything in and it’s like someone lit a fire under him” (P. Downing, Personal Communication, Jan. 24, 2011). Molly, after noting how exhausting the computer lab was, reflected that evening on the first day working with computers.

...just doing work on the computer had an enormous effect on them, didn’t it? I couldn’t believe how on-task they stayed, and how a couple of them that Pam said seldom participated for more than fifteen minutes actually stayed busy the entire class period. I think doing anything using a computer is going to be a plus, even if it’s something basic – it doesn’t have to be an all-out digital composition project, I don’t think. Just

letting them compose on the computer enhanced participation.

Teaching doesn't have to always look the same as it used to.

(M. Rowan, Email Reflection, Jan. 25, 2011)

Molly once again experienced the role of being a facilitator and allowing students to be in the driver's seat of their learning, and she witnessed how motivating a technology tool could be. She observed the enormous benefit of allowing students to write or create in a different way, and she was experiencing learning in a way she had not experienced as a secondary student. While she had been in college classrooms that integrated computers as a tool for writing, she had not yet witnessed it firsthand as a teacher. It allowed her to not only see how computers motivated students but also how it allowed her to facilitate rather than direct their learning. This was perhaps one of the first times Molly embraced the shift in current learning versus the way she was educated in secondary school. She admitted that she did not make the leap in college from thinking like a student to thinking like a teacher until just prior to student teaching. Interestingly, it caused her not to embrace the teaching styles of her innovative teacher educators.

Once you're in college, you are thinking about grades, the degree, and it's hard to be both teacher and student. I mean, I wasn't watching my teachers and thinking about what kind of teacher I would be, like I wanted to teach like them. I was still all student. (Personal Communication, Feb. 15, 2011)

She added that when entering the middle school classroom, she thought more about her own middle school and high school teachers, not those in her teacher education program. She remembered her own teacher-directed, controlled environments, and even though she had been in quality, student-centered classrooms, she had little experience being a teacher in one. These experiences led to a reform of her traditional view of

imparting knowledge on students to being a part of the learning process *with* students.

Lindsay observed the same motivation when her students worked with Paint and CorelDraw, with several of the most challenging students suddenly involved in the lesson in a way not seen during other assignments. Beth noted an extreme difference with two of the toughest cases in class: Damian and Robbie. “When they got into the computer lab, I couldn’t believe how quickly they got to work, and even when they were disruptive, it was to share their work with others and show off what they’d done” (B. Todd, Email Correspondence, April 8, 2011). During their after-school planning time, Lindsay and Beth discussed the fact that the students were all more on-task, completely involved in the computer-based portions of the lesson, but Beth pointed out that technology and computers were not the cure all: “They still haven’t turned in the other stuff related to the assignment, so it doesn’t cure everything...but it’s sure great for getting them to at least do something” (Observation Notes, April 2011).

Summary. Technology motivates students to participate. A majority of the students did stay involved the entire project, so it did not lose its appeal. However, there were still hand-written components to each project that several students did not turn in (storyboards during the social justice unit and first drafts of letters for the soundtrack project). Both cooperating teachers saw students participate who would not normally do work, and working on computers seemed to get them to collaborate and communicate. Shy students suddenly had a voice, and those who, for whatever reason, never talked in class were far more involved during the digital portions of both projects. As Hicks, Young, Kajder, & Hunt (2012), Stephens and Ballast (2011), and Eidman-Aadahl (2009) point out, bringing computers into the classroom and breaking down the walls between the world, home, and

school made the assignment more relevant and appealing. When both sets of teachers asked students how they liked working on computers for this project, they unanimously raised their hands that they preferred it. Other studies focusing on digital literacy agree (Zur & Zur, 2011; Tatum, 2009; Dush, 2009; Ventress, 2008) with those students: the more teachers integrate technology into the classroom, the more positive the overall learning experience is.

A question that arose during the project dealt with the depth at which students were learning and retaining information. Project-Based Learning (PBLs), as the social justice unit would arguably be considered, is synonymous with in-depth learning when it incorporates research and inquiry, reflection and self-assessment skills, group collaboration and participation, hands-on experiences, and meeting the learning styles of various types of learners (Holschuh, 2011). Depth of learning in regard to PBLs like the social justice project will be addressed in Chapter 5, as it relates to the implications of this study.

Digital tools facilitated communication for participants. Technology facilitated communication throughout the social justice project. Molly and Pam communicated with one another regularly via email, text, and often through Facebook. Whether it was all school-related or just touching base, being cyber connected allowed Molly to feel more comfortable asking questions. “I didn’t feel like I was bugging Pam when I just had silly questions. I knew if I texted or Facebooked her, I would get a quick answer and could move on. I can’t imagine not having that easy access” (M. Rowan, Interview #2, Feb. 9, 2011). Students at South Lake Middle School participated in blogs and wikis during the first semester. By the time they were doing the social justice project, they corresponded with teachers and/or classmates via email, texts, or within a shared website like their class

wiki. The media specialist prompted the students to save their materials on the school's share drive, but she described to them how they would eventually be saving to the cloud and be able to communicate with one another through shared space. Pam admitted that having access to Dropbox had already altered the way she collected and handed-out work to students, as she was learning about Dropbox for teams. Her plan was to have folders for each set of students, and all digital work would be saved there, to avoid crashing the system again. Students could save their reflections and all other work there as well, eventually eliminating much of the paper trail a normal classroom generates. "In this digital era, we can convert all our texts and assignments to a digital format and save a forest" (Observation Notes, Feb. 2011). Molly admitted all of the cloud talk "messed with her head," but she speculated it would change the future of teaching, to have a continual, open line of communication with students.

Lindsay and Beth did not do as much to communicate with students digitally, but they communicated regularly with one another that way. They emailed each other at least three times a week, touched base on lessons and the overall plan of the next day, and Lindsay shared her thoughts and questions with Beth that way. Lindsay admitted that she was able to say things about the way class ran, about the ongoing behaviors that were so challenging, and about the community in general over an email that she might not have been able to give voice to in person. "Emailing my concerns and suggestions for improvement allowed me to carefully think about what I was going to say, to get out my frustrations with some of the same kids every single day, and then I would delete much of my rant before sending it to Beth" (L. Darnell, Interview #2, April 12, 2011). That ability to communicate at any hour, on her own time, and to carefully consider the responses

offered an opportunity for both intern and cooperating teacher to offer feedback and for both to grow from the experience. Lindsay was also able to communicate her own worries and frustrations, even if part of it did not get sent, but more of her thoughts did get shared because of email.

Summary. Having an open line of communication via the Internet allowed interns to “talk” with cooperating teachers. Because of the luxury of thinking as she wrote, Lindsay could address issues that might be harder to talk about in person with Beth, so email afforded her the chance to discuss ways to improve student behavior or voice concern about what was going on in class. Molly appreciated the opportunity to simply ask questions, get clarification for what was going on the next day, and do so in a way that did not interfere with Pam’s evening. Both interns expressed an interest in using communication tools with her future students. Lindsay said she would like to do more with email and blogs. “I think if I started a conversation with students on a class blog or ning, some kids would talk who never do. That’s something I think I’m going to do when I teach, because shy kids get a voice and the ones who always talk can’t dominate like they do in class” (L. Darnell, Email Reflection, April 18, 2011).

No matter the stage of a project students are in when they talk, they like to discuss their ideas when they are learning something new (McGee & Richgels, 1996), and the scaffolded learning that students get from one another promotes Vygotsky’s social learning theory (1978). Digital projects are social, and the more students explore through conversation, the greater understanding they achieve (Barnes, 1992).

Digital tools allowed interns, teachers, and students the means to collaborate.

Digital literacy learning allowed interns, teachers, and students the opportunity to

collaborate anywhere, anytime. Molly and Pam collaborated with one another in Google Docs. For the social justice project, students discussed how to review one another's work in TypeWith.me to peer edit storyboards and the digital composition itself. Ultimately, they self-edited first and then partnered in class to do an edit in person with the paper copy (Appendix G), and then later the same partner did a revision checklist to check content, the flow of the composition, and overall reaction (Appendix G2). Once they converted it to a typed copy, each reviewed his or her partner's storyboard, and either Molly or Pam evaluated it in the collaborative setting. Several students and Molly discussed how this could be done in Typewith.me to give students space to be more critical and not have to sit face-to-face with their classmate as they critiqued.

In the junior high classroom, there was no collaborative component; however, during the midway interview, Lindsay evaluated the project and offered suggestions on how she would modify it for her own classroom. She mentioned the possibility of having students critique one another's CD jackets in Google Docs or by commenting on the soundtracks in YouTube. "I think it would be really cool for them to take the project a step further, to take one of the songs they picked, be the character in their story, and make a video that tied the song to their character and the plot of the book...then classmates could watch it and rate it just like they do other YouTube videos and books" (L. Darnell, Interview #2, April 12, 2011).

Summary. While there was not an opportunity for everyone to use a digital collaborative tool, both interns explored how they could in their future classroom. In the middle school, they did collaborate on documents using Google Docs and TypeWith.me, and this allowed participants to offer their advice about a document and not have to be in

the same room. The possibility allows shy students to be more vocal about the work, as Lindsay pointed out earlier and, by being at home and having more time, students and teachers could be more thoughtful in their responses. The peer review potential was limitless, and for each intern to see the potential for this use in her classroom was invaluable. There is little research that offers a direct link between collaborative professional development and student achievement (Coughlin & Kajder, 2009). However, teachers understand that the more they learn about digital literacies and online collaboration, the more options students have to interact and work with one another, thus resulting in increased student learning (Coughlin & Kajder, 2009). For students, and for the interns learning to become practicing teachers, knowledge can be received and conveyed through various modes and that content can be shared in an effort to increase all participants' understanding (Coughlin & Kajder, 2009). Coughlin and Kajder and other social learning advocates have embraced that literacy is social and multimodal. This project provided evidence that to collaborate improved the participants' knowledge base, because the more eyes that looked over the material (whether a specific student project, a digital tool, or the curriculum) and the more hands that worked on an issue, the stronger the process and product became.

Digital tools offered interns and participants the opportunity to access limitless information and interact as a group. Technology opened the door to the world, Molly noted, when they started their social justice projects. She pointed out the access students had to a massive amount of immediate global information by being allowed to research on the world wide web. "There is absolutely nothing they cannot find" (M. Rowan, Personal Communication, Feb. 7, 2011). Pam initially listed social justice topics

and the related organizations' websites, along with any associated blogs/wikis/nings, on a document saved to the school's share drive. They opened this list on the Smart Board, so when students were initially choosing topics, they consulted it and then began doing searches to learn more about them. The Internet was the primary means of collecting information for their digital compositions. Molly subscribed to Twitter in order to gather more information on a variety of social justice organizations, since many of the issues had a Twitter feed associated with it. The students who chose PETA and FEMA were able to go to the corresponding Twitter page to see the conversations people were having, to learn what the groups were doing in communities, and to find out about fundraisers the organizations were doing. There was also a primary website for these organizations, but students were able to see that much information could be gathered from a variety of sites, while being specifically steered away from Wikipedia, due to its unreliability. If students found information on Wikipedia, Molly and Pam instructed them to confirm their findings with another source before considering it valid. Because students needed 20 total facts about their issue and/or organization, it was important for Molly to help them find a variety of different types of information. For example, one student, Heather, researching guide dogs needed to learn more about the history of training the dogs, so she and Molly visited several key websites (seeingeeye.org, guidedog.org, guidedogsofamerica.org, and guidedogs.com). During their search, both pointed out facts as they saw them, while Heather jotted notes. Molly noted in her nightly reflection that, while Pam preferred not to have students use Google, it was often necessary to do a quick search to find the primary organization sites.

Doing research and information gathering online eliminated the need to go to the

library, as almost any book or article could be accessed on the web, and students could find anything a dictionary or encyclopedia had to offer. On one occasion, Molly found an encyclopedia entry to help a student researching Helen Keller, and she emailed the student the hyperlink to the article. Pam often found sites for students and would post them on the document in the student share drive so they could easily access them, adding an element of collaboration to the information gathering. The students were able to access and interact online, visiting the same websites at the same time, allowing an online classroom away from their own.

Lindsay and Beth motivated students to do searches for songs that fit with the mood of their character. Lindsay instructed several who were reading the same book to discuss what could be playing in the background of a scene, to figure out the mood of that moment in time. Students then did Internet searches using phrases like depression + music, and they found songs that fit the theme. Others simply sat with their headphones on, listing words in YouTube to see what songs came up. Lindsay modeled this by typing “love” into the search box on YouTube, and pages of song titles popped up. Several students saw this, and began doing the same thing. They then listened to a variety of the songs that came up, and chose what fit best.

Summary. The cyber possibilities can change the way teachers do research projects. Having the Internet available allows users to search for topics, themes, even more general searches when they are not even quite sure what they are looking for. Searching online eliminates the physical limitations of finding encyclopedias, biographies, and other sources that might not be available to them. The world, and a limitless library and songbook, were at their fingertips. The interns were able to model finding materials and, in one sitting,

Molly ran across a teacher website, rubrics4teachers, and exclaimed, “Oh my gosh, I had no idea” (Observation Notes, Feb. 2011). She exemplified what it was like to search and find resources for current and future use. She and Pam agreed that Molly would work on the rubric for the next unit using the site.

Both interns modeled how to do specific searches for Twitter and YouTube, and in the social justice project, Pam and Molly taught students about the unreliability of Wikipedia. Telling students does not have the same impact as showing them, and with the Internet, we can show them so much of what the world has to offer. In this regard, teachers are able to be the more knowledgeable other (Vygotsky, 1978), and though they may not possess the greater digital skills, students are able to see that technology is not without its limitations. Life experience still has a great deal to offer.

Digital literacy allowed participants the opportunity to connect. For students, and especially for the interns, technology allowed participants to connect to issues in an authentic way, beginning with personal connections and progressing to national and universal connections. They were afforded the luxury of connecting on an international, national, and local level. Pam and Molly helped students engage in real-life experiences in context, first by helping them connect to the outside world and breaking down the walls of the classroom. “When we start, you will be allowed to talk to anybody, anywhere, all over the world – this [pointing to the computer] will reach across oceans or across town,” Pam told the students on the first day in the computer lab (Observation Notes, Jan. 18, 2011). She modeled the purpose of the social justice project by choosing her own issue, breast cancer, and showing Molly and the students the ultimate goal: to propose a possible solution to their issue. Molly then spoke one-on-one with every single student to discuss

ideas for impacting the chosen issue. “I wanted students to interact with area coordinators, local representatives of their agency, even CEOs, if possible, and then we went on a hunt to get them on the organization’s related blogs and websites” (M. Rowan, Interview #2, Feb. 9, 2011). She continually asked students how they planned to resolve their social justice issue.

Zach, one of the more active boys in class, was able to interact with coordinators on the UNICEF website and suggested to Mrs. Downing and Ms. Rowan that all classrooms across the nation should do a fundraiser to end world hunger. He asked what would happen if every single sixth grader in America raised \$100, what global impact would that make (Observation Notes, Feb. 2011)? They calculated Zach’s proposal, determining that his suggestion posed a possible donation of nearly four hundred million dollars if all twelve-year olds (approximately four million, according to the Census Bureau, 2000) raised just \$100. In a conversation with Molly, Zach said he was going to see what he could do to actually raise money for UNICEF, because he thought they should not just talk about it but do something about it (Field Notes, Feb. 2011). She responded in her daily reflection that seeing students take the project this seriously touched her. “When you do a lesson, you want them to engage in it, but I really think the computer gives them the ability to see the power of their words...I never dreamed it would be so incredible to see them engaged in such a real way” (M. Rowan, Email Reflection, Feb. 7, 2011). Molly witnessed the authentic application of allowing students to explore an issue of their choice while connecting to the world around them. Zach had bridged the activity with real-world possibilities and through his realization, he embraced the possibility of changing the world. By teaching these students about social awareness and to question how their experiences

could have an impact (Freire, 1970/2006; Luke & Freebody, 1999; Shor, 1997), Molly observed Zach correlating thinking with action, a concept central to Freire's belief that "without dialogue, there is no communication, and without communication there can be no true education" (1970/2006, p. 93) and when thinking critically and engaging in activities that allow them to consider themselves in a greater context, "students learn to read the word as well as the world" (Lee, 2008, p. 24; Freire & Macedo, 1987). This learning affected Zach, but it also opened Molly's eyes to the impact projects could have when students think, reflect, and ultimately act on what they learn. She accepted that her initial connections were on a personal level to begin with, but she saw the correlation to how they could impact students, her future classroom, and ultimately, the world around her.

Lindsay was able to prompt students to choose songs that related to them and that connected to the characters in their books. For the soundtrack project, they were making text-to-self connections and then making text-to-text connections between their books and the songs they selected. By designing their own CD jackets, they were connecting what they knew about music to what they had learned about their characters. Beth stated in the middle of the project that, for once, they were able to connect what they loved to what they were learning in class. "Music is so integral to their lives...they're really loving this" (Observation Notes, April 2011).

Lindsay added in her last email reflection:

Isn't student teaching the ultimate connection between being a student to moving into the teaching world? I am that connection to how students feel about lessons, projects, and school in general; I still remember because I'm barely two months removed from it. Now, I'm making the shift to being a teacher, and as long as I can maximize that connection, to tie their learning to how I remember

feeling about learning I loved to do, then I can be an effective teacher. (Email Reflection, April 25, 2011)

This connection Lindsay made allowed her to see the value of maintaining a bond between how she loved to learn to how she planned to teach. It would hopefully be the ultimate motivator to stay relevant in her teaching. While she did not make a correlation to the technology component of the lesson, she had connected her future teaching to her own love of learning. Her generation has embraced a love of digital learning as it has become more prevalent not only in society but in today's classrooms. Lindsay admitted that she tended to keep her personal interests separate from her professional but, when considering whether her love of learning would inspire her to integrate more technology, she added:

I think because I do so much online and I am always trying new things, I will likely tend toward being that kind of teacher. I mean if I'm finding cool things to try then hopefully I'll figure out how to incorporate it in my classroom. I think it depends on what I'm teaching and if it's relevant. But I do love cool new apps, so I like to think I'll carry that over into my teaching.

(Email Correspondence, May 14, 2011)

Lindsay acknowledged that she tended to separate her own interests from her professional self. To do so could alleviate the pressure of staying technologically relevant. Perhaps to think about it at the juncture of becoming a full-time teacher would allow her to consider how it might make her a better teacher. Because she would stay up to date with current technology trends, she would be aware of what her students might be interested in. To understand what is trending or going viral in the digital world would keep her in-the-know with the popular culture she spoke about staying abreast of. By ignoring the

possibilities of those trends in her own classroom, she could be missing an opportunity to do just that.

For Lindsay and the soundtrack assignment, doing this activity in school connected to what students choose to do at home, making it the ultimate learning experience. She facilitated the process, modeled it, and established that connection both for herself and her students. She laughed at one point in class and said, “I’m usually connected, I mean, I never leave home without either my phone or my laptop, or both. But them [pointing at students on computers] I don’t think they can unplug; their whole world exists in the web” (Observation Notes, April 2011). She recognized the difference between those born before the Internet age and these students who could never imagine a world without it.

Summary. Connecting is done on many levels in the digital realm. For the social justice project, it entailed making connections between what interested students and what cause they would support. It forced them to view the world in a more adult way, to consider how they might change a situation that was important to them. They connected to websites, to the outside world without leaving the classroom, and it opened their eyes to so much more than sitting in school ever could before the Internet age. Molly facilitated this connection, modeled it, and took on many of their causes herself by fostering their search. Her connection between being student and teacher allowed her to see the value in using the Internet as a tool that connected the outside world to their classroom. Kajder (2006, 2007) advocates opening the world to students, and that the online possibilities eliminate barriers many students would never otherwise overcome. Molly and the middle school students spent time online researching and finding information on topics that interested them and possibly connected to them. The students in the soundtrack assignment made text-to-self

and text-to-text connections, and Lindsay modeled those for the students and the cooperating teacher. Beth, at one point, said to her, “You saw a connection I didn’t think of, and I think they’ll think this is cooler now that they see themselves in their characters...or their characters in themselves” (Observation Notes, April 2011).

Lindsay made significant connections for the students, leading them to see through their characters’ eyes by way of music they could relate to. She fostered the process by modeling it and making those connections herself, and then had the realization that these students were continually connected in a way that would not allow them to disconnect. This, perhaps, would be an epiphany that would translate into her future classroom.

Digital literacy served as a modeling tool for students and interns. Digital literacy became an important teaching platform, both in what it allowed and the modeling it motivated. Pam modeled each step of the digital composition process, showing students how to create videos in Photostory, more specifically how to narrate, add text, import music and pictures, as well as tips on transitions and effects. It was Pam’s first digital composition experience, both in teaching it and in creating one and, while Molly had seen a classmate demonstrate a few skills the previous semester, she had never attempted a Photostory of her own. Molly helped several students working in Microsoft Word on their data, showing them how to copy and paste information from the Internet to a document. While Molly was showing students how to click and drag their mouse to highlight words, how to “edit” to copy it, and select where to put it in the document by clicking on “paste,” Pam came over and added, “You can actually just hold down this button [pointing to the Control key] and the C at the same time to copy, then Control P to paste it” (Observation Notes, Jan. 2011). In that day’s reflection, Molly said she loved that she had learned

something new that day, noting that she was a copy-and-paste queen so the new trick would help her tremendously. She added that it was important for students to see that not only was she working to become a better teacher but that she was always willing to be a learner as well. “I’m not sure you can separate learning and teaching, not if you want to be good at it” (M. Rowan, Email Reflection, Jan. 24, 2011).

Beth used technology as a teaching tool the entire school year, as her warm-up each day used news via Channel One. She would show a video on her Smart Board, and students would complete the warm-up based on a question she posed after they watched it. For the soundtrack assignment, she explained to the students that they would be choosing characters from their books, selecting songs to portray different scenes they were in, and she then modeled the idea by choosing “Magic Carpet Ride” by Steppenwolf to represent Harry Potter during a scene in *Goblet of Fire*. Several students even said, “Oh, I get it” as she gave her song title and explained why she chose it (Observation Notes, April, 2011).

Once they were doing the soundtrack project, two students modeled how to use Microsoft Paint to a few classmates who had never used it, and another boy, Tommy, demonstrated how to use CorelDraw. While neither Lindsay nor Beth knew how to use the latter, they learned from Tommy by watching him teach it to his classmates.

Lindsay, during her final interview, said:

There is so much we can all learn by just exploring and trying out new things online. When given the time, I love to just tinker. What makes the students different is that they don’t fear failure and they seem to just figure it all out so fast. Sometimes I wonder if the computers will eventually just become the teacher...we should keep them close so that doesn’t happen.

(L. Darnell, Interview #3, April 27, 2011)

Lindsay's quote showed that she recognized how much there was to learn using digital tools, even the Bradbury-esque notion that computers could ultimately become the teacher. She also recognized that by embracing these digital tools and using them to her advantage, teachers and students at all levels could form a synergetic relationship. The interesting aspect to Lindsay's words is the sense of intimidation she has about technology. By saying "We should keep them close so that doesn't happen" insinuates that she truly thinks that might happen. Could it be her worry of not using them enough, that she does not want to succumb to a classroom controlled by computers? Only time would tell once she had her own students, but her desire to be relevant in some ways (popular culture) would likely make it difficult to ignore the options students preferred if she became aware of them.

Summary. Learning and teaching in a digital world have become intertwined. As Prensky (2004) pointed out, digital natives cannot separate where their world starts and the digital world begins; one does not exist without the other. Their digital devices (phones, laptops, gaming systems) are part of their everyday existence. Most are more likely to leave the house without their car keys than their cell phones. Interns battle to bridge their student self with their teacher self, but the two are so deeply enmeshed that one does not exist without the other. Interns learn both from the cooperating teacher and their students. Students learn from one another, as well as the teachers. Keeping an open mind and having a willingness to learn helps in an era in which people of all ages are capable of teaching one another digital skills. Both interns recognized that they could use digital tools to teach, but they also realized they had much to learn and should always be open to learning. Allowing students to see the interns and cooperating teachers learn from one another,

including the students, exemplified modeling as a teaching tool at the highest level.

Interns Experience Frustration with Technology/Digital Obstacles

Technology, no matter how reliable it seemed, could not always be counted on. While the varying types of technologies afforded countless opportunities for teaching and learning, numerous situations arose from the beginning of the project in which technology proved to be an obstacle. These obstacles varied in nature, but the interns gained insight from these real-world experiences. More specifically, interns encountered these issues, and though some were novice teacher issues, they seemed to be an obstacle in relation to the computer lab or digital implementation:

- Accepting Role as Facilitator
- Struggling with Unstructured Class Time
- Wrestling with Technological Obstacles
- Learning the Time Constraints/Demands of Real-World Teaching
- Realizing Technology Distractions Limit Productivity

Accepting role as facilitator. Teachers, intern or otherwise, will not always be the expert in the classroom. While technology inexperience, for the intern or the cooperating teacher, was a primary obstacle, it was not a foregone conclusion that it would be detrimental to either unit's success. Pam was quick to point out that she had done some experimenting with Photostory the weekend before starting the project, and she completed a short digital composition to be sure she understood the basics of the program. Prior to teaching this unit, she added, she had never done a digital composition in any program, though she was familiar with Windows Movie Maker and iMovie, but she believed a collaborative environment that allowed students to share their expertise would foster quality learning for everyone in the classroom. Molly had brief experience with Windows

Movie Maker during the class I observed when choosing the interns, but she admitted it was all so new to her, she was not clear on the processes nor was she comfortable with teaching it. “I’m really glad I’m just observing in the beginning” (M. Rowan, Interview #1, Jan. 13, 2011).

Lindsay, during the soundtrack assignment, did not have as many obstacles with lack of experience, because their project used several programs she was familiar with, from Word and Power Point to iTunes. While she was unfamiliar with CorelDraw and had only heard of Microsoft Paint, she seemed more comfortable with accepting students having a greater expertise. She and Beth spent an after-school meeting time experimenting with several of the programs and, after an hour of both working on separate computers but talking about what they were doing, Beth said she thought it was all they needed to be able to understand what they would be doing the next day. Lindsay agreed, and it was evident she was not intimidated by the idea of students being the more knowledgeable other (Observation Notes, April 2011).

Molly openly admitted to students from the very beginning that she lacked experience and confidence when working with digital storytelling software and many of the newer innovations with computers and technology. When Johnny, one of the more tech savvy students, asked her to help him hyperlink a podcast so it could be streaming through his introductory panel, Molly responded, “There are several words in what you just said that I have no clue what you mean, so let me get Mrs. Downing” (Observation Notes, Jan. 2011). He laughed and told her he would show her what they were if she could help him figure out how to transfer it to his digital composition. Molly sat and worked with Johnny, both of them figuring out what he wanted to do and, in the end, with the help of Geoff,

another classmate, both Molly and Johnny learned how to hyperlink a podcast into a digital story. After the experience, Molly described the process and what it taught her:

I understand what Pam meant when she said “the more you, experiment the easier it gets.” I’m not nearly as nervous about trying out new things now. What I do worry about is that as I admit there is a lot I don’t know, they will quit asking me for help. Sometimes they raise their hands, and when I respond, they say ‘we need Mrs. Downing.’ I hope I haven’t lost credibility by being honest. (M. Rowan, Email Reflection, Jan. 24, 2011)

Molly continually worried about not being seen as an expert in the classroom, and this quote further illustrated that. While she grasped the realization that the students would know more than she did when it came to technology, she struggled with how it would translate into her role as “teacher.” Being inexperienced with digital tools was starting to change, as Molly embraced being a learner in the same setting as being a teacher, but she still perceived her inexperience as an obstacle to them recognizing her as an authority figure. In her mind, she felt she needed to be the more knowledgeable other (Vygotsky, 1978), but as she allowed students to be the MKO, she realized there were greater possibilities at play. “I couldn’t believe how much Johnny opened up to me when I let him teach me how to do things. He suddenly wanted to help me with everything” (Observation Notes, Jan. 2011). Pam noted that so much of teaching is trial and error, and that any time she did a project or lesson for the first time, it would be an experiment.

I think the beauty of teaching is that when you try something new with the kids, you learn by watching how they learn. A good educator will recognize when something doesn’t work either because the kids already know and we’re the only ones who don’t or because it wasn’t planned well or executed well. It’s all research; everything we do in the classroom is research for how we will improve it next time.

(P. Downing, Email Correspondence, Jan. 26, 2011)

Pam's mentality allowed Molly to see that the teacher may not always be the expert, that good teaching included continual learning, researching, and evolving. Watching students meant seeing what worked, what did not work, and improving it so next time it did. Because Pam modeled the willingness to try to improve and overcome the obstacles, Molly would have experience seeing a practicing teacher embrace that attitude. In this quote, Pam established the importance of continual reflection of her teaching practices and, while Molly might feel underprepared with technology, she was seeing how to handle when something did not go perfectly in the classroom. That modeling provided her with the insight to adapt. "I watch her and can tell when she's about to change something, and the more we've taught together, the more I can now anticipate when she – or we – might have to" (Personal Communication, Feb. 15, 2011). This comment made while the students worked on their social justice project was evidence that not only was Molly gaining insight into Pam's teaching, but she was also beginning to anticipate potential hurdles with the project. When they experienced several instances of headsets and no sound, they both spent an extra 15 minutes before school turning them all on, testing that each worked, therefore eliminating the possibility for repeated problems. Pam was showing Molly that it often took extra time to avoid issues, and that quality teaching was about continually improving.

