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The Impact of an Intensive Experience on Prospective Teachers' Perception of the Uses of Digital, Interactive Text Among K-12 Students

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THE IMPACT OF AN INTENSIVE EXPERIENCE ON PROSPECTIVE TEACHERS'
PERCEPTION OF THE USES OF DIGITAL, INTERACTIVE TEXT AMONG K-12
STUDENTS

by

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ABSTRACT

The purpose of this study was to measure pre-service teacher perception, awareness, and potential use of digital literacies, media, and digital interactive text in their future classrooms. The study grew from the theoretical rationales of new literacies, technological pedagogical content knowledge, and constructivism. New literacies are essentially the skills teachers and students need to utilize and develop in order to interact with novel digital sources. Research was aimed not simply at exposing pre-service teachers to the possibilities, but to gauge their current knowledge, interest, and views of potential future application of said technologies and student learning needs before and after the experience.

One hundred pre-service teachers participated in an intensive semester experience involving a variety of interactive digital text sources and related technologies throughout the course of a semester. Participants read and discussed a variety of articles and interacted first-hand with a number of digital literacy technologies. Data were collected throughout a semester in the form of pre and post surveys, recorded interviews, and recorded class discussions. Findings indicated that pre-service teachers generally maintained or strengthened their perceptions and understandings of digital interactive text, digital literacies, and digital literacy tools. There were several demographic categories that yielded significant results.

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CHAPTER 1

INTRODUCTION TO THE STUDY

Background

Recent technological advances are changing the way text is being made available due to the availability of various digital formats. As changes in new textual formats occur, a number of theoretical perspectives have been developed concerning the skills needed to interpret and interact with a variety of information and communication technologies (Baker, Pearson, & Rozendal, 2010; Leu, Zawilinski, Castek, Banerjee, Housand, & Liu, 2007). Researchers are beginning to examine new literacies in terms of the acquisition of knowledge through the use of technologies such as the Internet and other digital sources (Coiro, Knobel, Lankshear, & Leu, 2008). These authors also examine digital literacies in the context of communication such as texting, social networks, blogs, etc., digital literacies in the context of culture and community in terms of online worlds or environments and community projects, and in the context of classroom use. Additionally, researchers provide new literacy perspectives in terms of behavioral changes, new cognitive processes, semiotics, multiliteracies, feminist theory, critical pedagogy, and further cultural perspectives (Baker, et al., 2010; Coiro, et al., 2008). For the purposes of this study the definition provided by Leu, Kinzer, Coiro, and Cammack (2004) will be used to define new literacies as:

The new literacies of the Internet and other information communication technologies (ICTs) include the skills, strategies, and dispositions necessary to successfully use and adapt to the rapidly changing information and communication technologies and contexts that continuously emerge in our world and influence all areas of our personal and professional lives. These new literacies allow us to use the Internet and other ICTs to

identify important questions, locate information, critically evaluate the usefulness of the information, synthesize information to answer those questions and then communicate the answers to others. (p. 1572)

The term, new literacies, takes into consideration that as technology evolves and changes, the way in which literacy is being presented, perceived, and interacted with will also change. Gone are the days when literacy and text can refer only to a paper book. New literacies in the context of technology refers to the skills and techniques students will develop in order to access a medium such as video games, ICTs, social networks, search engines, websites, digital interactive text, and others yet to appear.

Research offers the following four key factors in defining new literacies (Leu, et al., 2007; Coiro, et al., 2008). Coiro, et al., (2008) assert that the first defining factor is that new literacies require specific: skills, strategies, dispositions, and social practices. New literacies allow users to communicate globally, are not confined simply to local interaction, and can provide the benefit of multiple points of view. Additionally, that new literacies are not fixed and will change as technology changes. Coiro, et al., (2008) share that, "...new literacies research also impacts societies, education systems, and public policies in powerful ways" (p. 7). This study finds that not only is there a need to recognize that new literacies exist, but also to apply and support them in today's classroom as it will provide a much needed link between those literacy skills being developed at home and school.

When used properly by the educator, multimedia technology has the potential to level some of the disparity in prior knowledge though the rich experiences that can be provided to users (Eagleton & Dobler, 2007). The barriers and restrictions that a child's geographic location once set on learning are being broken down though the exposure and experiences multimedia

technology is providing. Digital technologies can offer students the opportunity for immediate feedback and relatively instant access to information. The Internet exposes users to a wealth of knowledge and information. Students are able take virtual fieldtrips to local, foreign, and even ancient lands. Live and recorded video offer an account of history in a vastly different format than traditional paper text. Blogs, wikis, chat rooms, video conferencing, and other ICTs afford students the ability to collaborate with peers on a global scale. Educators have a number of powerful tools virtually at their fingertips with the potential to enhance or establish some of the needed foundations of student prior knowledge.

The perspective of new literacies was initially developed around text read from the Internet and from the emerging ICTs available (Leu, Kinser, Coiro, & Cammack, 2004). However, an e-book serves as one example where the changing nature of new literacies comes into account. The notion of text is being redefined to include a variety of digital text and electronic book formats (Larson, 2010). E-books and related applications are moving far beyond simply the written word. Readers of all ages can interact with text in ways that were never before possible. With technologies providing digital interactive text, readers can go far beyond simply words as they can interact with the text and virtual environments available in the story. Readers can now hold the text and have it read aloud or can find immediate help with word meaning and pronunciation. Using their fingers, they can at times even interact with objects and characters within the story. Creative aspects are also possible through the use of color and paint where the reader can create, complete, or modify illustrations. Some applications allow the users to create their own stories using text, sound, and animation. As digital interactive text continues to evolve, there may be a need for new skill sets to continue to develop so users can more fully access the provided material.

E-books have been a medium for text that continues to evolve in an effort to bring even more to the reader. In the past few years the Amazon Kindle and the Sony Book Reader were held as the apex of e-book hardware. They both sparked much conversation over what the future might look like for traditional text such as books, magazines, and newspapers. Since its April 2010 release, the Apple iPad has provided another source of new literacy, offering even richer digital interactive text experiences in a handheld format. With an ever growing availability of applications, the iPad (and some rising competitors) is changing the way readers interact with text. The e-books for today's students are going far beyond simply a PDF version of a book. Readers can now be immersed in audio, visual, animated, and interactive features. Many early iPad adopters from primary up to higher education are welcoming the learning tool and supporting the new literacies that may follow.

Digital textbooks are being utilized at all levels of education and as a result becoming a significant player in the textbook industry. In one of the more large scale American education digital initiatives, the state of Florida announced plans in February, 2011 to have all of their K-12 students using only electronic materials by 2015. California Public Schools and universities within the state have been and continue to conduct a number of widespread trials using e-books and a variety of e-reading devices, looking to future widespread adoption (California Association of Independent Schools, 2011; Houghton Mifflin Harcourt Publishing Company, n.d.; University of California, Irvine, 2010; White, 2010). Florida, Indiana, Louisiana, Oregon and Texas statewide have all adopted a digital science textbook for their elementary and middle school students (Discovery Education, 2011). As more and more universities and school systems begin to utilize digital text, the need to consider how students will interact and learn from digital text has become crucial.

Theoretical Rationale

Researchers have accepted the view of a shift in student habits and interests, largely attributed to the availability of modern technologies and the degree of their technology immersion (Beetham & Sharpe, 2007; Prensky, 2001; Schrum & Levin, 2009; Sharpe, et al., 2010). Students who have grown up being immersed and engaged by many of today's modern technologies often relate better to, and have greater interest in, learning activities that are integrated with technology (Dede, 2005; Prensky, 2001, 2007, 2010; Simpson, 2005). Student lives are saturated with digital literacies outside of the classroom. Developing new digital literacies is necessary for today's students as these literacies can affect learning, interaction, and skills (Coiro, 2003; Leu et al., 2007). To support these changes, educators can offer both individual and collaborative digital learning experiences for students. Some of the significant changes in digital literacies are the social and collaborative opportunities afforded through social networks, wikis, blogs, and chat interfaces. Digital literacies are shaping the way students learn and expect to learn in and out of the classroom. This study draws from three theoretical rationales: New Literacies, Technological Pedagogical Content Knowledge (TPCK), and Constructivism in an effort to provide a foundation for perceived changes in digital literacies.

As mentioned earlier, the field of new literacies is concerned with the skills and strategies students develop to access a variety of Internet, digital, or multimedia technologies. What it means to be literate in today's society has changed beyond the traditional print and paper-and-pencil literacies, evolving to mean that one must have mastery of new and constantly changing technologies (Tracey, Storer, & Kazerounian, 2010). Coiro (2005) finds that new conceptions of reading comprehension are needed when Internet reading occurs. With this in mind, Hartman, Morsink, & Zheng (2010) find that reading comprehension on and offline can only be compared

at the lowest levels. They assert that once online conceptions of text are examined they are found to be far more complex when one considers the collaborative aspects, connections through hypertext, and even the ability to manipulate the way text appears in terms of size and brightness. There is strong and growing support that new literacies are needed and are being developed by students who utilize digital technologies (Ajayi, 2011; Coiro et al., 2008; Kress, 2003; Lankshear & Knobel, 2006; Leu et al., 2004; Leu et al., 2007). There is also the view that new literacies afford the opportunity to extend and enhance experiences students already receive (Larson, 2008). She identifies that Internet resources hyperlinked to text could aid in activating prior knowledge and enhance one's reading experience. Larson (2008) also included online discussion in an effort to contribute to conversations about literature, as an extension of the online communication tools and texting already being used by students.

The question is raised, should more be done to help educators understand how technology is impacting young people? TPCK is one such model that works to address the concern over how technology, teaching, curriculum, and understanding all come together in the classroom. TPCK evolved from the work of Shulman (1986) where he laid some of the foundation for the strong link between pedagogy and content often seen in modern teaching methods courses. He saw in the early eighties that teacher knowledge needed to extend beyond purely content or pedagogical knowledge in order to provide effective and meaningful instruction. Shulman introduced the term pedagogical content knowledge (PCK) identifying a link between the concepts, a framework which has been utilized for a number of years. One of the key elements of Shulman's views is that students do not arrive to the classroom as blank slates. He holds that educators must recognize the conceptions and preconceptions that students bring with them from their prior experiences.

The PCK framework has been further enhanced to now include technology as a necessary piece of the model known as TPCK (Hughes, 2005; Mishra & Koehler, 2006). When considering technological background knowledge, and the role technology plays in the classroom, it then becomes a natural fit to integrate technology into the PCK theory. TPCK is a theoretical framework that represents the convergence of effective teaching practices, technology integration, and content knowledge. Mishra & Koehler (2006) recognize that it is not simply enough for a teacher to bring a technology tool into the classroom, it is how the teacher uses that technology that makes for effective classroom instruction with technology. TPCK places technology integration into a separate category of teacher knowledge that is observed through teacher action (Polly & Brantley-Dias, 2009).

The application of media literacy fits well with constructivist ideals, which typically promote a more student-centered and interactive classroom environment. Constructivist teaching practices are grounded in authentic learning situations where students are encouraged to actively construct knowledge (Fasnot, 2005). Student inquiry and collaboration are key factors in constructivism, both of which can find abundant support in the context of digital literacies. The Internet, for example, provides students with an opportunity to engage in a wide variety of collaborative and individual learning experiences. ICT such as social networks, wikis, blogs, instant messaging, etc. are rooted in the social aspects of technology. In a constructivist classroom, teachers are charged with creating a literate environment where students are given the opportunity for thought and exploration (Gould, 2005). Educators can plan and demonstrate the use of digital technologies through active learning experiences. When planning this instruction, teachers may also want to be aware that young people often help, and learn from each other where digital technology is concerned (Ribble, 2009).

When considering technology from a cognitive constructivist perspective, it is one's internal mental models or constructs, essentially prior knowledge, that allow for external modeling (Jonassen, 2006). Jonassen shared the example of learners using various technology-based modeling tools to construct external models. These technology-based models would then modify the learner's internal models. Meaning the modified internal models would then represent the new literacies students have developed. Vygotsky (1978) states, "Every function in the child's development appears twice: first, on the social level, and later, on the individual level; first, between people, and then inside the child" (p. 57). These words seem relevant even more today, when used to consider the role digital technologies continue to play in student learning. The student's world outside the classroom consists of constant communication and collaboration through the use of various digital technologies (Solomon & Schrum, 2007). In this study, a new literacies perspective, coupled with a constructivist stance, along with elements of the TPCK framework has been used to examine the data collected throughout the semester.

Purpose of the Study

This study is designed to measure pre-service teachers' perception and awareness of new literacies prior to, and following, the designed treatment. The component of new literacies that will be examined in this study focuses on the skills teachers and students utilize in order to interact with digital sources for reading, writing, and communication. As the number of schools and universities adopting e-book technologies continues to grow, there is a strong likelihood that more educators will begin to utilize technologies such as digital interactive text as a supplement to traditional print bound text to help motivate students, to connect the literacies of students' private lives with school literacies, and to engage students with interactive options that are available in e books and other digital formats in an effort to improve literacy. Participant

awareness of the current textual offerings via e-book and related technologies will be gauged prior to and following an intensive semester experience through survey, interview, and class discussion. The study also examined to what extent pre-service teachers identify potential classroom applications of digital technologies, in particular those concerning literacy. Educator perception concerning digital literacies, and other related technologies was examined before and after instruction. A further objective was to see whether pre-service teachers would ultimately embrace digital literacy technologies. Students are already heavily immersing themselves in the use digital technologies through a variety of daily media sources.

Research Questions

The following research questions guided this investigation:

Research Question One:

What are the general understandings and beliefs of pre-service teachers concerning digital literacies, media, and interactive text before and after an intensive classroom experience?

Research Question Two:

As a result of the experience, will there be a change in pre-service teacher future use of digital interactive text and related technologies in their classroom?

Research Question Three:

As a result of the intensive experience, will there be a change in participant inclination to support the view that today's students have different learning needs particularly concerning new literacies?

Research Question Four:

As a result of the intensive experience, will there be a change in participants' views concerning potential classroom applications of digital literacies?

Research Question Five:

As a result of the experience, will there be a change in pre-service teacher awareness of digital literacies?

Research Question Six:

What demographic factors are most closely associated with a change in the awareness of potential classroom uses of technology?

Expected Contributions

This study will provide insight into university pre-service teachers' perceptions of how text may be changing in today's classrooms and possible ramifications of those changes for students. This study will also examine the degree to which future teachers embrace digital literacy technologies and acknowledge the new literacy skills students may need to develop in order to successfully navigate today's textual formats. As these pre-service teachers will be responsible for their students' literacy instruction, it is important to understand their perceptions of potential student needs concerning digital text and new literacies, and their willingness to alter their instruction to support this. Results will add to the rapidly growing body of literature concerning new literacies and teacher perception of students' changing literacy needs.

Limitations

A methodological weakness of this study is that there was only one instructor conducting instruction, discussion, and interviews. This is of concern as instructor enthusiasm may have altered participant perceptions beyond the prescribed treatment. The researcher selected articles that could be appropriately woven into the curriculum as well as serve as a driving force concerning discussion of said topics. The researcher facilitated student discussion and interjected further probing or guiding questions when needed. Participants ultimately came to their own

conclusions concerning new literacies and student learning needs. The self-report data is assumed to be accurate and the assumption will be supported through interviews, class discussion, and pre-post comparison. Throughout the data collection points, the researcher reminded students that their answers would not negatively impact their academic standing. The possibility still exists that students offered responses that they perceived the researcher sought rather than their true perception. The technologies related to digital literacy may have some significant offerings that may not be demonstrated by the researcher due to available hardware and applications. The researcher attempted to offer access to or demonstration of the latest digital literacy technologies. Another potential limiting factor is that the study took place over a single semester and is not longitudinal, as such; the researcher will not be following the subjects into their future classrooms after the experience data collection.

There may have been some limited terminology that participants are unfamiliar with during the initial data collection which may result in guess work on their part rather than fully informed selections. Rather than hold open the survey up to the potential risk of influencing opinions by discussion question by question during the surveys, the researcher felt it more valuable to ascertain views and understanding as they stood prior to instruction. However, a limited list of terms and their definitions was provided before the survey or interviews were conducted. Additional terms were defined during interviews as needed on an individual basis. The researcher also took steps based on discussion from the pilot study to use more familiar terminology and wording where appropriate.

Definition of Key Terms

As evidenced through focus groups accompanying the administration of the pilot study survey, the following are terms in need of definition. Additional key terms that would typically

require definition have been provided greater attention in the review of the literature.

Digital Literacy: “The capability to use digital technology and knowing when and how to use it” (Ribble, 2009).

E-book: A screen offering text similar to a traditional storybook but the text can be supported or enhanced through the addition of multimedia (Roskos, Brueck, & Widman, 2009).

Hotlink: “A mechanism for sharing data between two application programs where changes to the data made by one application appear instantly in the other's copy” (Hotlink, n.d.).

Hypertext: A means of making direct connections to textual or nontextual sources within a file or webpage (Vandendorpe, 2009).

Media Literacy: One’s ability to access, analyze, evaluate, and communicate effectively through a variety of print and non-print text mediums (Considine, Horton, & Moorman, 2009).

CHAPTER 2

REVIEW OF RELATED LITERATURE

Introduction

The digital world occupies a significant amount of a student's daily life (Rideout, Foehr, & Roberts, 2010; The Nielsen Company, 2009; U.S. Census Bureau, 2010). This digital world affords opportunities for new learning processes and the development of new skills for its users. Research indicates that the media tools and the way in which they are used by students in their daily lives have been changing (Carrington & Robinson, 2009; Lenhart, Purcell, Smith, & Zichuhr, 2010; Rideout, et al., 2010; The Nielsen Company, 2009). Today's educators would do well to be aware of what digital tools are currently being used and decide whether the supporting strategies and technologies have a place in their classroom. Researchers have already begun to examine the awareness and/or preparedness of educators concerning digital literacies and their application in the classroom (Ajayi, 2011; Burnett, 2009; Carrington & Robinson, 2009; Lankshear & Knobel, 2006). The chief interest of the researcher is pre-service teacher perceptions of digital literacy, in particular digital interactive text. However, this review of the literature would be found lacking without approaching a variety of the contemporary digital textual technologies presently being used in the classroom. Attention is being given to the potential changes in technology, students, educators, and even the classroom. The first area discussed will be digital text and technologies related to its use.

Teacher Beliefs, Technology, and Digital Text

Current research shows that educator beliefs and attitude toward technology have a strong bearing on technology use in the classroom (Bia & Ertmer, 2008; Ottenbreit-Leftwich, Glazewski, Newby, & Ertmer, 2010; Smarkola, 2008). Also the value beliefs educators hold

toward a technology and whether they felt it would provide for student needs determines the technology used in the classroom (Ottenbreit-Leftwich, et al., 2010). Teachers should find technologies that support students new literacy needs and they should also be familiar with the technology content, as well as, the skills associated with their use (Baker and Labbo, 2007). Technology integration must be coupled with acceptance of the technology on the part of the educator for successful and effective technology integration in the classroom to occur (Smarkola, 2008). Beyond acceptance, a competent level of understanding and skill of use for a technology is also needed for successful integration (Groth, Dunlap, & Kidd, 2007).

Recent research has found that pre-service teachers were aware of changes taking place in literacy knowledge and developing of literacy skills due to the influences of communication technologies (Ajayi, 2011). With the dramatic shift in what technology can provide for students, traditional definitions of literacy in terms of communication, reading, writing, and educator instructional beliefs are no longer adequate (International Reading Association, 2009). New and old literacies can still coexist, however, teachers should help students develop new literacy skills in the areas of, "...reading visual images, interpreting graphics, hypertextual analysis, video gaming, critical literacies, using multiple modalities of communication, reading and writing with hypertexts, locating and evaluating information in multimedia, and reading and composing in file-sharing websites". (Ajayi, 2011, p. 24)

There are an ever growing variety of technologies that can and are being utilized in the modern classroom. The International Reading Association (2009) in their current position statement on new literacies and 21st century technologies, provide examples of a number of relevant technologies that could be integrated into classroom instruction:

Although many new ICTs will emerge in the future, those that are common in the lives of our students include search engines, webpages, e-mail, instant messaging (IM), blogs, podcasts, e-books, Wikis, Nings, YouTube, video, and many more. New literacy skills and practices are required by each new ICT as it emerges and evolves. (p. 2)

Though this list is hardly complete, it does provide a starting point from which one can begin to envision what technologies students can and arguably should encounter in their daily classroom instruction. Again, all of these technologies require certain skillsets or new literacies in order for users to successfully interact with them.

Blogs

Blogs are a digital technology that places new literacy demands on readers and users. Blogs can be utilized in all levels of education from primary school to postgraduate (Caverly, Nicholson, Battle, & Atkins, 2008; Churchill, 2009; Pascopella, 2008). Blogs offer students and educators an outlet for engaging communication. What makes the blog such a powerful tool is the ability for the user to merge the blog with other Web 2.0 technologies through the inclusion of multimedia such as pictures, sound, and video. The opportunity also exists with most blogs for viewers to respond and comment on what the blogger has shared. However, blogging among teens has dropped to only 14 percent compared to the 28 percent it was 2006 (Lenhart, et al., 2010). Strong potential educational applications exist for blogs as a learning, writing, and communication tool in the modern classroom (Caverly, et al., 2008; Churchill, 2009; Eagleton, & Dobler, 2007; Pascopella, 2008).

Wikis

Another digital text technology that requires new literacies is a wiki. Wikis differ from blogs primarily in the way content can be edited by all users. All users being the operative term,

as wikis can be used collaboratively by students from K-12 up to higher education (Bromley, 2010). As wikis are accessed via the Internet, educator concern may be raised over who is allowed access and how to maintain appropriate controls. However, schools have the ability to maintain wikis on their own servers or utilize commercial wiki spaces that can appropriately restrict access (Solomon & Schrum, 2007; West & West, 2009). Wikis allow not only for author expression but editor input. One of the major points that set wikis apart from static print is the fact they can provide up to date information in a timely fashion. With a blog or website information can only be updated by a single author(s), the wiki allows for any allowed user to contribute and edit content as seen fit. The writing format and organization is can be very different from a traditional text. The novel format places new demands on user skills when the reader can actually participate in the literacy process through reading, writing, and editing. Essentially a wiki grows into a collaborative editing community which could translate well into modern classrooms and afford opportunities to foster new literacy growth.

Internet Use in the Classroom

The use of the Internet as a source of textual information certainly cannot be ignored, as there is such a wide variety of new literacies being utilized nearly if not every time one uses the Internet. According to the April-May 2010 survey conducted by Pew Research Center's Internet & American Life Project, 79 percent of English speaking Americans use the Internet. This number is even higher amongst teens and young adults as 93 percent of both populations are using the Internet (Lenhart, et al., 2010). Monthly, American children are spending five hours and 21 minutes, teenagers 11 hours and 32 minutes, and young adults 14 hours and 19 minutes browsing the Internet (The Neilson Company, 2009). A relationship between income and Internet use was also found in a 2010 survey where only 63 percent of households earning less

than \$30,000 per year accessed the Internet, as opposed to 84 percent at \$30,000-49,999, 89 percent at \$50,000-74,999, and 95 percent of households at \$75,000+ (Pew Research Center's Internet & American Life Project, n.d.).

Colaric and Jonassen (2001) raised three main concerns over Internet use in classrooms: whether the World Wide Web is a source of accurate and relevant information; whether the act of a student searching for information online results in learning, as the Internet can contain outdated, mismanaged, or ultimately incorrect information; and finally whether educators providing hyperlinks in instruction is truly effective instruction (Colaric & Jonassen, 2001). These researchers provide a potential remedy for this first issue though having the student explain their desired knowledge, having a plan of action and following it, and reflecting upon what is found. Similar strategies are employed for the act of searching. As for providing hyperlinks, the educator should ensure that a quality source is being referenced. These authors urge educators that having students be the ones to provide the hyperlinks may serve as an even more powerful social learning tool.

Internet Searching Strategies

A report from the Joint Information Systems Committee (2008) found that students were able to locate information but lacked the ability to fully comprehend the information they were seeking. The report characterized search strategies of the "Google generation" as squirreling and skimming. Squirreling referred to searchers' tendency to save a digital version of whatever was being sought for future use. Skimming described the tendency of searchers to typically view no more than 65 percent of the document and never return to finish it. When actually viewing materials online the report shared that users spend only four minutes on e-books and eight minutes on e-journal sites. The chief concern is that students are spending an inadequate amount

of time or effort evaluating the materials located, ultimately resulting in ineffective searching strategies. A further difficulty for searching strategies lies in the students' ability to spell (Varnhagen, McFall, Figueredo, Takach, Daniels, & Cuthbertson, 2009). Improper spelling can result in ineffective searching strategies when key words are misspelled. It is necessary for students to master the basics of word use in order to be truly effective users of the Internet. In addition to the need for spelling and proper searching strategies, Coiro and Dobler (2007) posit that new reading comprehension strategies must be developed in order to successfully learn from Internet use. They hold that traditional reading strategies though needed, are unable to fully support the complex demands of Internet use. To help illustrate the example, Coiro and Dobler describe how prior knowledge is being accessed by the student who is reading on the Internet. As is done traditionally, students would access prior knowledge of the topic and of printed text. The authors assert that with Internet reading, users additionally access prior knowledge about the website structure and of web-based search tools. Likewise, Leu et al., (2004) found that reading comprehension takes on a new definition when placed in the context of the Internet. They reported that comprehension skills are developed for the use of search engines, hypertext, and accessing multimedia. New literacy skills concerning the use of the Internet and other digital technologies enhance student ability to successfully engage the technology of today. Leu et al. (2004) believe that, "Expertise in the new literacies of the Internet and other ICTs helps individuals have more satisfying personal lives, more engaged civic lives, as well as more productive professional lives" (p. 1577).