By the second week of the project, Molly was working with students who had less technology experience, helping them incorporate skills she had learned from students like Geoff, Johnny, Heather, and Zach. These more knowledgeable students often consulted Molly for questions regarding the project but not about technology. On one occasion,

Johnny motioned her over to show her something he had mastered. Molly commented that evening that she had worried about developing a relationship with Johnny, that Pam told her he was a ‘tough nut to crack,’ but his need to teach Molly more about technology had established a connection (Email Reflection, Jan. 24, 2011). She built on that relationship by having Johnny help other students who were less digitally adept, allowing him to be the more knowledgeable other (Vygotsky, 1978) and subsequently building his self-esteem.

Lack of experience still posed problems, especially as it related to Photostory. On day five, when students did their first panels in their digital composition, they saved their projects to the share drive, and then logged off their computers. The next day, when they logged on, many of the students’ digital compositions had no pictures where they had put images before. Pam and Molly had not known to tell the students to save their pictures to the same folder in which they saved their digital composition, and because of that, most images were lost. Seven students who had experience with Windows Movie Maker were familiar with this possibility and had saved their images in a single folder with their digital compositions, and a few other students said they had happened to do the same. Fourteen students who had most of their experience with Macintosh’s iMovie were not familiar with this issue, seemingly isolated to PC use, and they had lost their images. The four remaining students who had little digital composition experience also lost their images. Luckily, most had saved their images elsewhere or knew exactly where to go to retrieve them, so within 30 minutes, the students were able to fix the problem. Molly shared her reaction to what she identified as, the first debacle:

I marvel at how quickly they pick up things; what would have taken me hours to fix, because I would’ve spent an hour frustrated and trying to figure out where they went, took them all of fifteen

minutes. Our inexperience cost them time, but they didn't skip a beat. Sometimes Pam flies through directions that I'm struggling to not only keep up with but understand, but they're right with her. I think that's this generation, they just get it.

(M. Rowan, Email Reflection, Jan. 28, 2011)

Molly was beginning to understand that students born into the digital era might not know all the answers, but they learned it quickly and seemed to think in a way that allowed them to grasp it better than she could. She said she believed the difference was more about comfort level and risk-taking than knowledge. The digital divide, as she saw it, was not without a bridge, and she said she thought that bridge was a willingness to learn. "They know more and seem to get it quicker than we do, but there doesn't have to be this separation if we're willing to cross over and either meet them in the middle or come on across. If all this is going to make learning better and more fun, then we need to change too" (Email Reflection, Feb. 4, 2011). Molly seemed to understand that in a time of change, teachers must embrace anything that improves learning.

While Lindsay had more skill in the digital realm than Molly, she felt that having a little skill sometimes was harder than having none.

I am pretty familiar with the programs that the students are using, but I am quickly realizing that I can't troubleshoot for them. If a program is not doing exactly what it should, I am completely at a loss for how to help a student. It has been frustrating at times, because I simply just don't know what to do. I feel like I am lacking experience, and I don't like when students are able to tell that I can't help them. It is especially scary when none of the other students can help, and I am left floundering around with no solution.

(L. Darnell, Email Reflection, April 9, 2011)

Lindsay had a working knowledge of the programs and, in some cases, knew just about as much as the less tech-savvy students. As some experts assert, to have a skill level comparable to the students was not only beneficial but necessary (Dawson & Rakes, 2003; Langran, 2006). Because Lindsay had experience with the programs, even if it was not as much as she wanted, the students saw her as an authority. When they struggled, they wanted Lindsay's help. When she could not help them, she got frustrated with herself and said at one point she was almost in a panic. She had established herself as an expert to the students, and when she could not be that expert, she seemed to worry that she would lose control. Because she felt the need to have that control, it made her wonder if she would want to use technology in her future classroom. She seemed to rationalize that if she could not help the students, then she would lose control, and therefore it might be best not to take risks in the future with tools or skills she had not completely mastered. Perhaps Beth calmed that fear when she came over, talked both of them through what they could do, and finally said, "I'd say if you can't figure it out, move on and try something different. Use a different program or something. Don't let it get the best of ya," and moved on to help another student (Observation Notes, April 2011).

The experienced cooperating teacher had learned not to let the technology frustrate her and that if she did not know the answer, she did not attempt to make it appear as if she did. While Lindsay did not try to project that she knew as much, it took her several similar situations to admit to students that she did not have the answers, and they would figure it out together. She acknowledged that when she finally did, it was an enormous relief. Lindsay did not have the teaching experience of her cooperating teacher, and often it was observed that technology skills were not as important as teaching experience. Beth, like

Pam, did not allow inexperience or lack of familiarity with a concept to be an obstacle. When starting the soundtrack assignment, she had some working experience with digital storytelling software, but she told Lindsay that it did not matter. “I think if the students offer other options to the design of the CD or the way they want to present their character, I’m cool with that. We all have a lot to learn from kids, because they know so much more of this than we do” (Observation Notes, April 2011). Lindsay agreed and said she hoped she would be able to learn more so she would be more help to them in the future. Like Molly, she equated being the expert to being the authority, except that Lindsay was more confident as a teacher and seemed more accepting of allowing students to be the experts.

Summary. Teachers were not always the more knowledgeable other in a collaborative classroom. In both projects, the process of learning was a team effort and often involved a great deal of experimentation. With digital development, the failures offered experience for the cooperating teachers and the interns. Likewise, the comfort level of cooperating teachers allowed them to be risk-takers that the interns were not quite ready for. The willingness to learn and be open to change ranked high in overcoming inexperience and skill development.

Struggling with unstructured class time. Learning to teach, especially with digital applications, requires relinquishing a need for total classroom control. Both cooperating teachers acknowledged that using technology and spending time in a computer lab took getting used to, if for no other reason than a general lack of classroom structure and management. Molly described the controlled chaos that proved to be so exhausting her first day in the computer lab.

It’s like everyone needs me all at the same time and you don’t have the same control when you’re not in the classroom. You can

only do so much at once, some can't move on until you come answer their questions, and a few of them just need constant attention. Sometimes it's just easier to not take risks, not to use technology because you can't control the kids the same way. Mrs. Downing keeps reminding me that controlled chaos may be tough but it's more engaging for them and really allows us to do a lot more facilitating. All I know is that they are all doing different things, at different stages of the project, and juggling all their different topics, needs, and making sure they are on track is definitely a deterrent for me. Not that I will avoid technology because of it, but I will space digital projects out. (M. Rowan, Email Reflection, Jan. 25, 2011)

What Molly did not have a handle on yet was the notion of differentiation.

Teaching in the lab was exhausting because students were at different points in the project, progressing at varying paces, and allowed to be in charge of their own learning. The student-centered setting was harder to manage but more authentic for the students. Molly and Pam were also able to formatively assess the students along the way, and it would help them know who would need more attention for the rest of the project. Another idea that Molly had not grasped was the shift in digital thinking, especially as the ISTE standards recommend: technology is not about a project or lesson here and there, it is the idea of creating digital citizens and a digital environment (Iste.org, 2008). Molly still thought of technology as an option, and when she said she would "space digital projects out," she had not made the leap to see that the educational landscape was shifting (Education's Technology Plan, 2010).

Pam, feeling the same chaos that Molly described, adapted the project after two days in the computer lab and signed up to have the mobile lab brought into the classroom.

While having the laptops in their regular environment proved easier to manage, some of the issues, like students at different stages of the project, still existed.

Molly explained that a significant contributor to the chaos was assuring that all students were on-task, working the entire time, and their behavior did not distract them or others from the project. Pam did not feel classroom management was an issue, because she had spent extensive time building community at the beginning of the school year. Pam believed the obstacle was more for Molly as an intern, because she started midway into the school year and was not part of the community building. Pam believed that confidence played a role for Molly as well, that as she gained experience, the confidence would come, and so would the ability to control but not always feel a need for it.

Lindsay, on the other hand, had a much different experience. Where Molly lacked confidence, Lindsay had it. Part of it was likely from already having done her first ten weeks of student teaching, but the difference was observed while they were in the Media Literacy class before their student teaching. Lindsay was more of a leader and possessed a great deal of confidence when working with classmates or presenting in class. Once they began their internships, the differences did not stop there. The Washington Hills' classrooms observed for this research seemed to be continually chaotic, especially 6th hour, and when computers or technology were involved, the chaos was magnified. While being in the computer lab engaged the students more, Lindsay constantly dealt with behavior issues. Several days, Lindsay said, she spent a great deal of her time dealing with disruptive behavior, disrespect toward peers, and blatant disregard for rules. She wrote a pink slip after one volatile class period and described her frustration afterward.

I have been so surprised by the lack of structure or behavior management in these classes. It is so different than Wood Lawn

[High School] where the teachers used humor and playfulness to build relationships with students. Here, the classroom is so rigid and there is this seriousness that looms and with so many explosive kids, it's like bring[ing] a bulldozer through a mine field. I don't think high expectations and control have to equal no fun and having consistent expectations for every single student.

(L. Darnell, Daily Reflection, April 9, 2011)

Lindsay believed her cooperating teacher had not built a strong community, and that rigidity would not necessarily translate into a well-managed classroom. At Wood Lawn High School, Lindsay had been part of a laid-back, block course during her first ten weeks of internship, and the cooperating teachers both had an easy manner with the students and interestingly, much more control. In the Washington Hills' classroom, the attempt to manage with control and seriousness had manifested into a volatile environment she felt the students controlled. What Lindsay might not grasp due to inexperience was the different age and climate of the students during the two stages of her internship. At Wood Lawn, the students were older, more mature, and from a higher socioeconomic class than at Washington Hills. Younger, less mature, and lower socioeconomics did not automatically equal behavior problems, but Beth had the experience in that climate to know what she had to do to maintain control. Lindsay's first experience in a high school had perhaps skewed her expectation for junior high student behavior. At one point during computer lab work, she said, "I wonder how this experience would've differed if I'd been at Washington first, then Wood Lawn...it might not've been so jarring for me" (Personal Communication, April 7, 2011). She acknowledged that the order of her experiences might have impacted her views and reactions, but what she did not go on to say that seemed evident in her demeanor in the classroom was that she had not yet been able to shift her

expectations for the different age group and clientele. She seemed to want the atmosphere and student behavior to mirror what she had observed during her high school internship.

Lindsay did admit that she was not sure how community could be built in April, but she felt it had an enormous impact on how she planned to spend time establishing it at the beginning of the year in her own classroom. In one of my last informal conversations with Beth just prior to student presentations (Personal Communication, April 27, 2011), she said that Lindsay also did not know how to build community in August, because she had not had that experience yet. She added that it was not the same from hour to hour, that most preservice teachers do not understand the dynamics of different students in different class periods, and that even the day of the week has an impact on behavior. “On Monday, I can be less serious and actually try fun stuff, but never on Thursday. They’re wired on Thursdays, especially if it’s a full moon” (Personal Communication, April 27, 2011). One recommendation Beth had for Lindsay was to be aware of her students and not try to mold them all into the same community. Every class, she said, was its own entity, and sometimes being aware of troublesome students swayed how a teacher established expectations and classroom rules.

What Beth highlighted was the simple fact that Lindsay could not judge an atmosphere until she had experienced starting a school year on her own. It served as a reminder that a new teacher’s naïveté, which might be a good thing because she could go into a setting undaunted, could also be a hindrance. Lindsay’s confidence could set her up for a reality check when she began her own classroom. She expects them to respond a certain way and also believes she can control the classroom environment. She may discover that her strategies might not always work, and she and may need to find a balance

between her expectations and an open-mindedness to differing climates and students.

Summary. Confidence played a significant role in how well interns handled classroom management, especially in a computer lab, and how they accepted not being the expert. Likewise, building community was the key to a quality, risk-taking environment, and having total control over a classroom did not create a motivated, learning-focused atmosphere. From the experiences observed, in order for teachers to become facilitators in digital projects, classroom community must first be a priority. Confidence, however, needed to be gained in relation to experience, so that a teacher had a reasonable expectation based on the varying students and climates they might encounter.

Wrestling with technological obstacles. The interns learned first-hand that teaching with computers had glitches, and how they handled them not only affected the project but the way students would deal with future situations. While many obstacles came along that were avoidable or that could be part of the learning experience, there were a few instances in which crises could not be avoided and most were completely out of the control of teachers and interns.

- **Blocked sites hindered interns.** A few struggles came up as soon as both projects began that limited students from researching their topic. Song choices for the soundtrack project often took students to inappropriate sites dealing with gangs, drugs, and were often blocked because of lyrics. For students with topics like bullying and child abuse, many of the official websites they wanted to access were blocked because of the content, even though they were educational or professional organizations. Zach, who was focusing on child abuse, wanted facts about the history of the dilemma, but it was almost impossible to conduct

research on the topic. Pam did research on her classroom computer, printed articles for Zach, and he occasionally sat at her computer to look for more information. Another limitation for the students was that the school preferred they not use Google as a search engine, for fear of accessing inappropriate sites. To help students to search for information, Pam and Molly had to do significant preparation; as soon as students chose their topics, Pam and Molly did extensive research to find the primary organizations and the corresponding websites for the students. “There are so many possibilities to help students learn important issues, but all these blocks make it really difficult...the district should recognize that educating kids on topics that matter might be more important than shielding them from the ugliness of the world...many of them see plenty of that anyway” (M. Rowan, Email Reflection, Jan. 19, 2011).

- **Interns experience major setbacks with limited space on share drives.** As students worked on their digital compositions in Photostory, they saved their projects to the school’s share drive. Each day they would add more to their digital story, save their revised version along with the subsequent images and music, and then log off. During the saving, the system would be overloaded and move so slowly that many students would have to get passes to go on to their next class because it took so long simply to save their project. The overloading took its toll on February 9 when, at the end of the day, the entire student server crashed. The students were unable to save their revised versions, and in the last frantic minutes of the day, Molly had to save 30 digital compositions to a hard drive in order to avoid losing the students’ work. On a day in which Pam had a

doctor's appointment and had to leave early, Molly had to handle much of this obstacle on her own and admitted later it turned out to be one of her greatest successes. "I never knew I would be so calm in such a crisis, but this makes me wonder how much I can trust technology" (M. Rowan, Email Reflection, Feb. 9, 2011). At one point, Lindsay blurted, "I really hate computers sometimes," but then ten minutes later she admitted that the value outweighed the negatives (Observation Notes, April 14, 2011).

Summary. Class size had a great deal to do with several of these obstacles.

Ultimately, situations out of the interns' control had an impact on their future consideration of digital projects. Both admitted that having the issues of blocked websites, potential space-saving problems, and an overall worry of what could go wrong would likely impact their decision whether to use digital tools in their future classroom. By the end of the unit, however, each said she thought the value might outweigh that worry, but the impact of these obstacles would have a lasting effect.

Learning the time constraints/demands of real-world teaching. During this project, the number one reason many teachers cited for not knowing more about digital literacy, or the related technologies emerging almost daily, was the time constraint of their professions and their lives. Pam admitted that she often balked at some technologies, because she simply did not have the time to learn about it. "We have so many criteria we have to meet, standards we have to address, and the darn tests to prepare for that often there just isn't enough time to try new things" (P. Downing, Interview #1, Jan.13, 2011). However, during their third hour conference conversation early in the project, Pam and Molly discussed how they could integrate technology into a later unit without making it

last longer. They both admitted employing new strategies and techniques took longer to plan for but, in the long run, they agreed it would ultimately improve the quality of the unit. “In a perfect world,” Pam said during a computer lab session while students were working, “teachers would get paid to plan, but the reality of how much work we do on our own time really limits how much more we can add to that area of our profession” (Personal Communication, Jan. 24, 2011).

Molly described earlier in the *Interns experience digital uncertainty* section that she would never be able to keep up with digital innovations, yet she managed to make time to learn how to use Pinterest. So even though time constraints limited teachers a great deal when it came to finding and learning new technologies to use in the classroom, clearly if it was of high enough interest, she made time. Lindsay, on the other hand, admitted after a day in the computer lab to being addicted to several digital software programs but believed using technology in the classroom was something different. “I can play here and there, when I have time, but to use it in class, to really develop a great project takes a lot of time...time I don’t or won’t usually have” (L. Darnell, Personal Communication, April 14, 2011). She perceived that using technology in the classroom had to involve a project centered on it, rather than implementing digital tools into already existing units. During one conferencing session, Pam and Molly discussed how to integrate more digital literacy in the class. The transcription of the conversation (See Appendix J for transcription codes) revealed a great deal about how Molly perceived digital literacy and the role it could play in the classroom.

Transcribed Conversation

February 15, 2011

P= Pam Downing (cooperating teacher)

M= Molly (intern)

P: I don't know, I'd love to have a Kindle or a Nook for Geoff. He loves technology but doesn't really love reading...if they were one and the same perhaps he would like reading more

M: is that working on digital literacy or just using a digital tool?

P: is there a difference...I think the tools are part of becoming literate...that's like saying books aren't literacy

M: oh, I guess I thought...

P: that it had to be for a lesson?

M: well or..or it..you know it was a project or something

P: think about it though...we want them literate not just digitally literate...maybe there's a difference...to be digitally literate means knowing how to use digital tools but digital tools can foster literacy at a desk can't it

M: that's deep...maybe digital literacy is reading on a Kindle though

P: maybe...but reading is reading...we don't call what we do in a magazine different than what we do watching a subtitled movie, right..it's all reading

M: yeah I guess you're right...do we need to know the difference?

An important facet to this conversation was that Molly realized that adding a digital element to her classroom or a specific lesson did not have to be time-consuming. Adding a digital component might not have anything to do with time at all. Handing Geoff a Kindle took no more time than handing him a book, except that getting the Kindle in the classroom in the first place might entail more work. For Molly to consider creating a digital climate, as standards recommend (Iste.org, 2008), she would have to shift her thinking to digital options in many settings. Even Pam, an eager adopter when it came to anything innovative, seemed to view digital literacy as pertaining to digital tools and not simply the creation of a digital environment. On several occasions, she admitted that digital literacy took time she might not often have, but having laptops available for students to write on or a Kindle for them to use for reading takes no time and can become part of the classroom expectation and environment. To make that shift, both teachers would have to stay current and embrace the evolution occurring in educational standards. For Molly, if she could be open-minded to digital possibilities, it would allow change to

happen more readily.

Beth and Lindsay addressed time constraints when students spent their allotted two days in the computer lab but did not finish. Students spent a great deal of time looking for songs, getting side-tracked by the news on the music sites, and listened to a great deal of music that interested them and not necessarily what they needed for their characters. One whole day in the computer lab was spent perusing music sites, listening to music, and trying to choose what songs fit their characters. Conversely, some students obsessed with finding songs that had lyrics to match exactly what their characters would say, instead of making a broader, more abstract connection. Other students who picked their songs faster became perfectionists when it came to the soundtrack cover and would occasionally just delete their file and start over. Lindsay and Beth were patient on day one in the lab but, by day two, they were pushing students to finish the song choices and get to the soundtrack covers and the digital compositions. It quickly became apparent that while the digital options allowed students to be in control of their own progress and learning, their classmates were a distraction, being out of the classroom was a distraction, and the freedom to access various websites, even if applicable to their project, was also a continual distraction.

After the first day in the lab, Beth and Lindsay agreed if they knew all the students had computers at home, they could assign the rest of that day's work as homework. However, Beth believed at least two of her students in 6th hour did not have computer access at home, so she did not want to create an unreasonable expectation. Both admitted this was a downfall to a digital assignment, because with any other work, the students could have completed it at home. Lindsay suggested to some students to listen to music at

home and choose their songs before they returned to school the next day. But for other components of the assignment, because they were doing several elements of the project digitally, they were not seeing the possibilities of what else could be done outside the computer lab. Students did explore songs with their iPods, since all of them had some kind of music-listening device on day one of the project, before the administration told them they could not have them.

In general, allowing students to work on a computer took more time than a more traditional project would have. Beth said, while watching students work in the computer lab, that she felt it was more applicable to the way students preferred to work, but in order to find a balance, she believed teachers would have to provide a quality rubric to keep them focused (Personal Communication, April 14, 2011).

Summary. Digital integration was not necessarily as time-consuming as the cooperating teachers and interns believed. Discussing what digital literacy was, seeing the possibilities for the simple innovations, and being open to various possibilities opened Molly's eyes.

On the flip side, Beth and Lindsay could have had students sketch their cover or plan for their CD cover design as homework, thus saving more time when they returned to school. Just because a project was started on a computer did not mean they had to spend the entire time on it or be chained to it. Much like Postman (1993) predicted and feared, Beth and Lindsay had not considered the project possibilities without the computer, but the ideal lessons balanced the best of both worlds.

Realizing technology distractions limit productivity. Technology proved to be an enticing feature for sixth graders. It was also a distraction, both for students and

teachers. When asked to first do their research and planning, which included writing the facts on a storyboard that would eventually be put on the panels in their digital composition, several students failed to complete this part, ready instead to get to what Molly referred to as “the fun part” (Observations Notes, Jan. 2011). Pam observed that the students who seldom completed assignments were jumping in to computer work; however, she suspected their interest would wane when they had to incorporate the storyboard they had not completed. “Just because they know technology and are good at it,” Pam explained to Molly during their conference hour, “doesn’t mean it will change their work habits; they are as quick to cut corners on a computer as they are on a paper assignment” (Observation Notes, Feb. 2011). Molly admitted the same was true of herself, not just as a teacher but also as a digital user. “I email my friends pretty regularly, but if I had to write them a thank you note or something that required pen, paper, and a stamp, I’m horrible. It’s the immediacy of it, but it is easier and more fun to use my phone or my laptop” (Observation Notes, Feb. 2011).

Molly admitted her biggest distraction with being online doing a project with students was the urge to check her Facebook page. Pam immediately added that she felt compelled to check her school email to find out if parents had sent messages, or if there were any emails about meetings. The distraction for many of the students while researching their topics was the lure of pop culture sites. Though they were warned about getting on Facebook or going to favorite websites, students still ventured there if they had the opportunity. Pam surmised that not having walls to a classroom had its perils, that it was like trying to do an assignment in their bedroom. “When they have a computer in front of them, they have access to the world, including everything and everyone they know. It’s

hard to compete with that” (P. Downing, Email Correspondence, Feb. 6, 2011).

The freshmen working on their soundtracks experienced the same pull of computers as the middle school students. Damian, Robbie, and Tommy, three of the likeliest to get off-task, jumped past their reflective letters to design their CD covers. Once they were working on computers, they succumbed to the lure of the Internet while searching for songs. However, their pull to pop culture sites almost always segued to the music being played there, and generally they were discussing songs related to those actors, singers, or athletes.

Unlike Molly, Lindsay was not tempted to check her Facebook page or her email, because she said she had to avoid doing anything personal on computers. “If I get on there to do anything personal, I’d lose total track of time and would end up Facebooking through the bell. That wouldn’t be good” (Observation Notes, April 2011). Beth periodically checked her email while the students worked in the computer lab, and when Lindsay shared how she had to avoid the computer for personal use due to her self-diagnosed addiction, Beth added, “Oh mine wasn’t personal. It’s all school email. Just wait, you’ll figure out how to steal time throughout the day to answer yours or you’ll be here til 10 at night” (Observation Notes, April 2011). The cooperating teachers both sought opportunities to answer email, while each intern saw the pull of social networking to be the biggest distraction.

Summary. When working on computers, users were distracted in two different ways. The first was that students skipped the necessary work required to get to use the computers. For the interns and cooperating teachers, they might consider how they plan lessons so that students use the computers from the beginning and insert the other types of

assignments throughout. Even then, if they offered the option to complete the work on the computer, it might improve motivation for those who needed the additional push. The second distraction, for students and teachers, was the Internet, for checking email, Facebook pages, or pop culture sites. Whether they actually visited the sites or not, the interns admitted they had the desire to check their Facebook page if they were on computers. Much like the students, the interns were tempted to go to websites that helped them stay connected to friends, activities, and the outside world. Lindsay admitted she would lose track of time if she started, so she would not allow herself to even get on a computer unless it was to help a student. Though the computer served as a digital teaching tool, it also served many other purposes in interns' and cooperating teachers' lives, some that could be a distraction when used in an inappropriate setting.

Overall, the obstacles teachers and students encounter while composing and interacting with digital literacies have value. Wessling (2012) refers to them as soft failures, and it is what we do with them that help us evolve as digital learners. Teachers grow from those failures, both in what they personally experience and what they see students experience. From them, teachers gain an understanding of how to handle the same obstacles or to help students deal with future situations. Often, expert teachers develop strategies for either navigating around the obstacles or ignoring them when they can. Expert teachers better understand how to juggle the demands of the classroom and avoid getting caught up in what novice teachers often obsess over (Hattie, Clinton, Thompson, & Schmitt-Davis, 1996), as shown in Lindsay's need to control the classroom when Beth understood that not confronting volatile students served the community better. Expert teachers are as role models for interns and students, as are the obstacles they all observe.

The more interns like Molly and Lindsay overcome failure and experience success with while doing their student teaching, the greater their learning will be, especially when they go on to their own classrooms, reflect on successes and failures, and attempt similar projects. Much like Darling-Hammond (2006) explains, it is experience and practice that truly improves teaching, as this case study also exemplifies.

Interns Connect Technology/Digital Lessons with Building Community

The interns learned quickly that being a facilitator and allowing students to be in charge of their own learning fostered community. From the beginning of both projects, the interns recognized they would not be the expert at creating digital compositions or when using many of the technologies. Each cooperating teacher had limited experience, but Pam and Beth recognized the benefits of permitting students to be in charge of their own learning, and they understood the value of a constructivist approach that allowed teachers to model, coach, facilitate, and scaffold (Jonassen, 1999; Vygotsky, 1978). During that kind of learning, social interaction plays a pivotal role, and the group develops a strong, collaborative community.

During the digital storytelling project, Molly and Pam informed the students that they, not the teachers, would often be the experts. Molly noted in an email reflection that she felt this really brought out strengths in some students who did not seem to otherwise present themselves as leaders in class. Aside from allowing students to see their teachers as human, Pam acknowledged during their third hour collaborations that the assignment “leveled the playing field for kids who didn’t often get to be experts or even do all their work” (Observation Notes, Feb. 4, 2011). Geoff, who often worked by himself and did not interact much with his classmates, was suddenly in high demand due to his computer

skills. This was the first project Pam had seen Geoff emerge as an expert to the rest of the class, and likewise, she planned to implement more technology options to future projects. “I’ve seen students rise to the top who I never dreamed would have; I had no idea they were so technologically adept, and quite frankly, most of them rarely even finish their work, much less excel at it” (P. Downing, Observation Notes, Feb. 4, 2011). Pam and Molly’s collaborative, student-driven classroom allowed for differentiation and had little need for behavior management. The class had established community well before the project, but it evolved during the digital unit. Different students emerged as experts, it built confidence in those new leaders, and it allowed classmates to see one another in a different way. They shared, talked, collaborated, and learned at their own pace, showing an engagement and involvement that teachers strive for and often never achieve.

Molly’s reflection of her second day, in response to a prompt of how the day went, was about the issue with Sami’s headset not working and described the troubleshooting that took place. While that interaction was indeed an example of Molly’s lack of expertise with technology, it also served as a community building experience. In a summarized conversation between Molly and two students, Zach and Sami, Molly depicts the collaborative effort during the troubleshooting session. When the sound was not working, Molly asked if it might be muted, pointing to the speaker icon. Sami said she had checked it already, so Molly started clicking buttons to see if she could figure it out. She admitted to getting frustrated quickly. The student asked if she could just switch to a new headset, and Molly agreed, still clicking in various places in an attempt to figure out the problem. When the student plugged in the second headset, there was no sound with that one either. At this point, the student groaned, so Molly had her get up and sat in the student’s seat and

began opening screens on the computer. Molly said later she was not just frustrated at this point, but she felt at the mercy of unreliable technology. Another student chimed in that he knew what was wrong, came over and told her to right click in a specific screen. Molly said she would try that next, but she thought it might be a Photostory issue. When she ruled that out, she tried Zach's suggestion, and she discovered a volume bar on 0. She raised it halfway to 5 and told Sami to try her headset now. It worked. She turned to Zach and asked him how he knew about that screen. He shrugged and said that he had run across it while troubleshooting once, and that if people just spent the time, they could figure out anything. Molly told Zach, "I should try just fooling around with my computer more just to know all these ins and outs" (Observation Notes, Feb. 8, 2011).

During that collaborative troubleshooting, Molly admitted to getting frustrated quickly, supporting what she had said earlier in the *Interns experience digital uncertainty* section. She again saw the difference between teacher and student reactions to technology frustrations and that the younger students were more willing to spend the time to figure things out. Adults, she decided, did not have the patience, the time, or usually the desire to spend adequate time to problem-solve. While she did try various strategies to fix the sound, the fact that she allowed students to be part of the solution showed her own growth in embracing the student-centered environment. She accepted Zach's expertise, and that experience would likely transfer to her own future classroom and teaching philosophy when she later said the experiences were teaching her that "the kids have a lot to teach us" (Email Reflection, Feb. 8, 2011).

She also learned the impact that being the expert could have on different students. Zach was not a student who normally completed his work, stayed on task, or helped others,

according to Pam. Instead of sitting in a pod like the rest of the class, he had a single desk right in the front of the room, directly across from Pam's desk. Because he had expertise with computers, he became someone many of the students sought out when they needed help during this project, and Pam noted during class one day how much it built his self-esteem. "It's amazing to see him respond to students needing him; he puffed out his chest and I got a glimpse of what kind of student he could be if we could continue to bolster his confidence and inclusion" (P. Downing, Personal Communication, Jan. 24, 2011).

Because the digital component allowed different students to be experts, the class got to know one another in a different way. Molly summarized after her first week that she had built a relationship with the sixth graders, and she was not sure that would have happened had it not been for her own willingness to be a learner with the students. "Even though I'm an authority figure, they saw me as one of them when I let them teach me; that was a heck of a bonding experience" (M. Rowan, Email Reflection, Jan. 25, 2011).

At the junior high, the classroom had not built as much of a risk-taking or collaborative community. Damian and Robbie, along with a few of the girls, controlled much of the tone of the environment, yet when the class was in the computer lab, suddenly Tommy emerged as an innovator, when he showed several of the others how to hyperlink their songs to YouTube. Lindsay sat down and said, "Show me, Tommy, I've always wanted to know how to do that" (Observation Notes, April 2011). She had not had much luck building a relationship with him, she said, but after working with Tommy for two days in the computer lab, he would bump fists with her in the hall. Two days after that, he came running into the classroom and told her to get on the computer, he was going to show her how to embed a podcast like he had done, using a new tool he had found. He spent ten

minutes explaining RSS (RDF Site Summary) feeds and how easy it was to do streaming audio and video. Interestingly, when it was time to focus on his cover design, he continued working on a vodcast he had started. Beth prompted him several times to get to work on his CD cover, but it was not until Lindsay whispered, “You really should get back to it” that he rolled his eyes and got back on task. By establishing a bond with Tommy, she was able to redirect him and, according to Beth, he completed a project for the first time that school year (Observation Notes, April 2011).

Summary. The rapport in a classroom and an already-established community often plays a more significant role than the project or the means by which students complete a project. In other words, technology and digital lessons were motivating for many students and the teachers but, because of the strong community in Pam’s classroom, students entered many projects with the same positive, interactive attitude. Digital projects could foster excitement, but a strong classroom community was the optimum goal. It allowed for cooperative learning and what Vygotsky (1978) would promote as a social learning environment. Teachers learned from students and each other, students collaborated with teachers and their peers, and the social nature of the classroom allowed for all participants to interact before and during the learning process. Both interns observed classrooms that were highly organized, some that were disorganized, and still others that had a high degree of participation and appeared to be disorganized but were not. But the consistent thread throughout all the classrooms in the case study was that learning was active and interactive, and all participants, interns included, learned in a social context. According to Csíkszentmihályi (1992), “we also encounter a form of *group flow*” (p. 86) describing what cyclists and many others experience when they achieve flow collectively. In

Csikszentmihályi's *Optimal Experience: Psychological Studies of Flow in Consciousness*, Sato describes flow in Japanese motorcycle gangs (1988), but the overall idea is that individuals can find that sense of flow in a group environment, whether working simultaneously on the same project in a parallel nature or collaboratively. This was achieved in both classrooms of the case study, as students searched for songs, information for the social justice issues, and had conversations while they worked. At times, the teachers stood back and watched as the classes worked, marveling at the community, the interactions, and the collaborative exchanges that occurred regularly between most students. Lindsay acknowledged that these times reinforced that even the toughest classes could have successful experiences. Though she felt many of 6th hour's classes were chaotic, there were times when the students worked, collaborated, and experienced success together.

During their second interview, conducted halfway through the respective research, the interns each wrote about the importance of collaborative projects. Both stated their primary focus for their future classrooms would be to build community, so they could enjoy the same collaboration they experienced during their internship.

Lindsay wrote: "If I don't do anything else the entire first week, I plan to get to know my kids and develop real relationships with them...I want them to learn from one another and not just me" (Interview #2, April 12, 2011). Lindsay accepted that students could know more about a topic, and the best way to capitalize on that was to foster the sense of community that would allow it. Molly, too, added how important establishing a safe environment would be, and she noted that the use of technology had played a significant role in her community building at South Lake Middle School. "I don't know if I

could've connected with them so fast if I hadn't needed their help with technology. That really did make a difference, and in the end, it didn't matter that I wasn't as good at it as them. There were other things I knew. But *that*, boy, they were better at that, and I was okay with it" (M. Rowan, Interview #2, Feb. 9, 2011).

Each teaching intern recognized that knowing everything during a digital unit was not integral to its success, but being willing to allow students to guide their own learning was. Student-centered learning in a digital format facilitated collaboration and community in a way that was relevant and authentic to them. The interns and cooperating teachers agreed that students should be allowed to connect the way they prefer: at home on their computers.

Intern Attitudes Toward Teaching Digital Lessons Generally Improve

From the beginning, knowing she would be teaching a digital project had an effect on Molly's attitude about the technology itself and her ability to teach it. It both stressed her out and excited her. "I'm going to learn something important and relevant, and that scares me to death" (M. Rowan, Interview #1, Jan. 13, 2011). Lindsay also expressed concern about teaching a unit at the start of her internship at Washington Hills that included a digital portion. "I'm not so worried I won't know what to do, but the idea of so many unknown possibilities is just kind of scary" (L. Darnell, Interview #1, April 5, 2011). Each spoke of anxieties they had with the projects they would be teaching, and two issues emerged as commonalities: 1) confidence necessary to teach a project centered on a skill they did not possess and 2) finding the time to develop the skills so they could be an effective instructor. In conversations with the two interns, they said it would have an effect on their attitude toward teaching with technology if they could address and improve one or

both of the issues.

Confidence with technology grows with experience. Molly admitted she was excited to learn more about digital literacy, recognizing that the more she knew, the more likely she was to feel comfortable teaching with technology. “I know I can’t know all of it, but if I could just get a grasp on what kids know and what they are doing, it wouldn’t be so scary...I just don’t know if I have the background to help them, and I should be able to help them” (M. Rowan, Interview #1, Jan. 13, 2011). She was open from the beginning of the project about feeling insecure when it came to teaching a unit that involved technology. From day one in Pam Downing’s classroom, Molly displayed a lack of confidence not only in what she said but showed it in her body language as well. She stood with her arms crossed for the first several days, her voice was meek, and she made periodic self-deprecating comments: “Clearly I don’t have any strengths in this unit” (Observation Notes, Jan. 2011). When asked about her nervousness, she responded that it was improving, and as soon as they could get started on the digital unit, she would feel better.

When the class met in the computer lab for the first time, it was day five of the project (and her internship). While she commented on it being exhausting, a subtle change occurred over the course of the class period. The four days prior, she still moved around the classroom with her arms crossed, exemplifying the lack of confidence she admitted to having. During the hour in the computer lab, Molly met with students as they worked on computers, she squatted next to them, hurried from one student to the other, and collaborated periodically with Pam about various students’ progress. She asked students questions to prompt them to figure out the technologies she did not understand, and when they did not know the answer, she worked with them to try to figure it out. On one

occasion, she and Monica, one of the shyer students, could not figure out how to save to the proper drive on the computer. Their conversation while collaborating exemplified how comfortable she had gotten with working with students. When Monica was unsure how to save, and Molly did not know either, they worked until they solved the issue together. After Molly's first week, her confidence had grown, and she described the experience and her evolution.

I thought the digital composition would be some abstract ominous thing that I wouldn't understand and now I feel stupid for being worried about it. It's like that thing we did in our class. I guess I thought there was more to it than that. Now I realize the more you do, the easier it gets and it's not all that scary when you just sit down and try it. In my mind, all of this was so much harder than it really is. Now I'm like, what's the big deal?

(M. Rowan, Email Reflection, Jan. 25, 2011)

It seemed evident that the idea of teaching digital compositions intimidated Molly. When tackling new material or ideas, she seemed quick to question herself. Because she only had one experience creating digital compositions as a student, she had not grasped the concept of what composing digitally meant. She had not had the opportunity to alleviate the stress or mystery of them. She engaged in facilitating student learning as they composed digitally, she did a troubleshooting session with Monica and, after the first week in the computer lab, the mystery and intimidation were gone. What she discovered about technology was essentially that simply experimenting with the tools made her familiar with a program or skill, and anxiety about working with it disappeared. She had learned that the more skilled she was, the more likely she was to be able to help the students, in line with experts who recommended having a foundation of digital expertise in order to best facilitate use in the classroom (Dawson & Rakes, 2003; Atkins et al., 2010; Scherer, 2011).

Her need to be the expert was dissipating, but she understood the value of a baseline of knowledge. With that realization, Molly was growing as an educator who would continue to learn, something she observed in Pam regularly.

By the seventh day of the project, Molly was working with students who had less technology experience, helping them incorporate skills she had learned from students like Geoff, Johnny, Heather, and Zach. Though she did not always know how to do something, she was willing to sit with a student and figure it out, and said as much during the day's third hour conference collaboration. "It's not daunting anymore, and I don't fear failure like I used to. Who knew I could learn this much, this fast?" (Personal Communication, Jan. 31, 2011). Pam described Molly's demeanor in the later class periods; she was becoming increasingly comfortable helping students, leading the lessons and staying calm under pressure, and her confidence was growing exponentially.

Lindsay did not have as many opportunities to work with students engaging with digital tools because the soundtrack unit was shorter. However, even though Lindsay lacked confidence in her digital skills, she possessed a quiet confidence in herself as a teacher, and it showed. She moved from student to student and, when she was not comfortable with a technology situation, she was usually quick to either admit she could not figure out the problem or consult with someone she thought did. Her ability to shift almost immediately into the role of facilitator illustrated her maturity and into what Beth described as teacher "withitness," a term coined by Jacob Kounin (1970) to describe a teacher's ability to know what is going on in the classroom. Lindsay often exhibited more withitness than many of the other teachers at her school and, as her confidence in her

technology skills increased, so did her ability to handle the issues that arose during the project.

Summary. As the interns navigated digital projects, they gained confidence with every new experience. Whether they were aiding students with digital compositions or trying to figure out a technology tool in order to better understand the skills their students already possessed, they both realized that the more hands-on experience they gained, the more they could help their students. For Lindsay, already possessing confidence in herself allowed her to move more quickly into the role of facilitator and take charge of classroom situations. Molly had to gain confidence in herself before she could work toward gaining confidence in understanding digital skills well enough to teach them or facilitate students working with them. But once she became moderately comfortable with the tools, she was able to allow students to be in charge of their learning, and her body language evolved to mirror the confidence she had gained.

Interns develop digital skills with practice and facilitation with students. Molly admitted she was willing to try new technologies, but her attitude did not change until she learned more about digital literacy. The more she learned, the more comfortable she became in the classroom, yet she believed her skill level was irrelevant. Staying positive and projecting confidence in herself as a teacher, not a digital storyteller, she said, were the keys to her success in the classroom. During their conference hour, Molly shared with Pam that she now believed her role was to help students “figure out how to figure things out” (Observation Notes, Feb. 7, 2011). Pam added that the best teachers were able to recognize that they don’t have to be the experts. She went on to tell Molly how that mindset would make her a better teacher:

If students are the experts, then our expectations change. We become better facilitators and worry less about trivial things. Technology is such a dynamic medium...when technology changes every 5 seconds, how can we be the experts when they spend so much more time at it? I want to be an expert, I'm going to keep trying but if they know more than me, I'm not going to pretend they don't. Heck, I'll let them teach me and each other; that's the most authentic way to learn, I think.

(P. Downing, Observation Notes, Feb. 7, 2011)

Pam was giving Molly permission to learn with the students, and this modeling about attitude development and continuing to learn as a teacher was invaluable. Molly asked Pam, right after this comment, if there were ever a time she felt she had learned enough. "You can never learn enough...if you get to the point where you think you have, you risk burning out and stagnating. That's a dangerous point to reach as a teacher" (Observation Notes, Feb. 7, 2011). Commentary like this would hopefully help Molly realize the importance of being a continual learner, whether of digital tools or of any other skill. Also by accepting that students would know more than they would about digital literacy, both Molly and Pam came to the realization that their attitude about teaching was far more important than the skills themselves. To become a facilitator was the ultimate goal, because that meant students were in charge of their learning; in a constructivist environment that meant teachers were doing so much more than when they sat behind their own desks (Atwell, 1987; Webb, n.d.; Vygotsky, 1978). By the end of her internship, Molly shared her newly developed mantra about teaching: "The secret to being the best teacher is to be an observer, a facilitator, and an active learner, whether it's digital literacy or biology...the key I think is to be part of the doing" (Final Interview, Feb. 23, 2011).

Lindsay, much like Molly, developed an attitude of acceptance that she would

never master everything her students would know. While she did not quite make the full shift to being okay with facilitating and not having to master the digital skills well enough to be the expert, she did believe that teachers could have a modicum of skill and accept that students would know more. By the end of the soundtrack assignment, Lindsay said, “There are some skills they don’t have, like a few didn’t know how to copy and paste, but then the higher tech stuff they totally know and figure out *so* much faster...I’ll never be able to keep up with that” (Final Interview, April 27, 2011). She understood that they would always have more time to figure out the constantly evolving digital world, but she still maintained that she would not teach a project centered on skills she did not possess.

Summary. Digital storytelling projects changed the attitudes of the interns, even if they balked at using them in the future. Both made strides in accepting that they would never be able to “know it all.” However, a need to be the more knowledgeable other still existed for Lindsay. Perhaps the attitude of the cooperating teacher played a significant role in the evolution of the interns, and Molly embraced Pam’s positive outlook on being a constant learner and accepting that there was a great deal to gain from allowing students to be at the center of that learning. Beth’s more challenging classroom climate likely had an impact on Lindsay’s willingness to allow student-centered learning, and likewise, Lindsay incorporated the belief that teachers still had to maintain control. Her misconception that teacher-led curriculum fostered a greater sense of control had likely been substantiated from years of similar classrooms. However, she observed project-based learning while the students completed their soundtracks, and she might have considered that the student-centered learning would create a stronger community and result in a more cohesive environment (Solomon, 2003). The project embraced the workshop mentality of students

doing, collaborating, and communicating, while experiencing what Figure 2.1 in Chapter 2 (p. 65) described as the social interaction that takes place during digital writing but could apply to any type of writing or learning (CSU website, 2011).

Effects of Digital Lessons on Teaching Practices

When doing their various digital projects, the interns discovered that digital lessons could impact their teaching practices, including non-digital work, in different ways.

Digital Experience Supplements the Teaching of Non-Digitized Writing

Both interns discovered that composing digitally improved student involvement and motivation. Both projects began with a writing component prior to using any digital tools. The social justice lesson also started with planning and research that included writing in its implementation. For the social justice project, students brainstormed topics on paper and in groups with classmates. They also listened to potential topics Pam described. Even when students began research on the computers, they still wrote their facts on their storyboards, rather than doing so in a digital document.

The soundtrack assignment included a reflective letter to the audience. In the beginning, Beth required students to handwrite a draft of the letter, so she and Lindsay could preview it and do a quick formative assessment. However, though Beth initially said they would revise and edit the draft and then hand it in as a handwritten copy, by the end of the project, she changed her mind and had students type them in Microsoft Word. She and Lindsay agreed that as they experienced the positive effect of students working on computers, they believed it increased the likelihood that they would indeed revise and edit to draft the final copy on the computer. During the final after-school session I attended, Beth added:

It's an additional step that will make them really think about what they've written, and they'll continue to make it better when they type it. When it's just on paper, they often don't make many changes.

(Personal Communication, April 27, 2011)

Whether this insight was from the intern and cooperating teacher's experience with technology or their experience observing students engaging in digital lessons was irrelevant. They discovered that adding the digital component to the initial writing stage would motivate students to do more than they might otherwise. Much like Hicks (2009) and Stephens and Ballast (2011) advocated, they focused their attention on teaching the writer, then the writing, and in the end, added the technology. Lindsay said it was a method she would absolutely employ, for two reasons. It forced students to do a revision, plus it made it easier to assess those with hard-to-read handwriting. It also, she said, taught them about turning in more polished work.

For the social justice project, the storyboard was the primary non-digitized writing the students completed. They were given an 11x13-inch piece of paper and instructed to draw lines to divide it into twenty squares. Once they had it split their paper into sections, some more neatly than others, Pam modeled what they would be doing to fill those squares. She showed her samples on the Smartboard, and described how they would each find 20 facts, two per box, to fill their storyboard. They would write these facts in full sentences, use MLA citations if they took direct quotes, and find a variety of different types of facts. She gave numerous examples to show them what she meant. Their facts could be historical (dates an organization was founded, incident that inspired creation of an organization, etc.), factual (statistics or percentages of child abuse cases in Missouri, for example), inspirational (success story of an AIDS or breast cancer survivor, for example),

or anything else relevant to their cause (many included people associated with their cause). They would be using the Internet to find these details, and they would record information on their storyboards, which would be turned in for feedback and approval before applying the research to their digital composition. Once they began their research, Molly aided students in determining what details were important to their respective causes. She shared, “I get so frustrated that they can look at a whole page of information and not find a single interesting fact; the UNICEF page had a link for history and Zach said he looked there but didn’t see anything worth using... Are they click happy and just don’t slow down to actually read?” (M. Rowan, Email Reflection, Jan. 27, 2011).

The longer students worked on the storyboards, the more Molly said she felt the need to focus more attention not just on their writing skills but on their researching skills as well. She believed that the students were not patient enough to find the details, so she and Pam made a point of meeting individually with each student to guide each one toward a few key details they should search for (important dates, people of interest, facts to note, etc.).

Once students gathered their 20 facts, Molly and Pam had the students form partnerships and peer edit them, hoping they would catch as many grammatical mistakes as possible. When they had been peer-edited, they turned the storyboards in, and Molly and Pam divided the storyboards to give feedback and approve them by the next day. Pam summarized her thinking during a third hour conference period near the end of the project:

In retrospect, I think I would prefer a set template for them and not let the students draw their own storyboard, just because it allowed for a messiness that we wanted them to avoid. Also, we should have modeled finding a fact for the storyboard and

not just showing the final product. There are definitely things I would change, but it was our first time teaching it, and every good project should evolve. (Observation Notes, Feb. 14, 2011)

Molly decided that a template would be better, and she would prefer they do it on the computer when their data was completed. “I think to have them type it out, it would be neater, they would get a better vision of it, and then they could copy and paste it into their digital stories” (Observation Notes, Feb. 14, 2011). In this regard, Molly’s experience with digital literacy had changed her outlook on how students could take non-digitized writing and use technology to take it one step further. She did not want to replace the pencil on paper step, but she thought it could be improved by adding the next step.

Summary. Both interns saw the benefit of adding a digital step to the non-digitized writing process. It improved the visual appeal of documents, allowed students to edit and revise in a different way and, in the end, made the assignment easy to assess. Their digital experiences had changed the interns’ outlook on how they would teach the writing process.

Molly and Lindsay had observed and participated in reading and/or writing workshops, so they understood the process, both in writing and creating digitally. They witnessed firsthand how students think while writing (Odell, 1999). Odell uses various categories to assess thinking in the writing process, which can apply to digital writing as well. The interns experienced many of those categories, especially encoding/representing when synthesizing their ideas, feelings, and perceptions when creating digital stories. During the social justice project, students also saw relationships, one of Odell’s categories, when they determined a solution for their issue. One student even considered the cause and effect of his solution, dreaming of impacting children worldwide through a donation to UNICEF.

The cooperating teachers and interns appreciated the mindset of process vs. product, embracing what writing experts had been saying for decades: the more students write, the better they get at it (Elbow, 2000; King, 2000). Other experts like Britton (1975), Murray (1978), Flower and Hayes (1981), Emig (1977) and Elbow (1973/1998) highlight the importance of embracing all stages of writing and not just working toward an end product. The interns especially grew into realizing that the digital composition was far more about the journey than the destination and Lindsay even admitted at one point that the final product should not weigh more in the grade book because so much growth was evident as they navigated the process. Ultimately, the teachers truly mirrored Calkins' (1994) belief that teachers should teach the writer, not the writing.

Experience with Digital Lessons Broadens Intern Attitudes about Teaching

Any experience, both interns acknowledged, would improve their teaching, no matter the format or context. Darling-Hammond (2006) believes this practice student teachers are allowed to be part of is the ultimate experience for future teachers. By doing the digital projects, both interns recognized that they learned the importance of the teacher not standing in front of class and lecturing. Teaching meant facilitating and, by being part of a student-centered project, Molly said, "This really opened my eyes to how teachers should teach. I always picture me standing in front of a class, and now I realize that my best teaching is when I am kneeling next to a student helping him discover a concept" (Final Interview, Feb. 23, 2011). Lindsay, near the end of the soundtrack assignment, admitted, "I absolutely never dreamed that running from student to student in the computer lab would be more valuable than leading a lesson on a Smartboard, but I realize there is a time and place for both. But that quality student-me time should always be a goal" (Email

Reflection, April 16, 2011). Whether digital or not, Lindsay said just getting the opportunity to work with students had helped her develop as a teacher. Teaching digital literacy, she admitted, helped her as much as a learner as it did a teacher and, in the end, she believed that neither could be separated.

Molly felt the social justice digital storytelling unit had an enormous impact on her teaching philosophy. She pondered how the order of assignments for her internship likely made a difference in her growth as a teacher.

What would it have been like if we had done the summary unit and THEN the digital lit unit? I wonder. I was forced to jump in from day one, to be a learner and not an expert, and quite frankly, I was scared to death. But I couldn't dwell on that because there wasn't time. We were dealing with tech lingo I didn't understand on the second day of my student teaching, so I had to learn really fast to say 'I don't know' and be willing to ask a lot of questions. I think that let the students know I was clearly there to help in a limited capacity but they bonded with me as a digital peer, I think, because they taught me so much. If we had started with the summary unit, I would have been the expert, I would have been the teacher, and perhaps by establishing myself in that role first, during the digital unit they might not have been so quick to teach me things. Our roles might have already been too set for that. We'll never know but it will serve as a reminder to always be conscious of using the kids as teachers whenever possible. They have a lot to offer. (M. Rowan, Final Interview, Feb. 23, 2011)

This quote was evidence of tremendous growth for Molly. She was thinking deeply about how her internship had helped her develop, and even considering how differently it

could have been. She went on to share how much she had evolved as a thinker, getting a glimpse at herself through a metacognitive lens. She said she had been uncomfortable being vulnerable, but in thinking about how she mentally handled herself while in that vulnerable state had played an enormous role in her growth. “I think I learned more because I didn’t overthink being vulnerable, but I know my lack of confidence could have really have [sic] hindered me and I didn’t let it” (Final Interview, Feb. 23, 2011). This outlook could have an additional impact on Molly’s future growth, as she came to the realization that the students being the teacher could play an important role. Molly also showed the students right away that she was a risk-taker. She admitted to lacking their experience when it came to composing digitally. At one point, one boy asked her to help him with a vodcast, and she countered, “Do you mean a podcast?”

He promptly explained that podcasts were okay but “old school” (Observation Notes, Jan. 25, 2011). He then corrected that vodcasts were video versions of podcasts and laughed. Molly laughed with him, and asked him to show her a vodcast.

Many teachers, especially interns, would never have put themselves in a position to be corrected. Molly, however, was okay with her role because of the nature of the relationships she had with the students. They treated her as an authority, but they were all also eager to show her things they knew that they thought she would not. By the end of the digital storytelling project, they were almost challenged to find something they could teach Ms. Rowan. There was an interesting conversation between students who were watching Zach show Molly what a vodcast was. They discussed embedding a word cloud to show off what they knew versus what Molly knew, but it was all in good spirits, as they even chided a classmate who discussed being mean and photoshopping a moustache on a picture

of her. Aside from the fact that these students were not finished with their assigned work, they clearly liked Molly or they might have continued with the Photoshop idea and another student would not have defended her. They also wanted to find things they could teach her. In this group, it was unclear if all of them knew how to create a news word cloud. When Molly came over, Johnny pulled up Newzingo and started navigating the website to create a news cloud. As they showed her the application, they ran in to numerous obstacles, worked through them quickly, and Molly said she thought it was cool but that they needed to get back to work. They all smiled and seemed pleased by what they had shown her and, as she walked away, they all got back to their digital compositions. The interesting thing after they got back to work, Molly and I watched as two of them went to the Newzingo website and created a news cloud for their digital composition. The lesson for Ms. Rowan led to them utilizing the digital tool for their own project.

Interactions like the one above continued to impact Molly's teaching. She was able to juggle demands of student relationships with keeping them on task. She embraced being both teacher and learner, and the digital aspect of the project was simply one type of learning she continued to engage in.

From her own point of view, the digital component helped her become a better teacher in several different ways. The project introduced her to a concept she was unfamiliar with (digital compositions), a style of assessment she had little experience with (holistic), and all from the first day of her internship. Just over halfway through her internship, she wrote:

I can't even describe how much I have grown as a teacher. Much of it is due to Pam's modeling and this project, but a lot of it is just experience. One thing I will say is that doing

a digital project right away put me on my heels and made me aware of being a learner. I know I said it earlier, but I have learned that I don't have to know everything about what I'm teaching and to be a facilitator is the ultimate goal in any project. I will absolutely incorporate that mentality into my own teaching. The ultimate project: introduce a project, model the necessary initial components, teach the associated skills, and then facilitate the students doing it themselves. That's the formula I want to take into my own teaching.

(M. Rowan, Personal Communication, Feb. 9, 2011)

Molly not only improved her digital skills, she had refined her philosophy of teaching. Her ultimate project description showed a logical cycle of modeling, teaching, and facilitating that would be successful no matter the unit. Pam believed Molly would have made those advancements no matter the project. "Yes, this project put her in a different situation, but she came into this with open eyes and a willingness to learn. She should take credit for the teacher she is becoming" (P. Downing, Email Correspondence, Feb. 8, 2011).

Lindsay, too, developed a solid philosophy of teaching, claiming she had learned quite a bit of how she did NOT want to teach, and that structure should not be at the expense of student needs. She did not embrace quite as much insight into herself, as Molly had, as a future teacher. She described her growth as logical, saying that experience was the likely reason, and she still needed a great deal more in order to become the exemplary teacher she felt she could be. She embraced digital literacy but would not be too tied to it due to possible limitations. "I am open to using computers and digital storytelling, but I also know I may teach somewhere that may not have these luxuries" (L. Darnell, Interview

#2, April 12, 2011). Lindsay was still seeing digital literacy as a luxury, while many experts like Hicks, Eidman-Aadahl, and Kajder believed that digital integration was a necessary and vital factor in teachers staying relevant and students competing in a technology-infused job market. Both of Lindsay's intern experiences, at the high school where she said classes were too large to use much technology, and the junior high where Beth believed teenagers should only get the reward of working on computers if they could handle it behaviorally, had shaped her outlook of her future work with digital tools. Even though Beth had used digital warm-ups, Lindsay was limited to what she had experienced. Had Lindsay been in a classroom with a more positive role model like Pam, her growth might have been different.

Summary. Digital literacy lessons helped both interns grow. It impacted Pam's outlook on her future as a veteran teacher, but it did not have an enormous impact on Beth, who wanted her students to earn the right to use digital tools. Likewise, it had lesser impact on Lindsay. The cooperating teacher played a significant role in intern development, regardless of the topic. Molly evolved not only in how she viewed herself as a future teacher of digital literacy but of teaching in general.

The fact that the Common Core State Standards (corestandards.org, 2012) have included technology signifies a shift in thinking: digital literacies should not be used as a reward but a strategy to employ in the classroom regularly. Several teacher-authors have incorporated digital elements into their writing workshops, from Stephens and Ballast (2011), Lisa Miller (2010), DeVoss, Eidman-Aadahl, and Hicks (2010) to Kajder (2007), who weaves the digital component into both reading and writing workshop. Statistics prove that students spend their time online, so we must embrace the changes in our nation

and be as relevant as possible. Digital literacy, and all the applications it has to offer, are relevant.

Impact of Cooperating Teacher

Though by some regards a common sense conclusion, cooperating teacher impact could not be underestimated. During this study, two significant areas were explored: the cooperating teacher's attitude toward technology use in the classroom and the experience of the cooperating teacher, both in overall teaching and in the implementation and experience with technology.

Cooperating Teacher's Attitude Toward Technology Directly Influences Intern

As already discussed in several sections, the impact of the cooperating teacher can be significant. Quite a few aspects of Pam Downing's teaching seemed to impact Molly's methods and attitude, not only toward technology but teaching in general. Lindsay believed that Beth Todd's influence was not limited to the positive, but that sometimes seeing what doesn't work can be just as influential. Both interns believed several areas played an enormous role during their internship, but the two most important were the use of modeling and utilizing talk as a learning tool.