Texting

Over the past decade texting has become increasingly popular as a form of digital communication that may also require new literacies. Based on data from a November 2007 Pew

Survey, Lenhart, Arafeh, Smith, & Macgill (2008) found that 64 percent of American teens were using informal texting styles of writing in their school work. However, in a recent study involving university students, no significant differences in scores on standardized literacy assessment or misspellings of words commonly modified through text speak were exhibited (Drouin & Davis, 2009). Findings from the same study also indicated that students typically recognized and used texting or “textisms” only for informal communication, not formal situations as is often the media-presented fear. Research conducted by Plester, Wood, and Bell (2008) found positive associations between the use of texting and children’s ability to spell and write. Also of note was that there were no negative associations found between texting students and their written language competency (Plester, et al., 2008). Indications so far are that university students continue to be able to separate casual from academic writing, though there is no definitive answer as to whether texting will ultimately degrade or improve student writing (Drouin & Davis, 2009; Lenhart et al., 2008; Plester et al., 2008). What is known, is that recent findings show 58 percent of twelve year olds, 74 percent of teens, and 93 percent of young adults own cell phones (Lenhart, et al., 2010) and 83 percent of teens use text messages (The Neilson Company, 2009). Texting is clearly a prominent part of the daily lives of American students. Students may be developing or may need assistance developing new literacy skills that will allow them to separate their casual writing (texting, e-mails, etc.) from their academic writing.

Twitter

Twitter has become another popular digital communication format that may also elicit the use of new literacies. Twitter affords users a variety of collaborative opportunities for sharing thoughts, images, hyperlinks, and messages known as tweets, equaling 140 characters or less. Twitter has a variety of classroom applications due to its collaborative nature. Applications such

as formative assessments, live discussion feed, checking for understanding, collective writing, and even homework collaboration could all have a place in the tweet friendly classroom (Matteson, 2010). Several university professors have already used twitter in their classrooms successfully (Young, 2009). Twitter has even been used as a collaborative faculty tool among high school teachers to share resources and have a means of instant discussion and feedback (Demski, 2010). Additionally, eight percent of American Internet users, meaning six percent of the entire American adult population, are also Twitter users (Lenhart, et al., 2010; Smith & Rainie, 2010). The December 2010 Pew report found that young adults were at least twice as likely to be Twitter users as any other demographic. Twitter is a digital technology that has been gaining ground as a potential classroom learning tool.

E-books

Digital interactive text represents a dramatic change from traditional paper text. Not only are there differences in the way text is presented, but students will need new literacies to fully access and experience digital interactive text. If students are given the opportunity to have control over the text they read, their engagement will increase (Smith & Wilhelm, 2006; Larson, 2010). Digital interactive text provides students with the ability to see, hear, manipulate, and collaborate about the text in ways the traditional book never could. Students have different learning abilities even when it comes to comprehending text in terms of image, sound, or multimedia (Smith & Wilhelm, 2006). E-books can be a powerful tool as they can afford some or all of these attributes to the reader. Essentially what sets an e-book apart from its paper predecessors is that e-books utilize multimedia in their delivery and that they provide the option of removing the need for an adult mediator (Roskos, et al., 2009). Another key difference is that a digital text is often not presented in a linear fashion as we typically see with a traditional text

(Park & Helsel, 2008). There is no set e-book format, but certainly a number of considerations come into play for design. Digital interactive text provided through the medium of e-books is frequently changing as publishers are able to offer more in-depth and interactive experiences as is evidenced through a variety of promotional materials available to the general public online.

University students had a positive reaction to using e-books as reference materials, particularly in terms of their ease of use (Abdullah & Gibb, 2008). In a survey at a Scotland university of over a thousand students, it was found that e-books were more practical when used for “fact finding” or “finding relevant content” (Noorhidawati & Gibb, 2008). These studies are somewhat surprising considering college students still prefer text in a traditional paper format over digital. In an October, 2010 study conducted by the National Association of College Stores, it was found that over 73 percent of the 14,000 students surveyed would prefer text in paper form. Noorhidawati & Gibb (2008) did make mention of similar findings in a study by Perry (2005) where 85 percent of students preferred text in traditional paper format; however, it is the context that is key. When utilized for a specific purpose, e-books gain a stronger footing over traditional paper text (Noorhidawati & Gibb, 2008). Assuming the hardware is available, e-books certainly have the advantages of never being unavailable due to checkout and rapid distribution (Dougherty, 2010). How student e-book perceptions may change in general is not yet known, however, more and more schools and libraries have begun to adopt e-books and e-reading devices.

The Changing Student

Social Networks

Texting, blogs, and wikis are not the only collaborative digital technologies being utilized; social networking has become a significant communication tool in the lives of the

contemporary student. Students are able to navigate the digital world as they are technology savvy and possess a number of skills associated with digital literacies (Jones-Kavalier & Flannigan, 2008). As of January 1, 2011, Facebook reports over 500 million active users spending over 45 minutes per day on the Internet site (<http://www.facebook.com/press/info.php?statistics#!/press/info.php?statistics>). In a recent report, 73 percent of online teens were found to use social networking sites (Lenhart, et al., 2010). Another recent study involving university students examined their use of Facebook and instant messaging (Quan-Haase & Young, 2010). The authors found that students used Facebook more for fun and awareness of social activities, and utilized instant messaging for more meaningful personal conversations. Their work also indicated that students considered Facebook and instant messaging use in the communicative context of recreation and socialization. Both social networking and instant messaging are ICTs that utilize new literacies when accessed by users.

Siegle (2011) provides educators a variety of strategies and suggestions as how to effectively use social networks such as Facebook for educational purposes. Her discussion centers on the purpose of using such a medium in the classroom, the privacy concerns, and the ethical responsibilities of the teacher. Several authors feel that now is the time to utilize social networks due to their popularity as well as affording the teacher and students an opportunity to learn more about each other in a different medium (Dowdall, 2009; Mazer, Murphy, & Simonds, 2007; Siegle, 2011). Speaking to the popularity of social network sites, in a recent study more than 85 percent of students were found to use social network sites (Salaway, Caruso, & Nelson, 2008). In their study of 26,055 students it was found that more than 95 percent of students aged 18-19, nearly 93 percent of students aged 20-24, nearly 73 percent of students aged 25-29, and 37 percent of student aged 30 years or more were using social networks. Salaway et al. (2008)

also found that Facebook as the most popular social networking site among students aged 18-24 and MySpace to be the most popular with those students aged 25 and older.

Multitasking

Another aspect of new literacies meriting discussion is multitasking. Mokhtari, Reichard, & Gardner (2009) examined the multitasking that occurred while American Midwestern college students were reading, using the Internet, and watching television. The researchers found that on a daily basis college students were reading recreationally 1.14 hours where 58.2 percent were only reading, reading academically 2.17 hours where 63 percent were only reading, watching television 1.93 hours where 49.9 percent were only watching television, and using the Internet 2.47 hours where 13.3 percent were only using the Internet. The authors speculated that there may be a negative correlation between multitasking and academic reading; however, this was only mentioned as a direction for future study. This speculation is supported by the research of Ellis et al. (2010), which found multitasking through the use of texting to have a negative impact on American Southeastern university student's grades. Likewise, significant differences were found in academic performance when correlated with multitasking during study times among American Midwestern university students (Kirschner & Karpinski, 2010). The researchers found that students multitasking during their study time with Facebook held lower mean GPAs and spent less time studying than their non-Facebook using counterparts.

Multitasking has become a significant part of student life. A recent report from the Kaiser Family Foundation shows that young people, aged eight to 18 spend seven hours and 38 minutes of their day consuming media (Rideout, et al., 2010). The report found that young people actually consume 10 hours and 45 minutes worth of media content within that seven hour 38 minute period as they multitask utilizing multiple media sources simultaneously. As substantial

as these numbers may be, this figure does not include cell phone use for talk or text (which from the same report, is just over an additional two hours daily), or computer use for school work. The same report also found a correlation between media use and grades, in which the students who were using media less were receiving higher grades. Additionally, as the level of student media use increases, so does the likelihood that the student will receive poorer school grades. The U.S. Census Bureau (2010) reported media use per person at 9.6 hours daily based on projections of 3,509 hours a year. The figure does not consider media consumption that may occur at the work place; however, time reported may reflect media sources being multitasked so this figure should not be viewed as time spent overall.

Students are spending vast quantities of time consuming a variety of media on a daily basis (Rideout, et al., 2010; The Nielsen Company, 2009; U.S. Census Bureau, 2010). They are consuming multiple types of media simultaneously or multitasking. There can be little doubt that a majority of students are frequently multitasking. Research has shown that this student change toward multitasking has been found to negatively impact academic performance (Ellis et al., 2010; Kirschner & Karpinski, 2010; Watkins, 2009) and that multitasking also produces poorer performance in completing tasks (American Psychological Association, 2006; Fox et al., 2008). There are some who do not even believe it is possible for one to multitask, essentially only able to rapidly switch to another task, but not to do more than one simultaneously (Kirschner, Sweller, & Clark, 2006). Researchers hold that at the very least, media multitasking is challenging for human cognition (Ophir, Nass, & Wagner, 2009). With the massive media consumption of today's student, it would appear undeniable that media multitasking does indeed occur; however the extent to which it impacts performance academically and in the classroom is not yet fully known.

Video Games

Simpson (2005) observes that not only have the tools changed for the modern student, but the very nature in which their learning takes place has changed as well. She finds that most modern students are part of a video game generation that has heavily integrated video games into their daily lives as an instructional tool. The average American teenager spends 25 minutes per day playing video games via console (The Neilson Company, 2009). Also worthy of note from the same report was that teens typically only play console video games for seven days out of the month. This would suggest that when teens do use video games it would actually be closer to a two hour period of use. Deubel (2006) finds that digital game based learning provides students with learning opportunities for practice and feedback, goal-oriented learning, discovery learning, question-led learning, task-based learning, and role-playing along with a number of others. Simpson (2008) observed successful problem-based learning, role-playing, and student collaboration through the use of video games in the classroom. Video games can also be a valuable literacy tool as they provide situational experiences for language (Gee, 2010). Catherine Compton-Lilly (2007) provided a comparison between video games and reading. The author found similarities in the way skills are practiced and that both provide a risk-free environment. She found that video games were multimodal involving sound and movement in the addition to sight, where traditional reading provided only visual opportunities. This difference no longer exists with the introduction of digital interactive text offered through devices such as the iPad.

The Changing Classroom

Digital Text and Tools in the Classroom

Educators who support and foster new literacy skills in the context of digital text will view student interactions with digital texts even outside the classroom as having purpose and

meaning (Compton-Lilly, 2009). However, digital text is either not being considered as a viable reading tool in the classroom or teachers are lacking in the proper knowledge or interest to use it effectively (Considine, et al., 2009; Ladbrook, 2008). Ladbrook believes that schools will be missing a valuable opportunity to tap into student reading motivation and interest if educators continue to ignore digital text. Student's self-concept of their own reading ability affects motivation and willingness to read (Chapman, et al., 2000; Coddington & Guthrie, 2009; Kelley & Decker, 2009). Bromley (2010) states that, "K-16 teachers will need to encourage and recognize digital creations as valid demonstrations of literacy" (p. 104). Educators are encouraged to explore the various outlets of computer-mediated communication in and outside the classroom so they can better model and understand the writing process contained therein (Jacobs, 2008). Ultimately, pre-service teachers must be aware of new literacies and how to effectively use them in the classroom (Larson, 2008). The intention is not for educators to only utilize new literacies and completely ignore traditional literacy practices. To be clear, authors believe that new literacies can be integrated alongside traditional literacies to support each other rather than addressing them as wholly separate practices (Kist, 2005; Lankshear & Knobel, 2006; Rowsell, Kosnik, & Beck, 2008).

Bennett and Maton (2010) found that technology access and activity would be the key factor in determining a potential digital divide. In order to meet the need for technology integration in the classroom, some feel that teachers need to possess the skills themselves to master changing technologies (Mishra & Koehler 2006). Conversely, it has also been suggested that educators should allow the students to drive some of the instruction themselves through partnering (Dede, 2005; Prensky 2001, 2007, 2010). Likewise, Considine, et al. (2009) recognized the importance for educators to design curriculum that recognizes the skills and

knowledge students already bring into the classroom, especially where technology is concerned. Essentially teachers need to be able not only to communicate in ways students can understand, but also to communicate information that is relevant and engaging to the student of today.

Technology Integration

When considering views toward technology and technology integration, one would be remiss not to consider a teacher's higher education foundation. Baia (2009) found that the commitment of university educators to pedagogical quality influences instructional technology adoption. She collected 104 surveys with full-time faculty members from four colleges. Her results looked at a variety of potential educational technologies that could be adopted. She observed a trend where Web 2.0 technologies such as blogs, podcasts, wikis, etc. were not being used by the instructors. Baia did find that Web 1.0 technologies such as word processors, power points, spreadsheets etc. were being regularly adopted. Her study concluded that it was the commitment to pedagogical quality of the professor as well as position held and years taught at the higher education level that would influence their adoption of technology. Baker and Baker (2004) observed that for an educator to successfully integrate technology into the classroom, they must overcome cultural mindsets that can view technology as the lesson rather than the tool. The authors stressed that even though technology has undergone extensive evolution, they remain concerned that historically technology has too often been viewed as a cure-all for student academic deficits and poor teacher pedagogy.

Educators must identify the proper technology tools and decide how they are to be used within the classroom (Baker & Baker, 2004; Wang, 2008). The authors also recognized pedagogy as a key factor to successful classroom technology integration. Moreover, Considine, et al. (2009) stressed that media literacy is not simply having the technology in the classroom,

but rather when teachers actually teach using the technology. In a university study, Carle, Jaffee, and Miller (2009) found that the use of technology in the form of podcasts and iPods coupled with classroom instruction led to increased engagement and academic performance on the part of the student. The authors measured achievement through course assignments and examinations. Engagement was measured a Likert scale survey at the end of the course given to both the experimental and control classes. The demand for technology in the classroom continues to grow as are the demands on educators to be able to successfully integrate technology into their instruction.

Demographic Characteristics

Research considering teacher demographic and technology preferences has yielded varying results. Overbaugh & Lu (2008) found no significant differences in teacher self-efficacy concerning the learning and implementation of technology based on demographic factors following a 15 week course focusing on productivity and enhancing student learning with technology. The authors examined several demographics such as age, gender, and education level. When looking at undergraduate university student views and use of social networking sites, Salaway, et al. (2008) found that age was the single most important factor. The researchers also analyzed the demographic factors gender, academic status and grade point average, however, age was the only factor with notable difference. Gorder (2008) found that when teachers were using and integrating technology in their classrooms there were no significant differences based on gender, age, or educational level. When examining the ICT preferences of university students, Nasah, DaCosta, Kinsell, and Seok (2010) found a number of differences when considering age, gender, and socio-economic status. The authors found that age impacted the extent to which participants would download online media and their level of digital

communication activity. Nasah, et al. (2010) saw that gender contributed to one's digital propensity. The authors also identified socio-economic status as being a factor with access; however, negative relationships were present when considering family income and interest in digital communication and collaboration. There is yet to be a definitive answer as to how large a role, specific demographics play in how teachers perceive and utilize digital technologies.

CHAPTER 3

RESEARCH METHODOLOGY

Research Design

This study examined pre-service teachers' perceptions of the uses of digital text forms (and associated technologies) and implementation among K-12 students. In particular, this research focused on participants' views concerning digital text, student learning, and changes in instructional technology related to literacy and how those perceptions may have changed following an immersion experience. Participant responses will help improve the understanding of how digital text is perceived and its future classroom use (or lack thereof). The researcher served as an instructor at a public east-coast university and demonstrated a variety of interactive digital text sources and related technologies during class throughout the duration of a semester for 100 education students. As a course requirement, students read a variety of articles pertaining to digital text and changes in today's student associated with technologies from a number of peer reviewed and open media sources. Participants were engaged in class discussions concerning a variety of digital technology and media sources. Discussions included topics such as blogs, wikis, Internet use, social networks, e-reading devices, twitter, video games, cell phone use, and perceived changes in student learning. Class participants also had the opportunity to engage with and utilize a number of the aforementioned tools along with other digital literacy technologies such as iPads, smart boards, and online digital interactive text sources.

Class discussions were initiated and occasionally prompted by the instructor but ultimately carried out by the pre-service teachers in class. Class recordings and instructor notes served as evidence that the discussions were participant driven. Students were expected and encouraged to form their own opinions of the topics during class discussions. Students discussed

their opinions and understandings throughout the semester concerning a variety of digital literacies, technologies, and changes in student skills and abilities that may affect current and future classrooms. The instructor would typically begin by asking the students what they found to be the key points or findings of the assigned articles. Should the researcher feel there were any major areas overlooked, he would then interject with a probing question or clarifying statement. Discussions would often segue into related technology, skill, and/or student change (related to technology) topics growing from earlier discussions and viewed potential classroom applications. Additionally, the instructor assessed students on their understanding of the class articles. However, responses given during surveys and interviews allowed for participants to elaborate on their opinions without the fear of academic reprisal.

The qualitative aspects of this study employed a number of the themes of inquiry presented by Patton (2002). Essentially a combination of convenience and criterion sampling was used for this study. Criterion sampling applied as all participants in two out of three courses were interviewed. However, not all one hundred participants were selected for pre and post interviews as the two classes were selected for convenience due to their numbers and meeting times. The method used to analyze the open ended short answer survey responses and interview transcripts was based upon a grounded theory perspective influenced by Patton (2002). Codes for the qualitative data were developed using an open coding method. This open coding method allowed for the relevant categories to emerge as discovered within data rather than forcing responses to fit a pre-assumed set of categories from the outset.

Qualitative data was collected through student surveys, interviews, and researcher observations of class discussions that would support triangulation of the data. Emergent design flexibility was utilized for short answer survey items and interviews as relevant new items could

be added. This was done where the researcher deemed it necessary to further probe student perceptions during the final versions of these data points. Ultimately all of the original questions from the pre-surveys and pre-interviews were used again with the post data collections, only additional items were added. The post-survey contained an extra five short answer items along with another five items added to the post-interview protocols. Direct engagement of the instructor occurred through administration of the treatment and related class discussions. In general only the key theme(s) were discussed in lieu of highlighting all individual subthemes for each item.

Participants

For this study, three sections of undergraduate education methodology courses were selected for participation. Participants included exactly 100 pre-service teachers attending a public east-coast university. Of these prospective teachers 14 were male and 86 female. Ages of the participants included 63 aged 18-25 and 37 who were of age 26 or more. Participant race was reported as 78 Caucasian and 21 identified as other, with one not disclosing. Socioeconomic status (SES) was identified as 14 with a low SES, 66 with a mid SES, and 20 with a mid to high SES. Parent education included 46 pre-service teachers with mothers who have an education of high school or less and 54 with mothers who have education including some college or beyond. As for pre-service teacher father's education, 44 reported having fathers with an education of high school or less, and 53 reported having fathers with an education of some college or beyond, three participants did not disclose their father's educational background. Participants also identified their grade point average (GPA) as 20 with a GPA ranging from 4.0 to 3.5, 41 with a GPA ranged 3.49 to 3.0, and 38 with a GPA of 2.99 or less.

The researcher served as the instructor and facilitator during class meetings throughout

the courses. Completion of pre and post surveys, a series of class discussions facilitated by readings, and individual pre and post interviews were all key points of data collection throughout the semester experience. Subject voluntary consent was obtained before data collection began. Any student refusing to participate in the study was offered optional alternative assignments involving research in the related areas so they would not suffer academically. Due to course enrollment numbers only two of the three courses were selected for the individual pre/post interviews, resulting in a total of 66 recorded interviews instead of a potential 200. In both cases the researcher conducted the interviews to maintain consistency. All classes received essentially the same instructional and discussion opportunities and completed the pre/post surveys.

The Intensive Experience

Treatment

The treatment provided for this study consisted of article readings, discussion concerning article contents and related digital literacies, instructor demonstration of digital literacy tools (such as interactive white boards, e-books, and iPads), and direct student experience with digital technologies and digital interactive text. The treatment was conducted over fifteen course meetings throughout the semester. Two days were used for face to face interviews, one day for a course final, surveys were administered as an out of class assignment, eight days had discussion corresponding with articles, and the remaining four days involved hands-on experience with digital literacy tools and/or related discussion opportunities.

Articles

Students were responsible for the reading and analyzing eight articles, participating in interviews, participating in hands-on experiences with digital literacy tools, completing the pre and post survey, and for participating in the class discussions related to the assigned articles and

digital literacies. The articles provided foundation for in-class discussions concerning new literacies throughout the semester on a variety of digital literacy topics. The instructor also led a series of discussions throughout the semester in addition to the articles concerning the use of wikis, blogs, social networks, texting, video chats, texting, twitter, and podcasts as they are not discussed at length in the selected articles. Discussions on these topics took place throughout the semester during eight assigned classroom intervals. Each period of discussion followed either an article reading or a hands-on classroom experience. To ensure that true discussion rather than simply lecture occurred, the researcher kept a log of instructor and student participation times. The majority of participant discussions were recorded. For those sessions not recorded, the researcher log was used to generate an approximation as discussions would be similar but not identical. To further ensure mastery among student, questions were added to the course examinations of all three methodology classes, which were constructed around the content and discussion of each article. The hands-on experiences involved interaction with digital literacy tools such as iPads, smart boards, and online digital interactive text sources.

The eight articles selected were chosen as they would provide some basic foundations to facilitate class discussions centered on a variety of digital media, modern technologies, and changes in literary formats. As the methodology classes involved were at the undergraduate level, article length and ease of access were also considered. Though all of the articles varied in length, authors, and content they remained timely and seemingly relevant to the development pre-service teacher's views toward digital literacies, how students typically spend their time and are engaged, as well how they themselves engage and view media tools.

“Digital Natives, Digital Immigrants” by Marc Prensky (2001) was selected, as it is the seminal piece where the terms “digital native” and “digital immigrant” were first defined and

explained. The piece is also relevant as it provides insight into student attention spans and what may be needed for today's students to be able to relate to classroom instruction. Prensky maintains that students actually think differently, and shares the example of how students may simply just be bored with traditional learning methods. The article provides an account of how they achieved greater success in game design by utilizing the talents of professors, game developers, and a Hollywood script writer. The exchange placed emphasis on how the professors were viewing the progression of the task as compared to the views of the script writer in an effort to bridge the gap of how students receive information inside and outside of the classroom. For example, Prensky discussed cutting a typically 5-10 minute concept video down to 30 seconds, slowing the academic pace versus speed and urgency, and linear tasks changing to allow for random order of completion. The article provides a stark contrast between the fast paced world of video games and that of traditional academia. Prensky shares the relevant example of how in the area of geography, students are typically unable to recall various nations, capitals, populations, etc. However, those same students are able to memorize a vast quantity of details regarding well over 100 different Pokemon characters. The point of this example being that students are capable of memorizing complex and extensive details, for this to happen, the material needs to be presented in a more engaging method. Discussion sparked by this article continued further into how students are using media and current digital literacies encountered at home and school such as video games, using the Internet, and students creating digital presentations.

“What Teachers Need to Know about the Video Game Generation” by Elizabeth S. Simpson (2005) provides a rich insight into the traits of video games. To provide some context of the experiences students experience with games, Simpson describes the chief traits of video

games as: competitive, fair, providing clear roles, presenting a problem with a solution, failure can be a learning experience, allowing you control your destiny within the game, having multiple routes to success, rule based, presenting outcomes that are influenced by effort, and simulating real life consequences and situations. Considering the experiences students are afforded by video games and then evaluating the experiences typically found in the classroom gave way to rich discussion. The pre-service teachers took the opportunity to converse about the concept that students who play video games are accustomed to learning and accessing information quickly and the reality of the learning expectations they may have. Conversation moved toward whether teachers should modify classroom instruction for today's student. Most discussion was supportive of changing instruction particularly when considering the influence of video games. Further discussion concerning environmental (video game versus traditional classroom) differences, similarities, and the potential to bridge some of the differences through instruction also were prominent.

“Electronic Book and e-Reader Device Report” by the National Association of College Stores OnCampus Research (2010, October) was also shared. This report provided recent data on what college students possess and desire to possess in terms of e-books and e-reading devices. The report shared that only about 12 to 13 percent of college students were buying e-books at the time. Also of notable interest are the report's findings on student preference of paper text over digital in that 74 percent still wanted paper text. As student experience with e-readers was expected (only eight percent of students in the report owned e-reading devices) and found to be limited, a key component of the treatment was an opportunity for students to interact first hand with the devices. The Apple iPad currently remains the pinnacle of digital interactive text technology, and the report certainly supports the notion that iPads were the device college

students most wanted to buy. Discussion provided a foundation for e-books and e-readers, and the eventual hands on interaction with the devices that occurred later in the semester.

In an effort to focus class discussion only the introduction, key findings, print media, overall media use, and demographic predictors of media use sections were discussed from “Generation M² Media in the Lives of 8- to 18-Year-Olds” by Victoria J. Rideout, Ulla G. Foehr, & Donald F. Roberts (2010, January). This Kaiser Family Foundation Study provided timely and relevant data on how children and teens aged eight to 18 are using media in their daily lives. The report found that teens aged eight to 18 were using media an average of seven hours and 38 minutes a day. When considering multitasking those same teens were being exposed to 10 hours and 45 minutes of media per day. When looking at these figures by age there was an increase of three hours media usage per day above those aged eight to 10. Much discussion took place concerning the dramatic time increase of media use for students entering middle grades and the potential changes in technology access at those ages. One statistic that generated significant further discussion was that only 84 percent of teens have Internet access in their homes. As all of the pre-service teachers currently had Internet, it is this fact that gave them some pause about what expectations could be held for home Internet assignment and communication. The participant demographic differences and implications of the findings in terms of race and parent educational background were also discussed. The greater the education of the parent the more time per day the teen spent reading. Media exposure was four and one half hours (three hours of usage) greater if a teen was black or Hispanic than white. White teens were using social networks more than their black or Hispanic peers. As teachers are typically only privy to teen’s daily lives inside the school building, this report potentially provided some valuable insight into how students spend a significant portion of their time. Class discussion led into possible

modifications of future instructional practices in an effort to support perceived student needs for classroom media use.

“Teaching and Reading the Millennial Generation through Media Literacy” by David Considine, Julie Horton, and Gary Moorman (2009) provided a number of relevant examples for the use of media (largely digital) literacy. Educators in the article had the opportunity to see how a variety of media sources can be used to enhance instruction such as songs, editorial cartoons, video clips, books, etc. The technology, audience, production (TAP) model discussed in greater detail within the article, essentially has users select media choices that fit clearly in the context of instruction. Class discussion was furthered when the media resource mediums were considered through the lens of the TAP model. As the article also touched on the reliability of Internet sources, it provided a suitable springboard for discussion of potential student reading comprehension skills and strategies concerning use of the Internet.