Modeling improves the digital experience. Both Lindsay and Molly emulated their cooperating teachers in various ways, but they were especially influenced by modeling during the digital projects. At the beginning of the internship, Molly did not follow Pam's lead when it came to risk-taking. For the first few days, Molly observed and taught lessons when Pam instructed her to, and she emulated strategies that Pam modeled. Modeling is instrumental for learning how to teach (Koskela & Ganser, 1998), and Molly consistently commented on the value she placed on learning from Pam.

On day two, a talkative student, Katy, kept trying to ask a question without raising her hand. Pam raised her own hand, motioned to Katy to do the same, and when the girl finally thrust her hand into the air, Pam called on her. After that, Molly prompted students to raise their hands if they had questions, even though she had not always required them to do so before. Throughout that day and each day after, Molly mirrored Pam in many ways, even how her cooperating teacher dressed. But the mirroring did not apply immediately to a willingness to try new technologies. Pam modeled Photostory for the students, but Molly did not try it until Pam insisted she do one for the experience. Pam showed students how to save files to the share drive, import pictures into their digital compositions, add narration, create their own music, and to add transitions. Mrs. Summers, the media specialist, then continued the instruction for students. While observing the modeling, Molly whispered to a student next to her, “Are we supposed to understand all this?” (Observation Notes, Jan. 2011). In her email reflection that evening, Molly commented that the students, even when they did not completely grasp a technology skill or tool, were quick learners and not intimidated by taking risks to figure them out (Email Reflection, Jan. 19, 2011).

By the time the class spent their first day in the computer lab working on their own, Molly had grasped most of the strategies Mrs. Summers and Pam had modeled, just by working with the students. It was during the next couple of days that she reached her epiphany that she did not need to have mastered the skills in order to teach students how to use them. She may have come to that realization because of her conversations and collaborations with Pam. A great deal of what Molly learned, she said, came from observing, interacting with, collaborating with, and teaching with Pam (Interview #2, Feb. 9, 2011).

A memorable moment of modeling came the first day in the computer lab, according to Molly, when Pam admitted to a student, “Oh wow, that is such a good question, and I bet we can find the answer.” The student quickly asked, “You don’t know either?” Pam laughed and said, “Oh there’s a lot you all know that I don’t. I’m here to learn just as much as you are.” Molly brought that interaction up during her reflection that evening, describing the relief she felt when Pam helped Molly realize she did not have to know everything (Observation Notes, Jan. 25, 2011).

Lindsay found numerous times that modeling was instrumental to students understanding what they needed to do, but she also learned a great deal about not feeling the need to have a hand in everything the students do.

After my first ten weeks, I saw laid back teachers who still made sure they were involved in all aspects of a lesson, even if it was just to touch base. At Washington Hills, Beth often sat at her desk, and at first I was really judgmental, thinking she needed to keep closer tabs on the students and not just yelling at some of them when they were off task. But the more I watched, the more I realized they were capable of doing without her hovering over their shoulder... it taught me a lot.

(L. Darnell, Final Interview, April 27, 2011)

Two things were evident in this quote. Lindsay learned that allowing students to work on their own could still be effective, even with students who struggle to stay on task. She also learned a great deal about teacher interactions and in her words, how to teach and occasionally how *not* to teach. While she witnessed a benefit to not hovering over students, she felt there was inconsistency with how Beth handled classroom management, even while sitting at her desk.

Lindsay observed the benefits of student-modeling when a tech-savvy student

showed a peer how to use Microsoft Paint. Modeling, she decided, did not just have to be employed by teachers but could be done by any expert. By the end of her internship, Lindsay had learned a great deal and curtailed her own judgment of different teaching styles. While Beth had a more hands-off approach, it often worked with students who balked at too much teacher involvement. She seemed to have a clear understanding of the students with whom she worked.

Beth's experience had taught her a perspective that Lindsay could not relate to yet or understand. While Lindsay perceived her cooperating teacher's failure to respond to some behaviors as negligent, Beth knew her students better and understood the importance of choosing her battles and not provoking teenagers who might be more volatile than Lindsay realized. Lindsay acknowledged that being a part of this class helped her in a way she might never have known, both in how her cooperating teacher responded but also to the varied nature of student behaviors, no matter how engaging the project. Experience, she explained in her final interview, came from so many perspectives, and she appreciated the fact that not all her role models would influence her in the same ways.

Summary. Modeling did not necessarily result in imitation. While Molly needed time to embrace Pam's strategies, Lindsay observed many effects of what she felt was a lack of or ineffective modeling. Her wise statements of learning what she could from all teachers signified maturity and likely meant she would continue to be open to learning what she could wherever she could. Modeling, she found out, could result in imitating the opposite of what she observed. However, she was not experienced or mature enough to understand that certain situations called for different teaching methods and responses to student behavior. That, Beth said in her final interview, can only come from experiencing

it firsthand. Modeling is an important tool for learning how to teach (Koskela and Ganser, 1998), and sometimes the strategies being modeled are not as positive as someone like Lindsay might want. However, it was a harsh reality that Beth's modeling might actually be an important lesson, when realizing that not all students could be handled the same way. Often, teachers have to figure out what works with specific students, and it might not always be what a less experienced teacher expects. In that regard, it is difficult to model intuition and experience.

Talk plays significant role in digital growth. Conversations during the digital project, no matter who they were between, fostered differentiated learning that could not have been replicated by any other means.

Lindsay heard valuable dialogue between students as they worked in the computer lab, and she said she learned a great deal by talking with students and her cooperating teacher. At South Lake Middle School, Molly observed students learning by using several types of conversation, namely when students talked to Pam, engaged in dialogue with one another, and also when they talked in a digital context (both in person and virtually). All of these student-involved types of talk were instrumental in Molly's growth as a digital literacy teacher, but the key type of talk she valued most was the dialogue the two shared during their third period conference hour. This collaborative, reflective talk made the biggest impact on her, she said, because she could get immediate feedback on the initial lesson of the day, and they could talk through what worked, what needed to change, and how the lesson should be modified for later periods (M. Rowan, Email Reflection, Feb. 9, 2011).

Student-Involved Talk. One thing Molly noticed in the first few days of her

internship was the community that Pam had built with the students. It was evident through the conversations that took place in the classroom that several things had occurred: Pam was in charge of the classroom but the students played an active role in their own learning and were allowed to talk as needed; students learned from one another on a regular basis: small group and whole group interactions took place on a regular basis and she had created an environment conducive to learning; there was a time and place for talk, and students seemed to know the difference (Observation Notes, Jan. 2011). Molly described in her daily reflections how she wanted to create the same atmosphere, because students seemed willing to work hard and try new things. Though most of the students knew what digital storytelling was and were adept with technology, most had never done a digital composition in Photostory. However, there was never hesitation about doing these, and they openly talked about expectations, asked questions about the project, and voiced concerns over technology access and time to complete the Photostory.

I marvel at how much they talk but how it never seems to get out of control. That must take a lot of work to have all the students talking to each other and to you and not just totally lose your mind. But I get it. When kids talk, they are working through their issues with the project, and also with the information, and honestly, they don't always need an answer. Sometimes they're just needing to talk it out. At first I thought Pam was ignoring kids when they were saying things to her, but then I realized she knew they would figure it out. She could've run over and answered every question but they needed to answer those themselves, especially with the digital compositions, because they probably could figure them out quicker.

(M. Rowan, Email Reflection, Jan. 31, 2011)

There was so much more to the group dynamics than Molly had seen so far, and it became obvious in the computer lab. In this quote, she recognized that the students talked, often asked Pam questions, but Pam knew who really needed an answer and who did not. Molly was not yet an insider, so she was unclear as to the nuances of who needed what and, to her, all the talk bordered on chaos. What Molly did realize was that sometimes students just needed to talk out what they were doing. She understood that learning was not quiet. Students needed to be able to talk to their classmates, their computer screens, and to themselves. Donald Murray (1978) defined everything from note taking to daydreaming before a person writes as prewriting, reiterated by Peter Elbow (1973). Bakhtin (1981) and Barnes (2010) recognized dialogue as an integral part of the learning and creating process. Beyond Barnes' exploratory talk, the students had varying levels of experience with technology, so voicing concerns out loud about a program, a website, or a glitch in their creating would often result in a more knowledgeable other (Vygotsky, 1978) coming over to help fix the problem. During the digital storytelling project, students would work, get up to help a classmate, and return to their work often without saying much to the classmates they were helping. The community had long been established, so this collaborative interaction was a result of that.

The same talk-to-learn process occurred during the soundtrack assignment, as students asked a barrage of questions, either of Beth or Lindsay. They attempted to answer and, on occasion, a student would say, "Oh never mind" and move on, figuring it out on his or her own (Observation Notes, April, 2011).

Lindsay also recognized that students needed to talk about their process, about what they were struggling with, and often just wanted someone to bounce ideas off of. As

students sat side-by-side in the computer lab, they maintained steady conversations with one another. They talked about the choices they were making, about songs they were choosing, and often they recruited other classmates to listen to a song and ask for validation if it was the best song for the character, since several were reading the same book. While observing this, Lindsay admitted that when they were in the computer lab, there were stretches of time that she simply observed.

They don't need us nearly as much when they're in the computer lab. I don't know if it's because it's more fun so they're willing to try to work it out on their own, or if it's because they talk about the work and not just talking to talk. In class, they talk constantly, and it's usually off-task. In here, it's almost always about what they're working on. (L. Darnell, Interview #2, April 12, 2011)

Lindsay surmised that student talk was more on-task in the computer lab. She also realized that, while in the lab, she and Beth were only there to facilitate when students needed them. Because the students were willing to talk out their questions with classmates, they often navigated their struggles either on their own or with peers. This might be in part due to less community being established in this class or because it dealt with music, the freshmen might not have felt their teachers would be able to relate to their song choices. Lindsay told Robbie, when he joked that she would not know the band he was listening to, "I saw them at the Blue Note two years ago...they're not as new as you think" (Observation Notes, April 2011). After that, he often asked Lindsay if she knew a singer or a song. Because he viewed her as more connected to his music, he even told Beth one time that she would not understand, that he needed to talk to Lindsay instead (Observation Notes, April 2011). He equated age with musical taste, even though one of the songs he

chose was by Ray Charles. Beth joked with him that she, too, listened to hip music, and he seemed completely surprised. After that, several students asked both Beth and Lindsay, “Do you know this?” (Observation Notes, April 2011).

The more relaxed atmosphere in the computer lab impacted not only student talk, but also the dialogue between the teachers and the students. Lindsay noted the change in environment. “I was surprised how playful Beth got with the students. They really opened up with her, and they learned so much about her in the computer lab, I think” (L. Darnell, Email Reflection, April 9, 2011). The learning that took place was not only about their project but also about one another. Beth admitted later that she discovered that a more relaxed atmosphere fostered learning in a way she had not considered (Email Correspondence, April 12, 2011).

Another strong element of student-involved talk that emerged during the middle school’s class discussions was their interactions in cyberspace. Students met in Google Docs to discuss their storyboards, they conferred about their topics via email, and they texted one another when they had questions about due dates, expectations, and even shared websites via text.

An interesting contrived talk occurred on at least two occasions between Molly and Pam in front of the students. Molly, who had helped numerous students save to the share drive so she already knew how (after the system had crashed and they realized what they needed to do to avoid this ordeal again), interrupted Pam during class one morning, literally calling out to her across the classroom.

Mrs. Downing, hold on, can you help me so I’m sure how to do this? [Molly was working with a student on a laptop near the front of the room.] I go to File Save As, and then what do

I do? Is it the folder with their name on it, or just save it outside that folder? (Observation Notes, Jan. 31, 2011)

Pam, later acknowledging during their conference hour that she knew exactly what Molly was doing, called out emphatically to save to the folder with the student's name on it, and then reiterated the command to the whole class (Personal Communication, Jan. 31, 2011). Many of the students uttered "oh, yeah!" and then proceeded to save their project to the correct folder. This teacher-to-teacher talk served its purpose, and Molly was okay with the students thinking she did not remember exactly how to save correctly.

Summary. Students and teachers learned through dialogue during both projects. Whether it was about one another or about the project, they gained insight and information, and through the process one cooperating teacher even had a revelation about a more learning-conducive atmosphere. When Beth discovered the impact casual conversation and a positive environment had on student-teacher interaction and overall participation, it lent another level of learning; perhaps it would have a more lasting impact on her future teaching.

Collaboration improves digital and teaching experience. Interns learned quickly that collaboration taught them as much as any other strategy during their student teaching. While each intern recognized the collaborative talk students experienced in the computer lab, it was the collaboration that occurred between the interns and cooperating teachers that provided significant insight into teacher development. Each day, Pam and Molly met to review how the lesson went, discussed what could have been done differently or better, and collaborated on the next day. Their conversations were always centered on what could be done to improve student learning and Molly's growth as a teacher. Pam used techniques

like questioning, rapport, and pacing to guide Molly on her quest to improve as a teacher. Inspiring metacognition, Pam led Molly to talk about her own learning, to build confidence in her problem-solving skills. During one session, Pam asked Molly to talk about what she was thinking while leading the students during a particularly tough part of the digital storytelling project: saving images to upload them to the video.

It was so abstract to them at first and all I could think about was making sure they saved them [images] right. Then I caught myself second-guessing how I was doing it, while I was doing it. I kept wondering if there was a better way and always aware that I might be having them do it wrong. But after I did it the first time and it worked, I loved how it made me feel. That's what teaching is all about, right? (Observation Notes, Jan. 28, 2011)

Pam agreed and, by talking through Molly's thinking, having that metacognitive conversation aloud, they reached a decision about how to save images and student work. Though their collaboration sessions were not always about collaboration, their conversations continued to help Molly grow. Pam's talk stimulated Molly to talk not only about the project, the students, and the plan for the next day, it offered Molly the opportunity to learn how to collaborate and to see the value in it.

For Lindsay, the collaborative conversations with Beth gave her a comparison to her work at the high school. Having two learning experiences for her internship, she had several perspectives to consider, and during both phases she had behavioral situations arise. When she and Beth collaborated, Lindsay often asked questions that allowed her to view situations from a different point of view.

So when Damian challenges you, do you ever feel like you can make headway with him, or is it just too late in the year

for that? How do you know when to really put your foot down with kids? (Observation Notes, April 7, 2011)

While these questions could appear to be a challenge to Beth's management, she seemed to understand that Lindsay was trying to gain insight into classroom dynamics and how to manage them. Beth offered advice about how to confront students who had authority issues, and she admitted that community played a big role in how students handled redirection and discipline. "I'm obviously not great at that, as I know you can tell. But I usually know who I can and can't confront. I know it sends the wrong message to the others, but I also think they understand. You really just have to choose your battles" (Observation Notes, April 9, 2011). During that conversation, Lindsay was able to ask questions about building community, knowing how to tell when a student was volatile, and the best way to handle certain situations. For nearly 30 minutes, they discussed current student issues but also some that Lindsay had encountered at the high school. Their collaborative conversation helped Lindsay build background knowledge for her future classroom, and the two even discussed how certain situations could have been handled differently. After the conversation, Lindsay shared her thoughts about it in her email reflection.

I understand so much better now why she does what she does, and I think it all depends on just one or two kids. It's sad that a few kids can have such an impact on a whole class, and on the teacher. I think the type of school probably makes a big difference in teacher burnout.

(L. Darnell, Personal Communication, April 9, 2011)

While Lindsay had gained insight into Beth and how to manage a classroom, this quote reflected a belief that certain schools have a dynamic that cannot be affected by an

individual teacher. She recognized that one or two students could make a whole class challenging but, because she had not observed a strong community that might have curtailed those behaviors, she made assumptions about the student body. The larger issue Lindsay was not able to consider was the school-wide discipline process, because Beth had in essence adopted the “close your door and teach” mentality. A strong network in a school gives teachers alternatives, and neither school where she had done her internship had provided evidence of that. What Lindsay did gain was a collection of experiences, both Beth’s and her own, that would allow her to draw on their collaboration in the future.

Summary. Both interns gained important insight through collaborative talk: lesson planning, reflection that helped develop teaching philosophies, and discussing discipline strategies to build a philosophy of classroom management. While much of the collaboration centered on the digital projects, it often took place within a digital context. Both interns seized opportunities to collaborate with their cooperating teachers, meeting during conference hours, planning after school, and corresponding via email and text messages.

Talk played an instrumental role in this case study all throughout, whether between teachers, teachers and students, or just between students. When people create digitally in a group setting, they often talk. They talk to more knowledgeable others (Vygotsky, 1978), whether peers or teachers, they talk to one another, and they often talk to themselves. Talk serves many purposes, and evidence supports that conversation can enhance and facilitate writing and thinking, and plays an enormous role in the learning process (Barnes, 1992; Gilles, 1993; Johnston, 2004; Wells, 2001; and Halliday, 1973). With so many roles talk can play, whether to communicate, collaborate, or even for direct instruction on how to

perform a digital skill, it is so integral in the digital writing process. Offering feedback, modeling for new teachers or classmates, or simply self-reflecting aloud, talk allows participants to learn, express themselves, and navigate the online world.

Teachers Develop Personal Insight and Reflect Through Multi-Modal Thinking

While this case study's data was analyzed through various expert lenses and with crystallization, the participants did multi-modal activities to experience the same variety in self-analysis and reflection. Periodically throughout the study, participants were asked to consider response and reflection methods that allowed them to see their students, projects, and themselves in various ways and on several different levels. While suggestions were made to write poetry, think abstractly about themselves as objects, and utilize multi-modal writings, they always had the option of coming up with their own methods or simply to freewrite about their day. The following is a summary of much of the multi-modal experiences that occurred.

Molly Explores Teacher-Self Through Multi-Modal Activities

Molly developed a greater sense of herself as a teacher by employing crystallization-inspired activities throughout the case study. She was open to the multi-modal activities, because she said she often preferred to decompress at the end of a stressful day with writing or reflection. These methods, she admitted early on, allowed her to be more expressive, more creative, and vent in a way that traditional means often did not. In the beginning, she chose an object that represented who she was as a teacher, as well as a digital learner and educator.

I am a new roller skate. You have to learn to use a roller skate, you cannot just automatically use it without practicing. ...you

have to make mistakes and learn from them (sucks for my first hour) to be better at something (teaching in general or with technology). The wheels on the roller skate are always moving. Just like the kids. They are constantly moving and needing to be stimulated. You just need to roll with the punches.

(M. Rowan, Multi-Modal Reflection, Feb. 27, 2011)

Molly saw herself as risk-taker, choosing an object that had tremendous potential for both success and failure. Falling was always on her mind, but like on roller skates, it was easy to get up and try again. She likened her movement to that of the students, who move equally fast through their learning experiences and, in so many ways, she felt more akin to them than to her cooperating teacher. It ultimately made her open-minded to being a learner and realizing that rolling with the punches would allow her to relate to them, both with digital literacy and learning in general.

By writing poetry, Molly gained insight into student thinking. She chose to write a poem at one point through the eyes of one of her students, which she said helped her see herself on a different level and allowed her to put on a student hat again.

You sit there every day with a smirk
Talking to your friends and faking a laugh
No one truly understands the girl behind the perfect hair
Dying to tell a soul how you feel
But will you be judged? In a middle school, yes
If only someone could help, anyone, anybody
But someone is listening at those cries.

(M. Rowan, Multi-Modal Reflection, Jan. 31, 2011)

The fact that Molly wrote a poem, without being prompted, was a risk, because she said she did not view herself as poetic. To do so through the eyes of a student, early on

during her internship, showed her willingness to consider all perspectives. The introspection this poem took, to use what a student was creating (a digital composition on teen depression) and consider how it exemplified how that student felt, exemplified the empathy Molly possessed. Molly was not the “someone,” but she and Pam had connected this student to a counselor who was listening to what she was going through. This project allowed Molly to see the many roles teachers fill, and to write a poem let her explore the experience on a different level.

Throughout the digital storytelling project, periodically Molly would choose different ways to reflect on the day. On the second day in the computer lab, she chose to be an animal to represent the day. At first, she joked that the animal she chose had nothing to do with it being her school’s mascot, but everything to do with how aggressive she felt by the end of the day. She further explained:

My teacher-self would be a tiger. Tigers have to teach their young how to survive—I have to teach my students how to survive the next year in school. I am protective and fierce. I am protective of my students and am not afraid of most obstacles that I face. Digital me, especially today, is more of a kitty-cat...I’m far less aggressive or confident but I am persistent and will prowl around until I figure out the way. I will also attack obstacles but my claws aren’t NEARLY as big.

(M. Rowan, Multi-Modal Reflection, Feb. 13, 2011)

She directly related the tiger to how she felt about herself, and perhaps, in doing so, considered how her self-assessment would carry over into her future classroom. She was also aware that what she was doing would affect the students’ future learning. Interestingly, she referred to herself as less aggressive and confident as a digital user, but

those traits were evolving the more she practiced.

When the students experienced the server crashing as they tried to save their Photostories, Molly wrote nearly two pages of reflection. She came up with a list of ten household items that described how the first few weeks had gone, how she saw herself as an evolving teacher, and she added that the tenth one belonged to the last hour of that day.

1. Mirror to reflect on mistakes
2. A bed [because] teaching is tiring
3. A couch because I'm comfortable teaching.
4. A clock because I only have a limited time with the kids each day and you have to be patient.
5. A match because you have to have a spark to draw the kids in.
6. Countertop because you have to be smooth with a little bit of edge.
7. A new pack of gum because you have to be refreshing with new ideas.
8. A TV remote because I am always changing.
9. The basement of a house because you have to be strong and hold up everything else, otherwise everything would come tumbling down.
10. A pooper scooper because you deal with shit all day ☺

(M. Rowan, Multi-Modal Reflection, Feb. 19, 2011)

While Molly said this list was in no particular order, the first few seem to be a bit more cliché or literal, but the more she thought about herself, the more she saw herself as a teacher and the various roles she played. Being the foundation and dealing with all the various obstacles of the day are the essence of teaching on a daily basis, and Molly was reaching that understanding while coming up with her list. She said after making the list, she could imagine writing as the object and thought it would be a fun exercise for the students to do as well.

Molly chose several different points during the project to freewrite and to identify herself with random objects and places. On her last day of the digital project, she told me that even though she initially saw herself as a small city, still growing and smart, she realized now that there were days she needed to be a small town and be as simple as

possible. “I think being straight to the point and fun is often best. I like the digital stuff and the tougher road takes them deeper, but there need to be days when they read a book just to enjoy it. On those days, I think I’m Fulton” (M. Rowan, Multi-Modal Reflection, Feb. 23, 2011). The small town she felt she was on those days, one that is right on a major highway, she said allowed her to get students where they needed to go, but they needed to see the value in stopping to enjoy the little things. She grasped how small and simple could be beneficial, but she also recognized that sometimes students have to get back on the highway quickly to bigger and better places. Whether the digital highway was the conduit she was referring to or simply continuing to push them to learn larger concepts, Molly was beginning to develop an abstract sense of how to motivate her students to see their learning differently.

Pam Explores Teacher-Self Through Multi-Modal Activities

Much like Molly, Pam often chose interesting methods of multi-modal reflection to express and evaluate her teaching life or the progress of the digital storytelling unit. In the beginning, prior to the first day of the digital storytelling project, Pam likened her teacher-self to the moon.

I'm the moon...much of what I do revolves around my students and their needs. It's through reflection that I make teaching choices (in addition to Core Curriculum, of course). I have bright days, dim days, I-have-it-all-together full moon days, and I-don't-have-it-all-together crescent moon days. I absorb new ideas from the light of others and I have the knowledge that full moon days will always return.

(P. Downing, Multi-Modal Reflection, Jan. 31, 2011)

Pam even took her moon into her digital storytelling project on breast cancer. It was not overt, but in the corner of her title panel, she had a tiny crescent moon overseeing

it, signifying, “I’m trying something new and not sure this is going to work” (Observation Notes, Feb. 2011). Pam saw her good teaching days as bright, but it was interesting that she chose to be the moon and see the importance of revolving around the students (the Earth) and not the other way around. She also took on the deeper meaning of reflecting the learning from others, as if they were the sun, and projecting it onto her students. She had considered her choice of the moon on several layers, and it depicted her role in the classroom well, according to Molly, saying that the moon seldom called attention to itself, and that was exactly what Pam did.

At the same stage in which Molly shared her list of household items to describe herself as a teacher of writing (digital or otherwise), since we discussed these during their conference hour, Pam chose to do the same. She said walking through her house looking at what she owned and seeing it from a different perspective was both enlightening and frightening.

1. My violets - they must be carefully nurtured or they won't bloom.
2. A cup of coffee (loaded with sugar and cream) - the best writing requires a bit of bitter, before you find the sweet.
3. Clock -a reminder that good writing takes time
4. Kitchen floor - revision takes a lot of mopping to clear away the dirt.
5. Couch - sometimes a break is necessary to renew ideas.
6. Make-up - a bit of colorful description is always good.
7. Candles - the flame needs to burn a while before the true essence fills the room and your story.
8. Whisk - sometimes you have to give things a good stirring up to overcome that writer’s block or digital resistance.
9. Dirty Dishes - reminding kids that diving in and getting it started is half the battle.
10. Chocolate - the pleasure you and your students get when they turn in that awesome polished story!

(P. Downing, Multi-Modal Reflection, Feb. 19, 2011)

Pam’s list used a great deal of cooking/kitchen metaphor, much like Elbow

(1973/1998), and showed how she viewed learning as a blending of many ingredients. Hers focused a great deal on the writing process, and she addressed many of the stages, from getting started and revising to the polishing. She also took a positive approach, thinking about the bitter with the sweet in her coffee analogy to the chocolate being an ending pleasure. Her personality came through her list, including her nurturing mentality and the belief that she was a mere tool like a whisk and not an essential ingredient. Much like her choice of the moon, Pam selected objects that put her in the role of facilitator and aid, never the central component to student learning. She consistently placed them at the center.

Still using the cooking metaphor, Pam continued with another kitchen utensil, further describing her digital experience as a slotted ladle: “I scoop up everything I can, but so much gets missed until I try a tool out and learn it well enough to fill in those slots” (Multi-Modal Reflection, Feb. 19, 2011). By admitting her flaws and need to be a continual learner, even when thinking abstractly, she conveyed to her students that, when they worked together, they created the perfect tool. Her unselfishness and willingness to model the importance of being a life-long learner came through loud and clear.

Lindsay Explores Teacher-Self Through Multi-Modal Activities

Like Molly, Lindsay did several different multi-modal exercises, though interestingly they seemed harder for Lindsay. “I need time to think about myself from these different angles... this is hard,” she wrote in an email correspondence (April 15, 2011). The object Lindsay chose to represent her as a teacher, digital learner, and educator was Play-Doh:

I am Play-Doh. I can hold my own shape, but I can also change. Additionally, if Play-Doh sits too long, it will harden and stop being so flexible. As long as it is always responding to its environment, it can

experience change. (Multi-Modal Reflection, April 15, 2011)

Though Lindsay was not negative, she saw the potential negatives to becoming stagnant. She was continually open to trying new things, and her Play-Doh analogy carried on throughout the computer lab. The day after using this example, she told a student, “If you were to take this CD cover and mold it into something new, you know, like clay, what else could you do with it? You’re being so literal about your character being scared with the scary face; what else says ‘scared’ to you?” (Observation Notes, April 2011). The student blurted, “Ooh, skull and crossbones!” and Molly smiled at him and gave him a thumbs up (Observation Notes, April 2011). She took her own metaphor and transferred it to the student, and it worked. Several other students then asked her to help them think about their topic differently. Most of that class period, she spent helping students think more abstractly. These multi-modal activities allowed her to consider herself from a different perspective but also in how she guided the students’ thinking.

A few days into her internship in the freshman classroom, when prompted to use a creative outlet like poem or some other literary reaction to herself, her teaching life, and her emergence as a digital educator, she said in an informal conversation that, while she enjoys being creative when she has time, to do so on demand would lack authenticity. “I have a creative streak in me, but it comes when it wants to come” (Personal Communication, April 9, 2011). Additionally, she reflected that the longer she had been in college, the more she focused on becoming a teacher, thinking about being a future administrator, and her future in general, and her imagination had taken a backseat. Instead of a poem or what she deemed “something creative,” Lindsay said if she were to do multi-modal exercises, she would choose to freewrite, which is what she normally did when she

needed to express herself (Personal Communication, April 9, 2011).

To represent her first day, Lindsay offered an exercise in the form of a freewrite to express ideas about herself.

I am a collage, a wordle, a conglomeration of thoughts, words, images that overlap, cover up, and emerge stronger, bigger, more prominent. I blur around the edges sometimes and I often want to be more. I like to be new, fresh, innovative, unique, but if I can excite with innovation, I will. I like the attention. I am now, I am yesterday, but I am definitely the future. If I emerge from the page as a black and white photo I wonder if I am a representation of a by-gone era or at a loss for color. I am all things visual.