“How Teens Use Media: A Nielsen Report on the Myths and Realities of Teen Media Trends” by The Neilson Company (2009, June) provided a number of statistics for media use on teens aged 12-17. The article was designed to provide a media myth such as “U.S. teens are the world’s couch potatoes” (p. 4) followed by statistics debunking the myth. One of the most relevant statistics to the discussion that followed were the amounts of time teenagers spent using given media types, such as: newspapers, Internet, personal computers, television, mobile video, etc. There were texting statistics shared such as the average teen with a mobile device sends and receives 2,899 texts per month. Boys were spending around 41 minutes per day playing video games compared to only 8 minutes for girls. Further discussion was also sparked concerning their own Internet use, how age may factor into use, the decline in newspaper reading, and how and what mobile technologies are being used.

“The Impact of Internet and Television Use on the Reading Habits and Practices of College Students” by Kouider Mokhatri, Carla A. Reichard, and Anne Gardner (2009) shared insight into not only college student reading, but college student multitasking. The authors provided clear identities for multitasking while college student read recreationally, read academically, used the Internet, and while watching television. Though the participant numbers varied greatly in terms of responses, the authors found that participants, read for fun one hour and 14 minutes per day, spent two hours 17 minutes on academic reading, watched almost two hours of television, and used the Internet for about two and one half hours. Pre-service teachers saw relevance in relationship to their own reading and media usage. The authors examined multitasking activities such as cooking, listening to music, exercising, etc. while engaged in reading or media use. The multitasking occurrences analyzed within the article fostered discussion among the pre-service teachers about how they and students may or may not multitask within their own lives and the classroom.

“Digital Readers: The Next Chapter in E-Book Reading and Response” by Lotta C. Larson (2010) provided a snapshot of classroom use of e-readers. E-readers are currently on the forefront of new literacies in classroom technologies. The article afforded an account of how the students using the e-readers were adjusting font size, accessing the built-in dictionary, and using some of the text to speech features where the words could be read to them. Even though there were only two participants in the case study, the article is one of the first published accounts of e-reader use in terms of literacy. Pre-service teacher experiences concerning e-readers prior to the experience were found to be extremely limited. This article was the last to be shared in the semester, and it followed the pre-service teachers’ hands-on experience with e-readers. Not unexpectedly there was extensive discussion on the practical applications of such digital literacy

tools in the classroom, as well as reflection on their own experiences using e-readers.

Tools

An in-class demonstration of Scholastic BookFlix, a program supplying digital interactive text for a variety of content areas and reading levels was provided followed by student hands-on use. BookFlix provides readers with a fictional video storybook paired with a nonfiction e-book on the same topic or content area. The digital texts provide students with moving visuals in the stories, the ability to have words or the entire text read aloud, and to have words defined with a touch or click of the word. Pre-service teachers had the opportunity to interact with digital text that was being projected on to a Smartboard, including but not limited to the BookFlix software. A short video, “iPad iMagineering” by Penguin Books lasting approximately three minutes was shown prior to iPad use. The video highlights some of the interactive digital text features that can be found in a few of their current titles. On the days when iPads were being used, the instructor would first demonstrate a few select e-books and applications installed in advance such as: The Cat in the Hat, First Words Sampler, The Complete Works of William Shakespeare, Alice in Wonderland, dictionary, Jemima Puddle Duck, foreign language applications, etc. for approximately 20 minutes before class wide use of the iPads. Pre-service teachers would then interact firsthand with iPads the researcher was able to check out from the university library and the various applications and e-books downloaded and installed in advance for a period of approximately 40 minutes.

Data Collection

A pre and post survey was utilized to measure the participant perceptions of digital text forms, associated literary technologies, and potential changes in today’s students. The survey was administered through the course Blackboard system. Basic demographic and background

information on participants was also collected. The instruments contained a mixture of Likert scale, semantic differential ratings, and short answer response items. There was also a short quiz at the end of the instrument, fashioned from publically published data sources such as the Electronic Book and e-Reader Device Report by National Association of College Stores OnCampus Research (2010, October), Generation M² Media in the Lives of 8- to 18-Year-Olds by Victoria J. Rideout, et al. (2010, January), How Teens Use Media: A Nielsen Report on the Myths and Realities of Teen Media Trends by The Neilson Company (2009, June), and Social Media & Mobile Internet Use Among Teens and Young Adults by Lenhart, et al. (2010). Quantifiable responses were input into the Statistical Package for the Social Sciences (SPSS) version 19 for analysis. Qualitative responses were coded so class trends could be observed and for comparison between individual pre and post survey findings. Individual interviews were conducted at the beginning and end of the semester. All interviews have been recorded and transcribed.

The Perceptions of Digital Text Survey (PDTS) was developed in an effort to gauge future and current educators' views of new literacies. Digital text served as the main focus of the instrument; however, it also measured views toward other current media, communication technologies, and some elements of student and teacher change in the context of technology. The PDTS was initially developed in the fall of 2010 through the collaboration of established experts in the area of study and the researcher. The instrument went through a number of drafts before use in a pilot study and several later drafts before use in this study. The PDTS was first administered as a pilot study in the 2010 fall semester. During the pilot study the researcher held four focus groups consisting of five to six participants in an effort to further refine the instrument for future use. As a result of the focus groups and further discussion, modifications were made to

the PDTS for use in this current study. Some wording and formatting were changed in an effort to provide clarity. An item was added targeting a percentile breakdown of typical daily reading. Four questions were also added to the semantic differential section in an effort to pinpoint beliefs of the participant. Two short answer items were also added in to further probe perceptions of digital literacy. Prior to administration of the survey, a short list of defined terms was provided in an effort to ensure participant understanding.

As can be seen in Appendix A, the PDTS in its final form contains six different sections of questions. Section one consists of demographic information such as program, age, family educational history, etc. The second section concerns daily technology use in terms of social networking, reading habits, texting, and other specific technologies. Section three is comprised of forty Likert scale questions relative to 17 constructs central to the matters of technology, communication, text, reading, digital comprehension, and digital literacies; details of which are discussed at the beginning of Chapter 4. The fourth section is combination of semantic differential style questions coupled with a response to support the viewpoint selected. The short answer section contains a variety of questions related to digital literacies. The survey finishes with a 10 question quiz, constructed from 4 contemporary research sources discussed earlier.

Interview responses were coded to allow for comparison between pre and post interviews and allow for class trends and themes to be clearly identified. To facilitate this comparison, the same interview protocols have been followed as closely as possible for both interviews.

Interviews lasted approximately 25 minutes. The researcher was the sole administrator of the interview protocols, allowing for consistency throughout the study. Protocols for interviews were developed through collaboration with experts in the field along with the researcher. Qualitative coding for the interviews involved experts in the field in addition to the investigator to ensure

appropriate interpretation of responses. In vivo coding was utilized to identify the central themes of the qualitative data as they related to the research questions. Recordings of interviews were saved in a digital format, and after the data were fully analyzed were ultimately destroyed.

Appendix B contains the interview protocols that were followed during both interview sessions. Items 18 through 22 appear only during the post interviews to further confirm potential growth and understanding. All participant responses were transcribed and coded. Code books for the short answer qualitative items reported have been provided in Appendix C and the interview response codebooks can be found in Appendix D. Selected responses have been chosen for discussion purposes.

Data Analysis

The Statistical Package for the Social Sciences version 18 was used for analysis of the pre and post Likert scale survey items. Once categories were established within Likert scale section it was necessary to recode items that were phrased in the negative so that all items reflected accurate agreement or disagreement for comparison. Other survey responses were input such as demographic features, reported periods of media usage, quiz questions, and a portion of the semantic differential questions. The researcher identified any significant differences between the initial and final survey results as well as general trends in the qualitative data. Qualitative survey responses were coded using in vivo codes and further examined for differences and trends on an individual, class, and overall-course basis. Comparisons were made between the pilot study findings and the initial PDTS findings in an effort to further establish instrument validity. Interview responses were transcribed and coded using in vivo codes. Using grounded theory the researcher identified any core themes that arose in particular to those concerning digital text and changes in student learning. The post survey and interviews contained a limited number of

additional follow-up questions in order to further clarify student change over the semester. Those findings have also been examined.

CHAPTER 4

ANALYSIS OF THE DATA

Quantitative Categories

In order to appropriately group the 50 Likert scale items into categories, Cronbach's Alpha Coefficient was used. DeVellis (1991, 2003) identified the levels of Cronbach's Alpha Coefficient as those below .60 as unacceptable, between .60 and .65 as undesirable, between .65 and .70 as minimally acceptable, between .70 and .80 as respectable, between .80 and .90 as very good, and above .90 as high enough to consider shortening the scale used. The Cronbach coefficient alpha reliability for the 40 Likert scale items was .910. When the additional 10 follow-up Likert scale items were added, Cronbach's Alpha coefficient was .922. Cronbach's Alpha for the 10 follow-up Likert scale items alone was .819. As the original 40 Likert items were constructed around specific themes they were then merged into representative categories. Cronbach's Alpha Coefficient was used to ensure the reliability of the categories selected by the researcher. As seen in Table 1 below, 15 valid categories were gleaned from the 50 Likert scale survey items. The following are the categories that emerged: pre-service teacher perception of technology use in their own lives, pre-service teacher perception of social communication use in their daily lives, pre-service teacher perception of technology adoption in the classroom, pre-service teacher reading interest, pre-service teacher perception of hypertext, pre-service teacher perception of technology in education, pre-service teacher perception of technology related to teacher authority, pre-service teacher perception of technology use related to one's happiness, pre-service teacher perception of technology and their own productivity, pre-service teacher perception of digital reading, pre-service teacher opinion of digital text, pre-service teacher perception of technology access related social economic status, pre-service teacher perception of

digital comprehension, pre-service teacher perception of digital literacy tools, pre-service teacher perception of ones preparedness to use digital literacy tools. Two additional categories, pre-service teacher perception of text and the Internet as sources of contemporary information (survey items 1 and 2) and pre-service teacher perception of ones awareness of digital literacies (survey items 44, 47, and 48), failed to meet a minimally acceptable level of Cronbach's Alpha of .65 or higher; instead these were approached as individual items rather than as a category.

Table 1

Valid Category Groupings

	Cronbach's Alpha
Technology use	.82
Social communication	.82
Technology adoption	.86
Reading interest	.93
Hypertext	.70
Technology in education	.78
Technology and teacher authority	.73
Technology and happiness	.76
Technology and productivity	.75
Digital Reading	.68
Opinion of digital text	.86
Technology and social economic status	.66
Digital comprehension	.83
Digital literacy tools	.73

	Cronbach's Alpha
Prepared to use digital literacies	.77

Research Question One

To answer the first research question, “What are the general understandings and beliefs of pre-service teachers concerning digital literacies, media, and interactive text before and after an intensive classroom experience?” the following data items were used: pre-service teacher daily media use found in Table 2 from the open ended response section at the beginning of the Perceptions of Digital Text Survey (PDTS), typical pre-service teacher reading found in Table 3 also from the open ended response section of the PDTS. The 10 item quiz from the PDTS can be found in Tables 4 and 5 pre-service teacher perceptions of digital text, digital reading, and digital comprehension found in Tables 6 and 7 from the Likert scale section of the PDTS. Short answer question 2 from the PDTS have been included along with interview questions 2, 3, and 22 combined with short answer response 18. Finally semantic differential items 35-45 are located in Tables 8-22.

Table 2

Daily Usage of Media

Average Daily Usage	Pre		Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>
Text Messages	95	52.27	95	32.23
Minutes Calling	98	19.50	100	13.73
Facebook Minutes	92	79.64	89	84.09
Tweets Sent	6	2.17	14	4.09

Average Daily Usage	Pre		Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>
Tweets Received	6	7.00	14	39.56
Video Game Minutes	28	45.19	26	44.38
E-book Reading Minutes	15	55.00	20	75.75
I-Pad Minutes	3	150.00	3	220.00
TV Minutes	97	117.06	97	116.34
Video/Film Minutes	35	112.14	39	93.33
Internet Time	98	202.35	99	223.64
Newspaper Time	31	33.65	38	30.13

As seen in Table 2, the pre-survey show that at least 92 percent of the pre-service teachers report spending over four hundred eighteen minutes (or nearly 7 hours) a day calling on their phones, using Facebook, watching TV, and using the Internet. The post-survey results showed an increase in usage above the pre-survey results where at least 89 percent of the pre-service teachers report spending over four hundred thirty-seven minutes (or more than 7 hours and 17 minutes) a day calling on their phones, using Facebook, watching TV, and using the Internet. As substantial as these reported amounts of time are, these totals also do not include the time participants spend sending text messages, sending and receiving tweets, using e-readers, using iPads, playing video games, viewing video or film, or reading newspapers.

Table 3

Average Percentages of Time Spent During Typical Reading Activities

	Pre		Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>
Internet	98	55.94	100	57.43
Electronic Text	98	10.05	99	11.40
Printed Text	35.44	30.89	98	99

Note that totals in Table 3 do not equal a perfect 100 percent, as a very limited number of participants provided response totals that equaled slightly higher or slightly lower values than the requested 100 percent. These findings are shared as they reflect how pre-service teachers are utilizing their time spent reading. As one of the key themes of the experience is how persons are utilizing their time with media and a literature, it would seem responsible for the researcher to examine how pre-service teachers are spending their reading time. There was a small increase in the reported percentage of time spent reading sources from the Internet such as blogs, news, ads, Facebook, etc. in the post-survey at about 57.5 percent up from about 56 percent during the pre-survey. There was a similar increase in time spent reading electronic text such as e-books, PDFs, etc. with the post-survey findings at around 11.5 percent up from about 10 percent during the pre-survey. The most notable difference was a decline in reported time spent reading printed text. During the pre-survey approximately 35.5 percent of reading time was with paper text. Reading paper text fell to around 31 percent with the post-survey findings.

Quiz Data

Table 4

Means and Paired Samples T-tests for Pre and Post-survey Open-Ended Quiz Items 1-6

Question	<i>N</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Sig. (2-tailed Pre-Post)</i>
1. Texts Pre	97	45	10000	1548.55	1572.63	
1. Texts Post	99	60	12000	1892.25	2362.98	.128
2. Media Pre	100	10	1200	330.42	167.41	
2. Media Post	100	20	960	356.50	171.89	.202
4. D-Text Pre	100	9	100	52.23	21.22	
4. D-Text Post	100	5	95	46.88	24.44	.057
5. E-read Pre	100	5	90	38.00	21.90	
5. E-read Post	99	2	95	32.44	21.76	.027*
6. E-Adpt Pre	99	5	95	37.94	23.42	
6. E-Adpt Post	100	1	85	33.56	19.32	.116

* $p < .05$

These five quiz items support the view that students had a more accurate understanding of items following the experience. Table 4 displays pre-service teacher beliefs and later understanding concerning digital literacies, media, and interactive text before and after the intensive classroom experience. Question 1 refers to how many texts they believe 18-24 year olds send. There was an increase in the post mean which is closer to the figure reported by the Neilson Company (2009, June) of 2,899 texts per month. Note that two student responses were removed for the pre-survey question one as they were extreme outliers at 1 million and 75 billion. Question 2 concerned media usage among 8-18 year olds. There was an increase in the post mean which was closer to the 7 hours and 38 minutes reported by Rideout, et al. (2010, January). Question 3 has been removed as it dealt with empathy, which was not specifically

covered in class articles, nor was it a chief focus in class discussions, and did not directly apply to the research question. Question 4 asked for what the percentage of students who would prefer digital textbooks should be. There was a decrease in the post mean which would more closely support the reported 26.5 percent wanting digital textbooks by the National Association of College Stores OnCampus Research (2010, October). Question 5 asked what percentage of college students owned e-reading devices. There was a decrease in the post mean which was closer, but still far from the mean of 8.13 percent reported by the National Association of College Stores OnCampus Research. Question 6 asked what percentage of teachers they believed would be early adopters of technology. There was a decrease in the post means which supports the decrease in the post mean found in the technology adoption category which can be seen in Table 23. This would most likely be attributed to the class discussions in which students shared their own perceptions and expectations of technology adoption.

Table 5

Frequency of Item Responses for Quiz Multiple Choice Items 7-10

Question	<i>n</i>	A	B	C	D
7. E-Read Pre	100	7	90	3	0
7. E-Read Post	99	14	82	3	0
8. Buy Pre	100	20	36	40	4
8. Buy Post	100	36	27	32	5
10. Media Pre	100	35	51	14	0
10. Media Post	100	25	58	16	1

These three quiz items help to represent the general understandings and beliefs of pre-service teachers concerning digital literacies, media, and interactive text. Table 5 displays pre-

service teacher beliefs and later understanding concerning e-reader popularity, reasons for buying e-readers, and media use before and after the intensive classroom experience. Question 7 asks which e-reading device was college students most interested in purchasing. There was a decrease in the posttest mean for iPads which was the correct answer according to the National Association of College Stores OnCampus Research (2010, October). However, shortly before the posttest survey the Amazon Kindle (choice A) was offering a significant reduction in price. With this in context it can explain the movement from the “correct” answer choice. Question 8 addressed the reasons for college students most wanting to purchase e-reading devices. There was an increase of 16 more responses for leisure reading which was moving closer to the top reason provided by the National Association of College Stores OnCampus Research (2010, October). Question 9 has been removed as it dealt with empathy, which was not specifically covered in class articles, nor was it a chief focus in class discussions, and did not directly apply to the research question. Question 10 asked with which type of media were adults spending the most time on. There was an increase in the post mean for Internet use. This would support the class discussions, findings by Lenhart, et al. (2010), and is also reflected in the daily usage of media found in Table 2.

Table 6

Paired Samples T-tests for Pre and Post Category Means

	Pre		Post		Sig.
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
DigiRead	3.06	1.07	2.93	.90	.214
OpinDT	3.00	.89	2.90	.80	.215
DigiComp	3.58	.94	3.47	1.00	.237

The results for the categories of digital reading, opinion of digital text, and digital comprehension displayed in Table 6 did not yield any significant differences in the means from the pre to post surveys. Findings would indicate that pre-service teachers held a neutral view of digital reading and of digital text. Participants seemed to agree about their opinion of digital comprehension. Further details for these categories can be found in Table 7.

Table 7

Category Means for Digital Reading, Opinion of Digital Text, Digital Comprehension and Digital Literacy Tools

	<i>n</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>SD</i>
DigiReadPre	100	1.00	5.00	3.06	1.067
DigiReadPost	100	1.00	4.50	2.93	.900
OpinDTPre	100	1.00	5.00	3.00	.890
OpinDTPost	100	1.25	5.00	2.90	.795
DigiCompPre	100	1.00	5.00	3.58	.937
DigitCompPost	100	1.00	5.00	3.47	.997
DigitLitTools	98	2.25	5.00	3.73	.628

As seen in Table 7 there was agreement present for the perceived need for digital literacy tools in the classroom. There were no pre data to compare this category to as the related questions were only presented at the end of the semester.

There were a variety of themes evident throughout the responses when asked the second short answer question, “How have your daily technologies changed in recent years?” Codebook A, located in appendix C, provides a complete list of the identified category codes for responses. There were three key themes that arose. Several respondents mentioned how their phones have

changed in terms of use, capability, and size. Many mentioned how classes have been changing through online offerings and expectations. Also a number mentioned e-reading devices and how they have been impacting the way they read. This division among technologies was not surprising as only a little more than half of the participants owned a 3G or smartphone. Following the semester experience, approximately 25 percent of the respondents owned e-reading devices or iPads. As for the change in university classroom, a large number of the pre-service were enrolled in a synchronous video and audio course that had significant Internet-based components.

Some of the specific items mentioned for phone use were communication with friends and family, texting, getting directions/GPS, accessing the Internet, checking e-mail, maintaining social networks, playing music, playing games, as a camera, to pay bills, and to call up coupons to scan in stores. The two selected responses below provide examples of how students were typically describing the changes in phone technologies and the role phones serve their daily lives.

“I use my cell phone more. Before I only used it for texting and talking but now that I have a smart phone I use it to check email, surf the internet and as a global positioning device. It even translated my words into a text message so I can text while I’m driving without actually typing anything.”

“My cellphone is the most dramatic change. When I first got a cellphone I was in high school, and they were first coming out. The only thing you could do on the phone was make calls. Slowly it has evolved to give me everything I could need. It has a navigation system, games, internet browser, alarm clock, holds my music, and so much more. It’s the all in one on the go technological tool.”

Those who mentioned how classes have been changing were generally referring to taking classes online, through synchronous video, as well as a variety of course changes in technology expectations and offerings. The two selections below are examples involving how technology has changed related to the classroom.

“...I have also found that with the implementation of programs, such as Blackboard, I have started relying on the Internet more for my education and assignments more than I had.”

“I can clearly remember being in college a few years back and we did nothing more than read textbooks and would have a few research assignments. The few classes I have taken recently have been more technology based, through online texts such as Livetext.”

E-reading devices were mentioned in several responses. The selection below highlights some of the general trends such as reading interest and ease of device use that were evident throughout the e-reading responses.

“The way I read books has changed. Before I was an advocate on reading books in paper format but the new e-readers have definitely changed my mind. My Nook makes it easier for me to access books I have in my library and quickly get a book I don’t have.”

“...The thing that has changed is my increased interest in reading because of my Kindle.”

“...I rarely ever go to the library anymore to check out a book, instead I do it electronically, It is easier, cheaper (no late fines), and the books are always available.”

There was a central theme found when pre-service teachers were asked the second interview question(s), “What do you think text will look like in the next five years? What do you think text will look like in the next ten years?” All felt there would be a greater movement toward more digital or electronic forms of text. Most had a stronger view of this movement during the 10 year span of the question. Many still felt paper forms of text would still retain a

small presence in the future, but mainly as a form of backup copy or preference of select individuals. Codebook B, located in appendix D, provides a complete list of the identified category codes for responses. Participants have been identified by a letter and number code, and the interviewer as researcher. The selected responses below highlight the main theme that there is an expectation for digital text to be replacing traditional paper text formats.

Researcher – Okay sure. What do you think text will look like in the next five years?

M2 – Well, now I'm starting to see more uh, e-readers.

Researcher – Okay.

M2 – Everywhere. So I think, I think that it's going to be moving more towards um, a digital format.

Researcher – Okay. What about say ten years down the road?

M2 – Ten years um, unfortunately I think it will mostly be all digital.

Researcher – Oh okay.

M2 – Online or in like, personal, personal e-readers.

Researcher – Okay.

M2 – Yeah, no more newspapers, things like that.

Researcher – No more newspapers.

M2 – Yeah.

Researcher – Okay sure. Um, what do you think text is going to look like in the next five years?

T1 – Uh, I think it's gonna be digital.

Researcher – Okay.

T1 - Yeah, uh, I think the books are gonna be starting to phase out. I mean especially when you see like, Borders, not too long ago had to file bankruptcy and um, you see more of the Kindles and stuff like that.

Researcher -- Okay yeah.

T1 -- And iPads and what not.

Researcher -- What if we go ten years down the road?

T1 -- Ten years down the road I think most everything is going to be digital. Um, of course, you can always have hard copies for legal reasons if you need to have a hard copy.

Researcher -- Mmm hmm.

T1 -- But if it's digital it can be printed out. And there's your hard copy.

Researcher -- Okay, that's fine. Um, what do you think text will look like in the next five years?

C3 -- Um, I think it will all be online.

Researcher -- Really.

C3 -- Well not online, but on a e-book or digital.

Researcher -- Okay. What if we went ten years down the road?

C3 -- Digital.

Researcher -- Okay, everything just digital?

C3 -- Mmm hmm.

Researcher -- Would paper still exist, or?

C3 -- Um, I think so, I think there will be people that don't really convert. Yeah.

Researcher – Okay.

C3 – Like the older teachers and stuff. I'll be hanging out with them, I guess.

A key theme was present when pre-service teachers were asked the third interview question, “What forms of text do elementary school, middle school, high school, and college students encounter in their daily lives?” In general nearly all felt there was a movement towards more digital forms of text. Most felt that elementary and middle school students encountered more traditional paper texts in the forms of textbooks and story books. High school and especially college students were believed to use digital forms heavily, even exclusively. Responses typically associated text with the medium presenting it such as e-reader, book, computer, etc. Though it was clear, or made clear through further probing what the text participants were referring to. The two selected responses below highlight the perceived transition from traditional paper text formats to digital text formats. Codebook B, located in appendix D, provides a complete list of the identified category codes for responses. Participants have been identified by a letter and number code, and the interviewer as researcher.

Researcher – Okay. Um, what forms of text do elementary school students encounter in their daily lives?

M1 – I think they still use uh, they still use picture books, just regular paper. I think it's just a lot easier. It doesn't break as much as if it were a digital text or a digital format.

Researcher – Okay. What if we went a little older, say middle school?

M1 – Um, I think it's still going to be regular textbooks in middle school but there's going to be a slight integration towards digital text.

Researcher – Okay, what if we went to say, high school?

M1 – I think it's gonna be mix of both, you know. I think a little bit more of regular text

but there's still going to be like a higher demand for uh, online text or computer text, you know PDF files, you know, e-books, things like that. They've become a lot more main stream. So, you know, uh, the education system will slowly catch up to that and follow the trends, so.

Researcher – Okay. What about at the university level?

M1 – Um, it depends on the teacher.

Researcher – Oh okay.

M1 – I believe. It's sort of at the teacher's discretion because uh, you know, you can get online books, you know, for your computers, or you can get online books for your e-books, or your iPads or anything like that.

Researcher – Mmm hmm, sure.

M1 – So I think it's just what the student uses at that point.

Researcher – Okay sure. What forms of text do elementary students usually encounter in their daily lives?

R2 – Probably in school they probably see more of the paper.

Researcher – Mmm hmm.

R2 – The probably still get some of the digital text but probably, mostly paper I would think.

Researcher – What about uh, outside of school then?

R2 – Definitely digital.

Researcher – Okay, like what forms there?

R2 – Computers, cell phones, things like that.

Researcher – Sure. Would you see anything different if went up to say, middle school?

R2 – I think middle school teachers will probably be integrating more digital things.

They're probably, um, introducing them to how to use the Internet and how to use computers. So, they're probably seeing that more there.

Researcher – What about uh, high school students?

R2 – Once again, just integrating the computers even more, you know to do research for papers and things like that. They're taught how to use the computer to find that.

Researcher – Okay, and do you think university students would encounter any other forms of text, or?

R2 – I think that um, we are more likely to be using the e-readers.

Researcher – Okay.

R2 – Things like that. I've seen a lot of people with uh, e-books, I forget what they're called. The Kindles.

Researcher – Okay.

R2 – In class.

Responses for the eighteenth short answer response combined with interview question twenty two, centered around students using media at home and at school. The general perception of the question, "How are students using media in their daily lives?" was that students are using this media to socialize, for entertainment, and for educational purposes. Codebook J, located in appendix C, provides a complete list of the identified category codes for responses. A selection of interview and short answer responses representing the central theme of student home and school use has been provided. For the interview items, participants have been identified by a letter and number code, and the interviewer as researcher. Responses provide insight into the

general understandings and beliefs of pre-service teachers concerning media.

“Students use media for socialization, research, and entertainment. Whatever interests the student can be found in some form of media.”

“Students use media in their daily lives for social networking, completing homework, creative activities, games, knowledge, etc. It seems as if media has integrated itself into the very fabric of today’s student.”

“Students use technology from the time they wake up to the time that they go to sleep. They use it as a means of communication, a means of learning and as a means of entertainment.”

Researcher – Sure. And our final question, how are students using media in their daily lives?

G1 – Well, I think that kind of goes through everything in their daily lives. You’ve got, I mean the media they can access on their phones and they can do it through, I mean, even sitting in a classroom I’ve watched kids, the teacher mentions some guy with a historical name and the phone comes out and they Google it or Wikipedia it and all of a sudden they’ve got an entire article on this guy that they didn’t even know existed five minutes prior.

Researcher – Yeah.

G1 – So, they’re using it in the classroom to try to get whatever information they can get that the teacher isn’t offering right at that moment. They’re using it when they get home, if it’s sitting down in front of the TV or playing video games or getting on the computer or doing all of them at one time, which I’ve seen and is kind of scary, how good they are at multitasking.

Researcher – Mmm hmm.

G1 – But, it's like one of those things where even a simple 25 minute bus ride home isn't without media.

Researcher – Yeah.

G – They're still, you know, playing with the iPod or playing with the cell phone. If you've got a kid that's got all of it, then it just kind of seems like they go straight through their day without a break from it.

Researcher – Sure. Our final question, how are students using media in their daily lives?

E1 – Uh, they are using it to, I feel like I'm making the students sound really bad.

Researcher – No that's fine.

E1 – I don't mean to. Um, they're using to stay connected to their friends and their parents, you know, um, they're using it to, um, stay connected to whatever their interests are. You know, whether it's fashion or sports or video games or you know, whatever. They're using it to hopefully do research and if it's in the classroom, they're using it to write blogs and online journals. Um, um, I don't know. They use it for everything. Everything. I mean, they use it to Google something or Bing something or look up an address or phone number or um, you know, everything.

A section of the PDTS contained a series of tension point questions. Modifying a semantic differential scale, two often opposing views were presented together and respondents were only allowed to select one side to agree with. Not only would responses indicate their point of view but the scale would allow for the strength of agreement to be shared, 5 being the strongest level of agreement and 1 being the weakest. Semantic differential is traditionally two opposing words or concepts that could be rated using a bipolar scale. Some minor adjustment

was necessary as 6 individuals on the pre survey and 2 individuals on the post survey provided responses in both categories at times. Their strongest response was selected and the weaker response discarded. In the event a distinction could not be made, both responses were excluded. There were a maximum number of 100 responses for both the pre and post surveys. Questions are provided below in a left to right column format followed by a table and discussion.

Table 8

Frequency and Means of Hotlink Interest Responses

New forms of electronic text including hotlinks, animation, and other forms of interaction will increase young learners' interest in reading.	New forms of electronic text including hotlinks, animation, and other forms of interaction will result in students later becoming bored with static, normal book-reading.
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	Pre		Post		Pre-Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>Sig.</i>	<i>SD</i>
Left	77	3.79	82	3.82	1.00	.213
Right	23	3.61	16	3.69	1.16	1.18

Results in Table 8 revealed that pre-service teachers felt that the interactive elements of electronic text would increase interest in reading for young learners. This view was slightly more evident in the post-survey results.

Table 9

Frequency and Means of Deeper Electronic Knowledge Responses

K-12 students of today are becoming savvy	K-12 students of today are accustomed to
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manipulators of electronic sources who can readily find the information they need in their lives.	finding information only, rather than building personal knowledge.
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	Pre		Post		Pre-Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>Sig.</i>	<i>SD</i>
Left	76	3.71	78	3.81	.429	1.00
Right	24	3.08	20	3.40	1.12	1.00

Table 9 displays that pre-service teachers felt that students can easily find needed information from electronic sources. This view was slightly stronger with the post –survey responses.

Table 10

Frequencies and Means for Perception of Technology on Young People's Brains Responses

By 2020, technology will have had a positive effect on young people's brains in terms of their ability to retrieve useful information.	By 2020, technology will have had a negative effect on the people's brains in terms of their developing impatience and poor concentration.
--	--

	Pre		Post		Pre-Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>Sig.</i>	<i>SD</i>
Left	68	3.29	70	3.37	.518	1.25
Right	32	3.13	27	2.81	.289	1.72

As seen in Table 10 participants felt that technology would have positive effect on student's brains in terms of their ability to locate useful information. This view was slightly more

supported and strengthened in the post-survey results.

Table 11

Frequency and Means of Perceived Multitasking Ability Responses

Students are become adept at multitasking and being able to study while watching TV or interacting with friends.	Students are simply fooling themselves that the human brain can focus equally well on two channels of information or input at the same time.
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	Pre		Post		Pre-Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>Sig.</i>	<i>SD</i>
Left	49	2.59	64	3.16	.046*	1.54
Right	51	3.41	29	3.66	.329	1.28

* $p < .05$

Table 11 shows that there was a significant change in the post-survey results. Pre-service teachers felt more strongly in numbers and in intensity that students were becoming more adept at multitasking.

Table 12

Frequency and Means of Perceived Journalism Informative Quality Responses

Disappearance of print journalism and associated reporters has resulted in news forms being truncated so that we have a poorer informed electorate.	New media forms will grow over time and reporting mechanisms will be developed which result in a fully informed citizenry.
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	Pre		Post		Pre-Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>Sig.</i>	<i>SD</i>
Left	35	2.57	23	2.87	.754	.900
Right	66	3.42	70	3.34	.150	1.30

Table 12 indicates that pre-service teachers felt more strongly that media would not only continue to grow but to result in a fully informed citizenry. This view was present in both the pre and post-survey results.

Table 13

Frequency and Means of Web Searcher Responses

Modern web searchers have been found to demonstrate effective narrowing search strategies that are quick and efficient.	Modern web searchers have been found to flit unpredictably among sites with little perceptible sequence or reason.
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	Pre		Post		Pre-Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>Sig.</i>	<i>SD</i>
Left	83	3.61	84	3.69	.528	1.29
Right	17	2.35	11	2.82	.184	.577

Table 13 displays that participants felt that web searchers demonstrate effective and efficient search strategies. This view was maintained throughout the pre and post-survey results.

Table 14

Frequency and Means of Digital versus Print Text Responses

Electronic devices like the iPad will allow users of all ages to access and interact with text	Print sources allow the best possible opportunity for readers to comprehend and
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better than ever before.	interpret text.
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	Pre		Post		Pre-Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>Sig.</i>	<i>SD</i>
Left	77	3.17	85	3.49	.126	1.55
Right	22	2.91	9	3.67	.838	2.05

Results in Table 14 show that pre-service teachers felt that devices like the iPad will provide readers better interaction with text than has ever been available. This view was slightly more evident in the post-survey responses.

Table 15

Frequency and Means of Digital versus Print Text Classroom Use Responses

Even though there is little to no research identifying the effects (benefit or loss) of e-books on student learning we should try using them in our classrooms.	Reading from print sources has been a tried and true form of classroom text for generations. As teachers we should feel obligated to use materials in our classroom that have a proven track record.
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	Pre		Post		Pre-Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>Sig.</i>	<i>SD</i>
Left	73	2.97	81	3.47	.021*	1.44
Right	26	3.23	14	3.14	.082	1.51

* $p < .05$

Table 15 indicates that there was a statistically significant change between the pre and

post-survey results concerning the view of e-books. Pre-service felt even more strongly so in the post-survey results that even without the research to support it, that e-books should be used with students in the classroom.

Table 16

Frequency and Means of Resource Allocation Responses

It is important for teachers and students to be aware of and able to successfully master new technologies.	Resources in schools can be limited. Available funds could be better spent on a variety of resources/materials besides new technologies.
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	Pre		Post		Pre-Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>Sig.</i>	<i>SD</i>
Left	88	4.00	89	4.04	.483	1.25
Right	12	2.75	11	3.33	.235	1.21

Table 16 indicates that pre-service teachers agreed that teachers and students need to be aware of and able to use new technologies. This view was maintained through the pre and post-survey responses.

Table 17

Frequency and Means of Technology Adoption Responses

I prefer to use technologies I am familiar with and have a proven track record.	I am excited by new technologies and try my best to keep up with them.
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	Pre		Post		Pre-Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>Sig.</i>	<i>SD</i>
Left	42	3.19	49	3.35	.917	1.76
Right	58	3.40	49	3.55	.254	1.26

Table 17 indicates that there was mixed view of whether pre-service teachers would prefer to use familiar and proven technologies or to try and keep up with new technologies. Though differences were not statistically significant there was a slight movement toward the use of familiar and proven technologies in the post-survey responses.

Table 18

Frequency and Means of Electronic Text Responses

New forms of electronic text including hotlinks, animation, and other forms of interaction will increase young learners' reading comprehension.	New forms of electronic text including hotlinks, animation, and other forms of interaction will result in lower reading comprehension with normal book-reading.
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	Pre		Post		Pre-Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>Sig.</i>	<i>SD</i>
Left	79	3.24	82	3.50	.104	1.11
Right	20	3.00	11	2.36	.866	2.49

Table 18 indicates that pre-service teachers clearly supported the view that electronic text would increase the reading comprehension of young learners. There was a slightly greater support for this view in the post-survey results.

Table 19

Frequency and Means of Potential Digital Literacy Responses

Students require new reading comprehension strategies to effectively use the Internet and other information communications technology.	Using the internet, cell phones, and other types of communication technologies comes intuitively to students.
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	Pre		Post		Pre-Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>Sig.</i>	<i>SD</i>
Left	46	3.13	56	3.20	.716	1.45
Right	51	3.24	41	3.32	1.00	1.54

Results in Table 19 were split between whether students needed new comprehension strategies to utilize the Internet or other ICTs and whether these technologies came intuitively. Though the differences were not statistically significant there was a slight movement toward the view of students needing new strategies in the post-survey results.

Table 20

Frequency and Means of Internet Literacy Skill Responses

Accessing the Internet makes large demands on individual's literacy skills.	It requires very little in the way of reading or writing skills to use the internet.
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	Pre		Post		Pre-Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>Sig.</i>	<i>SD</i>
Left	60	3.02	55	3.11	.177	1.15
Right	39	2.92	39	2.97	1.00	1.51

Table 20 indicates that there was greater support for the view that utilizing the Internet is

demanding of one's literacy skills. Though there was not a statistically significant difference in pre and post-survey responses there was a slight decline in number of responses, and a slight increase in the strength of agreement.

Table 21

Frequency and Means of Digital Text Responses

The skills required to read and comprehend text on the Internet are the same as the skills required to read printed text.	A person can access text as digital or printed without any noticeable difference between the two methods.
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	Pre		Post		Pre-Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>Sig.</i>	<i>SD</i>
Left	74	3.36	60	3.32	.842	1.48
Right	24	2.88	30	2.77	.132	1.29

Table 21 shows that responses more heavily supported the view that to comprehend text on the Internet one had to use the same skills required to read printed text. Though there was not a statistically significant difference there was a slight decline in numbers for the post-survey responses. The choices for this question appeared very similar as they both address forms of digital and printed text. However, the first choice addressed reading and comprehension and the second accessing text. This relative closeness could be a reason for the missing 10 percent of post-survey responses.

Table 22

Frequency and Means of Influence of Texting on Writing Responses

Text messaging hasn't changed the way I	The way I communicate in my daily life (when
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compose written narratives in other spheres of my life.	I'm not using the phone) has been changed/influenced by text messaging.
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	Pre		Post		Pre-Post	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>Sig.</i>	<i>SD</i>
Left	59	4.47	69	4.14	.348	.924
Right	36	3.56	30	3.50	.393	1.66

Table 22 indicates that a majority of pre-service teachers felt more strongly that text messaging did not change the way they write. This view was maintained and slightly increased in response number from the pre to post-survey results.

Research Question Two

In order to answer the second research question, “As a result of the experience, will there be a change in pre-service teacher future use of digital interactive text and related technologies in their classroom?” the following data items were used: pre-service teacher perceptions of technology use, technology adoption, technology in education, technology and productivity, and of their preparedness to utilize digital literacies can be found in Table 23 and 24 from the Likert scale section of the PDTS. To further answer the question, short answer response 8 along with interview question 19 combined with short answer 15 was also examined.

Table 23

Paired Samples T-tests for Pre and Post Category Means for Technology Use, Technology Adoption, Technology in Education, and Technology and Productivity

	Pre	Post	Pre-Post	
	<i>M</i>	<i>M</i>	<i>SD</i>	<i>Sig.</i>
TechUse	4.40	4.36	.465	.361
TechAdopt	3.32	3.24	.546	.134
TechEd	4.36	4.27	.690	.193
TechProd	3.63	3.50	.848	.170

As seen in Table 23 there were no significant differences in the categories of perceptions of one's technology use, one's tendency towards technology adoption, the need for technology in education, and one's productivity when using technology. However, for the categories of technology use and technology in education a strong agreement was maintained in both the pre and post surveys. The category of technology and productivity was indicative of a slight agreement. There was a neutral view present for the category of technology adoption. Further details on these categories are also available in Table 24.

Table 24

Category Means for Technology Use, Technology Adoption, Technology in Education, Technology and Productivity, and Preparedness to use Digital Literacy Technologies

	<i>n</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
TechUsePre	99	2.75	5.00	4.40	.476
TechUsePost	100	2.00	5.00	4.35	.597
TechAdoptPre	100	1.25	5.00	3.32	.811
TechAdoptPost	100	1.00	4.75	3.24	.764
TechEdPre	99	2.00	5.00	4.36	.755
TechEdPost	100	2.50	5.00	4.28	.583

TechProdPre	99	1.50	5.00	3.62	.872
TechProdPost	97	1.00	5.00	3.50	.835
Prepared	99	2.00	5.00	4.00	.644

In addition to further information on the categories described in Table 23, Table 24 displays a clear agreement with the category of one's preparedness to use and integrate technologies.

There were four key themes evident throughout responses when asked the eighth short answer question, "What technologies do you feel are important for students to use and teachers to be aware of?" Codebook E, located in appendix C, provides a complete list of the identified category codes for responses. Three themes centered on hardware items such as computers, e-readers, and interactive white boards. The other key theme was the Internet in terms of appropriate and effective usage. All of the themes were technologies utilized during the semester and for many participants, being introduced for the first time. The themes of e-readers and interactive white boards saturated the post survey responses. This would seem indicative that pre-service teachers would be more apt to utilize digital interactive text and related technologies in their future classrooms.

Due to the nature of the question, a number of responses reflected thoughts on more than one of the key themes. The selected responses below are representative of the majority. They display pre-service views that it is important to be aware of interactive white boards (Smartboards in the responses below), e-readers, computers, and using the Internet. There were several additional specific hardware and software items mentioned overall. However, these four key themes were found throughout nearly all response for this this question.

"Students should use smart board technology and e-readers in the classroom. These are crucial to

teaching and learning and keeping students interested.”

“I think that the increase of success in e-readers will really change schools (as well as the book publishing industry). I think it is very important that teachers be at least aware of all the new and upcoming technology they might be able to implement in their classroom, especially e-readers.”

“I think the Smartboard, computer, and some schools are even using e-books. These are going to be a part of a new generations learning.”

“I believe that students should use a computer because they would be able to search different topics via the internet to further their understanding about the topic. However, teachers will need to be aware of what websites the students are using and what purposes are the students using the computer for...”

“I feel that it is a necessity for students to be able to use computers. I also think that e-readers may also be useful in the classroom. Teachers need to be aware that the students in today’s classrooms are not the same as students from 20 years ago.”

“I believe that all technology is good to be aware of. I believe that the internet is one that is probably most important due to the wide range of information, games, webquest etc, but I think technologies such as the smartboard can be very useful in a classroom to help engage the students.”

When asked the fifteenth short answer question combined with the nineteenth interview question, “Do you feel prepared to use digital literacies in your classroom? If so which ones? If not, why not?” there were two visible key themes. Participants typically felt that they were prepared and most so for the use of e-readers frequently iPads, and to use Smart boards. The question should have been phrased to include the words digital literacy tools; however, all participants viewed the question in the context of tools that would support digital literacies

without such phrasing. Codebook G, located in appendix C, provides a complete list of the identified category codes for responses. Both the short answer and interview responses are indicative that pre-service teachers are generally prepared and likely to utilize technologies related to digital literacies in their classroom.

The short answer responses were highly favorable in terms of being prepared to use digital literacy tools. The semester experience clearly made an impact on the pre-service teachers with the resounding number of views shared concerning key digital literacy tools utilized during the experience. The shared responses below provide examples of those sharing their views on e-readers and iPads along with some who felt prepared to use Smart boards.

“Yes, I feel prepared to use digital literacies in my classroom. I would like to use the ipad or e-readers because I think students will have fun with them.”

“I feel pretty prepared to use digital literacies in my classroom such as the iPad or Kindle so students can be more excited about learning. The devices can also help them comprehend material easier too.”

“I am prepared to use some of the digital literacies such as e-readers, and the smart board.”

“I feel as though I am prepared to use digital literacies in my classroom I would like to be able to use a SmartBoard and an iPad in my classroom.”

“I feel much better prepared. The smart board for and other internet sources like webquests.”

“Yes, I feel prepared to use digital literacies within the classroom. I think one of my favorites I would like to use is the smartboard because I think students would be more interactive with it. It also is not very difficult to use which makes it easier to use in any classroom.”

Again it is clear that Smart boards and e-reading devices, in particular iPads are prominent in the interview responses, as can be seen in the examples shared below. Participants

have been identified by a letter and number code, and the interviewer as researcher.

Researcher –Do you feel prepared to use digital literacies in your classroom?

P2 – Yes.

Researcher – What ones do you feel prepared for?

P2 – Um, I feel prepared for, um, prepared for more of hands on, I think. I'm prepared to do hands on learning.

Researcher – And how are you going to do that digitally?

P2 – Oh, you want digital? With more of a laptop, a personal laptop thing, like the ipad. More hands on.

Researcher – Like the ipad?

P2 – Yeah, like the ipad.

Researcher – Okay, sure.

P2 – Um, I'm ready for that, I'm ready for the Smart board hands on.

Researcher – Okay.

P2 – Doing a lot of it up there.

Researcher – Sure, okay.

P2 – Yeah, I'm ready for those things.

Researcher – Okay. Um, do you feel prepared to use digital literacies in your classroom?

R2 – Yes, because I feel like that's what society and culture is pushing for so I feel like I'll be having to take classes and learn things about new technologies and I'll be forced to learn how to use these new things, so I think I'll be prepared to use whatever they throw at me.

Researcher – Which ones do you feel you're ready for right now?

R2 – Um, I guess I could use the interactive whiteboards. I could use those, um, blogging obviously and then anything on the Internet pretty much. I mean, I don't know like, I'm not sure what else would be available for classroom use.

Researcher – Mmm hmm.

R2 – You know, I don't know. iPads and all that. Um, yeah.

Researcher – Okay. Do you feel prepared to use digital literacies in your classroom, and if so, which ones? You mentioned a couple there.

P6 – I think I'd use, I could certainly use a computer in the classroom.

Researcher – Mmm hmm.

P6 – I mean, that's pretty easy. I can use the Promethean, from what my fourth grade teacher and second grade teacher taught me, I could possibly use a Smart board for basic um, like, just how to, to do a PowerPoint. Um, and how to get like, the document thing you can write on.

Researcher – Sure.

P6 – And I could probably use an ipad, but um, I don't know what else there is but I don't know how to use an overhead projector anymore so that one's out of the picture. I don't know if that is technology savvy.

Researcher – Sure sure.

P6 – But I don't even know how to use it.

Researcher – Well, I think that's probably past the border of digital literacies, there so.

P6 – Yeah, so it would probably just be the Smartboard, Promethean board and iPads and

computers.

Research Question Three

In order to answer the third research question, “As a result of the intensive experience, will there be a change in participant inclination to support the view that today’s students have different learning needs particularly concerning new literacies?” pre-service teacher perceptions of: technology and behavior, technology and happiness, technology and authority, reading interest, and technology and socio-economic status were examined from the Likert scale section of the PDTS and can be seen in Tables 25 and 26. Data from short answer questions 4, 6, and 7 were also used as well as interview responses 5, 6, 7, 11, 13, 14, and 21 combined with short answer question 17.

Table 25

Paired Samples T-tests for Pre and Post Category Means for Reading Interest, Technology and Authority, Technology and Happiness, and Technology and Behavior

	Pre	Post	Pre-Post	
	<i>M</i>	<i>M</i>	<i>SD</i>	<i>Sig.</i>
ReadInter	3.99	4.02	.580	.566
TechAuth	3.76	3.66	.715	.150
TechHappy	3.46	3.43	.706	.670
TechBehavior	2.00	2.11	.913	.229

Table 26

Category Means for Reading Interest, Technology and Authority, and Technology and Behavior

	<i>n</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>SD</i>
ReadInterPre	99	1.50	5.00	4.02	.890

	<i>n</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>SD</i>
ReadInterPost	96	1.25	5.00	4.02	.811
TechAuthPre	100	1.33	5.00	3.75	.727
TechAuthPost	99	1.33	5.00	3.66	.650
TechHappyPre	100	1.50	5.00	3.48	.827
TechHappyPost	99	1.50	5.00	3.43	.673
TBehaviorPre	99	1.00	4.00	2.00	.845
TBehaviorPost	100	1.00	5.00	2.11	.803

Tables 25 and 26 did not indicate any significant differences in the pre and post-survey responses. However, the categories of one's interest in reading and the view that technology would not impact teacher authority maintained a position of agreement. A slight agreement was seen with the questions identifying a link between technology and one's happiness. Pre-service teachers disagreed with the question asking if they thought frequent technology use would result in more behavior problems.

There were two central themes evident throughout the responses when asked the question, "Do you believe that way students will view/see/understand text will be different from what you knew as a student, if so how?" Codebook B, located in appendix C, provides a complete list of the identified category codes for responses. A key theme was that pre-service teachers believe that text is more engaging, interesting, or motivating for students as text is being experienced through greater interaction and/or interactivity. The other major theme in responses was a concern towards a degradation of skills in terms of grammar, spelling, reference skills, and attention spans in terms of how students view, see, and/or understand text differently. Nearly all responses recognized that student views and understandings were different from when the

participants were in school (most likely considering elementary age). However, the themes fell into a more positive and optimistic theme or into a theme of concern over the perceived changes in student textual experiences.

A selection of responses is provided below that highlight some of the prevalent trends within the theme that the changes in text may prove to be beneficial for students in terms of engagement, interest, and motivation.

“I think students see text as something that they can interact with now. I always read and had an active imagination so it was easy for me to interact with normal books. Students that struggled with that now seem to have an easier time with it.”

“I think text can come alive for students visually whereas we had to rely more on our imaginations. They may enjoy it more and understand it at more depth.”

“I think that in the next 10 years, text will be viewed thru e-books. The popularity that these devices have will influence how media will be used in the next few years.”

“I do think it will be different for my students, and hopefully in a good way. I hope that eReaders and new technologies make reading more interesting and hip...”

A selection of responses citing the perceived negative effects students may experience due to the changes in text are available below.

“Yes, because this generation is so saturated with technology, I think their attentions span will be shorter as well as their level of engagement with people or different situations, will be affected, especially in situation that do not involve the stimulation that technology brings.”

“...I can see these new advancements being distracting and possibly taking away from the basic skills that students really should be attaining.”

“Absolutely because now text is written so different. Today, the norm is to abbreviate every

other word and condense letters even if a word is not appropriately spelled or a sentence is grammatically incorrect.”

When pre-service teachers were asked the question, “Do you believe the way students think and/or learn has changed because of technology, please explain?” In nearly all cases, responses indicated that technology has changed the way that students learn and/or think. Codebook C, located in appendix C, provides a complete the identified category codes for responses. One of the three key themes centered on the perception that students had a need for stimulation, engagement, and/or interaction. The second abundant theme referred to the amount and speed at which information has become available and how that is changing the way students think and/or learn. The final theme that arose was students have a need and/or expectation for instant gratification with their learning due to technology.

As can be seen with the selected responses below there was a theme that indicated students’ need for stimulation, engagement, and/or interaction when they think and/or learn. “Yes. Today’s students are used to being stimulated constantly. They will benefit more from a student-centered classroom where they are not sitting idly in their seat and listening to a lecture.” “I think that the way students learn has changed more because now they prefer things that they can manipulate and interact with...” “Yes, I believe students today spend a lot of time playing video games, watching television, or playing on the computer. Therefore, I feel they will require a more fast-paced and interactive learning environment.”

Another major theme mentioned either the amount or the speed at which information has become available to today’s students. This in turn would affect the way students think and/or learn. The sampling below provides some examples of those perceptions.

“Students learn information faster because of technology. Today we are used to getting our information fast and expect to learn it faster.”

“Yes. I believe that students are now better at multitasking and can sift through massive amounts of information to find what they are looking for in seconds.”

“...Students are able to gain more information from various sources other than the teacher and textbook.”

The final theme that was apparent was the view that students have a need for instant gratification which affects their thinking and/or learning. The two selections below provide some examples of the general trends supporting this theme.

“Yes. Students will need immediate feedback because that is what technology has provided for them. They can search Google and get immediate answers and results. Students will expect this in their everyday lives.”

“Yes, I believe that children can now access more at their fingertips than ever before. They are now accustomed to immediate gratification. They no longer have to spend long hours searching at the library when they have everything they need right in front of them.”