(L. Darnell, Multi-Modal Reflection, April 13, 2011)

The imagery layered with words as a representation of herself had stemmed from several of the students choosing Wordles for their CD jackets. Many of them had used their song titles to plug into a wordle, but then many modified the wordle to show their personality. Some added spikes around the edges, angry splashes of red and black, and one even faded a knife into the background. Lindsay said after seeing theirs, she realized how much of a visual person she was and exemplified it by comparing herself to a combination of images and words. Her insight to the use of color, or lack of it, as having more than one potential also showed that she was not always sure who she was or how she felt and, at the end of a teaching day, she said that ambiguity kept her focused on improving as a teacher.

During the first day in the computer lab, Lindsay said she felt she was quickly building rapport with the students. While she walked around answering questions, addressing their struggles with the assignment, she realized that teachers were far more than educators.

Instead of seeing myself as an animal, today I saw myself as completely split personality. Today alone I was a coach, a counselor, a technical consult, a target, a motivator, a nurse, and a referee. Maybe that's like being a cat with nine lives. Instead of living them at different times, I'm all nine lives all at one time! (L. Darnell, Email Reflection, April 12, 2011)

During the collaboration session at the end of the day after this writing, Lindsay said she never realized how many hats a teacher could wear (Personal Communication, April 12, 2011). Thinking about it wore her out, she said, but being realistic about it would keep her from becoming jaded by it. She did ultimately connect it to a cat, which was interesting, because Lindsay had said the day before that she wanted to see herself as an animal and could not do it. The next day, when she said "instead of seeing myself as an animal," she eventually did (Multi-Modal Reflection, April 13, 2011). As a learner, she always seemed to come around to where she felt she needed to be, much like coming around to being an animal, even when she said she was not doing it.

For Lindsay, reflecting with multi-modal activities proved harder than for Molly, because Lindsay said she felt it required a metacognition she was more capable of doing as a student. To be insightful about her thinking could allow her to think deeper. John-Steiner (1997) described thinking as a search for meaning, and teachers, especially interns, must continually strive for greater understanding. Shared thoughts, or giving thoughts a context like during a digital project, allows learners to interact on a different level, to better understand one another's process. Like with John-Steiner's interviews she conducted, her participants may not have considered the process of their thinking until asked, much how Lindsay realized when being prompted to do so as a professional and not just as a student.

As a student, she was forced to be metacognitive, whether in a paper for a professor or with classmates during an activity. That collaboration, though just as important as a professional, is no longer required, therefore perhaps easier to ignore. Odell (1999) believed how we write reflects how we think, and he recommended having students analyze their thinking though he does not seem to support teaching them how to think. Thinking occurs whether we are aware of it or not, and for Lindsay, she had been forced to do it throughout her collegiate career and thought she would not have to continue that kind of reflection as a professional. Odell would, however, assert that teachers like Lindsay should be able to analyze, reflect, and speculate about themselves as learners and writers. To be able to do that would allow her to expect the same from her students.

Asking Lindsay to be metacognitive about her creative process, now that she was transitioning from student to teacher, was difficult, perhaps because she struggled with her shifting identity. “I want to still be a learner while I’m becoming a teacher, but I want them to see me more as a teacher, not a student” (L. Darnell, Email Reflection, April 13, 2011). While Molly was openly allowing students to see her as a learner, to admit there were things she did not know, Lindsay struggled to allow that same perception because, during her first weeks at a high school, she felt too close in age to her students.

During my first ten weeks, some of those students were only three and four years younger than me. I had to really project myself differently than in my field experiences in middle school. I try to think about the way I thought about school when I was their age. Do I think differently now? Do I learn differently now? I’m not sure. I do know that when I was their age, I could reflect more creatively, because that kind of abstract thinking was fun. I could take off one

hat and put another one on really easily. Right now I feel so narrow in my focus. I think I need to step back and consider who I am as a teacher vs. a learner vs. a thinker. That's an important reflection tool, I think.

(L. Darnell, Multi-Modal Reflection, April 30, 2011)

Perhaps a factor in Lindsay's ability to reflect in multi-modal, creative ways, aside from her personality, was affected by the modeling she was receiving from her cooperating teacher. Pam Downing had built a strong community in the classroom; therefore, Molly was able to develop as both learner and teacher. For Lindsay, the climate in Beth Todd's sixth hour class, and occasionally other classes as well, was often chaotic. Behavioral issues in sixth hour seemed to be a constant issue, so she felt the need to assume the role of teacher-as-disciplinarian. Lindsay said she was surprised by the climate in the classes, and after having two vastly different experiences, she would have to consider all the styles and behaviors she had seen, both from the teachers and the students. Koskela and Ganser (1998) described modeling as instrumental for learning how to teach, and Lindsay would have a great deal to consider as she moved forward as a teacher.

Beth Explores Teacher-Self Through Multi-Modal Activities

When Beth first considered ways to reflect with multi-modal activities, she immediately described herself as a paperclip. "My teacher self is like a paperclip. I am flexible when needed. And sharp, able to keep things together" (B. Todd, Multi-Modal Reflection, April 9, 2011).

She acknowledged that she was often sharp around the edges and could be bent out of shape but, ultimately, she was always able to keep things together. When discussing her choice during sixth hour the next school day, she asked, "Do you think I'm a rusted paper

clip? I think my rust is on the curves...changing directions is really hard for me” (Personal Communication, April 11, 2011). By questioning herself, she was opening herself up to the possibility of needing to change, and in the end, she admitted that a little coating would not hurt. Beth was able to see what she wanted to be versus what she felt she was, and this exercise perhaps gave her insight into how others viewed her.

At one point during the case study, Beth described how her reflective writing at the end of a teaching day was different, that she had poetic notions, but more often, she expressed herself through the coloring of mandala (Figure 4.4). Mandala is a Buddhism and Hinduism meditation exercise, and they come in various geometric designs that are symbolic of the universe (American Heritage Dictionary, 2000), and Beth used this technique continually.

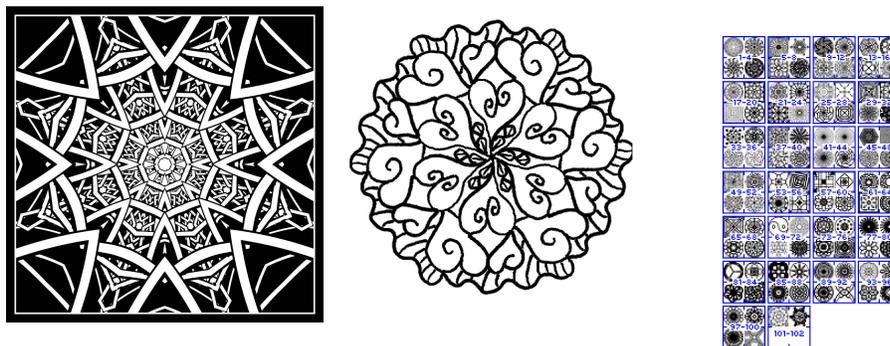


Figure 4.4 Samples of mandala found at Mandali.com/samples

By coloring the intricate details of the mandala, Beth said she released the intricacies of her day. While Beth did not feel her coloring represented her day in any way, other teachers who used the same method of relaxation said that some days they colored in all cool hues, noting that the day had left them cold. One teacher at the same school said she often used all warm colors, accenting what looked like the fire and explosion that might equate to the enormous learning that took place that day. Beth admitted that her

inner emotions likely came out without her realizing it, and in the past had even done the same with pottery, though that method as an expression of herself had gotten too expensive. She colored without thinking about her day and wondered how many of her illustrations reflected the day in ways she had never considered. Overall, she said she felt the exercise gave her release and in many ways, was a multi-modal activity because it colored her scope of experience. What had started as a means of expression had likely evolved into a primary method of coping with the stress of teaching. While Beth could not identify a specific time in which the colors depicted the day, she recognized that it had likely happened, because she remembered especially rough days in which she would color for hours.

An interesting multi-modal exercise that Beth said she simply could not do was thinking about herself as an animal. “If I were an animal, I would be dead because I am not a big animal person and would forget to feed myself” (Multi-Modal Reflection, April 26, 2011). While she understood the idea of the metaphorical exercise, she was unable to see past a personal dislike of animals to imagine what she would be. When she thought of items that represented herself as a writer, she again thought literally and ventured only slightly into the abstract when she chose her writer’s notebook (where she likes to write) and her laptop (where she finds new resources). She seemed to either struggle to see the abstract, or to think metacognitively about herself in this context.

Summary. The multi-modal exercises gave great insight into the individual interns and teachers and, at one point, three of them carried these exercises over into their teaching. Being open to new ideas made this different way of reflecting easier, and having a firm grasp on the individual’s learning style also helped both interns. While Molly lacked

confidence, she was willing to try many things in order to further develop her fledgling repertoire of strategies. Lindsay exuded confidence but struggled to let go of control, so in analyzing herself, she made it her work area to consider other ways to allow students to be in charge of learning. Both believed that using multi-modal reflections allowed them to learn more about themselves both as teachers and students of life.

Conclusion

Digital literacy, a fairly new concept to both interns prior to their student teaching experience, was now part of their vernacular. When Molly's internship ended, she summarized her experience by describing her education map and her road to teaching. She said this overview applied to her journey so far, but she felt that metaphorically, she was barely out of the driveway.

My blank map would start out in the Grand Canyon because teaching was really rocky in the beginning. It was hard to get the kids to respect me and the rules of my classroom. Then the Grand Canyon would lead to a river because it is smooth in some spots, but there are strong rapids that come out of nowhere. In teaching, you will face many obstacles out of nowhere and need to keep your head afloat to survive. On the way back home, I would pass by a tree because I am forever learning and growing as time goes on. Finally, I would end up in the comfort of my home, because teaching is so comfortable to me and finally is going well.

(M. Rowan, Multi-Modal Reflection, Feb. 27, 2011)

Molly recognized the hills and valleys of teaching, admitting to Grand Canyons but a river usually led her out of the depths. Her keen insight into her vast evolution as a

teacher spoke volumes about her willingness to learn and grow as a teacher. From the beginning of the case study until the end, she continually asked what she could do to improve, always seeking advice from veteran teachers and colleagues. She improved on every level she journeyed through, from using the digital experience to improving as a teacher, to engaging in dialogue that helped her learn by watching students, conversing with them, and collaborating with her cooperating teacher. She even let it be known to the students that she was a work in progress. When she started the internship, she was green, a mere outline of the portrait she became by the end of the social justice project and, when she felt she had a grasp on digital literacy, she said, “I might use this in the future, when I can enter a project knowing I have at least a little to offer students in the way of expertise” (Final Interview, Feb.23, 2011). While she had not embraced the technologies her students were mastering, she recognized her need to explore them. Her epiphany, she said, was her realization that being a facilitator was the ultimate way to teach. She added that much of what she learned surprised her, and many days did not go as well as she hoped. Ultimately, she decided one good day erased ten bad.

Lindsay began her journey as an intern before the project, so when she arrived at Washington Hills Junior High, she was further evolved than Molly. It was never a comparison of the two, as their personalities, experiences, and starting points varied too greatly. Where Molly gained tremendous ground, Lindsay faltered in her experience because of a more negative environment. However, she gleaned great insight from the experience, and while learning from a different perspective made it harder, she often reached decisions of how to teach based on what she saw not working. This maturity and ability to remain positive spoke volumes of her future in teaching. She tackled technology

and, like Molly, admitted she would have reservations about teaching digital literacy without reservation due to a worry about what access and materials she would have. Through the teaching of writing, both digitized and non-digitized, she explored different ways to reach students. She realized that student conversation could be beneficial, and she considered ways that student-led learning could benefit children of all ages. Where she started on a path headed directly toward administration, she learned that she liked the curves that teaching had to offer:

I started off going through a tunnel and saw nothing except what was right in front of me. Every day offers something new and unpredictable; some days early on, I plunged into the depths of the ocean, drowning. As I grew into my own skin, I found myself on a tree-lined road that is comfortable and exhilarating, with points of shade, but sometimes the sun shines so brightly on my road. I curve and change, but always stay headed in the same, the right, direction.

(L. Darnell, Multi-Modal Reflection, April 27, 2011)

Lindsay started her road with a set destination in mind, not considering the journey. She had a plan, and when she suddenly found herself deviating from her initial path, it led her into uncertainty. However, as teachers often do, she found herself on a journey of discovery, realizing that the road to one place accesses paths to many others. She found that as she continued on the journey of teaching, there were many unexpected turns, both good and bad, but as long as she stayed focused on what she felt was right, it would lead her where she wanted to go.

While much of what emerged during the findings played a role in the implications discussed in Chapter 5, overarching ideas could be narrowed down to a few key points.

Digital storytelling affected student and teacher motivation, writing did not have to be abandoned to be a part of the digital writing process, cooperating teachers' willingness to try new technologies and their attitudes about using them had an enormous impact on the interns' experience, and talk played a significant role in the interns' development as teachers (both as a part of their philosophy and their learning). These will be discussed in Chapter 5.

Chapter 5

Implications and Conclusions

Technology is not a magic pill for teaching in the 21st century, yet digital innovations offer many possibilities for improving the quality of education. Cambourne (2002) recommends creating the conditions for quality learning, and digital literacies provide opportunities for students to thrive and take charge of their own learning by engaging and creating. Kent and McNergney (1999) and (Lumpkin (2012) contend that teachers *should* have adequate skills in order to be able to play a more integral role in challenging students to improve and grow. Kent and McNergney go as far as to say that without adequate training and a comfortable skill level, the promise of technology in the classroom could be in jeopardy (1999). Shoffner, a teacher educator, asserted that preservice teachers must integrate technology into their working pedagogy, work it into their daily lives, and continually question not only how to use technology in the classroom but why in order to meet the needs of the digital learner (2007).

What emerged from this study was far more complicated than an either/or discovery. Digital tools and the Internet allowed for innovation and reached students where they spent much of their time: on their computers or smart phones. But digital projects required extensive teacher/intern preparation and confidence in their classroom management during student-centered activities. In this chapter, I will first discuss the implications for each research question and then make recommendations. I will summarize the results from Chapter 4, explain the major conclusions drawn from this case study, and then offer recommendations for those teaching digital literacy and for preparation

programs training future teachers.

Summary of Results

To better understand the results, they are framed by the research questions that guided this study.

Research Question #1: What happens when student teachers who are relatively inexperienced with technology engage in the teaching of digital literacy? How does their teaching change, or does it change, at the end of the student teaching experience?

Finding: As interns taught digital literacy, they learned and accepted that students knew more about the various technologies than they did. The interns observed that students become more motivated and inquisitive as they are allowed to engage in digital literacies. When learning becomes student-centered, it allows teachers to become facilitators, which altered the way both interns thought about teaching. They realized they did not have to be the experts, and that teaching was a continual learning process. The interns changed by the end of their projects, both in the way they viewed the basic structure of the learning environment and the role of the teacher. However, they did have reservations about implementing digital literacies because of the preparation needed and the potential classroom management issues.

Technology motivated students to participate, and both the interns and the cooperating teachers said they saw the benefits of using technology tools that included digital storytelling. The more interns practiced with digital literacies, both teaching with them and learning about them, the more comfortable they became using them as teaching

tools. It showed in their eagerness to use additional technologies and in how quickly they embraced new skills once attained and shared them with other students and teachers. Like Rakes, Fields, and Cox, along with Kent and McNergney (1999) and Langran (2006) asserted, the more preservice teachers learn and know about technology, the more comfortable they will be leading digital lessons. Being able to be that model for students, even if the students have more skills, will improve the digital experience and increase the ability of the educator to formatively assess students throughout the process (Langran, 2006; Dawson & Rakes, 2003). However, no matter how motivating the technology was for students, the interns still felt the teacher needed to maintain some control over the classroom environment. Molly confessed that while technology might offer the opportunity to improve her teaching and reach the most students, she felt she needed to begin her first year of teaching with lessons she could be the expert in and therefore have the most control over the classroom. Even though she learned that being a facilitator could be an effective and preferred way to teach, she decided that student-centered learning should be reserved for later in the year when community had been established and students would be able to handle the freedom. She could not see the possibility of the community that might be built by beginning the year with a student-centered mentality.

The results showed that these interns accepted the value of being a facilitator, but they recognized the work required to allow and contribute to student-directed learning. They would forego a modicum of control, have hours of preparation to properly execute a similar project, and it necessitated organization that more traditional teaching might not require. That vision of a chaotic, student-centered classroom seemed to scare them. Teacher perception research (Frank, Zhao, & Borman, 2004; Lauro, 2005; Muir,

Manchester, & Moulton, 2005; Meltzer, 2006) shows that even if Molly and Lindsay felt uncertain about teaching with technology now, their attitudes could be impacted by positive professional development.

Drawing on years of leading a reading/writing workshop, I understood how hard it was to let go of the need to control and allow students to work at varying levels, take charge of their own progress, and experience failure when any one of those things did not work. I had experienced first-hand Wessling's (2012) notion of gentle failures and Darling-Hammond's (2006) assertion that the best teaching results from mistakes. Teaching improves when we learn what does and does not work. Much like Rosenblatt's transaction theory (1938/1976), we bring something to every activity we do and teach, and the successes and failures do something to us in return. Teaching reading or writing can put teachers on that same continuum between efferent and aesthetic, as we negotiate and deconstruct what works, what does not work, and how our own background shapes those learning experiences. The pleasure we get from a successful activity will in turn be evident in our enthusiasm as we teach it again.

As the ISTE and Common Core State Standards suggest, creating digital citizens and building a digital environment can be the step teachers at all levels must complete in order to move students toward college and career-readiness (Corestandards.org, 2012). To shift in that direction is to focus on skills that help students in life – not just for an isolated activity in school – and includes authentic, relevant learning that today's students demand and deserve (Atkins et al., 2010; Scherer, 2011).

Research Question #2: How do these experiences affect the teaching of non-digitized writing?

***Finding:* The interns and cooperating teachers required students to engage in traditional writing, thus allowing digital literacy to supplement the process. Each viewed the positive impact digital storytelling had on writing, noting that students write more, edit and revise more readily, and get more immediate feedback when integrating it with technology.**

When writing and creating digitally, the interns followed the cooperating teachers' leads and stayed true to the writing process. Technology became a supplement, not a replacement, much like what Hicks (2009) advocates with digital literacy in the writing process. While the interns discovered that technology could be a temporary motivator for apathetic students, it was a more permanent motivator for the reluctant writer. In other words, when students do not care about school or have no intrinsic motivation to do well on assignments, then the technology only briefly engaged them. They participated when the technology appealed to them but failed to complete the project when it required additional handwritten, more traditional work. The reluctant writer, on the other hand, was motivated by the opportunity to write on a computer, and once engaged, the intern enjoyed the result once they had gotten the student started.

Rakes, Fields, & Cox (2006) found that simply allowing a student access to a computer would stimulate deeper thinking and enhanced cognitive interaction that would improve not only their skills but increase student engagement (Rebora, 2012; Kajder & Parkes, 2012; Kajder, Hicks, Young, & Hunt, 2012; Shoffner, 2007; Kajder, 2005; Doherty & Orlofsky, 2001; Moersch, 1998). The question is no longer about whether to use technology in writing or writing workshop; it is now a matter of training teachers to create a digital environment and to know when and how. As expert practitioners believe

(Stephens & Ballast, 2011; Hicks, 2012), technology should now be part of the writing process.

Research Question #3: How do these experiences affect their teaching in general?

Finding: Interns learned that student-centered learning, like that which takes place during project-based digital activities, allows for facilitation, differentiation, and creating a learning environment that fosters expertise to come from anyone in the classroom.

Digital tools played a significant role in continually maintaining student interest, and interns and cooperating teachers employed a variety of digital literacies to aid that connection. Keeping a student motivated, the interns learned, was far easier than getting them there, and as new technologies were discovered, either the intern or the cooperating teacher would quickly share and likewise excited students with its possibilities.

Some might speculate that the focus on the digital literacies and not the content could be a distraction and take away from academic learning. In other words, they would learn digital skills and only attain superficial knowledge of content. However, the true depth of learning should come from how the project was framed, not necessarily because of the tools employed to achieve it. In other words, the digital literacies should not serve as a distracter if the teacher is clear what the student needs to do with it. The more students discover, the deeper their learning may eventually become if it keeps them engaged in the task. For example, during the social justice unit, a student discovered NewZingo and blurted it out to the class. Many students immediately went to the website or huddled around that student's computer. They saw the cloud of streaming news that was possible, and several went to their computers to see how they could employ the strategy to their own

project. The tool offered nothing until students inserted their ideas, their organization and the data they had found, and navigated how they could effectively convey what they had discovered. They had to spend time thinking about their content and consider what they had learned about their social justice issue, then how the two could benefit one other. Students read and reread their material as they worked with NewZingo.

This goes back to the Project-Based Learning (PBL) mindset. If students are doing digital PBLs and taking their thinking and their learning to a new level, then they are interacting with it and synthesizing their data, a higher order skill that direct teaching is not as likely to achieve (Boss & Krauss, 2008). Solomon (2003) states:

In project-based learning, students work in groups to solve challenging problems that are authentic, curriculum-based, and often interdisciplinary. Learners decide how to approach a problem and what activities to pursue. They gather information from a variety of sources and synthesize, analyze, and derive knowledge from it. Their learning is inherently valuable because it's connected to something real and involves adult skills such as collaboration and reflection. At the end, students demonstrate their newly acquired knowledge and are judged by how much they've learned and how well they communicate it. Throughout this process, the teacher's role is to guide and advise, rather than to direct and manage, student work. (p. 1)

The ultimate classroom might well be one that embraces digital literacy through the PBL framework. As once stated in the video *A Vision of K-12 Students Today* (Nesbitt, 2007), a student at a desk holds up a whiteboard with the statement: "If we learn by doing, what are we learning sitting here?" (1:47 mark in video). We can talk at them or we can do with them. My study shows that the latter is far more effective. However, technology-based projects take serious time and preparation, more than some interns and novice

teachers are capable of or willing to do. Seeing the positive impact of it in action was motivating, but the limitations of extensive preparation made interns realistic about how often they would be able to employ innovative digital tools, and research suggests that while quality teaching can be project-based (Solomon, 2003), teachers must achieve a balance of giving information and then allowing students to apply it. Participants in this research recognized that finding that balance would take time. The interns' primary concern for their future classroom was behavior management, and many novice teachers seem to revert to more traditional teaching methods in hopes that the class will be easier to control (Darling-Hammond et al., 2007).

While the assumption for many digital immigrants, and even some digital natives, is that students do not delve as deeply when they use digital literacies or achieve meaningful learning, there is no evidence to support that, and many believe it is impossible to measure since digital applications can be applied to the process of any project or assignment (Prensky, 2004). The reality of the depth of learning lay in the lesson itself, not in the means by which they complete it (digital or otherwise). To apply digital literacies to the process of a project adds a relevance to 21st century learners. When students are engaging in hands-on activities, research and experience supports that they retain more of what they interact with (see Figure 5.1).

The Cone of Experience

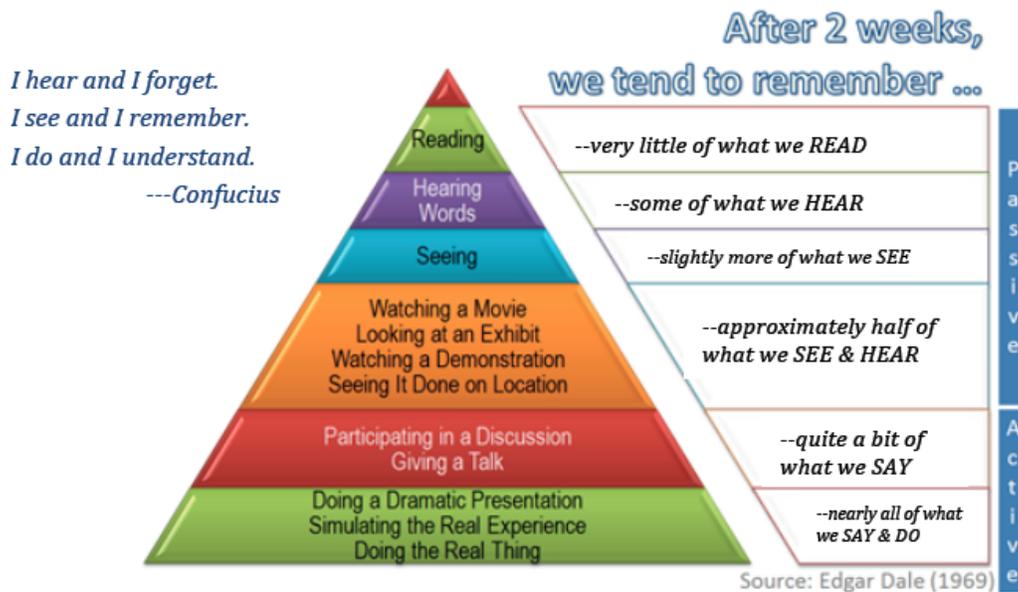


Figure 5.1. The cone of experience shows each level at which information is likely retained and the types of activities that fit the categories (adapted from Dale, 1969).

This cone of experience (Dale, 1969), also referred to as the cone of learning, promotes the belief digital researchers tout: if students spend their time interacting with and doing collaborative digital projects, they are much more likely to remember it because it is active, experiential learning. While the percentages were not originally part of the cone of experience and have never been supported by research, experts support the overall concept of Dale’s hierarchy (Betrus & Januszewski, 2002). “To learn something new, experience and action are necessary” (Hooper-Greenhill, 1994, p. 10). While the cone itself has been used as research support and Dale intended it to be a visual depiction of preferred ways to experience and learn, and that experiential component corresponds with students completing many of these steps within a digital composition unit.

Numerous researchers found that if teachers created the digital atmosphere similar to the preferred online world students spend their spare time engrossed in, then students would be more likely to engage and thrive in that environment (Lumpkin, 2012; Scherer,

2011; Atkins et al., 2010; Iste.org, 2008). An environment in which everyone is a teacher and a learner would be the optimal classroom.

Research Question #4: What roles, if any, do the cooperating teachers' attitudes toward technology have on the interns' attitudes?

Finding: Cooperating teacher attitude had a direct correlation to how well the interns and the students reacted to using digital literacies during a project. If a cooperating teacher was enthusiastic, so too was the intern. When negativity pervaded an area of the digital project, it affected the interns and the students. Likewise, how the cooperating teachers responded to successes and failures with digital literacies had a strong impact on the interns as well.

Cooperating teacher attitude provides a model for interns to either mirror or learn from. By observing student responses to the cooperating teachers' attitude toward and interaction with digital literacy, the intern learns what does and does not work. The cooperating teacher has a direct influence on intern development, therefore the more experiences a cooperating teacher has, the more they have to offer a teaching intern. Several researchers found that preservice teachers mirrored the attitude and innovativeness toward technology in the classroom that their cooperating teacher possessed (Kajder & Young, in press; Rebora, 2012; Kajder & Parkes, 2011; Shoffner, 2007; Kajder, 2005; Lauro, 2005).

Aside from attitude, the cooperating teacher and the conversations with the intern when collaborating and conferring play a significant role in development. Aside from talk between teachers, the conversations between teacher and student and also between students help all involved while learning or composing digitally. Interns learn from cooperating

teachers' modeling, they learn by listening to student talk, and they learn through conversations with both their cooperating teacher and their students. Following the modeling, the interns observed, students incorporate what they have seen and heard and then develop their own writing by practicing it. Often, while writing digitally, students continue conversations with classmates, teachers, and themselves, and continue to hone their skills while they work. As with most skills, and especially with writing, the more they do it and not worry about the product, the more the skill improves (King, 2000; Zinsler, 2001; Elbow, 1973/1998; Calkins, 1994; Murray, 1978; Britton, 1975).

In the following sections, I summarize in greater detail the results for two key categories of my research: digital literacy and teacher preparation that includes the impact of the cooperating teacher. Within each section, the more specific research question will be addressed.

Discussion of Results

The areas of research, primarily digital literacy skills and applications, as well as teacher preparation, played an integral role in the way interns navigated learning to teach and how to maximize the use of technology in the classroom. Within these two areas, the results are discussed in relation to the research question that guided that area of the study.

Digital Literacy

Inexperienced interns engaging in teaching digital literacy. The following findings emerged in Chapter 4, and I summarized that:

- Interns learned more technology as they facilitated their students' progress during digital projects. Students could be experts, and the interns benefited by learning from them and with them. Interns were also able to allow differentiated experiences

for students and observed that the more they taught by facilitating, the more differentiated student learning was. Differentiated instruction, as defined for this study, is allowing students of individual learning styles and abilities to work at their own pace and level (Tomlinson, 2001).

- Interns encountered obstacles because of their own skill level (or lack of), their concern about maintaining control over the classroom, issues that dealt with the school's infrastructure (crashing servers, blocked sites), lack of time to complete the work, and the distractions students encountered by being online; eventually these served as either a learning experience or resulted in building community.
- Technology improved student involvement from the beginning and served as a tool for learning. The more interns and students practiced and worked with digital skills and applications, the more they improved at digital storytelling.