There was a key theme evident through a majority of the responses when asked the seventh short answer response, “Do you believe the way students interact with each other has changed because of technology, if so how?” Codebook D, located in appendix C, provides a complete list of the identified category codes for responses. Most responses centered on a change in social interaction attributed mainly due to the use of texting, social networks, and the general consensus that students have become reliant on technology in order to interact with other. Many viewed this change in social interaction as a decline in social skills resulting in an inability to successfully engage others in face to face situations. Branching from this same perceived decline

in social skills was that the potential increases in confidence through the anonymity of the technology medium have resulted in cyber bullying. The other major trend linked to the theme of social interaction was that technologies such as texting, instant messaging, social networks, blogs, video chat, and e-mail afford students many more opportunities to interact with each other, not only locally but on a global scale.

Some select responses have been shared below that are expressive of the view of a decline in social interaction, social skills, and/or rise of cyber bullying. These indicate a view that students typically interact differently in their social lives than academic lives. This could be suggestive towards a need for educators to consider how they interact with students and expectations for peer interactions within the classroom.

“Yes, absolutely. They (students) are less face to face and more internet and text message social. Parents need to be sure that all students have social skills as well as internet text messaging skills.”

“Students interact in a different way in a sense that there is less interaction face to face. Interaction now a day, due to technology, is more of a nonverbal communication and is hindered by technology. It is hard for a decent conversation to occur without someone texting while doing it or watching something on YouTube.”

“...With all of the bullying going on amongst children today, this can be a bad thing. Social networking has given children a new outlet for bullying, hurting feelings, and exposing others’ secrets.”

The other key theme that arose was that technologies allow for greater interaction among students. Some responses were directed towards student social lives, however, a number also maintained a classroom context.

“Yes, I do feel students forms of interaction have changed with technology. Technology help students stay in touch, complete projects together, and help each other while not actually sitting next to each other.”

“Yes I do because of inventions like Skype; kids can see and talk to other kids all over the world. Definitely makes international learning fun.”

“Yes, students are now more used to communicating through texting and instant messaging instead of face to face interaction. Almost every student owns a cell phone and a computer, so the majority of students communicate in those ways.”

When asked the fifth interview question, “What tools should teachers use to teach students how to read?” there was a single general trend present in nearly all responses. Essentially pre-service teachers felt that both traditional sources of text such as books, flashcards, etc. should be used as well as digital text sources such as e-readers, computer games, etc. This was an interesting change from initial responses which had a stronger traditional text only trend. Selected responses from the post interview responses have been shared below. Codebook C, located in appendix D, provides a complete list of the identified category codes for responses. Participants have been identified by a letter and number code, and the interviewer as researcher.

Researcher – All right. Um, what tools should teachers use to teach students how to read?

J1 – Um, I think there are a lot of different ways you can go about that. I think it just really depends on what the student responds to.

Researcher – Mmm hmm.

J1 – So if digital, you know, if digital books or iPads, if that works well with one student that’s great, if, you know other students like to have the actual hard copy and actually

hold onto it, then that might work better. I think it just depends. But there are a lot of options for sure.

Researcher – Okay sure. Um, what tools should teachers use to teach students how to read?

T1 – Um, I think, you know, books are great.

Researcher – Mmm hmm.

T1 – But uh, I think digital uh, e-readers and what not may benefit the kids more because they're more interactive. And you can read a book and it's just sitting there, it's not going to do anything for you.

Researcher – mmm hmm.

T1 – um, and you know, it can be helpful to the teacher as well. Because depending on the program, it can help the kid learn how to read.

Researcher – Okay, sure. Um, what tools should teachers use to teach students how to read?

P5 – Um, I'd have to say that um, the hard copy books are always a plus, um, with my recent knowledge of like getting, like the i-readers and what not, do I feel that they can be incorporated into a classroom as well, if the funding is there, uh just because the access that it provides for taking words and not only being able to pronounce them out for the students, but also to give the meanings for those words. Um, and it just, for instance, you know, if you have a large, 30 student class, um, it might not be as labor intensive for the teacher because if the student has that copy right in front of them and like a, an i-reader

format and they're able to get that information right there, it makes it where the teacher could possibly focus on other students, um because if that student is able to get that answer without involving the teacher it could make things a little easier.

A key theme was present when pre-service teachers responded to the sixth interview question, "Do students learn to read the same way you did?" A majority of responses reflected a perceived change in the way students learn to read as a result of technology. Codebook D, located in appendix D, provides a complete list of the identified category codes for responses. Participants have been identified by a letter and number code, and the interviewer as researcher. The selected responses below highlight the main theme that technology has changed the way students learn to read.

Researcher – Okay, alright. Let's see, do students learn to read the same way you did?

C2 – Hmm. I don't know, they may be able to pick it up quicker.

Researcher – Okay.

C2 – Because, you know uh, of computers and technology.

Researcher – So you think technology could help students learn to read better?

C2 – Yeah, sure. Especially if, after the classroom setting you're at home, you know, and you're able to, you know, punch in a word and, you know, it voices it back to you. Sure.

Researcher – Alright.

C2 – So, not a lot of textbooks in my day, you know, did that.

Researcher – Okay sure. Um, do students learn to read the same way that you did?

G1 – I don't think so.

Researcher -- What's different?

G1 – I think the uh, I think the big difference is the uh, that they have more of the electronics brought into it whereas I was basically, here are your cards, make words, figure things out. A lot of the students that I see now are um, they're learning on the computer and they're using a lot of the same games but like I said before they're just formed differently because they can make it more of a game, interactive game with something on the computer screen rather than just cards on a desk.

H3 – ...But then again my three year old nephew uses an iPad and knows every color and every letter because of the games on the iPad...

There was a clear theme when pre-service teachers were asked the seventh research question, "How if at all will the way students learn be changing in the next five to ten years?" Nearly all responses centered on technology and how it is changing the way students learn. Codebook E, located in appendix D, provides a complete list of the identified category codes for responses. Participants have been identified by a letter and number code, and the interviewer as researcher. The selected responses below highlight the main theme that technology will be changing the way students learn in the next five to ten years.

Researcher – Okay, sure. Um, how if at all will the way students learn change in the next five to ten years?

B4 – In the next five to ten years? Um, everything will be Internet based. Um, they can pull just about any kind of information that they want to in less than five seconds.

Researcher - Mmm hmm.

B4 – Um, libraries will either be completely eliminated or they'll change in definition. It will no longer be books on the shelf. It will be maybe, a different way, maybe a

computer based library over a full library where you go to a database and get what you need at home.

Researcher – Mmm hmm.

B4 – Um, there probably. Like I said, there may be a few textbooks in the classroom but they'll probably be nonexistent um, with the Smart board out now and the mini Smart boards and the Smart tables and it'll be more tactile learning.

Researcher – Okay.

B4 – Because you can touch it and move it and you know, you can color it in and you can get rid of it and you can take it home without actually having, it will certainly be more interactive than what it is now. Um, you'll be able to experiment more and do a lot more.

Researcher – Sure.

B4 – Yeah.

Researcher – How if at all will the way students learn be changing in the next five to ten years?

G1 – Well, I think they're going to have more of an electronic thing, um, basically everything that we can do now that's kind of paired between paper and pencil and electronics, will be mostly electronic, if not all.

Researcher – Oh okay.

G1 – But beyond that I think we're going to be incorporating technology that we don't have yet.

Researcher – Okay.

G1 – So, those pieces that we don't even know about will start to pop up and they'll be

brought into the school in some way, shape or form.

Researcher – Okay. Um, how, let's see, uh. How if at all will the way students learn be changing in the next five to ten years?

R2 – What was that?

Researcher – Um, how if at all, will the way students learn be changing in the next five to ten years?

R2 – I think that with the way everything seems to becoming more digital that they're going to be, not so much taught in the schools. I mean now you even have the books that will read to kids, so.

Researcher – Mmm hmm.

R2 – So there's no telling what they'll come up with.

Researcher – Okay, sure.

R2 – But I think there will definitely be more stuff done the digital way.

When asked the eleventh research question, “Do you believe that text messaging is changing the way students write?” there was a strong majority that felt student writing was indeed changing. This majority viewpoint of all but two pre-service teachers was present in both the pre and post interviews. Essentially they felt that the frequent use of texting shorthand has and will continue to be present in student writing in all facets of their home and school life. Codebook G, located in appendix D, provides a complete list of the identified category codes for responses. Participants have been identified by a letter and number code, and the interviewer as researcher. The selected responses from the post interviews highlight this perceived change in student writing attributed to text messaging.

Researcher – Sure. Um, do you believe that text messaging is changing the way that students write?

B4 – Yes. It's hard to believe. Um, I could not believe for a long time that students were actually using shorthand text messages in writing their papers.

Researcher – Mmm hmm.

B4 – And I was like, you're joking. You're joking, they can't be. But they are, and they think it's okay. And um, I think that English teachers shouldn't be harsh about it, just kind of guide them in the right direction but I think that eventually, its eventually going to be okay to write in a paper. Um, maybe not in the next five to ten years but maybe in the next twenty years. Um, it kind of reminds me of that Ebonics era, the era where they were like, oh yeah we're going to teach Ebonics in school and I kind of laughed like, yeah, that's not gonna happen. Um, but what they were trying to do because students were writing slang in papers...

Researcher – Mmm hmm.

B4 - ...is to teach slang. Not necessarily to write it in papers, but to kind of understand what the students were saying and how their communication was and try to get them to kind of correct their papers a little bit without really correcting their papers, and it just doesn't work. And now it's just the text messaging age, um, but with so many people text messaging and short handing, I don't know, this one might hang around for a while.

Researcher – Sure. Um, well you answered this one a little bit earlier, but do you believe that text messaging is changing the way students write?

D1 – Yes. Like even its changing myself and I know it's wrong. Like when going to

spell people, you go ppl and you're like, no, no, no, that's not the way you're supposed to spell it. So it's just like, it's not that it's messing me up but my first reaction is to spell it that way.

Researcher – Mmm hmm.

D1 – But I know better, I know that that's not the way you're supposed to spell it but there are some kids who really do think that some words are spelt the way they text it.

Researcher – Okay, sure. Um, do you believe that text messaging is changing the way that students write?

R1 – Yes.

Researcher – How so?

R1 – Um, just from my experience. I observed one middle school last semester and um, it's crazy. Like I, I grew up in a pretty, like, a pretty good school system, we were pretty well off and I guess, taught better or something. But a lot of the kids I've seen at [---] Middle School, like um, I see it in their work. Like, I think I was reading third grade papers and there was this girl literally writing LOL and like other things in like, compositions. And granted, they're second graders, or third graders, but at the same time it's like, I would never have said that in the third grade, I would never even have known what lol was in the third grade. But um, is that a bad thing, sort of, because as an English major I think there's a place for formal and informal writing and obviously they're not being taught that in second grade.

Researcher – Okay, sure.

R1 – So from a very early age, yes, like you're deteriorating um, a skill. Or I guess,

language.

The thirteenth research question, “Do students need new types of reading comprehension strategies to effectively use the Internet?” revealed a larger change toward views affirming that students do need new types of reading comprehension strategies for Internet use. There was a diminishing population that felt that such strategies were unnecessary. However, majority of the pre-service teachers felt that students needed new reading comprehension skills in terms of hypertext use, searching strategies, and identifying reliable Internet sources. Codebook H, located in appendix D, provides a complete list of the identified category codes for responses. Participants have been identified by a letter and number code, and the interviewer as researcher.

Two responses have been selected from the post interviews highlighting the theme of hyperlink skills. These affirm the view that students have different learning needs in terms of reading comprehension strategies to effectively use the Internet.

Researcher – Sure. Um, do students need new types of reading comprehension strategies to effectively use the Internet?

B4 – I have to say yes. Because they have, it’s a lot of hypertexting. Um, that is becoming more and more prevalent when we read.

Researcher – Mmm hmm.

B4 – Um, and if they run into a word that they don’t know, they need to know a place where they can go to find out that word on the Internet. Um, I think dictionary.com no longer exists, but Merriam Webster has a really good one. Um, you can use your copy and paste and go, hey look, this is what this word means. Um, we also need to teach them to be careful to not over click hypertexting, I’ve done that before and it’s a nightmare trying to get back to where you started. Trying to find, trying to find out

information um, if they come across something and they click on it and they go to something else and they click on that and they click on that and before you know it they're completely and totally off topic. So, they do need to learn guidance when they're reading on the Internet is a little bit different. It's not just, okay flip a couple pages and you can flip back. It's you know...

Researcher – Mmm hmm.

B4 – ...look at a screen and then you can go anywhere in the world to find information. That's, that's a lot of information to kind of muddle through. So yeah, we do need to teach them new reading comprehension strategies than we already are.

Researcher – No problem. Um, do students need new types of reading comprehension technologies to effectively use the Internet?

B1 – Yes.

Researcher – Alright, how so?

B1 – Um...

Researcher – Or explain the strategies they might need.

B1 – Like a, what are those things called? Um, I can't remember, like web, what are they called, to do like a lesson on like a web...

Researcher – Like a web quest?

B1 – Like a wiki page.

Researcher – Oh okay.

B1 – Maybe a web quest, um.

Researcher – So is it more construction or is it more of like a search situation?

B1 – It's constructive and they're doing reading but along with it, you know, you have hyperlinks.

Researcher – Probably more of like a wiki or blog, something like that.

B1 – Probably, but I feel like kids need to know to be able to, when they're reading it and they come across a hyperlink do they click it immediately to find a definition or do you read all of it and then after, go over the hyperlinks, you know. Cause those things can affect how you're gonna understand some things and sort of how you're taught it. But everyone has different learning styles but at least to let them know, you know some people click it immediately and then takes you to another page.

Researcher – Mmm hmm.

B1 – And just let them know different ways that you can go about reading web quests or um, yeah.

Two post interview responses have been shared highlighting the theme of Internet searching skills. These also work to affirm the third research question that students have different learning needs in terms of new literacies.

Researcher – Okay sure. Um, do students need new types of reading comprehension strategies to effectively use the Internet?

M2 – I, I do believe that, that there's some kind of change that needs to take place, however I'm not exactly sure where to pinpoint it. I think that's because of the, the search functions such as Bing, Yahoo.

Researcher – Oh okay.

M2 – Often times you need to reword your searches to find exactly what you're looking for. I mean, you start with a general topic and then say what is that in relation to this and

then, I mean, just how to narrow things down requires a form of comprehension so that the computer will spit back what you need.

Researcher – Okay, sure. Um, do students need new types of reading comprehension strategies to effectively use the Internet?

P5 – Um, you know, I would have to say that from my perspective definitely, there is a need for it because if you effectively search the web and find the actual information that you're looking for it can prove to be very timely. If you do not know the correct method and the correct searches and how to type in a specific search to find your information, um you know, typing it a specific way and using the correct format can make go anywhere from searching and coming up with a million some things or only coming up with a hundred things. So I think there's definitely a need to teach students how to properly use the web and to find information.

The final two responses represent the need for students to be able to identify reliable Internet sources.

Researcher – Okay sure. Um, do students need new types of reading comprehension strategies to effectively use the Internet?

H1 – Um, yeah I think they do. They really need to um, know how to find what it is, the difference between a reliable source and a non-reliable source.

Researcher – Okay.

H1 – In addition to understanding everything they read.

Researcher – Oh okay, sure. Uh, do students need new types of reading comprehension

strategies to effectively use the Internet?

M2 – I think so. I think it's important to teach students how to find um, reputable sources. And I think that um, like some of the things I've learned this semester where we just assume that they are tech savvy so we just think that they know what they're doing, I think that they need more guidance, um, in that aspect where they can find out what's true and what's not and how to investigate further.

When asked the fourteenth interview question, "Do teachers need to teach new reading comprehension strategies to students so that they can effectively use the Internet?" it was clear that majority felt the need for teachers to provide instruction. At the time of the post-interviews, the pre-service teachers were viewing the need to teach comprehension skills in terms of locating reputable online information and effective online searching skills. Answers in the post responses were much more focused on these two areas where the pre responses were frequently non-specific answers expressing lack of understanding. Codebook I, located in appendix D, provides a complete list of the identified category codes for responses. Participants have been identified by a letter and number code, and the interviewer as researcher. The selected responses shared below from the post-interview responses highlight the majority viewpoints supporting the need for teachers to instruct students on new reading comprehension strategies so they can effectively use the Internet.

Researcher – Mmm hmm. Um, do teachers need to teach new reading comprehension strategies so students can effectively use the Internet?

H2 – Again, just probably with, you know, how to find a reputable source, what you're going to put in for your search, you know, topics, some things like that. I don't think that um, you would have to change anything about the way, just add to what you're teaching.

Researcher – Okay sure. Do teachers need to teach new reading comprehension strategies so students can effectively use the Internet?

M2 – I think so because now students, when they are on the Internet, there are, you know, hyperlinks and things like that where it's kind of all over the place and you never know where you're gonna end up, so um, just like my answer before I think teachers need to teach their students you know, where to go, what's right, what's not.

Researcher – Okay sure. Do teachers need to teach new reading comprehension strategies to students so they can effectively use the Internet?

G3 – Yeah, like I said, the Internet safety, that's a big one and how to, I think they need to learn how to, I guess, skim information and see if like, instead of reading all this big old paragraph...

Researcher – Mmm hmm.

G3 - ...how to skim and how to take this out and say well, is this really something that I can use in my paper?

Researcher – Sure.

G3 – Cause just because you Google it and this comes up doesn't mean that it's something that you can use.

Researcher – Mmm hmm.

G3 – It could be a bunch of garbage on piece of paper. So I think in that aspect, yeah they do.

There was a clear central theme when pre-service teachers were asked the seventeenth

short answer question combined with the twenty-first interview question, “How if at all is today’s student changing and if so how and why?”. Both the short answer and interview responses clearly centered on a perceived student change in terms of technology. Codebook I, located in appendix C, provides a complete list of the identified category codes for responses.

The short answer responses provide examples of how pre-service teachers view students have changed in term of technology.

“They are changing because technology is changing. They are adapting to its change and progress by doing the same. They are more technology savvy and dependent on it.”

“Today’s student is more adept to using technology and is prepared to see it in the classroom. I also think that they are more engaged and excited by technology.”

“Students today are changing because they have become more dependent on technology and technology is even more integrated in their education.”

A selection of interview responses has also been included highlighting the central theme that students have and are changing due to technology. Participants have been identified by a letter and number code, and the interviewer as researcher. These responses would seem to indicate that pre-service teachers feel that today’s students have different learning needs.

Researcher – Okay, sure. How if at all has the modern student been changing?

D1 – They’re more into technology.

Researcher – Okay.

D1 – It’s all about technology, it’s coming to them. They’re, they’re learning quicker, they’re learning much faster. Especially the little ones. My nephew, he’s three and he’s playing with that camera and he’s wanting to listen to the iPod and it’s like, I didn’t have any of that until I hit middle school and like, they’re learning much faster, and like those

little fingers are just...

Researcher – And you think it's because of the technology?

D1 – Yes. Especially like the Wii, I know the Wii, they're just picking it up, how to play all those things.

Researcher – Okay, sure. How if at all has the way the modern student been changing?

P5 – I'd have to say it's just, you know, that there's just more access to technology. You know, it makes uh, research easier. Um, I'd have to say that that's like the biggest thing I've noticed is that, you know, whether where I used to be you could just go to one or two libraries in your area to find information and the Internet makes it available where you can check any library throughout the entire world to find information. And I think that's just the biggest thing, it's, it's broken down barriers to help students to learn more.

Researcher – Alright. Um, how if at all has the modern student been changing, and if so, why?

G2 – Um, the modern student has been changing because...

Researcher – Or today's student.

G2 – Yeah, today's student is changing because everything is changing. Like, everything is changing. Like, the little lines at Walmart, you can do the self-checkout. You know, those are changing, and um, just like, there's always like a new cell phone out and different apps out and like, there's so many different things. So like, with, as tech, I think as technology changes, students change. Like um, and that's the best way I really could put it. I don't really know how to explain it in detail, but like I said, they're becoming

more um, visual learners. More um, hands on.

Researcher – Mmm hmm.

G2 – Like, I think we have a lot more hands on learners rather than like just verbal, auditory learners.

Researcher – Mmm hmm.

G2 – So um, yeah I think that’s how they’re changing.

Research Question Four

When answering the fourth research question, “As a result of the intensive experience, will there be a change in participants’ views concerning potential classroom applications of digital literacies?” Data from the Likert scale items identifying pre-service teacher perceptions of contemporary Internet information, social communication, and hypertext were used and can be found in Tables 27 and 28. Additionally interview questions 9, 17, and 20 combined with short answer question 16 were examined for this research question.

Table 27

Paired Samples T-tests for Internet Information, Social Communication, and Hypertext

	Pre	Post	Pre-Post	
	<i>M</i>	<i>M</i>	<i>SD</i>	<i>Sig.</i>
InetInfo1	4.72	4.67	.575	.387
InetInfo2	3.40	3.41	.863	.908
SocCom	3.67	3.62	.603	.453
HyperText	3.51	3.47	.724	.582

Table 28

Category Means for Internet Information, Social Communication, and Hypertext

	<i>n</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
InetInfo1Pre	100	3.00	5.00	4.72	.494
InetInfo1Post	100	3.00	5.00	4.67	.533
InetInfo2Pre	100	1.00	5.00	3.41	1.026
InetInfo2Post	99	1.00	5.00	3.41	.948
SocComPre	98	2.00	5.00	3.67	.745
SocComPost	99	1.75	5.00	3.63	.721
HyperTextPre	100	2.00	5.00	3.51	.640
HyperTextPost	100	1.50	5.00	3.47	.658

Tables 27 and 28 did not provide any significant differences between the pre and post-survey responses. However, there was a strong agreement indicated for the first Internet information question addressing the Internet as a contemporary information source. There was a slight agreement found with the second Internet question which was examining paper texts as comprehensive information sources. There was also a slight agreement seen with the categories of one's social communication through technology and one's perception of hypertext.

There was a clear shift in thinking from the pre and post responses to ninth interview question, "Why is or isn't it important for teachers and schools to be aware of and use new technologies?" A key change was that in the post responses all pre-service teachers felt that it was important for teachers and schools to be aware of and use new technologies as opposed to only 90 percent of responses in the initial interviews supported this view. Post responses formed two key themes, teacher credibility and effectiveness with the students and the theme of student needs. Codebook F, located in appendix D, provides a complete list of the identified category codes for responses. Participants have been identified by a letter and number code, and the

interviewer as researcher. The selected responses from the post interviews highlight the main themes that teachers and schools need to be aware of and use new technologies for the sake of their students and themselves (teachers).

Responses highlighting teacher credibility and effectiveness have been shared first and then transitioning into responses addressing student needs.

Researcher – Okay. Um, why is or isn't it important for teachers in schools to be aware of and use new technologies?

P3 – I think it's important for them to be aware of it and I think it's important to implement when possible because that's what, it's keeping up with the next generation. It's keeping up with what the latest and greatest, uh, it also keeps, uh, keeps teaching from getting rote. Uh, it's trying new things. Just because something has worked for the last 30 or 40 years doesn't necessarily mean there's not room for improvement, so in my opinion keeping up with the newer technologies and what not, uh, you don't know what the possibilities could have. So there may very well be some good um, some good results come out of it.

Researcher – Sure.

P3 – It's trying new things.

Researcher – No problem, no problem. Um, why is or isn't it important for teachers in schools to be aware of and use new technologies.

P4 – Well, I think things like Smartboards, absolutely. You know, if the schools are going to equip you with it, you're going to be expected to use it. You have to keep up with it, for any kind of teaching you want to try to tie your teaching to the kid's world.

Researcher – Mmm hmm.

P4 – And, kids have to trust you. And if you're not keeping up with the technology that they've grown up, then you're at a disadvantage already.

Researcher – Yeah.

P4 – Uh, I think there's a certain element of trust and respect that you'll lose for them if they think you're not hip to the stuff that they're using.

Researcher – Okay.

P4 – If I had a teacher tell me that they didn't at least know what Facebook was. I'd be like, really?

Researcher – Okay sure. Um, why is or isn't it important for teachers in schools to be aware of and use new technologies?

M2 – Um, it is important because it's just, if they themselves don't use the technology and don't allow their students to use it then they're limiting themselves as well as the progression of their students.

Researcher – Why is or isn't it important for teachers in schools to be aware of and use new technologies?

P5 – Um, that's just something that goes along with like any job you get into. It's always important to always stay current with new technology and what's out there. Um, not only from like the uh, teacher aspect, but just uh, the students in general are already going to have technology available to them that isn't in the classroom and you need to make sure that you try to use some of the same stuff that the students are going to be using outside

of the classroom in order to still keep them interested and still keep them, kind of engaged in learning. Because if you stick with like, the old methods for so long, eventually you're going to find students that get distracted and just aren't as engaged as you need them to be to actually learn and get through the school day.

Researcher – No problem. There's no right or wrong answers, it's no problem. Um, why is or isn't it important for teachers in schools to be aware of and use new technologies?

E1 – Uh, because that's how students are learning. That's how students are um, used to. They're used to, you know, being involved. They're used to um, you know, playing video games or listening to an ipod while doing homework or you know, doing computer games to learn. It wouldn't make sense to try to mold them into the way that we were taught, you know, kind of change with them.

A clear shift was present in responses for the seventeenth interview question, "Do you think that teachers should incorporate social communications technologies in the classroom, things like Facebook, Twitter and text messaging?" During the pre-interview there were nine pre-service teachers opposed to the idea of utilizing any form of social communication technology in the classroom; however, in the post interviews that number was reduced to only four. Responses were supportive of the idea of integrating the technologies, though a majority expressed using caution and judgment especially where more potentially public social aspects might be involved (like Facebook). Majority of the discussion centered on use Facebook, wikis, text messages, Blackboard, and Twitter. Codebook J, located in appendix D, provides a complete list of the identified category codes for responses. Participants have been identified by a letter and number code, and the interviewer as researcher. The two selected responses from the post-

interviews highlight this majority view point.

Researcher – Okay sure. Um, do you believe teachers should incorporate social communications technologies in the classroom, things like Facebook, Twitter, text messaging, etc.?

M2 – I think so. I think, um, that's the best way to reach students because they are always online.

Researcher – Mmm hmm.

M2 – Um, I think they can make it interactive, it makes it fun, you know, it's just something different and that's speaking to their minds at their level.

Researcher – Okay.

M2 – So, yes I do.

Researcher – Do you believe that teachers should incorporate social communications technologies into the classroom, things like Facebook, Twitter, text messaging, etc.?

G3 – Yeah. I think um, as far as the Facebook thing goes I think that your personal life should be separate.

Researcher – Mmm hmm.

G3 – But if you want to have like a teacher page or something like that separate from your personal page, that's just like, okay, this is what we did in class today, have your kids, or hey Mrs. So and so, what was the homework, I didn't come, I was absent because of whatever, or you know, if you want to do that, that would be a fun way. And then I also think it would be, students would be more prone to get involved because of something, my teacher has a Facebook. Even though it would be for school stuff they

would feel like oh wow, they might be more prone to ask questions that they might be embarrassed to ask in class.

Researcher – Mmm hmm.

G3 – So that could be a good way to, you know, get your students and know what's going on in their minds. Cause sometimes it's like they don't, I guess they feel like, like I don't want to raise my hand be dumb.

Researcher – Mmm hmm.

G3 – When nobody else has a question but me, but maybe if I put it on Facebook it is less likely to, you know, be, I won't, I won't feel that way cause like nobody can see me, type thing.

Researcher – Okay sure.

G3 – But um, I think in that aspect Facebook. Twitter, to like see if you're discussing a topic, like um, from our Social Studies class we learned about the New Jersey governors elections and I forgot, Cory something in New Jersey, I forgot his name. And I, you know, looked him up on Twitter and he actually had a Twitter page so I followed him and he does all these like, really cool things. So it's like, it could be used in a lot of ways.

Like, you can definitely use the Internet and social networking and stuff for your classroom. It just has to be done the right way.

There were two key themes apparent when pre-service teachers were asked the sixteenth short answer question combined with the twentieth interview question, "Why do you feel digital literacies are or aren't important for today's student?". Both the short answer and interview responses were strongly in support of the idea that digital literacies were important today's student. The two key themes were that they felt digital literacies were important for student

learning and important for today's society. Codebook H, located in appendix C, provides a complete list of the identified category codes for responses. Responses over all would seem to indicate that pre-service teachers feel that digital literacies are necessary and should be applied in the classroom.

The short answer responses shared below provide examples of the view that digital literacies are important to student learning and in turn important in the classroom. Additionally, responses have been shared supporting the importance of digital literacies in terms of a student's existence in society. These responses reinforce need for digital literacies in the classroom as it plays a significant in developing future citizens.

"Digital Literacies are important because the students can view books online that may not be available at the school. Some students may need texts read aloud to them. So having a book online would allow the stories to be read aloud. Not all teachers or schools have the time and money to meet the needs of every student. So digital Literacies are vital to today's student."

"Digital literacies are very important to students because everything will be digital in the future. Print sources of information are rapidly digitizing so the skills to use them should be stressed."

"I think digital literacies are important for today's students because I believe it involves students more. Students are able to participate more with one another. There are many opportunities for students to engage rather than just listening to the teacher talk or reading out of the text. For example, websites engages students and online blogs allows them to participate with other students from all over the world."

"I feel like digital literacies are important because that is how our culture is evolving. They need to learn how to use technology in literacy if they want to be able to be competent in the future."

"I think they are important because technology is how we do many things these days. Social

networking, communication, and information have all take on digital forms and now incorporate the modern student.”

“They are important because that is the way our society is moving. Today’s student should be familiar with all new technology and that training should begin in the classroom.”

A selection of interview responses representing the central themes of the importance of digital literacies and student learning along with the importance of digital literacies and society has been provided. Participants have been identified by a letter and number code, and the interviewer as researcher. Again it is clear that the participants feel strongly about the need for digital literacies in the classroom.

Researcher – Sure. Uh, why do you think digital literacies are or aren’t important for the modern student?

G1 – I think they are important. Um, you see them more and more all the time. Most of my classwork is online or if it’s not online it’s something that the teachers have posted in a file that I can access online even if they are giving out a hard copy in class.

Researcher – Mmm hmm.

G1 – Um, and I think that if those modern students aren’t prepared for it then it’s kind of like being thrown into the ocean and not knowing how to swim.

Researcher – Okay.

G1 – It can be a little overwhelming and so I think that it’s important for them to understand where they’re going with it, what they’re getting themselves into and how to work with it.

Researcher – Okay sure. Um, why do you feel digital literacies are or aren’t important for the modern student?

P4 – Um, you know, I think that it's, the way that society is raising children these days now, that it's, you know, they have computers when they're, you know, when I grew up I didn't have a computer until I was in eighth grade, nowadays it's like kids have computers you know, when they're infants. It's like something they just understand in the classroom. They have cell phones when they're, you know, eight years old so it's definitely, you know, just like being able to integrate that with like, students nowadays, it's just something you have to do and it's going to be a part of the classroom at some point anyway and you just need to use them as best you can because the students are already using them. So in order to keep them engaged and keep them learning you need to adapt to the best possible way that they can connect with what you're trying to teach them.

Researcher – Okay sure. Um, why do you feel digital literacies are or aren't important for the modern student?

R1 – Um, I don't know if important is a, the right, is the word that I would use. I feel like it is an inevitability, you know, where times are changing. You know, technology is advancing and, you know, society is going along with it. Like, you don't just stay behind the times because if you do, you're uh, um, you know, out of the loop.

Researcher – Mmm hmm.

R1 – So, kids being kids, it's natural for them to want to learn about new things and that's what they're going to want to stick to. So for you as a teacher I feel it's important for you to be able to do that.

Research Question Five

To answer the fifth research question, “As a result of the experience, will there be a

change in pre-service teacher awareness of digital literacies?” the Likert scale items identifying pre-service teacher awareness of digital literacies were examined and can be seen in Table 29. Also interview question 18 combined with short answer response 14 was relevant in drawing conclusions.

Table 29

Category Means for Awareness of Digital Literacies

	<i>n</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
Awareness 1	100	1.00	5.00	3.93	.795
Awareness 2	100	2.00	5.00	4.13	.661
Awareness 3	100	1.00	5.00	4.31	.787

Table 29 displays a strong agreement with the three post-survey questions addressing awareness of digital literacies. These results would indicate at pre-service teachers felt they were aware of what digital literacies were following the semester experience.

The fourteenth short answer response combined with interview question eighteen yielded surprisingly different themes for the question, “How if at all has this semester changed your view of digital literacies?” Codebook F, located in appendix C, provides a complete list of the identified category codes for responses. The interview responses focused heavily on changes in student learning in the context of digital literacies. With the short answer responses, the themes of greater awareness and classroom use were clear. However, all key themes would indicate an overall change in pre-service teacher awareness of digital literacies.

A selection of interview responses representing the central theme of student learning has been provided. Participants have been identified by a letter and number code, and the interviewer as researcher. Clearly the class articles, discussions, and experiences had an impact on the pre-

service teacher current views of digital literacies.

Researcher – How if at all has this semester changed your view of digital literacies?

E1 – Um, digital literacies?

Researcher – Mmm hmm.

E1 – Uh, a lot. Um, a lot of discussion about um, how students are learning. A lot of the uh, articles that we've read are um, geared towards how students are learning now and how they were wired, I guess. Some multi task and they get bored very easily. Um, so I think that um, that's one huge thing that I've learned. Um, not to teach how you were taught but to just kind of go with it and not let the students take over but you have to integrate something that they're interested in. I think that the e-readers are awesome and I'm excited to see those come into the classroom.

Researcher – Sure. How if at all has this semester changed your view of digital literacies?

M2 – Um, I definitely, it definitely has changed. I think before I was thinking that students are just lazy, they don't want to pay attention in class and you know they're just more misbehaved than we once were. But, I honestly think that they do learn differently because of the way they've been raised, that they are digital natives and we are digital immigrants and that we need to um, create a compromise between the two sections. So, it's definitely changed my view, I don't think they're all horrible anymore.

Researcher – Okay sure. Uh, how if at all has this semester changed your perceptions of digital literacies?

L1 – Um, I think probably, um the biggest thing that my eyes have been opened to is the way that kids brains are kind of formulating now and maybe just some of those kids in class who might seem like the pains in the neck and they're going off and doing their own thing, um, I'm not saying that I would include video games in my lesson plans, but I think I look at them a little differently and um, try, I will try to challenge them in ways that maybe I haven't.

Researcher – Okay.

L1 – You know, and uh, because I hate it when kids are not on task or entertained in what you're doing or what you're saying or buying into what you're doing and saying and that's my big goal as a teacher is to get everyone, 100 percent uh, engaged.

Researcher – Mmm hmm.

L1 – And uh, that's a big task and you know, I'll try anything to make that happen.

There were two key themes of awareness and classroom use of digital literacies found in the short answer responses to the question. It seems evident that pre-service teacher awareness has improved as a result of the experience. The sampling below reflects the majority of participant responses in regards to the perception of improved awareness of digital literacies and their classroom use.

“Prior to this semester I was unaware of how digital literacies could be applied to the classroom. I now think of them as a valuable tool to daily instruction.”

“It opened my eyes to it, because I haven't been educated or immersed in digital literacy before. It basically gave me insight into it.”

“This semester has changed my views by opening my eyes to the uses of new technologies in the classroom. It has also shown me how students feel about these technologies.”

“This semester has certainly showed me some of the awesome benefits of using technology in the classroom. Especially those devices with interactive texts.”

“It has encouraged me even more to integrate technology into my classroom. I have always wanted to but it provided support and information that I can use as proof as to why it is important to do so.”

Research Question Six

The sixth research question, “What demographic factors are most closely associated with a change in the awareness of potential classroom uses of technology?” was answered by examining the demographic factors identified through the PDTS. Findings of statistical significance can be viewed below in Tables 30-35. There were only missing data in the cases of race, father’s education, and grade point average. These missing data were not reported by the subjects in either the pre or post survey. However, a full effort was made by participants to complete the other demographic categories. The researcher then assumes that the respondents were more likely unable, rather than unwilling to answer these items. Specific demographic information was collected in many of the categories; however, many had to be merged into fewer categories to lend themselves to appropriate analysis. Age for example was an open ended item with responses as low as 18 and as high as 45 years old. There were substantially more females than males participating; this was not unexpected as enrollment in these education courses is typically more female dominated. The category of race was purposefully left as a blank so that students could respond as they felt was most appropriate. Only these four racial categories were present in the survey responses: Caucasian, black/African American, Hispanic/Latino, and Asian/Pacific Islander. As there were too few responses to allow all four remain they were merged into two categories Caucasian and other. There were no significant differences found

within the category of race and the Likert scale survey items. With mother's and father's educational background the choices of less than high school, high school/GED, some college, associate's degree, bachelor's degree, master's degree, and MD/PhD/etc. were available. Due to response numbers, it was necessary to merge them into two categories. For the category of socio-economic status only low, middle, and mid-high socio-economic status were reported. All three categories were left intact for the final analysis of the data.

Table 30

Results of Independent Samples T-Test on Likert-Scale Categories and Age

	Levene's Test	18-25 <i>M</i>	26-45 <i>M</i>	Sig. (2-tailed)
Views of Technology				
Adoption	.379	3.35	3.04	.050*
Interest in Reading	.019**	3.91	4.23	.035*
<i>SD</i>		.902	.565	
<i>n</i>		63	37	

* $p < .05$

** $< .05$ indicates equal variance not assumed

As seen in Table 30, there was a significant difference in the means indicating that pre-service teachers aged 18-25 held a view more supportive of technology adoption above their peers aged 26-45. The means for interest in reading suggest that pre-service teachers aged 26-45 have a greater interest in reading over those participants aged 18-25.

Table 31

Results of Independent Samples T-Test on the Necessity of Technology in Education and Mother's Level of Education

	Levene's Test	HS <i>M</i>	College <i>M</i>	Sig. (2-tailed)
View of the Necessity of Technology in Education	.230	4.14	4.39	.034*
<i>n</i>		46	54	

* $p < .05$

In Table 31 a significant difference in means was found indicating that participants who had mothers who had some college experience were more strongly supporting agreeing that technology is necessary in education over those who had mothers whose education stopped at high school or less. The standard deviation for those whose mothers had a high school education or less was .554 and those with mothers having at least some college experience .588.

Table 32

Results of Independent Samples T-Test on the View of Paper Sources as Comprehensive Information Sources and Mother's Level of Education

	Levene's Test	HS <i>M</i>	College <i>M</i>	Sig. (2-tailed)
View of Paper Sources as Comprehensive Information Sources	.422	3.20	3.59	.039*
<i>n</i>		46	54	

* $p < .05$

In Table 32 indicated that pre-service teachers whose mothers had some college experience felt more strongly that paper sources were not comprehensive information sources more so than their peers whose mothers had an education of high school or less. The standard deviation for those whose mothers had a high school education or less was .991 and those with mothers having at least some college experience .880.

Table 33

Results of Independent Samples T-Test on Likert-Scale Categories and Father's Education

	Levene's Test	HS <i>M</i>	College <i>M</i>	Sig. (2-tailed)
View of Ability to Read Digital Text	.683	3.17	2.75	.018*
<i>n</i>		44	53	

* $p < .05$

In Table 33 there was a significantly higher mean for pre-service teachers whose father's education stopped at high school or less indicating that they had a stronger view of their own ability to read digital text over their peers whose fathers had some level of college education. The standard deviation for those whose fathers had a high school education or less was .876 and those with fathers having at least some college experience .864.

Table 34

Results of Independent Samples T-Test on Likert-Scale Categories and Gender

	Levene's Test	Male <i>M</i>	Female <i>M</i>	Sig. (2-tailed)
View of Technology Facilitating				
Social Communication	6.56	3.21	3.69	.025*
<i>n</i>		14	86	

* $p < .05$

Table 34 displays a significant difference in means indicating that pre-service females felt more strongly that technology facilitates social communication than their male peers. The standard deviation for males was .602 and females .719.

Table 35

Results of Analysis of Variance for Interest in Reading Categories and Grade Point Average

	<u>Tukey HSD</u>	<u>4.0-3.5</u>	<u>3.49-3.0</u>	<u>2.99 and less</u>		
	<i>M Dif.</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>Sig.</i>	<i>n</i>
		4.46	3.97	3.85	.032	
4.0-3.5 to 3.49-3.0	.486				.087	20
4.0-3.5 to 2.99-	.604*				.028	41
3.49-3.0 to 2.99-	.118				.786	38

* The mean difference is significant at the .05 level.

Table 35 displays findings that pre-service teachers whose GPA is in the range of 4.0-3.5 had a significantly higher interest in reading over their peers whose GPA was 2.99 or below.

Table 36

Results of Analysis of Variance of Socio Economic Status and Technology Use

	<u>Tukey HSD</u>	<u>Low SES</u>	<u>Mid SES</u>	<u>Mid-High SES</u>		
	<i>M Dif.</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>Sig.</i>	<i>n</i>
		3.96	4.41	4.41	.032	
Low to Mid SES	-.449*				.027	14
Low to Mid-High	-.448				.074	66
Mid to Mid-High	.0004				1.000	20

* The mean difference is significant at the .05 level.

Table 36 shows that pre-service teachers with a low socio-economic status background do not agree as strongly about their use of daily technology as peers of a middle socio-economic status background. As the means for middle and middle-high socio-economic status appear to be identical, it is necessary to note that they differ in fourth decimal place enough to result in significant difference for only the middle socio-economic status category.

Table 37

Results of Analysis of Variance of Socio Economic Status and Technology Adoption

	<u>Tukey HSD</u>	<u>Low SES</u>	<u>Mid SES</u>	<u>Mid-High SES</u>		
	<i>M Dif.</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>Sig.</i>	<i>n</i>
		2.75	3.31	3.33	.036	
Low to Mid SES	-.561*				.032	14
Low to Mid-High	-.575				.074	66
Mid to Mid-High	-.014				.997	20

* The mean difference is significant at the .05 level.

In Table 37 a significant difference was seen in the pre-service teacher's means concerning views of technology adoption. The difference was between those of a low socio-economic status background and mid socio-economic status background.

CHAPTER 5

RESULTS, DISCUSSION, AND CONCLUSIONS

The purpose of this study is to measure pre-service teachers' perception, understanding, and awareness of new literacies and their related technologies prior to and following the course readings, discussions, and hands-on experiences. A key dimension of the purposes of these experiences is to provide an opportunity for prospective teachers to use a variety of digital literacy tools, technologies, and interactive texts in an effort to see if at the conclusion of the experience there would be a change in the pre-service teacher's views of classroom use of such tools. As these digital tools have the potential to play a prominent role in future classrooms and student lives, it is important to see what views are held by pre-service teachers toward the application of digital literacies in the classroom both before and after the emersion experience. In hindsight it may have been more efficient to only hone in on a few research questions rather than casting such a wide net. However, the broad range of data collected through the surveys, interviews, and classroom room experiences painted a relevant picture of just what perceptions are truly held by pre-service teachers. The researcher is particularly interested in what demographic factors are associated with any changes that occurred in the final results. The researcher is further concerned with whether pre-service teachers felt that today's student may have new learning needs when considering the influences of text, technology, and media. The major findings as they relate to the research questions are shared below.

Research Question One

What are the general understandings and beliefs of pre-service teachers concerning digital literacies, media, and interactive text before and after an intensive classroom experience?

The actual time pre-service teachers spent on media use in their daily lives is a substantial figure. Participants report spending time using phones, Facebook, television, and the Internet for

more than seven hours per day. These findings are similar to those reported in the Kaiser Family Foundation Report which found that 8-18 year olds are using media an average of seven hours and 38 minutes a day (Rideout, et al., 2010). Possible implications from these findings would be that this high level of usage continues farther into adulthood as 91 percent of participants were aged 21 or older (all were aged 18 or older). As substantial as these reported amounts of time are, these totals also do not include the time pre-service teachers spend sending text messages, sending and receiving tweets, using e-readers, using iPads, playing video games, viewing video or film, or reading newspapers.

The results from the survey quiz data indicate that the post-survey answers are moving closer to those supported by research. Pre-service teachers feel that students are sending and receiving nearly 1,900 text messages per month, up from around 1,500 reported in the pre-survey, which is closer to the true amount of nearly 3,000 (Neilson Company, 2009). When these participants were asked to estimate the number of hours of media use logged by teenagers in a given day, their response of approximately six hours is actually quite close to the seven hours and 38 minutes reported by the Kaiser Foundation (Rideout, et al., 2010).

The following four items all refer to the e-reading report published by the National Association of College Stores OnCampus Research (2010, October). Prospective teachers feel that around 47 percent of college students preferred digital text over tradition paper text. This figure is much higher than the reported 26.5 percent in the e-reader report. Pre-service teacher still thought about one-third of college students owned an e-reading device not the eight percent provided in the e-reader report. The majority did recognize that the iPad is the e-reading device college students most wanted to purchase. Though as competing models and further generations of e-readers arrive in the market it is likely others could become more desirable. Most responses

indicate that college students want to use e-readers for leisure reading, which also support the findings of the e-reading report. Pre-service teachers feel that adults are spending most of their time with media on Internet use which is also reflected in the findings of Lenhart, et al. (2010). There is also a slight drop from almost 38 percent to about one-third of pre-service teachers in post responses indicating that they would be early adopters of technology. Results are closer to the figure of 16 percent of individuals being early adopters and innovators reported by Rogers (2003).

Results indicate that participants did not favor traditional print over digital print sources. Pre-service teachers hold a neutral view of digital reading and digital text. These findings are surprising as figures from the National Association of College Stores OnCampus Research (2010, October) showed college students still highly preferring text in a paper format. Pre-service teachers report that they do more than half of their reading on the Internet and only about one-third of reading with traditional paper sources. Responses from the survey indicate that pre-service teachers are supportive of digital comprehension, meaning that digital materials could be comprehended equally as well as traditional paper sources. Participants also agree with the need for digital literacy tools such as iPads and e-books in the classroom.

Qualitative responses indicate that participants feel that daily technologies have changed most predominantly in terms of phones, course online elements, and e-reading devices. There is a strong view shared by pre-service teachers of text generally moving away from traditional paper sources to digital forms especially within the last ten years. Pre-service teachers also share a perception that student textual experiences will become more and more digital. Prospective teachers feel that most student experiences at school are typically with traditional paper text sources.

The application of statistical formulas to pre-service teacher responses yielded two areas of statistical significance in the tension points sections of the pre and post-surveys. When comparing the pre and post-survey data, the post-survey findings indicate greater supporting participant numbers and greater intensity of participant response in favor of the view that students are becoming more adept at multitasking. Again, when comparing the findings from the pre and post-survey responses, post-survey results showed significantly more participant agreement, supporting that even though there is little research to support their use, e-books should be utilized in the classroom. The implications of these findings could be that educators will be more willing to use e-books in order to help students learn to read or to support existing reading strategies.

Though pre-post differences are not statistically significant, responses in the tension point section of the survey did provide insight into pre-service teachers' views. Responses indicate that the majority of pre-service teachers feel that the interactive elements of electronic text would increase interest in reading for young learners. The results show participants feel that students can easily find needed information from electronic sources. Prospective teachers agree that technology would have a positive effect on students in terms of becoming more adept cognitively at locating useful information with the Internet. Participants feel that web searchers demonstrate effective and efficient search strategies as opposed to a tendency to flit around during searching. Responses support a view that utilizing the Internet is demanding of one's literacy skills. Pre-service teachers feel more strongly that media would not only continue to grow but result in a fully informed citizenry. This would support the views of Considine (2009) where he states, "Media literacy has become recognized as a twenty-first century skill necessary for civic competence and the development of informed responsible citizens" (p. 63). Pre-service teachers

clearly support the view that electronic text would increase the reading comprehension of young learners. Responses show that pre-service teachers agree that teachers and students need to be aware of, and able to use, new technologies. Also a majority of pre-service teachers felt strongly that text messaging did not change the way they write.

Overall pre-service teachers seem to be supportive of the use of, and recognize the need for, digital literacies. Responses show that participants are heavy users of media. The general perception of pre-service teachers is a feeling that interactive text would be a useful and desirable tool for classroom use. Even though significant change is not seen in all areas from pre to post data results, much of this could be attributed to high levels of agreement found with the pre-survey and pre-interview responses. What speaks to the strength of the experience is even without a visible significant change, views of agreement are still maintained in the end of the experience, indicating that there were no negative outcomes of the experience for participants.

Research Question Two

As a result of the experience, will there be a change in pre-service teacher future use of digital interactive text and related technologies in their classroom?

There are no significant differences in the pre-post survey categories of the following constructs: technology use, tendency towards technology adoption, the need for technology in education, and productivity when using technology. Even without a statistically significant difference between the pre and post findings, a strong agreement is observed in both the pre and post-survey results for the categories of technology use and technology in education. This would support findings from the National Center of Educational Statistics where they found that 75 percent of elementary school teachers were using computers sometimes up to often in their daily instruction (Gray, Thomas, & Lewis, 2010). The authors found that 98 percent of those same

1,784 elementary school teachers had 5.4 computers in their classroom every day. The survey category concerning one's productivity when using technology also showed participant agreement. Pre-service teachers feel that technology allows them to be more productive, that they are frequent users of technology, and that technology is needed in the classroom. Though the post-survey results did not show a significant change, there is still a strong agreement that would indicate an intention for pre-service teachers to utilize digital technologies in their future classrooms.

From the qualitative responses, it is clear that pre-service teachers feel it is necessary for students and teachers to be able to effectively use computers, the Internet, interactive white boards, and e-readers. At the end of the experience a majority of pre-service teachers report that they feel prepared to use iPads and smart boards in their future classrooms. The qualitative findings support that following the semester experience, pre-service teachers feel inclined to use digital interactive text and related technologies in their classroom.

Research Question Three

As a result of the intensive experience, will there be a change in participant inclination to support the view that today's students have different learning needs particularly concerning new literacies?

By the end of the experience nearly all pre-service teachers feel that students would have a different way of accessing and processing text from when they, themselves, were in school. Prospective teachers shared their perceptions which were centered on the view of text becoming more engaging and interactive. Responses indicate that pre-service teachers are clearly influenced by the experiences with digital text afforded by the semester. There is also concern expressed over degradation of student skills such as grammar usage, spelling, and reference

skills. If such a decline in skills does exist, it could suggest that teachers will need to provide greater learning support in such areas. Nearly all qualitative responses related to the research question favored a view that technology is changing the way that student think and/or learn. Pre-service teachers feel that students need to be stimulated during their classroom learning experiences as well as have opportunities to interact when learning. Prospective teachers also feel that students readily have access to large amounts of information, and express concern over students need or expectation for instant gratification with their learning. Responses indicate that prospective teachers may feel they need to consider modifying traditional classroom instruction to create a successful learning environment for students.

No significant change was observed in the survey items related to student learning needs, however, quite positive marks of agreement were found in both the pre and post-survey findings. Results would indicate a tendency among pre-service teachers to feel that technology use would not negatively affect teacher authority, and that technology use would not lead to greater behavior problems. Agreement is also seen among the questions identifying a link between technology and one's happiness. Results suggest that pre-service teachers would not be resistant to using technology in the classroom.

Further qualitative responses show that pre-service teachers feel that students need technology in order to communicate with each other. Many prospective teachers feel that using technology gives students the confidence they need to participate fully in class. Some pre-service teachers also express concern over a decline in students developing social skills and often attributed this decline to a perceived student dependency on technology. Pre-service teachers also feel that students should have the opportunity to use both traditional paper sources and digital sources to learn how to read.

Majority of pre-service teachers feel that students are learning and reading differently due to the use technology. Research shows that students are multitasking with technology (Kirschner & Karpinski, 2010; Mokhtari , et al., 2009; Rideout, et al., 2010), spending substantial periods of time per day utilizing media (Rideout, et al., 2010; The Nielsen Company, 2009; U.S. Census Bureau, 2010), and spending nearly three times as much time playing video games than reading (Rideout, et al., 2010). Clearly students are being presented with very different learning opportunities in their personal lives, largely due to technology. Students are used to having control in virtual worlds whether it is: social networks, video games, or texting. Students have become accustomed to technology providing information, stimulation, and entertainment. So it is not unexpected that, nearly all pre-service teachers feel that technology is changing the way students learn. One factor of this perceived change centered on the need for students to be stimulated, engaged, and/or be able to interact when learning. Another view is that due to the vast quantities of information available at rapid speeds that it has altered student learning. Closely related to both would be a perception that students have a need for prompt feedback and constant engagement in their learning. These views would indicate that pre-service do indeed feel that today's students have different learning needs.