What might all of this mean? Technology motivates but does not solve problems, digital literacy improves with practice (even if it is observed practice), and as teachers and students work together, they learn together, no matter who is the expert. Technology tools used for digital storytelling or similar projects serve many purposes in the classroom, but initially their primary role is as an authentic way for students to learn. Interns who use these tools stay relevant with the way students work outside the school, and though it does not cure apathy, it is a quality remedy.

Teachers Learned by Facilitating and Differentiation. Interns and the cooperating teachers, referred to collectively as “teachers” throughout these conclusions, learned a great deal about digital literacy as they embarked on these projects. The more teachers facilitated, the more they learned from each other and the students. Facilitating, as it is

related to teaching, involves teachers being part of the learning rather than a lecturer or a “giver of information.” It allows teachers to guide the process, ask probing questions, and be an active participant in the learning. While students needed guidance to know the project, and a few did not have the same skills as their peers, the teachers used the opportunity to not only learn the technology but to build relationships with students by being facilitators. For the interns, this proved invaluable, to be able to collaborate and communicate with the students and show them that teachers continue to learn. Students could be experts, and all of the teachers benefited by learning from them and with them. Teachers developed skills during digital storytelling, more specifically about Photostory, Paint, and CorelDRAW. They saw in action how to load pictures, music, and text into digital storytelling software, they were motivated by the experiences of learning how to create word art in Paint and CorelDRAW, and learned a great deal of vocabulary with terms like “vodcasting,” “digital transitions,” “flash,” and “vlogs,” to name a few.

From the beginning of both projects, interns became facilitators and students took charge of their own learning. Off-task behavior was still often technology-based learning, such as when students learned how to cut and redo text in a Word document. When the cooperating teacher told a student to “control-X,” he knew exactly what she meant, but when he accidentally did it twice, she did not know how to retrieve it and neither did the intern. Another student called out for him to “control-Y” and that he would retrieve what he had cut. Several other students, including the intern, expressed interest in this tool, since they did not know about it. Collectively, the group learned a skill either by practicing it, observing it, or simply hearing it. A few of the students tried it, to make sure it worked, and the intern told the students she could not wait to use it, that she often made the mistake

of cutting too much with the control-x feature. These strategies reinforced that students were quick to revise and edit while working on a computer, and their writing improved because they sought peer and teacher feedback, wrote and re-wrote, and often read it aloud for narration, so they were able to hear how it sounded. Elbow (2010), in his article on the value of reading aloud to improve writing, describes how hearing their writing increases awareness and intensifies the whole-body experience of our work.

...we get to feel [our words] with our mouths and hear them in our ears and indeed experience them in our bodies--not just see with the eye and understand with the mind. Multiple channels of perception give us a much richer and stronger experience of language. When we revise, we come at our words from the outside, but reading aloud takes that outside perspective and puts it inside us.

(Elbow, 2010, p. 1)

Whether through reading aloud or hearing their narration, students and interns experienced the value the unit offered to student writing. The students worked at varied stages and paces, and the teachers saw the benefit of the student-centered projects on differentiation. For this case study, the interns, cooperating teachers, and many of the students had vastly different levels of expertise with digital skills and writing. Students at both schools were allowed to work on different parts of their project, do things in staggered order, and complete tasks at their own pace. This allowed interns to help students who lagged behind in one area and then build on their own teaching when facing the same issues later with other students. Peers also offered assistance when the teachers could not get to everyone, because with differentiation, some who finished one section could offer their expertise to those who had not yet completed that part (Tomlinson, 2001).

Teachers Learned from Digital Obstacles. Several digital obstacles arose during the

project, and most of those served a learning purpose. Just like the previous example, there were many times the teachers were not the experts, and the students were quick to either offer advice or show others how to perform a task. One expert during the social justice project taught the class how to hyperlink text in a Photostory panel, when a student could not get a URL to fit on a line. This frustrated the student, and neither teacher was able to do anything except tell him to let it go over onto two lines. He was not happy with that, so a classmate came over and said, “Dude, all you have to do is copy it, and then right click...” He helped his classmate figure it out, and the issue was resolved. On another day, the same student showed everyone how to embed a podcast done in Audacity, a program neither teacher had ever used before, but that it would solve their problem not being able to narrate an unlimited amount of time and just use what they wanted. In Photostory, students could only narrate as long as the video itself was. This served as a major obstacle for students who wanted to do their narration and then add pictures to match the narration length. By doing their narration in Audacity, it allowed them to overcome this issue. One girl discovered a site called Little Bird Tales and informed Mrs. Downing that it would be the better program for her to use with her students the following year, because it was easier and allowed the creator to upload video and not just still images. All of these suggestions from the students moved the project along, and taught classmates and the teachers a few new skills. As a result, the digital stories were better and possible classroom management issues were either avoided or abated by the community they had built. In more teacher-directed work, student frustration is often a catalyst for outbursts or other behavior issues.

During digital projects, technology problems ran the gamut from crashing servers to policies that did not allow digital resources; these obstacles caused the teachers to

reassess how to accomplish the tasks. Media specialists at both schools expressed concern about school policies that prohibited students from accessing certain websites, as well as not being allowed to use tools they likely had in their pockets. Students could not use YouTube, though they knew how to get around how the district had blocked it (“just add an ‘s’ after http,” one student told Pam and Molly, and it worked). They also were not allowed to use their smart phones, iPods, or other listening devices during the soundtrack assignment. By accessing other websites and building a folder on the school share drive, they were able to deal with the obstacle, proving that teachers and students could be tech-savvy to overcome a hurdle. When technology is involved, digitally literate users will explore through trial and error until they are able to overcome an issues like these.

Teachers quickly realized that digital projects took a great deal of time to prepare for and to implement. Teachers and students dealt with the time constraints that digital projects present, and when the work felt more fun, students were willing to use before and after school time to complete their projects. Interns discovered that facilitating digital projects consumed more class time. A significant obstacle was that a few students did not have the same Internet access at home, and because much in-class time had to be spent completing research, some students had to finish their projects before or after school. Interestingly, a majority of the students were willing to do this, because the digital component motivated them to want to finish. One student who needed to complete his soundtrack project said, “I’d rather be in the computer lab before school than the cafeteria, so it’s cool. Can’t beat gettin’ to listen to tunes as homework” (Observation Notes, April 2011).

While all of the participating teachers acknowledged the value of the project, both

interns admitted that it would dissuade them from doing too many digital projects in their future classrooms. Their need to keep students on a tight schedule and thwart possible behavior issues with the freedom digital projects presented was a cause for concern for both. Each offered reasons they would use digital skills and applications in limited doses, but ultimately it came down to their lack of experience with technology, not being the expert, the time digital projects demanded in preparation and organization, and therefore having to rely on the expertise of students. Needing to be in control was much more of an issue for the interns than the veteran teachers. Teachers in their first few years seem to fall back on more traditional teaching, not because they do not know how to be innovative, but because they deem innovative teaching as tougher to accomplish while still maintaining control. While composing digitally, students often got distracted by music videos or Huffington Post to hear the latest about Kim Kardashian, Charlie Sheen, or Lindsay Lohan. There were often ways for students to become distracted, but continual involvement of the teachers generally got students quickly back on track. Molly connected that she would not have the luxury of a second teacher in her class next year.

The key to keeping students focused during digital projects revolved around the community created earlier in the year. If a strong environment existed, few behavioral issues emerged. Certain classes had more community than others, and the digital process itself built on that community. When students became the experts, their self-esteem blossomed, and their peers viewed them differently. Students who had never been leaders were asked to come help a classmate others deemed “popular”. By working together at differentiated levels, each student was learning something different, and the interns were able to facilitate at all different levels. Community and relationships were also built

between students and teachers, as the students were allowed to be the experts. Both interns gained respect from students when the future teachers asked for help or acknowledged that the student was the expert. This modeling, admitting when she did not know something, showed students that learning never stopped, no matter the age, and showing an openness to learning from people of all ages and ability levels. During the process, they were all learning something, and all were improving their digital skills.

What the theorists say. Digital lessons achieve the highest form of learning, according to the revised Bloom's Taxonomy (Bloom & Krathwohl, 1956; see Appendix F), synthesizing what students have learned and already know to create something new. Research has shown that when allowed to create digitally and have access to technology, students think critically, experience true differentiated instruction, and learning is enhanced (Scherer, 2011; Atkins et al., 2010; Corestandards.org, 2012).

During the process, Vygotsky's social learning theory (1978) plays a significant role, both in how the interns and teachers organize and implement, as well as how students interact while creating. Building on the skills of their peers, digital storytellers scaffold their learning, seek help from more knowledgeable others (Vygotsky, 1978), and interact continually while they work. Conversations allow students to question, explore possibilities, think aloud, and offer help and learn from one another through the dialogue (Barnes, 1992). All digital learners, teachers and students alike, work in the zone of proximal development, the difference between what they can do with or without help (Vygotsky, 1978), and the students are often the ones helping the teachers.

With all that we have learned about how students learn and the focus on Project-Based Learning, digital projects have emerged as a multi-modal, cross-curricular options

for students to synthesize. States include technology implementation in the Common Core State Standards (CCSS), because evidence is showing that it engages students and it requires innovative, relevant teaching. Numerous studies have recently been done on digital storytelling, and while teaching experts provide guides for how teachers can implement it into the classroom (Stephens & Ballast, 2011; DeVoss, Eidman-Aadahl, & Hicks, 2010; Miller, 2010; Hicks, 2009), it is the research emerging that provides evidence teachers need to justify it in their classrooms.

Tatum's study looked at digital storytelling as a cultural-historical activity (2009) and acknowledged that it enticed teachers and students to write; however it had not been the focus of empirical study at the time of her dissertation. She employed Vygotsky's Cultural Historical Activity Theory, or CHAT (1978), and along with Burke's Pentad of Analysis (1969), both guided her look at the effects of participation in the directed reading activity (DRA) modified by digital storytelling. She recommends the teacher strategies should attempt to maximize the skills of digital natives and that though teachers do not have to be the experts, they need adequate skill to provide multiplatform instruction (Tatum, 2009). She adds:

...there is no denying that students were continuously engaged throughout the treatment with a multiplatform activity. From the view of students, this activity seems to be more desirable, more motivating, and more interesting than a single platform activity, such as completing a worksheet or watching a video.

(Tatum, 2009, p. 106)

Tatum considered digital storytelling as an extension of the reading and writing process and believed it allowed students to explore multi-modal learning in a way that few other strategies could (2009).

Dush (2009) researched digital storytelling at an educational non-profit center, and found that teachers discovered literacy and writing could be expanded in exciting directions by integrating them with digital technologies. She studied digital storytelling as a developmental tool that motivated students and teachers to reflect critically and explore a higher degree of realistic learning while writing digitally (2009). Hull and Katz (2006) framed their digital research around Bakhtin's (1981) metaphor of voice, specifically the notion that an intrinsic discourse involves trying out the voices of others, a concept that digital storytelling not only allows but promotes. Dush analyzed the research of Hull and Katz (2006) and found that digital storytellers have the ability to align themselves with powerful and important cultural moments, like Hurricane Katrina or the collapsing World Trade Centers.

Many who have learned about digital storytelling have agreed with the description given of it by the Center for Digital Storytelling's Joe Lambert: digital storytelling is a creative practice with a "special power" for both those who make and those who see the stories. (Dush, 2009, p. 217)

Dush summarizes that teachers should frame digital projects into a cultural context that makes the lesson relevant, much like the project in Pam Downing's class when she allowed students to choose relevant social justice topics. Beth Todd had students choose music that represented characters in a book, though many transferred their character's culture to the one in which they were personally absorbed. In doing this, students not only connected with the character but some seemed to *become* their characters. Hayes (2010) and Kajder (2010; 2005) revealed that the cultural connection plays a significant role, but the key is to implement relevant digital storytelling tools that allow students and teachers

to gain a new understanding of literacy in the 21st century (Stephens & Ballast, 2011; Hicks, 2010; Miller, 2010; DeVoss, Aidman-Aadahl, & Hicks, 2010).

Research supports the findings of my study, that teachers who embrace emerging technologies and allow students to explore their world around them through digital storytelling stay relevant (Rakes, Fields, & Cox, 2006; Frank, Zhao, and Borman, 2004; Lauro, 2005; Muir, Manchester, & Moulton, 2005; Meltzer, 2006; Moersch, 1999). The teachers, including the interns, continue to learn, which is one of the important lessons of digital literacies. Teachers are students and students are teachers. Learning never stops in an authentic, relevant classroom.

Attitudes about digital skills and applications. Intern and cooperating teacher attitudes changed significantly during the digital projects. While some changes were less profound than others, all four teachers realized that students did not see these technology strategies and opportunities as a privilege, and likewise the teachers understood that using digital tools was like bringing students' homes into the school. Research supports the extent to which students are plugged in (Stephens & Ballast, 2011), and by plugging in with them, teachers become more relevant. However, by the end of both projects, a few apathetic students, those who frequently did not turn in work, still either did not complete their projects or had to be forced. Technology did not cure apathy. It was a temporary motivator, it stimulated involvement when the digital tool engaged them, but when it boiled down to following-through, meeting deadlines, and completing the necessary writings that involved no technology, digital options and the other motivating components to the lessons did not inspire 100% success. Both projects offered several high interest activities for the students, from choosing social justice issues in the middle school to

downloading music and integrating art at the junior high, so technology was not the only motivating element included in the project. The teachers realized that with several motivating possibilities, they would not be able to reach all students all the time, but they were appealing to more students with their inclusion of these activities.

The cooperating teachers were not surprised by students who were not 100% successful, but the interns were. For the cooperating teachers, they had witnessed the same specific student behavior the entire school year. Even though the teachers had established the conditions for learning Cambourne suggests (1988, 2002), namely *immersion* and *engagement*, a percentage of students had not embraced what Gee (2001) refers to as identifying and being committed to the learning environment. The disconnect to a class or school in general likely starts at home, with the expectations not having been established by parents or guardians. Numerous factors weigh in on a student not being committed to learning, but Cambourne offers his seven conditions that support what teachers can do to allow those students the opportunity to learn. For the interns, they witnessed the initial spark and what it took to get those students involved, working with classmates, choosing songs or topics of interest, and researching on the Internet. The immersion and engagement (Cambourne, 1988) was evidence that the seven conditions work, but then the interns realized the digital options were not a magic pill outside what directly motivated the students to participate. When enthusiasm waned for those select students, the interns agreed that it served as a reality check that what felt like a solution to apathy was only temporary. While there were possibly outside issues with these students, other reasons they were not connected to school or to a specific subject or teacher, the work ethic for this project eventually matched previous patterns with turning in and completing work. The

cooperating teachers were pleased with the amount those students participated, and at one point Pam told Molly that the best teaching is to provide as many authentic opportunities as possible and reach as many students as possible. To search for the magic pill negates the true solution: quality, well-planned, innovative teaching.

Teachers like the inspiration technology offers but preparation for the project plays a significant role in how well-received the project is, as well as the teacher's enthusiasm. When a digital unit is innovative, well-planned, and organized, then the result is likely to reflect the effort. Even though innovative, student-centered teaching takes time and energy, experts suggest that teachers can avoid burnout by changing the pace of their classes and that innovative, student-centered classrooms foster better student behavior, a contributing factor to teacher attrition (teachersbusiness.com, n.d.).

When it came to writing, teachers incorporated digital tools as a supplement to it, not a replacement for it. They likewise maintained that it was necessary to still teach the writing process without allowing digital tools to replace any steps. While students were allowed to compose on the computer, there were still peer edits, revision, and quality checks by the teachers. In both projects, students wrote on paper, whether it was a storyboard or a letter to an audience, before they ever went to the keyboard. The digital component was an additional step, not a replacement for one. Teachers value writing, and whether the computer will eventually replace the notebook out of sheer necessity for saving paper is yet to be seen. One thing all four teachers observed and advocated was that the students could complete work on the computer, send it to one another or the teachers via email or a collaborative web program, and no paper ever had to change hands. Getting feedback in cyber space was immediate, effective, and cost-prohibitive, and ultimately the

teachers agreed that it was a certainty to play a role in their future classrooms.

Summary. Writing is still important, and when a digital component is added, it can supplement the process on many levels, whether as a collaborative opportunity, for feedback, or to serve as a way to illustrate and present a project. When digital lessons are incorporated into the classroom, teachers learn a great deal, and when students are the experts, it not only educates the class and the teacher, it builds community and creates a digital environment (Iste.org, 2008). Obstacles can be overcome, skills improved, and the differentiated learning that occurs during digital projects creates the ultimate educational environment: everyone learning from one another, at varied levels, and being willing to ask for help along the way. A classroom that can achieve this will be teaching far more than digital literacy. Quality teachers who are open to innovation generally are inquisitive learners and willing to do what is necessary to stay relevant. If digital literacies are part of that innovation, then they are enthusiastic about incorporating them, and therefore they continue to evolve and will seek new and relevant ways to do that.

Teacher Preparation

Some of the conclusions drawn from the research are common sense: of course the cooperating teacher has an impact on intern development (Kajder, 2005). Other broader implications arose, with emphasis on student teacher placement and teacher preparation programs.

Placing student teachers should be highly selective, because the impact of the cooperating teacher is the intern's first taste of teaching and sets the tone for their first year when attrition is at its most pivotal. The cooperating teacher's attitude about technology,

her collaborative skills, and her ability to build community play a profound role in the classroom, and therefore translates to the teaching intern's experience.

Teacher education programs must be preparing future teachers to educate in the digital world. A majority of the preservice teachers I observed when starting this study had minimal digital storytelling experience or familiarity with digital tools being used in the public school district in which the study was done. The results of the technology survey (see Appendix B) given to preservice teachers one semester away from student teaching revealed that:

- 15/29 had been introduced to digital storytelling software during their teacher education program
- 3/29 had enough experience using digital storytelling software to feel proficient
- 2/29 had podcasted, vodcasted, or blogged (while 93% of the sixth grade class in which Molly did her internship had done at least one and were familiar with at least two)
- Of the programs and tools listed on the survey, only 2 preservice teachers were familiar with more than five of them. The majority had *heard* of several but most (26/29) had only used one tool on the list (depending upon whether they had a Mac or a PC, the one tool was either iMovie or Windows Movie Maker/Live Movie Maker). In an informal poll of the sixth grade class, all but one student in Pam Downing's class knew of every single tool or website listed and had used most. One student was not familiar with Xtranormal. The primary reasons for not having used several of the tools was that either they cost money or they were not compatible with the computer they had access to at home.

Interestingly, in Beth Todd's sixth hour class of freshmen, the familiarity and use of digital tools declined slightly. In an informal poll with thirteen ninth graders, nine of them used five or more of the tools regularly, while four students were not familiar with several of the tools listed. One student, identified as a free lunch recipient, said he had heard of most of them but had only used a few.

To summarize, the younger students were more digitally adept than the older, and those going in to teaching were not being taught the programs current K-9 students were using. The trend of those born into the digital era was proving what Toor (2011) had surmised, that the average four-year old would know how to operate a smart phone before learning to tie his shoes. Likewise, the younger the student, the more exposure he or she has likely had to digital tools. The media specialist at South Lake Middle School said her two-year old had figured out how to download an app, even bypassing the passcode on her iPad, in order to play Elmo's ABCs or Doodle Buddy. Young children will use trial and error to figure out how a digital tool works. The older we get, the less likely we are to spend a lengthy amount of time on something that frustrates us or that we cannot master quickly. We simply move on to something we already know how to use, or we ask someone to show us. However, many who embrace digital skills and applications later in life might experience the same newness that comes with late bloomers of any generational trend. The books by Abby Stokes, *It's Never Too Late to Love a Computer: The Fearless Guide for Seniors* (2005) and *Is This Thing On? A Computer Handbook for Late Bloomers, Technophobes, and the Kicking & Screaming* (2008), are evidence that many digital immigrants, especially senior citizens, want to know how to navigate new technology. Ivy

Bean joined Facebook in 2008, making her one of the oldest members of the site. When she died in 2010, she had reached the maximum number of friends allowed (4962) and had more than 56,000 followers on Twitter (Millson, 2010). Her death was reported worldwide because of the attention she had gotten for her social networking and tributes received from notable media moguls (Gray, 2010). Clearly, computers and their connection to the outside world know no age limit, and the market for seniors to become digitally literate reminds us that learning never stops. Realistically, teachers, whether novice or veteran, will never be able to stay abreast of innovations, nor will a majority of the population with the sheer volume of possibilities. According to the Apple website, the iPad, as of April 2012, had over 100,000 applications, and the iPhone had well over half a million; understandably, teachers are overwhelmed (n.d.). The key for educators is to focus on an area, master what applies to that interest, and find and explore potential connections and applications to the classroom. Teachers must maximize their time digitally just as they do with everything else. For teachers who feel they have fallen behind or are even resistant to technology implementation, research supports that professional development can adequately train teachers for digital literacy, no matter whether a novice or a veteran (Cator, 2011; Atkins et al., 2010; Scherer, 2011).

Not too unlike many teachers, secondary students – like those freshmen in Beth’s class – were more likely to use social networking sites, because that was important to them. They had been born at the beginning of the birth of the Internet and grew up during the explosion of smart phone technology. While their world became saturated with it, it was gradual, and the boom of applications did not occur until they were in middle school. YouTube, a central fixture in many teenagers’ world, was not discovered until most of the

freshmen were ten years old. What does all of this mean? Teachers need to be in tune with what students at varying levels are interested in and experienced with. In order to do that, they must experience the implementation of digital skills and be placed with teachers who are willing to use the tools necessary to be relevant with today's students. As expected, the cooperating teacher's attitude played an enormous role in intern development, but the range of those effects brought in to question how interns are placed and the preparation for those preservice teachers to enter a dynamic profession educating the youth for professions not even yet invented.

Cooperating teachers and intern placement. Most teachers learn more during their on-the-job student teaching internship than at any other stage during their teacher preparation, only then embracing the real sense of what being a teacher really constitutes (Darling-Hammond, 2006; Weasmer & Woods, 2003; Koskela & Ganser, 1998; Goodlad, 1990). When asked what best prepared them to be teachers, interns and practicing teachers viewed their field experiences and student teaching, when they become immersed in a school's day-to-day operation, as the most useful and effective component of their preparation program (Goodlad, 1994). Observing a cooperating teacher in action gives insight into what to do and not to do in their future classroom, and through practice, interns embrace the real challenge of teaching (Darling-Hammond, 2006). A pivotal point in an education program is placing interns with quality cooperating teachers, because interns must learn from experts of the highest quality (Darling-Hammond interview by Edutopia Staff, 2001). Hattie, Clinton, Thompson, and Schmitt-Davis (1996) offer attributes of expert teachers as those who guide learning through interaction and facilitation, monitor meaning-making and offer quality feedback, improvise as needs mandate, identify

important decision-making and what is less important, are enthusiastic, and engage students in innovative, enhanced master learning. Darling-Hammond adds that the better-prepared teachers are, the more likely they are to stay in teaching (Edutopia Staff, 2001), so to place interns with expert teachers offers incoming teachers the best opportunity to succeed and avoid attrition. As stated in chapter two, the overwhelming statistics of attrition make the first five years of teaching an enormous hurdle with over 65% leaving during the first four years (Fox & Certo, 2002; Ingersoll & Kralik, 2004; Huling-Austin, 1986). Teachers leave for many reasons (Croasman, Hampton, & Herrmann, 1997), but the solution can be with improved preparation programs, including the internship with experts who can provide the best possible education for future teachers. To underestimate the value of the cooperating teacher would be to miss one of the most valuable components of teacher preparation.

Interns. Before my research took place, during the semester in which I observed preservice teachers, I targeted and focused on ten juniors in the English secondary education program. I paid attention to their willingness to learn, their openness to teaching with technology, and their attitude toward the diverse needs of students growing up in a technology-infused generation. It was clear that several were going to be exemplary teachers, simply because they had that teacher withitness that cannot be taught. A few exuded negativity, and their success would depend enormously on student teaching placement so that a veteran teacher could mold them and help them find the positive side as they launch into a stress-filled profession. But many straddled the fence of objectivity, not yet philosophically formed, still a blank slate ready to be impressed by experience. Three important factors play a significant role in that development: a cooperating teacher's

attitude about technology use in the classroom, collaboration, and community building.

Cooperating Teacher's Digital Attitude. However willing a cooperative teacher is to try new things like digital literacies plays an enormous role in intern development. When educators are able to allow student-centered activities, real learning occurs, for students and interns. Several keys to being a quality teacher are a willingness to evolve, embrace innovation, and foster student-centered learning. The fact that “creating” has replaced “evaluation” at the top of Bloom’s Taxonomy (Bloom & Krathwohl, 1956; see Appendix F) exemplifies the changing focus of education and shows the importance of allowing students to be in charge of their own learning. Taking risks with digital literacies is no different but is often more daunting. One possible deterrent for teachers is knowing that students are likely going to have more expertise. But the greatest obstacle for most teachers is the amount of work required. During a professional development workshop, a group of innovative educators discussed how they were always eager to try new things EXCEPT when it involved technology. They were not opposed to it, but digital literacies created an anxiety other trends did not, they said, mostly due to the pressure they felt to stay abreast of the trends and the push to meet the Common Core State Standards (Corestandards.org, 2012). To take risks in the classroom with digital tools involves detailed planning, reserving laptops or a computer lab, creating a clear rubric for the project, outlining objectives for students if they need to be in a computer lab, recruiting the media specialist to demonstrate important skills, ensuring access to key sites needed for the project, previewing strategies and websites to be able to model for the students, and the list goes on. While a quality lesson that does not involve digital literacies should require equal planning, the reality is that most teachers only go to this extent for major projects. Those

that involve digital literacies also present the obstacle of something possibly not working. In the past decade, we have come to rely on equipment like Smartboards and computers with projectors that might not operate properly. One need only save a workshop presentation to Dropbox and find you cannot access it when it comes time to present to understand how quickly we have come to rely on technology and how helpless we are when it fails.

Even with these pressures, technology is not going away, and student-centered learning still supports the best way to learn. When interns witness that kind of modeling and experience being a facilitator, it shifts thinking about how students learn. During digital projects, innovative teachers allow students to experiment with technology, explore concepts the teacher might not totally understand, and students are allowed to be the expert.

Both Molly and Lindsay experienced this, and even if only for a few days, they facilitated student-centered learning and observed quality differentiation. Each intern admitted that facilitating was exhausting; meeting the needs of every student at varying levels of expertise and different stages of the project was far different than executing a lesson with all students doing the same thing at the same time. All students were engaged, had questions, and quite simply, they wanted the teachers to see their progress. Students got excited, so they demanded attention. Because their cooperating teachers were willing to take the time and effort to plan an extensive digital lesson, the interns reaped the benefit of that experience. When teachers take risks, students benefit, and so do interns who gain experience in that rich environment.

Collaboration. An enormous benefit for interns is the collaboration that occurs

when planning a project and the ongoing evaluation that happens all throughout. The interns gained insight by working with the cooperating teacher, experienced what quality collaboration looks and sounds like, and started honing a skill they would use their entire career. The conversations that happened during conference hour collaborations allowed the interns to ask questions, to get feedback on the day, on their performance, and to discuss the progress of various students. Beth and Lindsay touched base daily about specific struggling students, talked about strategies to keep them focused and successful with the project, and at the end of every conference hour, Lindsay asked Beth how she could improve. Beth offered feedback, made suggestions, and almost without fail, Beth said Lindsay made that adjustment by the next day. Their collaborative talks became a consistent means of planning, but they also served as a forum for brainstorming.

Molly, especially, exemplified how much of an impact talk could have on growth. Through her conversations with students, her quest to improve, and an open line of communication between the Pam and her, Molly grew exponentially because of talk. Her willingness to listen and her patience to absorb everything Pam said helped her gain insight, seek understanding, and continually grow. It was through conversations that Molly and Pam clarified their understanding of the project, the specific digital skills students were using, and of the process the students were undertaking.

All in all, teachers and interns learned by talking, by collaborating, by bouncing ideas back and forth and offering insight into why lessons did or did not work. The talk generated during conference hours, while teaching, and between students collaborating on their digital projects proved to be invaluable. Without collaboration, teachers would stagnate, projects would not improve, and learning would be left to the students. That is

not to say that great teachers always collaborate or that teachers who collaborate always transfer it to their classes with effectiveness. But communication and collaboration make growth possible and provide a platform for questions, suggestions, and concerns (Barnes & Todd, 1977; Coughlin & Kajder, 2009). The interns and cooperating teachers shared what was relevant to the project and the topics of each as they talked, and connections were made during those conversations. They discussed how students related their work to their world, how teachers connected with students, and how those connections made the project and learning relevant (Zwiers & Crawford, 2011). All their conversations brought better understanding to all aspects of the project. By talking about what worked, what did not work, and what could make the project better, they were collaborating about how to adapt the project for the next year or for the intern to use in her classroom. Often, it was through talking that the interns figured things out; talk served as a means of reaching understanding, not just sharing it. They also incorporated digital forms of talk, like texting and email, throughout the entire internship, both with one another and with me.

Ultimately, teaching does not happen in a vacuum, and teachers do not learn from silence, whether it is from one another or the students. Nothing good comes of keeping feedback to yourself, not sharing a compliment, or offering constructive criticism. Talking is teaching, it is learning, and a quality conversation is the ultimate collaboration.

Community Building. From a strongly established classroom community to the environment that could have been better established, a great deal can be learned from either. Any environment can be improved; all struggling communities have positives to offer, especially for interns building a foundation for how to establish their own classroom community. For both interns to be with cooperating teachers willing to grow themselves, it

helped them see how much work goes in to building classroom community.

When observing these digital projects, how strong the community was played a significant role in several stages of the work. For the social justice lesson, community was so firmly established that students felt safe asking one another for help. If a teacher has built an atmosphere conducive to learning, to sharing, to taking risks together, students will attempt tasks they may not feel comfortable with. They used trial and error as a group and did not worry what their classmates thought, and the interns witnessed that collaborative work ethic. Molly asked periodic questions about how Pam accomplished that environment, and while Pam often did not know the answer, Molly pushed to learn more about the first two weeks of the school year, about what Pam did, how students established rules, and how the climate was developed. She understood that classroom community was laid as a foundation at the beginning of a school year, and no matter how hard teachers try to back pedal, it is during those pivotal weeks that we establish expectations and prove whether we mean what we say.

At South Lake Middle School, such a strong learning environment had been created, students felt comfortable taking risks, asking one another for help, and not judging one another for their failures. Molly reaped the reward of that community, earning her way into it by being forthright, and willing to let the students be the expert. Students responded quickly to her, and likewise, she was able to grow through her own willingness to be a facilitator. She seemed to learn as much from the students as they did from her. That continual give-and-take added to the already collaborative environment, and by the end of her internship, Molly said she could not imagine how it would feel to leave students after an entire year. She had experienced those connections in sixteen weeks and understood that

a strong community had a lasting impact. What she witnessed and ultimately became part of could very well shape how she would start her first year teaching. In a nutshell, doing her internship with a teacher who established strong community should have a ripple effect that will keep her in teaching. If improving the experiences for the interns can have a more lasting effect, then schools collectively playing a part in each teacher creating a strong classroom community should be integral to not only the success of the students but the teachers as well. While Lindsay's classroom environment for a few class periods was not as strong, some were. She remarked how different 6th hour behaved compared to 7th hour. Lindsay was observing Beth's reaction to a class she had been struggling with since September. However, in 7th hour, Beth had established a bond with those students, there was a sense of community, so the learning experience for Lindsay was complicated. Not everything works all the time, the same way, with every group of students. Each class is a separate entity, and groups will have their own collective personality. Occasionally, there are class periods that are much more challenging than others, and sometimes it requires a sit-down conversation with the group to ask them for insight. Much like with content, there is a great deal that can be learned from talking, and perhaps a group of teenagers would respond to a teacher asking them to help figure out what to do about a classroom dynamic. Conversations make solutions possible; if we do not open the door, it is hard to reach an understanding.

Teacher preparation programs. The statistics of attrition are staggering. In the first seven years, nearly half of all teachers will leave the profession (Fox & Certo, 2002; Ingersoll & Kralik, 2004; Huling-Austin, 1986). Croasman, Hampton, and Herrmann (1997) cite many reasons teachers leave, including the inability to cope with teaching

problems (discipline, grades, parents), insufficient salary, and lack of school community. As discussed in the previous section, establishing community should happen at the building level, as well as in individual classrooms, but this is not an easy concept to teach future teachers. It would be difficult to simulate an authentic situation for students to practice building community, but we can certainly provide strategies for them to try while they are in their teacher preparation program. Croasman, Hampton, and Herrmann (1997) say that one of the main reasons many teachers leave the profession is because they feel they were not adequately prepared for the real-world classrooms. One solution is to have a year-long internship that allows interns the authentic opportunity to experience the community building from day one of a school year.

At the beginning of the project, the potential teachers I would be working with filled out the technology survey (Appendix B). The details of the surveys have already been acknowledged, but several comments were made about what they felt they had not been taught during their preparation to teach. In an impromptu conversation at the end of class close to the completion of the semester, the preservice teachers compared notes about what they were seeing in their field classrooms, where they were currently doing their last observation before doing their student teaching internship the following semester. In other words, they were at the end of their programs and realized how much of what they were observing in field they had not been prepared for how to teach. The following is a short summary of a list that this group of 13 middle and secondary education English majors discussed:

- Classroom management – they had been taught a little about what to do in a few scenarios in one class, but they felt they needed more opportunities to observe

possible solutions for specific situations. Both interns from this research admitted they did not yet feel prepared for their own classroom, even when they were almost finished with their student teaching experience.

- Beginning of the Year set-up – they wanted sample activities to do the first day, how to set-up classroom rules, what to expect from students during the first week, how to establish community, and a general sense of what should happen during the first week. While a few said they had teachers do Q&A sessions that addressed some of these topics, there was so much more they would have like to have been at least introduced to.
- Technology/Digital Experiences – they collectively felt this was a gaping hole in their teacher prep program, that students would know far more about digital literacy than they would. While they had done a few isolated assignments in that specific class (Media Literacy), it focused more on commercials, propaganda, and character analysis than on the technology tools they were observing in their field experiences. They admitted that they had virtually no other experiences with digital literacy in any other classes, though a few instructors were including them in courses they had not taken (other sections of Reading in the Content Area, for one). They noted that students in field were podcasting, vodcasting, blogging, creating websites, digital storytelling, and employing some skills they did not even know for sure what they were for. One student said his teacher used a clicker system that he had never seen; another said his field teacher was allowing students to read interactive books on iPads, Kindles, even iPods and he was not sure how those worked; a few others talked about how their field teachers used applications on the Smart Board they

were not familiar with. They added that they wished they had a tutorial on what all the Smart Board could do.

After fifteen minutes of brainstorming, they described the panic they felt at not being prepared, yet other opinions were offered that they would not know about every book ever read either, that sometimes it was okay to let students teach the teacher. I pointed out that the university had offered technology courses, workshops, and Smart Board tutorials, but that it was often hard to know everything that went on around them. When they finished their chat session, a few insights emerged: while they stressed themselves out, it relieved many of them to note that their list was small. While the items they listed might feel like enormous issues, topics arose and classmates explained when they had learned that concept or that most of them had that experience in a specific class. In the end, Molly and Lindsay both said that they hoped their internship included plenty of opportunities to learn the technologies students were currently using.

“Better to learn now than in my first classroom!” Lindsay said (Personal Communication, December 2011).

In the end, these college seniors were braced to enter their profession feeling underprepared. While many people experience uncertainty before taking the leap from student to professional, the digital divide is real. It does not mean that adults cannot master skills the children are doing, but the divide is simply the reality that children born today have no existence prior to smart phones, no memories before apps, Angry Bird, touch screen technology, and no existence without the world wide web. We as adults may master it, but we did not grow up immersed in it, with the digital era woven into the fabric of our system. We can, and do, choose to unplug. We go off the grid. We take breaks, turn off our

cell phones, and choose to escape the rigors of email, texts, being constantly connected. Children under the age of eleven or twelve cannot comprehend that, they do not consider a hand-held dictionary being something that does not need charging. It is not a matter of us versus them, but it is a fact of life that their world and the cyber world are so tightly enmeshed, they cannot unplug. What does that mean? Why does it matter? It matters because we are preparing future teachers, and we must plug in with a different mindset. Phones in the classroom cannot be perceived as a distraction. It means we must infuse our teacher education programs with opportunities to learn how to not only use Little Bird Tales and We Video but to integrate content areas and projects with them. It is no longer a matter of whether to consider a project using podcasting but instead to use podcasting to teach, to be a regular tool for non-digital projects. Digital opportunities should not just be the project; they should be the tool, the conduit, the ink pen. They should not just be what we teach but how we teach.

Many teacher education programs, like the one that prepared Molly and Lindsay to be teachers, have not embraced the need to integrate digital literacy into the curriculum. Occasionally, methods courses assign a digital project that incorporates technology, but digital literacies are not embraced as a component of teaching in many of today's higher education classrooms. To ready our educators for 21st century digital learners, they need to be trained to think digitally, to teach digitally, to not only consider digital projects but to consider the benefits of digital tools as part of the process for any unit in any content area. The focus of an activity does not have to be digital to use digital tools. Take notes with a Pulse pen while doing a writing or reading conference. Use an audio recorder for students to read aloud and then listen to their own reading. Have students go outside with a flip

camera and capture everything they see that has something to do with math. The possibilities are endless. When the time comes, those same tools can be used for a digital project, but in the meantime, they should not be relegated to a drawer or a shelf.

Molly had been trained, or perceived she had, to control a classroom, to be the one in charge. While that is true to an extent, the missing element in her thinking is that students can and should absolutely be in charge of their own learning. If students take charge, if teachers facilitate the most authentic learning, then digital skills and applications would become an integrated way of thinking, a different approach to read alouds, writing exercises, group work, student collaboration, parent-teacher conferences, reading/writing conferences, and everything else that falls in between. Technology improves teaching, it supplements teaching, and it can be the teacher. All we have to do is let it and learn how to use it.

Limitations

Several limitations occurred throughout this case study. Because this research was conducted at two different schools, during two different times of year and semester, participants' attitudes and behaviors varied. The junior high study was completed within six weeks of school ending, and the teachers, students, and intern were all anxious for school to end. This sometimes kept students from focusing on schoolwork, and on occasion teachers even admitted they were tired.

For the middle school study, weather was an enormous limitation. There were eight snow days throughout the digital storytelling project, hindering Molly's ability to get to know the students, develop a fluid lesson, and required continual review to get students back on track. Three weeks in a row, from the very beginning of the study, the district

canceled school at least twice a week, and during one week, school was called off four days in a row. This made it difficult for the intern to learn student names, though she managed to, but the students did not get to know her well for several weeks. This hindered the community that would eventually be created with consistently working together.

An unforeseen limitation that occurred involved me as the researcher and non-participating observer. The more I was in the classroom or computer lab, the more both sets of students, at the middle school and at the junior high, got to know me. They began to see me as an expert, and they frequently asked me for help. While I tried to divert their attention to the interns or cooperating teachers, on three occasions I assisted them with their needs. Likewise, the interns began to view me as a resource or an extra set of hands, and several times they consulted with me regarding curriculum, discipline, and/or situations that arose in the classroom. While I wanted to remain an observer, I was often part of conversations and conferences with the interns and cooperating teachers, but I always tried to channel the conversation back to the intern, the students, or the project. Both cooperating teachers asked me if my role in the classroom could be extended so that I could give talks about novels I have written. In the interest of validity and not skewing my research data, I agreed to do this but only when the study was over.

Another limitation was that both interns I researched, as well as their cooperating teachers, were from middle to upper-middle class homes and areas of the community. Both interns interacted with a diverse population not reflective of themselves: racially, socio-economically, or culturally. While they were able to build community with most students, occasionally a few situations arose that reflected this limitation. Louis told Lindsay one day while they were in the computer lab, that she did not understand him, because she had

no idea where he came from, what his life was like. The limitation did not prevent Lindsay from interacting with students different from her, but she admitted that on occasion, it was difficult to connect with a few students.

One glaring limitation for this study and for many cases of student teaching in general was that the internships were done during the spring semester, long after classroom community was created. The interns began at varying points during the second semester, and by not being there from the start of the school year, the class had bonded long before the intern entered the classroom.

Computer access also became a limitation in both parts of the study. When they were able to, the middle school project moved to the classroom and used the mobile lab. While they had plenty of laptops, there were often not enough headsets. Space became a limitation when it was time to narrate their digital stories, so students were sent to various places: the hallway, the cafeteria, and other teachers' classrooms that were not in use. Time had to also be factored in, as Pam needed an extra five minutes at the beginning and end of the class period for laptop disbursement. During the junior high project, the cooperating teacher and intern were able to get the computer lab on most days they wanted it, but at one point, they were unable to book it. They asked the students if they could work on the project at home; one student in 6th hour and two students in 7th hour said they did not have Internet access at home unless they went to the public library. In order to accommodate all students, Beth and Lindsay allowed them to use the computer lab before and after school. While it made it possible to finish this project, the availability of Internet at home made it more likely that these students would do similar work outside of school.

After conducting research at both schools and observing both interns and their

cooperating teachers, I realized that my research would have been better served to include the students. Even though I was focusing on teacher development and teacher use of digital sources during the writing process, it would have been interesting to do more in-depth research on the students and their computer use outside of the project. It became evident from my research and from being with two different age groups that the age of the student truly did matter. The younger the student, the more risks they seemed to take and the broader their range of digital experiences. To have delved deeper into that would have offered the interns and the cooperating teachers insight into student digital behavior.

Throughout the studies, the interns and cooperating teachers touted their projects to their colleagues, and while both schools had media specialists who actively embraced and advocated technology in the classroom, there was a great deal of reluctance by many of their colleagues. They were not opposed to using technology, but many admitted that the time it took to prepare and implement these types of projects were prohibitive and took away from curriculum that had to be covered for state tests. Not only the time constraint, but incorporating a digital component into the curriculum forces teachers to rethink their lesson plans. The shift may happen one teacher at a time, and for some schools, this may be too slow. By the time teachers embrace the innovations, students may have long since passed them by and lost interest in their teachers' behind-the-times mentality, much like the bewilderment McLuhan (1987) believes students experience when they enter many of today's rigid, disconnected classrooms.

Pedagogical Recommendations

There are a number of recommendations for teachers and teacher preparation

programs that have arisen from this research study. The following are my primary suggestions:

1. Teachers should embrace innovative teaching and incorporate digital literacy in their classroom, including but not limited to computer use. They should allow students to use a computer to compose, to present, and to publish their work. For the reluctant writer, using a keyboard might be all it takes to engage him or her, and these skills are essential for life after high school. So many jobs and professions require web-based skills and basic computer knowledge, and to get along in the world today, many life skills are computer-based. We can renew our license plates, enroll for classes, book airfare, apply for a job, pay our bills, check our account balances, order a pizza, and reconnect with every person we ever went to school with or met once at a coffee shop. The Internet is boundless. For teachers, no matter what context or form it takes, technology keep them relevant, and this case study of teaching interns proved, if nothing else, that authentic learning motivated both teachers and students. Teachers need to motivate students to be digitally literate so that they meet Common Core State Standards. It is a lifelong skill to get students college and career-ready, for them to be successful in the work force. I begin by sharing web-based applications and then cover digital devices that can be used in the classroom for innovative lessons.

Examples of possible digital uses include:

- A. Web-based applications, such as creating blogs, websites, wikis, or using infographics (graphic visual representations of data, information, or knowledge that present complex information clearly and quickly, like a

subway stop map). The possibilities for web-based applications are endless: students could create a digital story on Little Bird Tales, record a podcast on Audacity, do a read aloud using We Video or Google Hangout, create a class blog on blogger.com so students can share thoughts and reactions to a class novel or activity, have students build their own website using Weebly, instruct a group to create their own infographic to illustrate what they learned about a concept. There are too many possibilities to list them all, but there are valuable websites that help teachers come up with ideas, including busyteacherscafe.com, teachers.teach-nology.com, sitesforteachers.com, theteacherscorner.net, and educationworld.com.

- B. Flip cameras for students. They can create vodcasts, public service announcements, video logs, or use these for many other activities, possibly to do their own research and incorporate their images into digital compositions that apply to any content area.
- C. Audio recorders so students and teachers can do their own podcasting. A skill that can be used in many different content areas, podcasting teaches a real-world skill, and it fosters thinking, talking, and listening.
- D. iPods for a variety of activities. An essential use is for students to have access to their own pictures and video to use to create digital compositions. They can also read books or articles, watch video, take pictures and video, and use it for a variety of web-based purposes. With polleverywhere.com, it can serve as a tool to text in a response to questions, opening the door for every student to have a voice in the class, shy or not.

- E. Pulse pens for reading/writing conferences. The Pulse pen records the audio during a student conference, and then teachers can download what is written with that pen via a USB chord onto the computer to have a copy of the textual interaction. This could serve as a means for the educator to account for student progress and know what lessons to teach next, as evidence to parents to know their child's progress, or as a reflective tool for the student to see what he or she knows and track individual progress.
- F. iPads (or similar notebook/notepads) for multiple uses. The iPad and similar devices are part of the boom of digital textbooks. Many schools are starting to realize the possibilities of electronic texts, to save money and trees, but also to eliminate multiple books for students to carry. Now students would need only one device that would store textbooks their entire educational career.

To avoid re-creating what educational sites have spent valuable time doing, I share a few of the twenty applications for teachers that Samantha Miller described in her article *20 Amazing iPad Apps for Educators* (Miller, 2012). In order to make my study relevant for future educators, the electronic copy of this research will include the hyperlinks of each. Not all sites are writing specific but are teacher-centered. The list includes the short description, but a longer overview can be found in Appendix H.

- a. Sundry Notes – Type, record, draw, etc.
- b. Mathematical Formulas – Mathematics resource
- c. gFlashPro – Electronic flash cards
- d. Free Books – Gain access to nearly 24,000 books.
- e. LanSchool Teacher's Assistant – Limit student access to

inappropriate or distracting websites.

- f. The Elements: A Visual Exploration – An electronic periodic table
- g. Keynote – Create, deliver, and share presentations
- h. Dropbox – Web-based file saving and sharing

G. Keyboards, real or virtual. While many devices have them, students master a great many skills without becoming proficient at actual keyboarding/typing. These skills are needed now more than ever, as state assessments are moving to computer-based implementation. Many states, including the one this study was completed in, are moving to computer-based state tests. Several reading comprehension measurements, like the SRI (Scholastic Reading Inventory), are also computer-based. So no matter a student's reading or writing ability, being competent on a keyboard is a real-world, necessary skill.

2. Teachers should conduct digital projects that allow teachers to become facilitators more often. Student-directed learning places them in the driver seat to become more engaged. They tackle the toughest learning, and the teacher can play a pivotal role as a guiding passenger on the ride to discovery. Possibilities for this type of learning are endless and include both of the projects conducted by this research. It could also include any number of lessons outlined on teacher websites like digitalliteracy.us, classroom-aid.com/educational-resources/digital-literacy, or schoolnotes.com Forbes.com describes a Columbia University school that provides a private social network playground for students to learn digital skills and applications. The founder explains that this pre-kindergarten version of Facebook allows children to learn about the issues of digital life, invisible audiences, the

permanence of material put online, and the ease of copying and pasting. All the learning new technology has to offer cannot be ignored, and future teachers will benefit from increased student engagement, a boost for student motivation, and quite frankly, a great many tools that could help make learning more fun and relevant, while making teaching and tracking student progress easier.

3. One of the biggest recommendations, and possibly the most difficult, is to better train teachers how to create classroom community. Attrition is an alarm waiting to go off during the first five to seven years of teaching, and schools as a whole should work on building-wide community. If administrators modeled the desired outcome, teachers would have an idea of how to start, of what it looked like, of a sense of what good community feels like. Generally, a school with a strong community motivates and inspires its teachers to do the same. If a school's administration does not know how to accomplish this, then they should outsource and have professional development workshops on how to achieve it. Have teachers who excel at building community come into schools and aid the process for new teachers. Assign mentors who can facilitate this for teachers during their first two to three years. Form professional learning communities that continually motivate teachers to foster community in and out of the classroom. Remind educators to be building-wide advocates for a learning-centered environment. Teachers teaching teachers is one of the most beneficial ways to help new educators blossom. The trickle-down mentality can have an amazing effect on a school and on its educators, so imagine what it could do when it reaches the students.

4. Teacher education programs have begun to reassess teacher placement and the student teaching process. Many elementary programs have made a shift in the past decade to a yearlong internship that allows student teachers to begin from day one of a school year and spend an allotted amount of time at each grade level during the first semester. These interns then do their student teaching second semester in the grade that is the best fit, as determined by the intern, the school, and the cooperating teachers. Darling-Hammond (Edutopia Staff, 2001) points out that while students can be the experts in projects, teachers must be adequately trained in order to be successful in the classroom. They must be trained to meet the needs of today's students and savvy enough to stay progressive. If secondary programs went to a yearlong internship, future teachers would gain insight into all areas of their content. Too frequently, science education majors focus on one area, like Chemistry, but end up teaching Biology and are not adequately prepared. English majors might narrow their area to literature and wind up teaching composition or world studies. By having a more thorough internship, student teachers have broader experiences, learn more about possible subjects they would teach, and get a more relevant student teaching. They would also learn valuable skills by starting their internship at the beginning of the school year, about first day/first week organization, be part of the school and classroom community, and be viewed as part of the faculty. Many of the drawbacks of spring student teaching are solved this way, and the school gets an authentic look at a potential hire's performance over a whole year. What a perfect job interview for the school hosting yearlong interns.

5. Aside from the pressures of ever-evolving technology, it bears noting that quality teachers face the pressure of staying up-to-date on many aspects of teaching: reading current literature, attending professional development sessions, paying attention to trends in a content area, to name a few. A reading workshop teacher feels a compulsion to read every young adult novel ever written, but in reality teachers cannot stay on top of everything new that comes out. They have to find what genre interests them, focus on titles of high student interest, and do the best they can. The same is true of digital literacies. They must choose areas of interest, take heed of what garners the most attention, and attend workshops to learn as much as possible. Often, spending a few hours playing with an application may demystify it and help a teacher realize that the new trend, like Pinterest, is really nothing more than a computerized bulletin board. The recommendation is to be selective but stay relevant.

Suggestions for Further Research

Teacher preparation programs and their incorporation of digital literacies would be an important research study and one that could change the way we prepare teachers for the 21st century classroom. Effective teacher education programs should be considering how to best prepare their preservice teachers to educate students who are so digitally adept. Because of the integration of a digital component in the standards (Corestandards.org, 2012; Iste.org, 2008), teachers must be trained for how to create digital environments and prepare digital citizens for a future in a technology-filled society. What role can digital literacy play in a teacher education program? Students are doing things with computers

that future teachers need to at least have some training in how to do. Research could focus on a number of angles tied to that. What digital literacies do future teachers need to be aware of as they engage in teaching 21st century youth? How does the amount of digital experience a student teacher has been exposed to affect the success of his or her students during digital projects? How can teacher preparation programs be improved so that student teachers have increased confidence in digital skills and tools and their ability to teach them? Ultimately, could this lead them to create electronic portfolios? Teachers are requiring students to do that in public schools, so should capstone and synthesis projects be including steps that are required of public school students?

Along those same lines but venturing to the specifics of student teaching, how does the digital experience of a cooperating teacher impact the success of an intern while teaching digital lessons? Or to even consider that possibility without the digital element: how does the experience of a cooperating teacher impact the success of an intern? Molly's cooperating teacher had written and received several grants, become actively involved with professors at the university, and she was equally involved in the professional learning community in her school. In her few short years in education, she had emerged as a leader.

Other aspects of student teaching have many possibilities of interest to research. I used several key studies by Darling-Hammond when researching yearlong internships, but the majority of them were elementary programs. Of interest to me would be to learn the impact of a yearlong internship on secondary schools and teachers. How does a yearlong internship benefit the student teacher? The students? The school?

When considering the digital component by itself, the research that could emerge from the implementation of it could focus on any number of topics. A researcher could

focus on how to include various digital literacies or the impact technology has on student success. How can technology be used across the curriculum in a K-5 classroom? A secondary classroom? What impact do digital opportunities have on the varying learning styles of elementary and/or secondary children? When students engage in digital lessons in the classroom, how does it impact student achievement? What is the connection between students who do digital projects and student achievement, as measured by standardized tests or other state assessments? In other words, do digital literacies lead students to be more successful over all? Do tech-savvy kids take more risks and stay more up-to-date in other areas that translate into student achievement? How do digital literacies help students learn technical writing skills and meet the Common Core State Standards? What are the benefits to doing cross-content digital projects and how could that improve literacy of all contents, like science literacy and math literacy? Collaboration? The possibilities are endless.

Several digital experts have been innovative for integrating digital writing workshop for K-12, namely Eidman-Aadahl, Hicks, Stephens and Ballast, and Miller. The same must now be done for higher education. Curriculum must include the necessary components for future teachers to not only master the reading/writing workshop mentality but also be comfortable with and an expert in digital writing workshop. How can teacher education programs foster digital writing workshop to create quality teachers? What role can digital writing workshop play in a higher education program? How could digital writing workshop across the curriculum affect teacher attitude toward cross-content literacy?

Lastly, a topic of interest has to do with cooperating teachers. Not everyone should

take student teachers. The school district in which I did my research had a four-year rule about taking student teachers. After four years teaching in the district, not overall years, a teacher could then host a student teacher. However, there is no training involved for these cooperating teachers. To be a mentor in many induction programs, there is training; to coach a sport, there is training; to be an administrator or department chair, there is training in most districts. Why, then, should we not be training our cooperating teachers on how to be an effective mentor and role model? Should there be a quality control measure for teachers taking these interns? For example, should we require host teachers to have a specific average grade per student, limit their number of behavioral write-ups/pink slips, and ensure that they have received training and support from the university place the interns?

School districts or affiliated universities should then have a system in place to pay higher (or any) stipends for teachers hosting interns. Students in teacher education programs pay to do their internships, so it would serve the university and school district well to build and maintain a quality working relationship that shared the stipend for teacher training. These incentives would promote educators to want to spread their expertise to interns and continue professional relationships with the university. Encouraging relevant and authentic preservice teaching experiences supported by the university and public school educators who share the common goals should be pivotal to the quality evolution of teaching internships (Neville, Sherman, & Cohen, 2005).

We know the best teachers are trained by the best teachers, so in order to build on that knowledge, we must assure that internships occur with quality teachers. Conversely, we must continue to grow our quality teachers.

Conclusion

Digital literacy is here to stay. It is not a fad, and our students' lives revolve around technology, no matter our training, and no matter whether they are juniors in a teacher education program, a freshman in high school, or a kindergartner. While there are not a vast number of research studies done on digital storytelling, several dissertations and other studies have been conducted, and the consensus is clear. Brzoska (2009) found that digital storytelling fosters higher-order thinking skills, develops an author's voice, and helps students learn. Tatum and Dush discovered that allowing students to write digitally integrates technology in limitless content areas, but most importantly it allows learners to incorporate their personal culture. The depth of that learning, because they are creating (Bloom & Krathwohl, 1956) and applying personal experiences, is the ultimate synthesis project.

Past research with digital literacies focused on the role of digital storytelling and did not consider the overall benefit of digital literacies in general. This case study reveals the impact new technologies can have on teacher development and student engagement. The importance of the findings focus on university teacher preparation programs considering how they are preparing future teachers to educate in the 21st century. This case study could affect change on the highest level, helping these programs understand how imperative it is to embrace digital opportunities throughout and not in isolation or part of a single course. Incorporating technology is a way of thinking, not a side bar to address in class.

As teachers, we must embrace what is part of the fabric of our society to help motivate our students to learn and to write. Digital lessons motivate students to be

enthusiastic about writing – they are writing digitally every day in their blogs, on social networks, and with their friends while gaming. They are writing more now than ever, whether it is as a process tool, a way to present their writing, or a platform for them to be read by the entire world. Digital options can change writing, and they do not have to be as a replacement but an enhancement or even simply a different forum. What we, as teachers, do now will decide how relevant we are going to be. Digital natives write, but according to this study, that varies based on age, socioeconomic status, and ability level. Digital natives are not born digitally literate. They have the immersion to become so, but likewise, they need the opportunity to develop their skills. On the other, digital immigrants were not born immersed in the digital world that computers and the Internet have fostered. Yet we may be experts, we may be more immersed than many digital natives, and because of that, we may be the ones who build the bridge over the divide. We will not know unless we are actively engaged in it.

Teachers evolve, teaching evolves, and technologies evolve. In order to facilitate the process and be part of an important movement in education, teacher education programs and those of us embracing the digital shift must be proactive. It cannot be a question of leading, following, or getting out of the way. Teachers and embracers of digital literacy tools must step into leadership roles and take steps to integrating technology into the classroom and helping others do the same. Changes in educational mindset take time, but technologies and how students use them will not wait. Like Molly, teachers can make the leap and facilitate a student-led classroom. She would not have chosen to start her teaching internship with a digital storytelling project. Lindsay also would have preferred to be more tech-savvy before trying to facilitate a digital project. However, at the completion

of this dissertation, both teachers had incorporated digital opportunities several times throughout their first year of teaching, and both said they experienced success with it. Molly insisted she would do even more next year. Lindsay said she had learned more about educational technologies at a state conference with digital literacy as the theme and planned to not only incorporate more of it the following year but intended to shape her thinking around being a digitally literate teacher. The little push both received paid off and will in turn impact digital natives for years to come. Perhaps by example, it will also have an impact on their digital immigrant colleagues.

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Appendix A

Informed Consent Form

UMC Research/Dissertation Project
A Case Study of Teaching Interns
Campus IRB Project Number 1167399
Spring 2011

Name of Project: *A Study of Digital Literacy*

Purpose of the Project. Barri L. Bumgarner, of the University of Missouri, is directing this research project. The purpose of this study is to help teachers and others better understand how participants experience digital composition projects and the implementation of writing within the technology process.