By the end of the experience, majority of the pre-service teachers felt that students need new reading comprehension strategies for hypertext use, searching strategies, and to identify reliable Internet sources. Participants felt that students will require new literacy skills to meet their current learning needs. Responses reflect a clear view that students are changing because of technology. Pre-service teachers also feel that texting (shorthand and abbreviations) influences student writing at the school and home level. The implications, should this perception prove accurate, could be a need for further English grammar and spelling coaching. Or perhaps the

English language will continue to evolve incorporating elements of texting as accepted word forms. Though current research has yielded no significant findings yet between texting and negative effects on literacy in pre-service teachers (Drouin & Davis, 2009; Powell & Dixon, 2011) or children (Plester, et al. 2008). Ultimately, responses indicate that prospective teachers feel that it is the role of the teacher to ensure that students have developed new literacy skills.

Research Question Four

As a result of the intensive experience, will there be a change in participants' views concerning potential classroom applications of digital literacies?

Post-qualitative responses indicate all of the pre-service teachers feel that it is important for teachers and schools to be aware of and use new technologies. Participants attribute the need for awareness and potential use of technology in order for the classroom teacher to maintain credibility with the students and to provide for student learning needs. There is a noticeable shift in favor of pre-service teachers considering the use of social communication technologies in the classroom. Responses show prospective teachers feel that digital literacies are important for student learning and for potential student roles in society. These findings would suggest that digital literacies are needed in pre-service teachers' future classrooms not only for their students but for their own sake as well.

When comparing the pre and post-survey Likert scale items there were not significant changes in one's viewing the Internet as a source of contemporary information, social communication through technology, and the use of hypertext. However, agreement is found in both the pre and post surveys for all items. Findings would indicate that pre-service teachers feel that students should be using the Internet to locate needed information; this could suggest a reduction or elimination use of traditional paper resources in terms of locating information in

future classrooms. Responses indicate that pre-service teachers personally connect with others through social communications technologies as well; there may be the potential for classroom adoption of these technologies as well. The views would support the conclusions of several researchers who feel that social networks should be utilized in the classroom because of the communication potential and student interest (Dowdall, 2009; Mazer, et al., 2007; Siegle, 2011). Finally, there is a view that hypertext and hyperlinks are useful tools for enhancing learning about given topics, suggesting possible classroom application in terms instructional practices and use.

Research Question Five

As a result of the experience, will there be a change in pre-service teacher awareness of digital literacies?

Likert scale survey responses clearly indicate agreement that pre-service teachers were aware of what digital literacies are at the end of the semester. Short answer survey and interview responses also support findings when participants were asked how if at all the semester experience had changed their view of digital literacies. Responses strongly indicate pre-service teachers are aware of digital literacies as a result of the semester experience. Participants also express that they feel better prepared to support digital literacies in their future classrooms. These findings are particularly interesting when considering a recent study by Ajayi (2010) where pre-service teachers agreed that they "...were aware of the changing nature of literacy practices in relation to the shifting media technology" (p. 16). However, those same participants felt unprepared for the media changes in literacy and to use different communication modes, with only slight agreement towards being prepared to use electronic resources (Ajayi, 2010). Again at the conclusion of the experience the PDTS revealed pre-service teachers are aware of

digital literacies. However, results from this study show that pre-service teachers also feel prepared to use digital literacy tools in their classrooms.

Research Question Six

What demographic factors are most closely associated with a change in the awareness of potential classroom uses of technology?

With the application of statistical formulas to pre-service teacher responses there are several demographic categories with significant results that stood out. Findings are not entirely unexpected as other studies examining educator perceptions concerning information communication technologies (Nasah, et al., 2010), technology integration (Gorder, 2008), social networks (Salaway, et al., 2008), and productivity with technology (Overbaugh & Lu, 2008) yield varying results based on similar demographic characteristics. Post-survey quantitative categories were analyzed using independent t-tests for demographic areas variables that contained only two population groups. Significant differences are found based on participant age. For this category, younger pre-service teachers are more supportive of technology adoption. However, older respondents express greater interest in reading than younger peers. When looking at the education of pre-service teachers' mothers there are significant differences seen in two areas as well. Participants whose mothers had some college experience feel more strongly that technology is necessary in education over those who had mothers whose education included high school or less. Pre-service teachers whose mothers had at least some college experience or beyond, feel more strongly that paper sources are not comprehensive information sources more so than peers whose mothers had an education of high school or less. When looking at the education of pre-service teachers fathers there is a significant difference seen in the perceived ability to read digital text. Pre-service teachers whose father's education stopped at high school

or less, indicate that they have a stronger view of their own ability to read digital text over peers with fathers who had some level of college education. Findings from Rideout et al. (2010) showed significant differences in a number of different child media use categories when considering parent education; most relevant to this study was that as parent education increased time spent reading print sources did as well, also as the parent education level increased the usage of other media sources usually decreased. A significant difference is seen for the category of gender where females feel more strongly that technology facilitates social communication than their male counterparts. There are no significant differences found for the demographic category of race.

Analysis of variance was conducted on the demographic categories of grade point average and socio-economic status. A significant difference is seen with the category of grade point average. Pre-service teachers whose GPA is in the range of 4.0-3.5 have a significantly higher interest in reading over their peers whose GPA is 2.99 or below. Significant differences are seen in two categories when considering socio-economic status. Participants with a low socio-economic status did not feel as strongly about their use of daily technology as peers of a middle socio-economic status. Also those pre-service teachers from middle socio-economic status hold a more supportive view of technology adoption than peers who are from a low socio-economic status. This would differ from the study by Nasah et al. (2010) who found that socio-economic status was a factor but not the most important factor in student interest in information communication technologies.

Future Directions

As the data collected provided insight into pre-service teacher perceptions prior to entering the workforce, the potential exists to follow participants into their future classrooms to

gauge if their perceptions were indeed as strong as reported. The instruments could be used again with the in-service teachers who participated in the study to see how their original views may have changed as they would have daily experiences with students and in turn daily experience with potential digital literacy needs. With some minor modification, the survey and/or interview protocols could also be used to examine the views of in-service teachers who were never a part of the original treatment group. Such a survey could be conducted as a formative assessment in an effort to target future professional development opportunities dealing with digital literacies, digital literacy tools, technology adoption, etc. on a school or even district level. The instruments could be used further with higher education populations to observe whether similar views are held by other pre-service teacher populations or for in-service teachers participating in a master's program.

More importantly the instrument could be adjusted to thoroughly identify how new literacies are connected to individual perspectives, social connections, cultural identities, and life inside and out of the classroom (Compton-Lilly, 2009; Leu, et al., 2004; Rowsell, et al., 2008). These new literacies are accessed and exerted on a daily basis by students through a variety of media and digital sources. Many researchers feel digital literacies should be viewed broadly as new literacies have a constantly changing nature; (Ajayi, 2011; Coiro, et al., 2008; Rowsell, 2008) with this in mind, targeting specific elements of new literacies as they are related to available classroom technologies may be advisable. Not all students will have the same access to technology or prior knowledge outside the classroom, so tailoring the instrument to specific new literacy needs of a given school or even classroom could prove ideal.

When thinking of prospective teachers, it is necessary to determine where in the teaching program such experiences would be most meaningful. A technology integration course would be

a potential starting point if it were early in the prescribed program. However, as with the experience provided in this study, methodology courses may serve as better dissemination points as pre-service teachers would have the opportunity to utilize the digital literacy tools with the content associated with the course rather than simply random or broad application. Several researchers agree that having multiple opportunities for technology integration throughout a teacher education program may be more effective (Koc & Bakir, 2010; Lambert & Gong, 2010; Wetzel, Foulger, & Williams, 2009). Should there be program-wide (teacher preparation) support including multiple methodology courses, there would be the benefit of multiple opportunities to utilize digital literacy tools rather than a single course opportunity, as is often typical.

Modifications could be made to the treatment to incorporate additional digital literacy tools into instruction, extended periods of time with hands-on experience with varied digital literacy tools, and further opportunities for class discussions that may yield stronger measurable outcomes. Treatment modification could also be done to focus only on a specific area of interest such as utilizing e-readers, student digital literacy needs, student change, etc. rather than several related areas as was done with the original. A key piece of the experience was the hands-on use of iPads; though the experience was successful, further use of e-reading devices could be helpful. With this experience most pre-service teachers report that they feel prepared to use iPads in their future classrooms, elaboration centered on selection due to student engagement and device interactivity. However, as data was not collected specifically on the character of the pre-service teacher's imagined pedagogy, this could be highly beneficial line of inquiry to clarify how and not simply what prospective teachers were prepared for in their future classrooms. Should the treatment be as successful in preparing pre-service teachers for utilizing iPads as they reported,

future experiences for educators may also find success if modeled from the treatment provided in this research experience. Modeling alone will not lead to success, as it is necessary for clear purpose and meaning to be attached to the actions of the experience (Coiro, et al., 2008; Larson, 2008; Rowsell, et al., 2008). As Larson (2010) states, “Teachers must explore the potential of digital readers, as one device can potentially take the place of hundreds of printed books and allow for unique transactions between the reader and the text” (p. 22). These “unique transactions” will offer a wealth of opportunity for researchers, as more and more e-readers find their way into classrooms around the world.

Conclusions

Overall results indicate that in during this treatment pre-service teachers maintain or strengthen their perceptions and understandings of technology use in their own lives, the use of social communication in their daily lives, technology adoption in the classroom, and technology access related social economic status. Prospective teacher perceptions were also maintained or strengthened in the areas of reading interest, hypertext, technology in education, technology related to teacher authority, technology use related to one’s happiness, technology and their own productivity. As interactive digital tools and text are a key component of this study, of note is that there was no decline in pre-service teacher perceptions of digital reading, opinion of digital text, digital comprehension, digital literacy tools, preparedness to use digital literacy tools, and the Internet as a source of contemporary information. Interesting data were also collected identifying pre-service teacher media use. Participants are very heavy users of media in their daily lives which may bode well for greater media use in future classrooms. The ultimate goal of the research conducted is to contribute to a growing body of literature in new literacies, digital interactive text, and media use, and to have laid the groundwork for future research

opportunities.

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**Appendix A: Perceptions of Digital Text Survey
Old Dominion University**

Please **highlight** or type in your responses where appropriate for each of the following:

- 1. University Status:** Currently an undergraduate student
 Currently a graduate student
- 2. Teaching Status:** Pre-service teacher (Training to be a teacher)
 Licensed teacher (Classroom teacher)
- 3. Program Status:** Elementary/Early Childhood Program
 Secondary Program
 Other (Please identify) _____

4. Please identify your course (ex. TLED444): _____

5. Age _____ **6. Gender:** Male Female **7. Race** _____

8. Devices I own (Highlight all that apply):
 eReader (not including iPad)
 iPad
 3G/Smart phone

9. Your socio-economic status growing up:
 Low socio-economic Middle socio-economic
 Middle-High socio-economic High socio-economic

10. Please identify your mother's (or female guardian) highest level of education:

11. Please identify your father's (or male guardian) highest level of education:

12. What is your undergraduate college GPA: _____

1. When you use your mobile phone how many text messages do you send/receive per month:

2. When you use your mobile phone how many minutes a month do you use calling someone:

3. Do you maintain a social networking page like Facebook: (yes or no)
If yes, how much time to you spend with it per day: ___ hours ___ minutes

4. Do you use twitter: (yes or no)
How many tweets do you usually send in a day: _____
How many tweets do you usually receive in a day: _____

5. Do you play video games: ____ (yes or no)

If yes, how much do you play per day: ____ hours ____ minutes

6. Do you read e-books: ____ (yes or no)

If yes, how much time do you spend per day: ____ hours ____ minutes

7. Are you an iPad user: ____ (yes or no)

If yes, how much time do you use your iPad per day: ____ hours ____ minutes

8. In a typical day how much time do you spend on the following:

Watching TV: ____ hours ____ minutes

Watching Video or Film: ____ hours ____ minutes

Using the Web/Internet: ____ hours ____ minutes

Reading a Newspaper ____ hours ____ minutes

How many times in the past month have you gone to the movie theater: _____

9. Think about your typical reading (out of a total 100%) what percentage of your reading is:

____ % Internet (blogs, news, ads, Facebook, etc.)

____ % Electronic text (e-books, PDFs, etc.)

____ % Printed text (books, newspapers, worksheets, etc.)

Read each statement and then respond to indicate how you feel about certain issues. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer that seems to describe your perspective.

Please highlight the letters that best reflects your feeling on each of the items below.

Strongly Disagree (SD)
Disagree (D)
Neutral (N)
Agree (A)
Strongly Agree (SA)

1. I believe that the Internet provides students with lots of contemporary information that at an earlier time would have been difficult to find.

(SA) (A) (N) (D) (SD)

2. Reference books and other traditional paper library sources provide students with all the information they need.

(SA) (A) (N) (D) (SD)

3. I use technology lots of ways often throughout the day.

(SA) (A) (N) (D) (SD)

4. I rarely need to use technology.

(SA) (A) (N) (D) (SD)

5. I believe the Internet is an important connection for me to reach my friends and the ones I love.

(SA) (A) (N) (D) (SD)

6. I feel disconnected when communicating with my friends and loved ones via the internet.
(SA) (A) (N) (D) (SD)

7. Technology allows me to socialize.
(SA) (A) (N) (D) (SD)

8. I do not need technology to socialize.
(SA) (A) (N) (D) (SD)

9. I am a skilled user of technology.
(SA) (A) (N) (D) (SD)

10. I have a difficult time using technology.
(SA) (A) (N) (D) (SD)

11. I am an early adopter of technology.
(SA) (A) (N) (D) (SD)

12. I don't like to use a technology until it has been around for a while.
(SA) (A) (N) (D) (SD)

13. It is important for me to stay current or keep up with new technologies.
(SA) (A) (N) (D) (SD)

14. I certainly don't need to worry about every gadget that comes out. I prefer my technology just like it is.
(SA) (A) (N) (D) (SD)

15. Reading is a good way to spend spare time.
(SA) (A) (N) (D) (SD)

16. Reading is rewarding to me.
(SA) (A) (N) (D) (SD)

17. Reading is something I can do without.
(SA) (A) (N) (D) (SD)

18. Reading is dull.
(SA) (A) (N) (D) (SD)

19. Hypertext allows me to learn and understand more about a topic.
(SA) (A) (N) (D) (SD)

20. When I am looking for information I find hypertext to be often unnecessary and lacking in value.

(SA) (A) (N) (D) (SD)

21. New technologies are valuable to education.

(SA) (A) (N) (D) (SD)

22. Schools would be better off without worrying about new technologies.

(SA) (A) (N) (D) (SD)

23. Modern technologies have eroded teacher authority because information can be found online not just from the teacher.

(SA) (A) (N) (D) (SD)

24. Teachers can't compete with Internet searches and as a result have their authority lessened in the classroom.

(SA) (A) (N) (D) (SD)

25. Technology has no bearing on teacher authority.

(SA) (A) (N) (D) (SD)

26. Using technology leads to greater happiness in a given society.

(SA) (A) (N) (D) (SD)

27. Technology has negative effects resulting in a more unhappy society.

(SA) (A) (N) (D) (SD)

28. I am most productive when I am using technology.

(SA) (A) (N) (D) (SD)

29. I often have difficulty being productive when using technology.

(SA) (A) (N) (D) (SD)

30. I am able to read more when using technology.

(SA) (A) (N) (D) (SD)

31. I am unable to read as well when text is in a digital form compared to paper.

(SA) (A) (N) (D) (SD)

32. I like reading digital text more than paper text.

(SA) (A) (N) (D) (SD)

33. I like reading from a traditional paper book far more than reading on a screen.

(SA) (A) (N) (D) (SD)

34. Digitizing books is a great idea.

(SA) (A) (N) (D) (SD)

35. I believe text belongs on paper not on a screen.

(SA) (A) (N) (D) (SD)

36. New technologies are available to all people regardless of socio-economic status.

(SA) (A) (N) (D) (SD)

37. Primarily the rich get to use new technologies.

(SA) (A) (N) (D) (SD)

38. I can retain information read in a digital form just as well as from a print form.

(SA) (A) (N) (D) (SD)

39. I have difficulty understanding what I read when I read it in a digital form.

(SA) (A) (N) (D) (SD)

40. Students who frequently use technology will be more likely to be behavior problems.

(SA) (A) (N) (D) (SD)

41. Students should be using digital literacy tools such as e-books and iPads in the classroom.

(SA) (A) (N) (D) (SD)

42. There is no need for additional digital literacy tools as traditional literacy methods are effective already.

(SA) (A) (N) (D) (SD)

43. I am prepared to integrate digital literacies into my classroom curriculum.

(SA) (A) (N) (D) (SD)

44. I feel that I am aware of current digital literacies.

(SA) (A) (N) (D) (SD)

45. I feel digital literacies aren't needed in my classroom.

(SA) (A) (N) (D) (SD)

46. After this semester I feel more prepared to use digital literacies in my classroom.

(SA) (A) (N) (D) (SD)

47. After this semester I am more aware of what digital literacies are.

(SA) (A) (N) (D) (SD)

48. I am unsure of what digital literacies are.

(SA) (A) (N) (D) (SD)

49. I would like to use digital literacies in my classroom.

(SA) (A) (N) (D) (SD)

50. I do not believe I am ready to use digital literacies with my students.

(SA) (A) (N) (D) (SD)

Below you will see 15 pairs of sentences that describe two poles of thinking about a topic. Read the two sentences and then mark which number most closely reflects your thoughts. For example, if you agreed with the item on the left, you would circle a selection between 5 and 1 (5 being the strongest agreement). If you agree more with the item on the right, you would check between 1 and 5 on the right. **Highlight only one time per pair of items.** After making your choice, please write a sentence or two to explain why you made that choice. Please give your reasoning.

Example:

I enjoy watching TV.	There is never anything worth watching on TV.
5 4 3 2 1	1 2 3 4 5

Strongly Agree

Strongly Agree

Now write at least two sentences explaining your reasoning.

I find TV to be a nice way to spend my free time. With so many channels I can usually find something fun to watch. I watch TV every day!

1.

New forms of electronic text including hotlinks, animation, and other forms of interaction will increase young learners' interest in reading.	New forms of electronic text including hotlinks, animation, and other forms of interaction will result in students later becoming bored with static, normal book-reading.
5 4 3 2 1	1 2 3 4 5

Strongly Agree

Strongly Agree

Now write at least two sentences explaining your reasoning.

2.

K-12 students of today are becoming savvy manipulators of electronic sources who can readily find the information they need in their	K-12 students of today are accustomed to finding information only, rather than building personal knowledge.
--	---

lives.	
5 _____ 4 _____ 3 _____ 2 _____ 1 _____	1 _____ 2 _____ 3 _____ 4 _____ 5 _____
Strongly Agree	
Strongly Agree	
Now write at least two sentences explaining your reasoning.	

3.

By 2020, technology will have had a positive effect on young people's brains in terms of their ability to retrieve useful information.	By 2020, technology will have had a negative effect on the people's brains in terms of their developing impatience and poor concentration.
5 _____ 4 _____ 3 _____ 2 _____ 1 _____	1 _____ 2 _____ 3 _____ 4 _____ 5 _____
Strongly Agree	
Strongly Agree	
Now write at least two sentences explaining your reasoning.	

4.

Students are become adept at multitasking and being able to study while watching TV or interacting with friends.	Students are simply fooling themselves that the human brain can focus equally well on two channels of information or input at the same time.
5 _____ 4 _____ 3 _____ 2 _____ 1 _____	1 _____ 2 _____ 3 _____ 4 _____ 5 _____
Strongly Agree	
Strongly Agree	
Now write at least two sentences explaining your reasoning.	

5.

Disappearance of print journalism and associated reporters has resulted in news forms being truncated so that we have a poorer informed electorate.	New media forms will grow over time and reporting mechanisms will be developed which result in a fully informed citizenry.
5 _____ 4 _____ 3 _____ 2 _____ 1 _____	1 _____ 2 _____ 3 _____ 4 _____ 5 _____
Strongly Agree	
Strongly Agree	
Now write at least two sentences explaining your reasoning.	

6.

Modern web searchers have been found to demonstrate effective narrowing search strategies that are quick and efficient.	Modern web searchers have been found to flit unpredictably among sites with little perceptible sequence or reason.
---	--

5 _____ 4 _____ 3 _____ 2 _____ 1 _____ 1 _____ 2 _____ 3 _____ 4 _____ 5

Strongly Agree

Strongly Agree

Now write at least two sentences explaining your reasoning.

7.

Electronic devices like the iPad will allow users of all ages to access and interact with text better than ever before.	Print sources allow the best possible opportunity for readers to comprehend and interpret text.
---	---

5 _____ 4 _____ 3 _____ 2 _____ 1 _____ 1 _____ 2 _____ 3 _____ 4 _____ 5

Strongly Agree

Strongly Agree

Now write at least two sentences explaining your reasoning.

8.

Even though there is little to no research identifying the effects (benefit or loss) of e-books on student learning we should try using them in our classrooms.	Reading from print sources has been a tried and true form of classroom text for generations. As teachers we should feel obligated to use materials in our classroom that have a proven track record.
---	--

5 _____ 4 _____ 3 _____ 2 _____ 1 _____ 1 _____ 2 _____ 3 _____ 4 _____ 5

Strongly Agree

Strongly Agree

Now write at least two sentences explaining your reasoning.

9.

It is important for teachers and students to be aware of and able to successfully master new technologies.	Resources in schools can be limited. Available funds could be better spent on a variety of resources/materials besides new technologies.
--	--

5 _____ 4 _____ 3 _____ 2 _____ 1 _____ 1 _____ 2 _____ 3 _____ 4 _____ 5

Strongly Agree

Strongly Agree

Now write at least two sentences explaining your reasoning.

10.

I prefer to use technologies I am familiar with and have a proven track record.	I am excited by new technologies and try my best to keep up with them.
5 _____ 4 _____ 3 _____ 2 _____ 1 _____	1 _____ 2 _____ 3 _____ 4 _____ 5 _____

Strongly Agree

Strongly Agree

Now write at least two sentences explaining your reasoning.

11.

New forms of electronic text including hotlinks, animation, and other forms of interaction will increase young learners' reading comprehension.	New forms of electronic text including hotlinks, animation, and other forms of interaction will result in lower reading comprehension with normal book-reading.
5 _____ 4 _____ 3 _____ 2 _____ 1 _____	1 _____ 2 _____ 3 _____ 4 _____ 5 _____

Strongly Agree

Strongly Agree

Now write at least two sentences explaining your reasoning.

12.

Students require new reading comprehension strategies to effectively use the Internet and other information communications technology.	Using the internet, cell phones, and other types of communication technologies comes intuitively to students.
5 _____ 4 _____ 3 _____ 2 _____ 1 _____	1 _____ 2 _____ 3 _____ 4 _____ 5 _____

Strongly Agree

Strongly Agree

Now write at least two sentences explaining your reasoning.

13.

Accessing the Internet makes large demands on individuals literacy skills.	It requires very little in the way of reading or writing skills to use the internet.
5 _____ 4 _____ 3 _____ 2 _____ 1 _____	1 _____ 2 _____ 3 _____ 4 _____ 5 _____

Strongly Agree

Strongly Agree

Now write at least two sentences explaining your reasoning.

14.

The skills required to read and comprehend text on the Internet are the same as the skills required to read printed text.	A person can access text as digital or printed without any noticeable difference between the two methods.
---	---

5 _____ 4 _____ 3 _____ 2 _____ 1 _____ 1 _____ 2 _____ 3 _____ 4 _____ 5

Strongly Agree

Strongly Agree

Now write at least two sentences explaining your reasoning.

15.

Text messaging hasn't changed the way I compose written narratives in other spheres of my life.	The way I communicate in my daily life (when I'm not using the phone) has been changed/influenced by text messaging.
---	--

5 _____ 4 _____ 3 _____ 2 _____ 1 _____ 1 _____ 2 _____ 3 _____ 4 _____ 5

Strongly Agree

Strongly Agree

Now write at least two sentences explaining your reasoning.

Short Answer Responses

Please respond with at least two sentences for each of the following questions.

1. What technologies do you normally use in your daily life:

2. How have your daily technologies changed in recent years:

3. Do you plan on making any technology purchases in the near future, if so what and why:

4. Do you believe the way students will view/see/understand text will be different from what you knew as a student, if so how:

5. If you are an iPad user, what are your favorite applications and why:

6. Do you believe the way students think and/or learn has changed because of technology, please explain:

7. Do you believe the way students interact with each other has changed because of technology, if so how:

8. What technologies do you feel are important for students to use and teachers to be aware of:

9. What format(s) (newspaper, paperback book, e-book, etc.) do you normally use when reading for fun:

10. Have you ever read a book in an e-book format: ____ (yes or no)

If yes, how would you compare it to traditional paper reading (respond below):

11. When you are doing research do you prefer to have your resources in a hardcopy (paper) or digital format, please explain your answer:

12. How good are you at figuring out where to go on the internet to find what you want?

13. How good are you at using a search engine to find what you want?

14. How if at all has this semester changed your view of digital literacies?

15. Do you feel prepared to use digital literacy tools in your classroom? If so which ones? If not, why not?

16. Why do you feel digital literacies are or aren't important for today's student?

17. How if at all has today's student been changing? If so why?

18. How are students using media in their daily lives?

--

Please write or highlight only one response for the following questions:

1. On average, how many texts per month do 18-24 year olds send? _____
 2. On average, how much time per day do 8-18 year olds spend with media? ___ hours ___ minutes
 3. If I were to guess at the percentage of how much less empathetic college students have become since 1979, it would be ____%
 4. If I were to guess at the percentage of college students who would prefer their textbook in a digital format, it would be ____%
 5. If I were to guess at the percentage of college students who own eReader device, it would be ____%
 6. If I were to guess at the percentage of teachers who would be considered early adopters of technology, it would be ____%
 7. Which eReader device are college students most interested in purchasing?
 - A. Amazon Kindle
 - B. Apple iPad
 - C. Barnes & Noble Nook
 - D. Borders Kobo
 8. 96% of college students interested in purchasing an eReading device plan to use it for/to?
 - A. Leisure Reading
 - B. School Use
 - C. Keep up with the Latest Technology
 - D. Replace their PC
 9. The sharpest decline in college student empathy on record occurred during which years?
 - A. 1969-1979
 - B. 1979-1989
 - C. 1989-1999
 - D. 1999-2009
 10. With which of the following do adults spend the most time on?
 - A. Television
 - B. Internet
 - C. Phone
 - D. Radio
-

Thank you for completing your survey!