Nature of Participation. You, as a participant, may meet with a UMC graduate student no more than three times, for 30-60 minutes each time. Participants (1-3 per group) will be asked to describe and talk about writing experiences, plans for teaching writing, and other thoughts about experiences in the MWP.

Also, you may be asked to “think out loud” as you describe one of your writings, sharing as you do your writing portfolio you completed during the institute. Interviews will take place at Townsend Hall, UMC Campus. All interviews will be audio taped.

Participation is Voluntary. Your participation in this study is strictly voluntary. You may refuse to answer any question(s) and may quit this project at any time. Your refusal to participate will involve no penalty of any kind: it will have no influence on grades, teacher evaluations, etc.

Confidentiality. Every effort will be made to keep each individual’s information and identity confidential. In presentations and publications, we will use pseudonyms and/or assign numbers instead of using names of real people and places. All tapes will be destroyed three years after final reports are completed.

Risks. You will not be purposely deceived and this project does not pose physical danger. Any remote chances of harm may be social in nature. Because the goal is eventual publication, some participants may worry that a reader will be able to figure out which one is them. However, every attempt will be made to keep your identity confidential and to conduct interviews in an environment that is open, trusting, and warm.

Benefits. This study provides a safe environment in which you can talk about writing and the teaching of writing in a thoughtful, critical way. Hence, you may enjoy the opportunity to explore these topics in more complex ways. You may find that in participating you will be able to think through your own teaching plans more, which may help you implement some of your instructional goals. Finally, this research may contribute findings to the field of education and possibly affect teaching and learning.

Questions. If you have any questions about this research study, please feel free to contact the project director, Dr. Roy Fox at (573) 882-4768 (foxr@missouri.edu) or Dr. Amy Lannin at (573) 882-4272 (lannina@missouri.edu). For additional information regarding human participation in research, please feel free to contact the UMC Campus IRB Office at (573) 882-9585; umcresearchcirb@missouri.edu.

* * * *

I have read and understand the informed consent form and agree to participate and for my course materials from the TELA course to be used for research purposes.

Printed Name of Participant _____ Date _____

Signature of Participant _____ Date _____

Home/cell Phone Number: _____

Email: _____

Appendix B
PRE-SERVICE TEACHER SURVEY ON TECHNOLOGY

Year in School: _____ **Gender:** M or F

1. Which of the following is your LEAST favorite type of college assignments?(circle one)

Exams writing creative papers research artistic assignments worksheets reading technology

Other: _____

2. List the one type of activity you feel you have learned the most from during your college career:

Exams writing creative papers research artistic assignments worksheets reading technology

Other: _____

3. On a scale of 1-5, how much would have being allowed to write/create digitally improve your attitude toward writing projects/assignments?

1 2 3 4 5 (circle or highlight one)
Not at all a little some quite a bit a lot!

4. On a scale of 1-5, how much technology do you think you'll use in your classroom?

1 2 3 4 5 (circle or highlight one)
Not at all a little some quite a bit a lot!

5. How much technology do/did your college professors use in your classes?

1 2 3 4 5 (circle or highlight one)
Not at all a little some quite a bit a lot!

6. Have you ever done a digital composition of any kind? (iMovie, Windows Movie Maker, Animoto, PhotoStory, etc.)

Yes No (circle or highlight one)

7. Knowing that a large percentage of elementary students have created digital compositions (per internet survey), do you think this is a skill you'll employ in the classroom?

Yes No (circle or highlight one)

8. On a scale of 1-10, please rate where your for-the-classroom "technology stress level" is (i.e. educational use of technology for your future students – Nings, wikis, Weebly, etc.)?

1 2 3 4 5 6 7 8 9 10 (circle or highlight one)

Not at all a little some quite a bit a lot!

9. On a scale of 1-10, please rate where your outside-the-classroom “technology stress level” is (i.e. texting, Facebook, IMs, Wii, etc.)?

1 2 3 4 5 6 7 8 9 10 (circle or highlight one)
Not at all a little some quite a bit a lot!

10. Have you ever used: **(circle the answers that apply – if you’re familiar with it but have never used it, note that with an asterisk)**

iMovie Yes No

Windows Movie Maker Yes No
(also Windows Live MM)

PhotoStory 3 Yes No

Audacity Yes No

Animoto Yes No

iDesktop.TV Yes No

Xtranormal Yes No

Moodle Yes No

Ning Yes No

Wiki Yes No

Wordle Yes No

NewZingo Yes No

TeAchnology Yes No

Picasa 3 Yes No

ZamZar Yes No

1. What other new computer applications did you discover?

2. How has the idea of using technology in the classroom changed for you since taking part in this class?

Appendix C
Photostory Rubric

Social Justice Photostory Rubric

	Excellent	Good	Average	Unsatisfactory
Content	Slideshow contains 10 - 15 pictures, appropriate music from resources folder, narration, captions that are clear, articulate and based on research, title slide that is professional and clear, and a credit slide listing resources and your name. All work is done at a highly professional level and is consistent. 25-23	Slideshow contains 10 – 15 pictures, appropriate music from resources folder, narration, captions, that are clear and based on research, title slide that is professional and clear, and a credit slide listing resources and your name. 22-20	Slideshow contains less than 10 pictures, music does not seem to go with presentation or it is not consistent throughout, narration, captions are not always clear and lack facts, title slide and credits are not included or are not complete. 19-18	Slideshow contains less than 10 pictures, lacks other elements, such as title page, credits, and narration, captions. Narration and captions are not accurate. Work is incomplete and is not clearly done. 17-0
Audio	The audio is clear and includes music in the background that is at appropriate levels to hear narration. Narration is clear and is able to be heard over the music. The music does not distract from the presentation, but complements it. 25-23	The audio is clear and includes music in the background that is at appropriate levels to hear narration. Narration is clear and is able to be heard over the music. The music is not consistent throughout and there are 1 or 2 audio mistakes in slideshow. 22-20	The audio is clear and includes music in the background that is at appropriate levels to hear narration. Narration is not always clear and is not clear with the music. The music distracts from the presentation. 19-18	The audio is not clear and includes music mistakes with audio levels. Narration is not clear and at appropriate sound level. Narration is absent or lacking. 17-0
Pictures	The slideshow contains 10-15 pictures. All pictures are clear and appropriate to the topic discussed. Example: animal rights slides contain pictures that are clearly related to the subject. Pictures, graphs, etc. are the right size to display correctly. 25 - 23	The slideshow contains 10-15 pictures. All pictures are clear and appropriate to the topic discussed. Pictures, graphs, etc... are not pixilated, but are correct size to display correctly. 22-20	The slideshow contains less than 10 pictures. Some of the pictures (3-5) pictures are not clear and are pixilated or inappropriate to the topic. 3-5 pictures do not relate to topic. 19-18	The slideshow contains less than 10 pictures. Some of the pictures (5-8) pictures are not clear and are pixilated or inappropriate to the topic. 5-8 pictures do not relate to topic. 17-0
Overall	The slideshow lasts 2 - 5 minutes and covers a topic with facts stated and shown through pictures, graphs, and charts. The pictures are not pixilated, but clear and appropriate to topic.	The slideshow lasts 2 – 5 minutes and covers a topic with facts stated and shown through pictures, graphs, and charts. 1-2 pictures are pixilated. but the	The slideshow is less than 2 minutes and does not cover the topic with facts and appropriate pictures. 3-5 pictures are pixilated. and the	The slideshow lasts less than 2 minutes. Topic is not covered with factual information. It lacks info and pictures that clearly explain topic. More than 5 pictures are pixilated

Appendix D Soundtrack Rubric

Name: _____

SOUNDTRACK OF _____'S LIFE PROJECT

Character Name

RUBRIC

Part II: A reflective letter (Addressed to "Dear Listener,") that explains why you chose the particular songs that you did.

Topic #1—Explanation of Main Character (One Paragraph) –18 points

This paragraph is basically a brief biography:

- Who is he/she? _____/1
- Where's he/she from? _____/2
- What has happened in his/her life? _____/15

Topic #2—Explanation of this soundtrack (One paragraph) –19 points

This paragraph outlines your rationale or purpose in creating this soundtrack:

- What is this album you have created? What's the album title? _____/1
- Justify the title with at least 3 events from the book.
 - 6 points – 2 each for events
 - 2 points – the events relate to album title _____/8
- Why are you completing it? (Because it is an assignment is NOT an answer!) Be sure your answer is a minimum of 5 sentences. Why is important for others to know the character? Why is their life important? _____/10

Topic #3—Explanation of each song on the soundtrack (One paragraph per song)

This section is made up of many smaller paragraphs. Song by song, be sure to explain:

- What is the name of the song and the artist?

Song #1 _____/2
 Song #2 _____/2
 Song #3 _____/2
 Song #4 _____/2

Song #5 _____/2
 Song #6 _____/2
 Song #7 _____/2
 Song #8 _____/2

- Why is each song important to the main character? How does each song connect to his/her life? What does each song reveal about the kind of person he/she is and what he/she thinks is important in his/her life?

Song #1 _____/15
 Song #2 _____/15
 Song #3 _____/15
 Song #4 _____/15

Song #5 _____/15
 Song #6 _____/15
 Song #7 _____/15
 Song #8 _____/15

Topic #4—Final remarks and reflection on the soundtrack as a whole (One paragraph)

This paragraph is your conclusion in which you should thank your reader _____/1

Offer any final reflections upon this project as a whole _____/1

Explain why you put the songs in the order you did _____/16

TOTAL for PART II: _____/191

Soundtrack Rubric, continued

Part I & III: Chose either to make an album cover that includes all aspects of a CD jacket for your CD on the computer or make a PowerPoint/movie of the character's life that covers all aspects of your book. In either case, you need to include the list of songs with how long each song is, just like on the back of a CD jacket.

CD Jacket –99 points

Outside of the Jacket –30 points		
Cover art	_____	/10
Artist	_____	/10
Title of Album	_____	/10
Inside of the Jacket –30 points		
List of Songs	_____	/5
Artist	_____	/5
Date Song Came Out	_____	/5
Dedication to the Character	_____	/5
Art Work	_____	/5
Published Info (your info)	_____	/5
Back of the CD case –30 points		
Artist	_____	/7.5
Title of Album	_____	/7.5
List of Songs	_____	/7.5
How long the song is	_____	/7.5
Overall Quality	_____	/9
TOTAL for CD JACKET		_____ /99

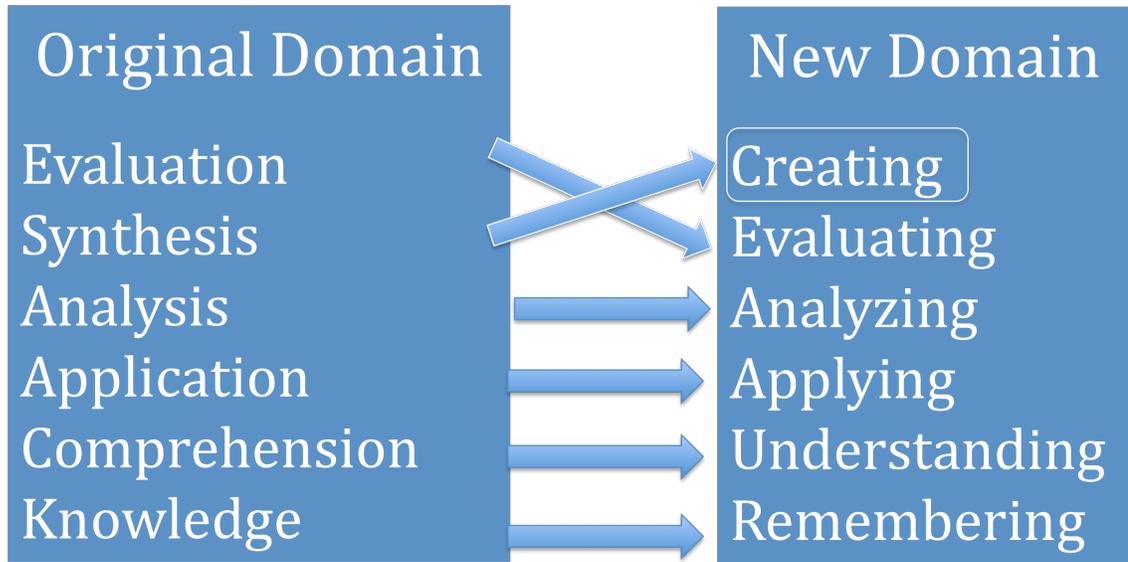
Movie/PowerPoint that includes both pictures and words –99 points

Beginning –30 points		
5 events from the beginning of the book	_____	/30
- 6 points each event		
o 3 points for words to describe event		
o 3 points per pictures to represent event		
Middle –30 points		
5 events from the middle of the book	_____	/30
- 6 points each event		
o 3 points for words to describe event		
o 3 points per pictures to represent event		
End –30 points		
4 events from the end of the book	_____	/24
- 6 points each event		
o 3 points for words to describe event		
o 3 points per pictures to represent event		
List of Songs with Artist/How long songs are	_____	/6
Overall Quality	_____	/9
TOTAL for MOVIE/POWERPOINT		_____ /99

Appendix E Social Justice Suggested Topics

World	Columbia
Child Labor	Humane Society
Child Soldiers	Food Bank
Darfur	Good Will
Death Penalty	Salvation Army
Debt	Loaves and Fishes
Discrimination	St. Francis House
Economic Justice	Rainbow House
Environment	Habitat for Humanity
Food and Hunger Issues	Central Missouri Community Action (fight poverty)
Genocide	Cedar Creek
Global Climate Change	Therapeutic Riding Center
Global Poverty	Lenoir Center (elderly)
Government Spending	Head Start Pre-school
HIV-Aids	Ronald McDonald House
Health care	Local Hospitals
Human Rights	The Wardrobe
Immigration	U-Matter
Impact of War	Voluntary Action Center
Inequality	Access Arts
Iraq War	
Migrant Workers	
Military Spending	
Terrorism	
Trade	
Trafficking	
US Poverty	
Water	
Worker Justice Campaigns	

Appendix F
Bloom's Revised Taxonomy



Anderson, L.W. (Ed.), Krathwohl, D.R. (Ed.), Airasian, P.W., Cruikshank, K.A., Mayer, R.E., Pintrich, P.R., Raths, J., & Wittrock, M.C. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives (Complete edition)*. New York: Longman.

Appendix G Editing Checklist

Author's Name: _____ Date: _____

Peer's Name: _____ Date: _____

Editing Checklist for Self- and Peer Editing

Directions: Edit your written work using the Self-Edit columns, fixing any errors you notice. Then, have a peer complete the Peer Edit columns while you observe.

	Self-Edit		Peer Edit	
	Checklist Items	After completing each step, place a check here.	Checklist Items	After completing each step, place a check here.
Punctuation	I read my written piece aloud to see where to stop or pause for periods, question marks, exclamation marks, and commas.		I read the author's piece aloud to see where to stop or pause for periods, question marks, exclamation marks, and commas.	
Capital Letters	Quotation marks are included where needed. I checked for capitals at the beginning of sentences. Proper nouns begin with capital letters.		Quotation marks are included where needed. I checked for capitals at the beginning of sentences. Proper nouns begin with capital letters.	
Grammar	My sentences are complete thoughts and contain a noun and a verb. I don't have any run-on sentences.		Sentences are complete thoughts and contain a noun and a verb. There are no run-on sentences.	
Spelling	I checked spelling and fixed the words that didn't look right.		Spelling is correct.	
			Comments and Suggestions	

Appendix G2 Revision Checklist

REVISION CHECKLIST (check each item when completed)

Name: _____ Core _____

Photostory Title _____

- Shared my Photostory with partner
 - Entire story
 - Then share a slide at a time for a closer look
 - Read captions out loud (if not recorded)

- Discussed my story with my partner
 - Topic (Why you chose it)
 - Picture choices (How they fit the topic)
 - Facts chosen (where you found them and how they explain the issue)

- Made notes/changes suggested by my partner

- **Revision Changes Completed:**
 - First slide has title and author
 - Last slide has sources and one way to personally make a difference
 - Two facts per slide
 - Pictures and captions are clear
 - Recording is easily understood

(This must be turned in with your final copy)

Appendix H

8 Amazing iPad Apps for Educators

- a. Sundry Notes – Type text or numbers, record audio, draw, chart on virtual graph paper, create tables. This website offers many possibilities on iPads, iPods, and iPhones, including real time collaboration via wi-fi, syncing notes to the cloud from device to device, photoshop, and export notes in .pdf format.
- b. Mathematical Formulas – For less than a dollar, mathematics can be transformed with this resource; access examples for how equations work, create quizzes, assignments, and allow students to design their own worksheets and write mathematically.
- c. gFlashPro – Download flash cards, quiz yourself, and track your progress, design trivia cards, or store images and audio for reference from a lecture.
- d. Free Books – Gain access to nearly 24,000 books. These free resources include classic novels, autobiographies, speeches, letters, and many writings by historical figures.
- e. LanSchool Teacher’s Assistant – This valuable site solves the problem of students gaining access to inappropriate or distracting websites. LanSchool allows teachers to black out sites, limit what students are able to do on their devices, exchange messages, and take polls.
- f. The Elements: A Visual Exploration – The periodic table has been made over so that the elements have rotating visuals that include news about them and current discoveries. The table and elements can even be seen in 3-D.
- g. Keynote – Keynote makes it easy to create, deliver, and share presentations while iCloud keeps work up to date across all devices, automatically.
- h. Dropbox – While Dropbox is blocked in some schools, what it offers is a necessity for writing instructors at all levels, in all content areas. Teachers and administrators have worked to stop this website being blocked, because it eliminates so many future issues. Students write at home, save it to the class’s or their personal Dropbox, and then have access it from virtually anywhere there is Internet. They can turn it in via email or share it in Google Docs, saving paper, and no longer able to say they forgot to save it or print it.

Appendix I

Box-Logic A C T I V I T Y

1 Students first must find a visual image that speaks to them. Perhaps a photo, a piece of artwork, a cartoon...anything that they feel moved by, humored by, even angered by. The idea is that the picture itself elicits some kind of response from the viewer.

To find photos online, you can enter the phrase "photo archives" into any major search engine will yield very interesting results, from high school sports photos to a photo-chronology of the life of Freud. And, of course, a search engine like Google allows for image searching. Online searching is the simplest, of course, but images might be scanned from books or come directly from digital photographs the students take.

2 Students look for their verbal (or aural, if they so desire) texts. This text can be a simple quote, a phrase from a book, anything that is powerful to the student. It should not have a direct, deliberate connection to the photo/visual chosen for #1, though than can become connected. In other words, you should choose text that has absolutely nothing to do with your photo, but in the end, you may create a connection between them. However, if there's a powerful quote that you love and it just seems to be exactly what you want, don't stay away from it because you believe it is too similar to your photo.

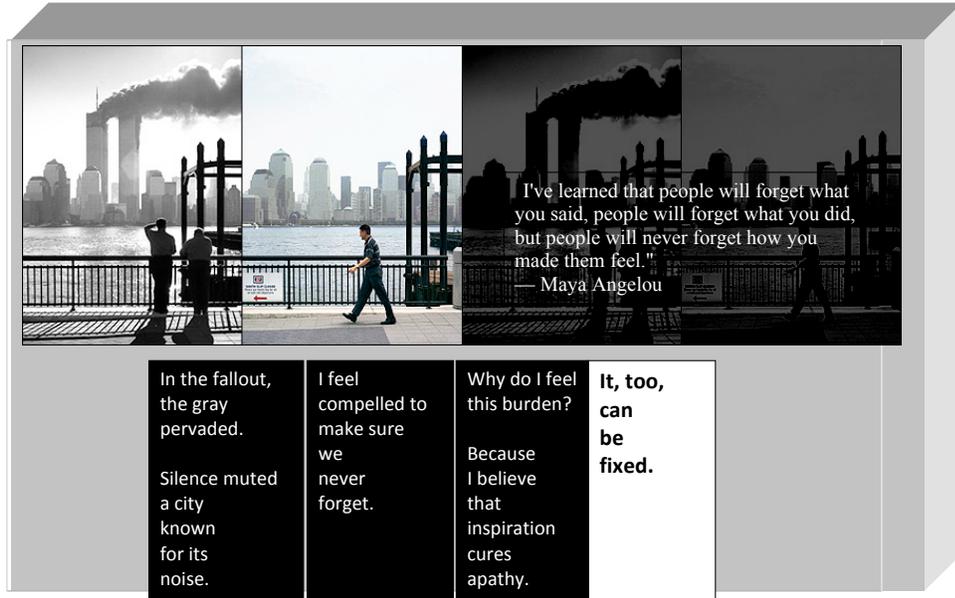
If students need tips on textual searching, there are "quote" websites. Two key ones are: Famous Quotes & Authors (<http://www.famousquotesandauthors.com/>) and the other one is called Great-Quotes (<http://www.great-quotes.com/>)

3 Students juxtapose quotes and images. This can be done any number of ways, but the easiest is to simply insert the picture, overlay the text, and add music to it. This juxtaposition is about tying together the picture and the quote; there are no set ways to do this, but examples will be given (a visual depiction of the video I created is on back).

4 Once students have selected and arranged their juxtapositions, they then write their own expressive commentary, reflecting on what the juxtaposed texts mean to them (poetry is tough, so I would tell students prose is just fine), and artfully integrate it into the work. Again, students can add this element to their **box** any way they want. The idea is an activity in synthesis: you've chosen a picture, you've added a different text, now what writing can you add that shows how they tie together for you? It can be a simple paragraph on a text panel, a poem, anything that draws a textual connection between the picture and the quote. See my example for an idea (though it is only one way it can be done).

5 To tie this into an extension lesson, create a writing prompt that you could assign students as they look at your Box Logic.

Appendix I2
Box Logic
Sample



In the fallout, the gray pervaded.

Silence muted a city known for its noise.

I feel compelled to make sure we never forget.

Why do I feel this burden?
Because I believe that inspiration cures apathy.

It, too, can be fixed.

I've learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel."
— Maya Angelou

Appendix J Transcription Codes

(.)	micropause (comparable perhaps to an average syllable duration) <0.5 sec
(..)	brief pause >0.5 s <1.0 s
(...)	pause >1.0 s <1.5 s
(2.0)	longer pause in seconds
//	point at which the current utterance is overlapped by that transcribed below
*	asterisks indicate the alignment of the points where overlap ceases
CAPS	relatively high volume
((CAPS))	analytical labels
::	lengthened syllables or speech sounds
-	glottal stop, self editing marker
= =	latched utterances, with no gap
?	not a punctuation mark but a rising intonation contour
(())	used to indicate some phenomenon that the transcriber does not want to struggle with or some non vocal action
()	uncertain passages of transcript
⌚	draws attention to location of phenomenon of direct interest to discussion
Hh	indicates an audible out-breath
.hh	indicates an audible in breath
<p>Capital letters are not used except for proper nouns (e.g. <i>Sunday</i>, <i>Graham</i>), the 1st person pronoun, I (e.g. <i>where should I go</i>), and for indicating relatively high volume and analytical labels as set out above.</p>	
<p>Punctuation marks are not used, with the exception of the apostrophe (e.g. <i>Baljeet's</i>; <i>you've</i>; <i>they'll</i>).</p>	

Appendix K

Sample Reflection Questions

Possible daily reflection questions

1. During computer lab time, how did it feel seeing kids at all different stages of learning (and not all doing the exact same thing)?
2. If you are asked something you don't know about technology, what do you plan to say to kids during this technology-driven unit?
3. What is your initial apprehension about starting your student teaching with a technology-focused digital lesson?
4. Overall, how do you feel about your first day of student teaching/how do you think it went?
5. How do you think today went? Describe the day and how you felt about it.

Appendix L

Initial Cooperating Teacher Interview

What are your general feelings about technology use in the classroom (primarily digital storytelling)?

Have you used digital storytelling before? If so, how did it go?

What are the pros/cons/benefits of using digital storytelling in the classroom?

What challenges do you anticipate doing a project revolving around digital literacy with a student teacher? (from teacher perspective AND from the ST's perspective)

In the past, what has been a teacher success story for you regarding a digital project (or writing if there is none)?

In the past, what has been a teacher challenge (needs improvement) for you regarding a digital project (or writing if there is none)?

What is your favorite type of teaching lesson/project to give and/or grade? (tests, creative papers, technology-based work, artistic assignments, student-directed, teacher-directed, etc.)

What is your least favorite type of teaching lesson/project to give and/or grade? (tests, creative papers, technology-based work, artistic assignments, student-directed, teacher-directed, etc.)

Appendix M List of Codes

List of Codes – Molly

Week 1

<p>Ct Modeling classrm mgmt (CM) Community building with intern (Int) Ct modeling tchg strategies Int modeling positive attitude Questioning (student) about intern role Connections to poetry Int read Body language as a communicator Community building Learning thru talk/modeling answers Poetry as talking point Technology as an obstacle Talk in dig. Composing Talk thru images Questioning tech possibilities (int/ct) Modeling/impact of cd attitude toward tech Modeling gender-biased verbage (guys) Ct modeling digital storytelling Modeling listening skills Peer talk Ct impact on facilitation Modeling Gaining comfort with technology Int seeking MKO (students and me) Taking over instead of facilitating Mko modeling Technology = chaotic environment Inexperience therefore discomfort w/ technology Modeling appropriate times to talk Talk to learn Ct modeling Talk as teaching tool Talking to connect Modeling technology CT allowing Mko (student)/modeling facilitation Modeling tech risk-taking Modeling tech struggles Mko Ct modeling classroom management</p>	<p>Ct modeling facilitation Digital inexperience Talk as modeling/to inform Talk to learn among peers Modeling varied student expectations (Orlando head down – M accepts that now too) Technology as motivator Technology obstacle/inappropriate sites Technology as collaboration Talk as brainstorming/pre-writing Technology as teacher Body language communicator Modeling organization Building community with positive interactions Talk as community builder Modeling with body language Talk to learn Talk to connect Weather as obstacle Technology limitations Technology as motivator Technology limitations Informing Technology as motivator Technology as community builder Technology an influence (voice recorder) Technology resistance (M. didn't want to know how to print) Technology avoidance (M. prompted kids to go to D if she knew was tech issue) Reluctant to emulate modeling Technology attitude Technology apprehension Learned behavior (M doesn't respond to students who will ask for P)</p>
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Appendix N

Sample Intern Interview

1. Describe how you're feeling about student teaching.

2. What are your general feelings about technology use in the classroom (like digital storytelling)?

3. Have you used it in college? How did it go?

4. What do you believe are the pros/cons/benefits of using digital storytelling in the classroom?

5. What challenges do you anticipate beginning your internship with a project revolving around digital literacy?

6. In the past, what has been a teacher/aiding challenge (needs improvement) for you regarding a digital project (or writing if there is none)?

8. What is your most favorite type of teaching lesson/project to give and/or grade? (Tests, creative papers, technology-based work, artistic assignments, student-directed, teacher-directed,

9. What is your least favorite type of teaching lesson/project to give and/or grade? (tests, creative papers, technology-based work, artistic assignments, student-directed, teacher-directed,

Appendix O
Sample Interview with Cooperating Teacher

1. Describe your plan for your student teacher's involvement in the classroom.

2. What are your general feelings about technology use in the classroom (like digital storytelling)?

3. Have you used it before? How did it go?

4. What are the pros/cons/benefits of using digital storytelling in the classroom?

5. What challenges do you anticipate doing a project revolving around digital literacy with a student teacher? (from teacher perspective AND from the ST's perspective)

6. In the past, what has been a teacher success story for you regarding a digital project (or writing if there is none)?

7. In the past, what has been a teacher challenge (needs improvement) for you regarding a digital project (or writing if there is none)?

8. What is your most favorite type of teaching lesson/project to give and/or grade? (tests, creative papers, technology-based work, artistic assignments, student-directed, teacher-directed,

9. What is your least favorite type of teaching lesson/project to give and/or grade? (tests, creative papers, technology-based work, artistic assignments, student-directed, teacher-directed,

Vita

Barri Bumgarner grew up in Lebanon, Missouri, where she excelled in sports and devoured the books her mother put in front of her. She published her first short story when she was 13. She attended Missouri State University (then SMSU) and graduated with a B.S.Ed. in English and Physical Education in 1990. She taught 7th grade Composition in a small town in Northeast Missouri for two years while exploring seriously her love of writing, completing most of her first novel, the beginning of which she started on the back of pizza order forms. She moved to Columbia, Missouri in 1992, was a director for KinderCare Learning Center for five years, and then returned to the classroom in 1998 to teach reading/writing workshop at a junior high school. Over the course of the seven years while she taught, she completed five novels, published three, and in 2005 she left teaching to be a full-time author. After year of writing full-time and publishing books, she decided to participate in a Summer Institute for the Missouri Writing Project. After taking part in the institute in 2006, Barri enrolled at University of Missouri to complete her Masters. When she completed her M.S.Ed., she decided to obtain her Ph.D. in English Education with a focus on digital literacy, all while teaching in the teacher education program and doing professional development in area schools for the Missouri Writing Project. Barri enjoys teaching teachers how to teach, obsessing over favorite sports teams, spending time with family, and writing the next great American novel.