Is there anything you would like to add:

Appendix B: Semi-Structured Interview Protocol

This interview should occur prior to instruction and again once instruction has been concluded.

Participants will be informed there is no right or wrong answers, only that the researcher is interested in their thoughts on the questions.

1. Do you enjoy reading?

If yes, what do you normally like to read and do you normally read it in a paper form or electronic?

If no, what don't you like about reading? Was there ever a time when you did enjoy reading? If yes, what was it you enjoyed reading?

2. What will text look like in 5 years? How about 10 years from now?

3. What forms of text do elementary students encounter in their daily lives? Middle school students? High school student? College students?

4. What does reading mean to you?

5. What tools should teachers use to teach students how to read? (If needed probe with: What reading technologies are you aware of?)

6. Do students learn to read the same way you did? What is similar or different?

7. How if at all will the way students learn be changing in the next 5-10 years?

8. Do you perceive any major differences in students (such as behavior, attitude, intelligence, etc.) from when you yourself were a middle-high school student? What about elementary school student?

9. Why is or isn't it important for teachers and schools to be aware of and use new technologies?

10. How do you carry out interpersonal communication with others in your life?

**11. Do you believe that text messaging is changing the way students write?
If so, please explain in what ways.**

12. Has text messaging changed the way you compose written narratives in other spheres of your life? (If needed probe with: Has texting negatively affected your spelling abilities?)

13. Do students need new types of reading comprehension strategies to effectively use the internet? If so, explain what types of strategies they need.

14. Do teachers need to teach new reading comprehension strategies to students so that they can

effectively use the Internet?

- 15. How do you find something you are searching for on the Internet?**
- 16. What else would you like to tell me about how you use the internet?**
- 17. Do you believe that teachers should incorporate social communications technologies into the classroom like Facebook, twitter, text messaging, etc? Please explain your ideas.**
- 18. How if at all has this semester changed your view of digital literacies?**
- 19. Do you feel prepared to use digital literacies in your classroom? If so which ones? If not, why not?**
- 20. Why do you feel digital literacies are or aren't important for the today's student?**
- 21. How if at all has the today's student been changing? If so why?**
- 22. How are students using media in their daily lives?**

Appendix C: Codebooks for Short Answer Survey Questions

Codebook A

2. How have your daily technologies changed in recent years?

Phone – phone, smart phone, cell phone

Music – music stored/played on phone

Tx – texting

E-mail – e-mail used via phone

GPS – GPS used via phone

Cam – Camera in phone

Com – Communicate with friends or family via phone

Inet – Internet

FB – Social networks, Facebook, My Space

VC – Video chat, Skype, etc.

E-mail – e-mail mentioned with Internet not phone or computer

Shop – Internet shopping

Music – Music stored or retrieved from the Internet

Com – Communicate with friends or family via the Internet

Info – Using Internet for information

Res – Use Internet or data bases for research

Class – Refers to how classes are changing or changes they make for class (University)

Classroom – Refers to how technologies are changing in the classroom (Elementary)

Ent – Mentions technology for entertainment only

Games – video games

TV – changes in TV

Mov – movies/DVD/Blueray/3D

Music – changes in music

Comp – Computer referring to laptop or desktop

E-mail – e-mail mentioned with computer

Music – Music played from computer

Com – Communicate with friends or family via computer

Video – Online video they construct/upload

Cam – Mentions digital camera (not with phone)

Paper – technology saves/reduces paper use

E-read – Referring to their e-reading device: Nook, Kindle, etc. (not iPad)

iPad – Mention iPad specifically

GPS – GPS in car or not mentioned in conjunction with phone

NC – No change

Change? – Mention change but nothing specific enough to categorize

In? – Mention an increase but nothing specific enough to categorize

Time – They have increased the time they spend using technology

Intuit? – Mention technology being more intuitive or easy to grasp

Fast – Faster but not specific on what technologies

Visual – improvements in visual technologies

W2 – Blogs, twitter, instant message, wiki (not FB or VC items)

Multi – Multitasking

Bills – Mention paying bills online

Shop – Mention shopping online

Smartboard – Mentioning Smartboard specifically

Smaller – Mentioning smaller size of technology

Codebook B

4. Do you believe the way students will view/see/understand text will be different from what you knew as a student, if so how?

Video – Students view text through video rather than traditional materials

Int – Text is experienced through interaction/interactivity, technologies such as Smartboards, Kindles, iPads, mentioned

Short – Students have an improved ability in reading shorthand

Jump – Students can jump to different parts of the text, no longer linear

Tx – Texting in terms of how it is changing as a language

Comp – Computers provide text in different ways

Value Tech – Students will place greater value/need on technology

More Info – Students can now take in more info through their text

Dif Learn – Students learn differently

Dif Res – Student have different textual resources for research

Dif Digital – Refers to digital media

Dif Writing – Students write differently

Dif Talk – Text effecting the way students talk

Dif Tech – As technology changes the way they see text changes

Dif Options – We think of read as a book, students may now think of read in terms of an e-reader

Dif? – Stated there was a difference but unable to categorize

Text Informal – Text has become more informal

Early Expose – Students are exposed to different text forms at a much earlier age

Text Integrated – More text options due to integration/cross curriculum in schools

More Stim – Text provides students more stimulation

e-read convenience – makes reading more convenient

e-book interest – students will be more interested in reading due to device popularity

tech interest – technologies hold attention better

-basic skills – students won't consult dictionaries, know how to pronounce a word, poor grammar, poor spelling

-att – shorter attention spans

+motivation – changes in technology increase student motivation to read

Tests – Student test text is offered in a digital format

Key info – Students will only read the key info the text instead of the entire text

Change of time (Old fashioned) – Paper text will be viewed as old fashioned

Own opinion – Students will be more skeptical of what they read on the Internet

Codebook C

6. Do you believe the way students think and/or learn has changed because of technology, please explain?

- patience – Students have less patience

IGrat – Students have a need for instant gratification

Res – Changes in the way research is conducted/viewed

Need Stim – Students needing stimulation, engagement, entertainment

Learning Styles – References made to student or technology learning styles

- att – decline in student attention

+info – More information is available

+info speed – Information is available a much greater speeds

+multitask – References students ability to multitask

Dif wired – Mention that a student is “wired” differently or indicating a biological change

-image – decline in imagination

-eval – decline in evaluation skills

-understand – decline in understanding

-think – decline in thinking

-crit think – decline in critical thinking

+lazy – students becoming more lazy

Tech rely – mention technology addiction, reliance, and or dependence on technology

+awareness – students are more aware of their surroundings/information

-spell – decline in spelling

+inquis – students are becoming more inquisitive or curious

+engage – students are better able to engage with technology

+opinion – students form/express their own opinions more because of technology

-parents – decline in parenting in terms of technology

+comp – increase in student comprehension

+access – greater access or accessibility

Old school (books) – traditional paper text outdated for student learning

Old school (teach) – teaching or school environment is outdated for student learning

+creative – students are more creative

Codebook D

7. Do you believe the way students interact with each other has changed because of technology, if so how?

Cyber bully – provided mention or discussion of cyber bullying

Many ways – mentioned there were a variety of ways to interact without going into specific technologies

Social nets – mentioned social networks such as Facebook, Twitter, My Space, or Friendster

Text – texting

-soc – a decline in social interaction or ability

-ftf – a decline in face to face interaction or ability

Easier com – easier to communicate with others

Instant com – communication is now instant

World com – mentioned communicating globally or with others around the world

+prod – improved productivity due to interactions

+process – improved ability to process information through interaction

IM – instant messaging

Vid chat – video chat or Skype

E-mail – e-mail

Blog – blogs

Vgame – interaction through video games

+interact – more interaction

-privacy – lack of privacy due to interaction

-com – a decline in communication skills

Unsupervised tech – lack of guidance on how to appropriately interact through technology

+confide – rise in confidence due to technology as an interaction medium

-outside – decline in outside interaction

Codebook E

8. What technologies do you feel are important for students to use and teachers to be aware of?

Inet – uses of the Internet

E-readers – e-reading devices

Ipad – Ipads

E-books – electronic or online books

Tumble Books – specific type of interactive e-book

Kindle – Kindle

Interactive Text – interactive text

Reading Technology – mentioned reading technologies (not specific)

Phone – cellphone or phone

Smart phone – smart phone

Texting – texting

Ipod – Ipod or Ipod touch

Soc Nets – social networks or Facebook

Computers – computers

Laptops – laptops

WQ – web quests

Blogs – blogs, blogging sites

Podcasts - podcasts

Smart Board – smart boards

Promethean Board – promethean board

White Board – interactive white board

Software – mentioned software in general

MS Office – mentioned word, excel, PowerPoint, office products, or Microsoft office products

Word – MS word

PPT – MS PowerPoint

Hyperlinks – hyperlinks

Interactive Games – interactive games

Computer Animation – computer animation

Video/Digital Media – video media, video, digital media

All – Felt that teachers should be aware of all technologies, or all technologies that could be beneficial to the classroom

New Tech – felt that teachers should be aware of new technologies

Home Tech – felt that teachers should be aware of any technologies the student is exposed to at home

Simple Tech – felt that teachers need to only be aware of simple/basic technologies

Projectors – projectors

Overhead – overheads (didn't specify what type)

Cameras – cameras, digital cameras

Printers – printers

Calculators – calculators

Scanners – scanners

Clickers – clickers (meaning for students to select an answer choice to key in on the tool)

Codebook F

14. / Interview Question 18. How if at all has this semester changed your view of digital literacies?

Open to Use – expressed they were more open to the use or promotion of digital literacies

Less Suspicious – less suspicious of digital literacies

Exp Ipad – mentioned their experience with Ipads and/or other e-reading devices

Reinforced – stated the semester reinforced or supported their existing views of digital literacies

Aware – expressed they had greater awareness of digital literacies or their related tools as a result of the semester

Stu Learn – mentioned that they had a greater awareness of student learning

Importance – expressed a new appreciation or understanding of the importance of digital literacies

E-readers – expressed an appreciation for e-readers

School Use – discussed their approval of schools using digital literacy tools

Classroom Use – expressed a new interest or understanding of how to utilize digital literacies or digital literacy tools in the classroom

New Interest – expressed that they now have a new interest in digital literacies

Student Interest – felt that their future students will have a greater interest or engagement through digital literacies

More Comfortable – felt they were more comfortable with digital literacies

Clarified – expressed that their existing understandings of digital literacies were clarified as a result of the semester

Better Informed – expressed that they were now better informed about digital literacies

New Ideas – felt they had a number of new ideas about digital literacies as a result of the semester

Changed a Lot – expressed that their views changed a lot but without providing specific information

Useful Tools – expressed a new understanding of different online resources introduced during the semester

No Change – felt that semester did not change their views of digital literacies

Codebook G

15. / Interview Question 19. Do you feel prepared to use digital literacies (digital literacy tools) in your classroom? If so which ones? If not, why not?

Ipad – prepared to use iPad

E-book – prepared to use e-books

E-readers – prepared to use e-readers

Smartboards – prepared to use Smart boards

Whiteboards – prepared to use digital white boards

Promethean – prepared to use Promethean boards

Ipod – prepared to use iPods

Kindle – prepared to use a Kindle

Nook – prepared to use a Nook

Computers – prepared to use computers

Laptop – prepared to use laptops

NY – not yet prepared to use

-Ipad – not prepared to use iPad

-Smartboards – not prepared to use Smart boards

-Promethean – not prepared to use Promethean boards

Avail – ready to use all tools available

Ready for All – ready for all digital literacy tools

Ready – ready to use digital literacy tools (not specific)

Somewhat – feels they are somewhat prepared to use digital literacy tools

Tech – prepared to use technology

New Tech – prepared to use new technologies

Introduce – prepared to introduce digital literacy tools

Inet – prepared to use the Internet

WQ – prepared to use web quests

Digital Media – prepared to use digital media

Simulations – prepared to use simulations

Movie Maker – prepared to use movie making software

PPT – prepared to use PowerPoint

Clickers – prepared to use clickers

Web Cam – prepared to use a web cam

Tablet – prepared to use a tablet device

Netbook – prepared to use a netbook

Hypertext – prepared to use hypertext

Hotlinks – prepared to use hotlinks

Tumblebooks – prepared to use Tumblebooks

Overhead Projector – prepared to use an overhead projector

-Overhead Projector – not prepared to use an overhead projector

Games – prepared to use computer/Internet games

Music – prepared to use digital music sources

Video – prepared to use digital video sources

Lesson/HW – ready to use with lessons and student homework

Codebook H

16. / Interview Question 20. Why do you feel digital literacies are or aren't important for today's student?

Imp Future – digital literacies are important for the future

Imp Workforce – digital literacies are important for future jobs

Imp Stu Lean – digital literacies are important for student learning

Imp Stu Int/Eng – digital literacies are important for student interest and/or engagement

Imp Soc – Important for modern society

Inet Info – they will be important to judge the quality of Internet information

Imp – digital literacies are important without providing specifics

Imp Feedback - digital literacies are important for providing greater feedback

Imp Current - digital literacies are important to stay current

HOOL – felt that we need to hold on to old forms of literacy

Not Critical - digital literacies are not critical for students

Codebook I

17. / Interview Question 21. How if at all has today's student been changing? If so why?

Tech Change – felt that today's student has been changing due to technology

Multitasking – felt that today's student has changed in terms of their ability to multitask

Need Stim – felt that today's student has changed in terms of need for stimulus

World Aware – felt that today's student has changed as they are more globally aware

No – felt that today's student is not changing (non-specific)

Instant Grat – felt that today's student has changed in that they have a need for instant gratification

Impatient – felt that today's student has become more impatient

Faster Processing – felt that today's student have changed in their ability to process information faster

Greater Access – felt that today's student have changed due to having greater access to information

Social Nets – felt that today's student in their interest in social networking

-Soc Skills – felt that today's student have had a decline in social skills

No Longer Linear Thinking – felt that today's student no longer think in a linear way

Want Involved Learn – felt that today's student have changed in terms of wanted to be involved

in their learning (hands-on)

Slow Transition to Tech – felt that today’s student is changing in terms of a slow transition to technology tools

Too Familiar With Each Other – felt that today’s students have changed in terms of their familiarity

Soc Com – felt that today’s student has changed due to their access to social communications technologies

More Opportunity for Change – felt that today’s student has changed in that they have more opportunity to change

Higher Order Thinking – felt that today’s student has changed in that they use higher order thinking skills

-School Work – felt that today’s student has had a decline in their efforts on school work

Future – felt that today’s student has changed due to a need to be prepared for what is relevant tomorrow

-Writing – felt that today’s student has had a decline in writing skills

Mature – felt that today’s student has changed in terms of increased maturity

Codebook J

18. / Interview Question 22. How are students using media in their daily lives?

Fun – Students are using media for entertainment purposes

School – Students are using media for educational purposes

Soc Nets – Students are using media to utilize social networks

Res – Students are using media for research purposes

Learn – Students are using media to learn

Com – Students are using media to communicate with others

Music – Students are using media to listen to music

News – Students are using media to keep up with the news

Games – Students are using media to play games

Radio – Students are using media to listen to the radio

Text – Students are using media to send text messages

Smart Phones – Students are using smart phones

Tablets – Students are using tablets (iPads etc.)

TV – Students are using media to watch television

Movies – Students are using media to view movies

YouTube – Students are using YouTube

Twitter – Students are using Twitter

Inet – Students are using the Internet

E-mail – Students are using e-mail

All Areas – Students are using media in all areas of their lives (non-specific)

Appendix D: Codebooks for Interview Responses

Codebook A

2. What will text look like in 5 years? How about 10 years from now?

10 Yr All – in 10 years all text will be digital

All Digital – felt that all text will be digital

Mostly Digital – felt that most text would be digital

More Digital/Electronic – there will be more digital or electronic text

Slow Digital – there will be a slow change to a majority digital text

E-readers – most text will use some form of e-reading device

Bookstores – mentions e-books presence or impact in/on bookstores

Minorities – mentions the potential for limited access to digital text for minorities

Cheaper – felt digital text would be more prominent due to cost effectiveness

Easier Dist – felt digital text would be more prominent due to ease of distribution

Expensive – felt the spread of digital text would be slowed due to costs

Money – felt that money would affect school district's access to digital text

School Disparity – expressed concern over school disparity and digital text

Paper Not Pop – paper text would not be popular with current generations

Comp Will Do All – felt that computers would provide all forms of text

Holograms – felt that text might become holographic

Paper Pref – expressed a preference for paper text over digital text

Print Still Around – felt that print would still be around

Limited Paper – there will be limited paper sources available

Less Hand Written Text – felt that there would be less hand written text

No Newspapers – felt that newspapers would no longer be around

No Magazines – felt that magazines would no longer be around

Come Back to Paper – felt that after everything went digital everything would eventually reverse
and go back to paper forms of text

Codebook B

3. What forms of text do elementary students encounter in their daily lives? Middle school
students? High school student? College students?

Books – books, story books

Textbooks – textbooks

Online Textbooks – textbooks available digitally online

Movie Clips – movie/video clips

E-book – electronic book

E-readers – e-readers as a source of text

Internet – text available on the Internet

Digital Text – mentions digital text specifically

Digital Media – mentions digital media as a source of text

Online Text – digital text available online

Online Book – book available online

iPad – iPad as a source of text

Ipod – Ipod as a source of text

Kindle – mentions a Kindle as a source of text

Cellphone – cellphone as a source of text

Texting – texting as a source of text

Games – video games as a source of text

TV – television as a source of text

Soc Nets – social networks as a source of text

Laptop – laptop as a source of text

Computer – computer as a source of text

Smart Board – mentioned the use of a smart board as a source of text

PPT – power point presentation as a source of text

Twitter – Twitter as a source of text

Skype – Skype as a source of text

E-mail – e-mail as a source of text

Blogs – blogs as a source of text

Worksheets – worksheets as a source of text

Workbooks – workbooks as a source of text

Translators – referred to the use of Ipods and iPads as translation devices

PDF – mentioned PDF as a source of text

Overhead – overhead projector as a source of text

Handwritten Text – mentions handwritten text

Printed Text – mentions printed text

Codebook C

5. What tools should teachers use to teach students how to read? (If needed probe with: What reading technologies are you aware of?)

Books – mentioned books, could be various styles of traditional paper books

E-books – mentioned e-books to help students how to read

E-reader – mentioned e-reader could include iPad or Kindle

Technology – mentioned technology but non-specific

Computer Games – felt that computer games could help students learn to read

Audio – mentioned audio sources to help students learn to read

Internet – suggested using the Internet to aid with reading

Word Games – felt that word games could help students learn to read

Video With Words – suggested using video sources with words to help students learn to read

Pictures – felt that pictures could help students learn to read

Traditional Text – mentioned traditional text but was not specific on the form

Flash Cards – suggested using flash cards to help students learn to read

Websites – mentioned websites to help students learn to read

Manipulatives – mentioned reading manipulatives without being specific

Codebook D

6. Do students learn to read the same way you did? What is similar or different?

Comp – students are reading differently with computers

Tech – students are reading differently with technology

CV – students are able to have text read to them electronically (computer voice)

iPad – students are reading differently with an iPad

Interactive – students are learning to read differently because of interactive technology and text

Smartboards – students are learning to read differently because of their use of Smartboards

Earlier – students are learning to read at an earlier age

Same Textbook – students are learning to read the same way (with a textbook)

Same Books – students are learning to read the same way (with books)

Sight Words – students are learning to read differently because of their use of sight words

Same Sight Words – students are learning to read the same way because of their use of sight words

Phonics – students are learning to read differently because of their use of phonics

Same Phonics – students are learning to read the same way because of their use of phonics

Same Repetition - students are learning to read the same way because they learn through repetition

Finding Info with Tech – students are able to find information better using technology as a form of change in reading

Soc Nets – students are learning to read differently because of their use of social networks

Texting – students are learning to read differently because of texting

Reading – students are learning to read differently (non specific)

Same – students are learning to read the same way

Leap Frog/Leap Pad – refers to technology that can assist student learning

Songs – students are learning to read differently because of the use of songs

Codebook E

7. How if at all will the way students learn be changing in the next 5-10 years?

Tech – Mentioned how technology (non specific) will change the way students learn

Internet – Mentioned how the Internet will change the way students learn

Smartboards – Mentioned how Smartboards will change the way students learn

E-reader – Mentioned how e-readers will change the way students learn

Electronic Text – Felt that electronic text will change the way students learn

Comp – Mentioned that computers will change the way students learn

Soc Nets – Mentioned that social networks will change the way students learn

Games – Felt that students will learn differently through games (computer, online, digital)

Virtual Classroom – Felt that students may learn in virtual classrooms (with avatars)

More Competition – Felt that students have and exhibit more instances of competitive learning

Project Based – Felt that students will learn more through project based experiences

Coop Learn – Felt that students will learn more through cooperative learning experiences

Hands on – Felt that students will learn more through hands-on experiences

Visual – Felt that students will learn more through visual learning experiences

Quicker Learn – Felt that students are and will continue to learn faster than previous generations

**Tech Int – Felt that continued technology integration in the classroom will change the way
students learn**

Digital – Felt that learning will be taking on a digital form

Media – Mentioned how media will change the way students learn

Libraries – Mentioned how libraries will be changing with the technology

Codebook F

9. Why is or isn't it important for teachers and schools to be aware of and use new technologies?

**Teacher Prog – Felt that teachers need to be aware of new technologies so they can improve or
keep current on their own teaching**

Stu Prog – Felt that teachers need to be aware of new technologies so that their students can be successful

Teacher Face – The teacher may lose the respect of the student if they aren't aware of current technologies

Stu Att – Felt that teachers need to be aware of new technologies to keep student interest or attention in the classroom

Stu Engage – Felt that teachers need to be aware of new technologies to keep their students engaged in the classroom

Stu Learn – Felt that teachers need to be aware of new technologies as they are how students are learning in present times

Stu Home Exp - Felt that teachers need to be aware of new technologies as students being exposed to them in their home or settings outside the classroom

Stu Compet – Felt that teachers need to be aware of technologies so that their students can be competitive in the outside world

Prevent Cheat – Felt that teachers need to be aware of new technologies in order to prevent cheating

Stu Needs – Felt that teachers need to be aware of new technologies to support student needs

Pres/Avail – Felt teachers should be aware of what is present or available in the classroom

Codebook G

11. Do you believe that text messaging is changing the way students write?

If so, please explain in what ways.

Short Words – observe change in student use of short hand and abbreviated words

Papers – observe change in how students write papers for school

Poor Grammar – observed that students have poor grammar in their writing that they were attributing to text messaging

Poor Writing – observed that students have poor writing which they were attributing to text messaging

Poor Spell – observed a change in student writing in terms of poor spelling attributed to text messaging

No Punct – observed that students have use of punctuation in their writing that they were attributing to text messaging

Yes Personal – Felt there was and expressed a personal experience or observation of an instance

Trend – observed a change in student writing and feel that it is a current trend

College Writing – observed a change in the writing of college students attributed to text messaging

E-mails – Observed a changed in how e-mails are written attributed to text messaging

Teacher Accountability – Felt that teachers need to hold students accountable for their writing when text talk is observed

Changed Thinking – Observed a change in student writing attributed to text messaging but also a change in through processes

No – Did not feel there was a change in student writing attributed to text messaging

Let Them LOL – Felt that teachers should allow students to used text talk in their writing

13. Do students need new types of reading comprehension strategies to effectively use the internet? If so, explain what types of strategies they need.

Hyperlink – Felt that students needed new reading comprehension strategies in terms of hyperlinks

Hypertext – Felt that students needed new reading comprehension strategies in terms of hypertext

Source – Felt that students needed new reading comprehension strategies in terms of locating quality/reliable/credible sources on the Internet

Skim Skills – Felt that students needed new reading comprehension strategies in terms of skimming while reading online to just digest key points

Imp Pieces – Felt that students needed new reading comprehension strategies in terms of locating only the important pieces of information

Dictionary – Felt that students needed new reading comprehension strategies in terms of online dictionary skills

Using Avail Tools – Felt that students needed new reading comprehension strategies in terms of being able to use the tools available to them (online resources)

Inet Familiarity – Felt that students needed new reading comprehension strategies in terms of being familiar with Internet use

Understand Ability – Felt that students needed new reading comprehension strategies in terms of identifying their ability to read the information online, referred to reading level

Yes – Felt that students needed new reading comprehension strategies (non-specific)

No – Did not feel that students needed new reading comprehension strategies (non-specific)

Codebook I

14. Do teachers need to teach new reading comprehension strategies to students so that they can effectively use the Internet?

Search – felt that teachers should teach students new reading comprehension skills in terms of searching skills

Rep Source – felt that teachers should teach students new reading comprehension skills in terms of how to locate or determine reputable/credible sources

Yes – felt that teachers should teach students new reading comprehension skills (non-specific)

No – did not feel that teachers should teach students new reading comprehension skills (non-specific)

Step by Step – felt that teachers should teach students how to use the Internet each step of the way

Internet Reading – felt that teachers should teach students new reading comprehension skills on how to read online

As Needed – felt that teachers should teach students new reading comprehension skills only as needed

Safety – felt that teachers should teach students new reading comprehension skills so students can safely use the Internet

Skim Skills – felt that teachers should teach students new reading comprehension skills so that students can skim information effectively

WQ – felt that teachers should teach students new reading comprehension skills in terms of web quests

Hyperlinks – felt that teachers should teach students new reading comprehension skills in terms

of hyperlinks

Codebook J

17. Do you believe that teachers should incorporate social communications technologies into the classroom like Facebook, twitter, text messaging, etc? Please explain your ideas.

FB – They felt that Facebook should be incorporated into the classroom

Wiki – They felt that wikis should be incorporated into the classroom

Blackboard – They felt that the use of Blackboard (software) should be incorporated into the classroom

Soc Net –They felt that social networks (non specific) should be incorporated into the classroom

Text Msg – They felt that text messaging should be incorporated into the classroom

College – Felt that they social communications technologies should be incorporated but only at the college/university level

HS – Felt that they social communications technologies should be incorporated but only at the high school level

Interest – Felt that they social communications technologies should be incorporated into the classroom as they support student interests

Yes – Felt that social communications technologies (non-specific) should be incorporated into the classroom

No – Felt that social communications technologies should not be incorporated into the classroom

Vita

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PRESENTATIONS

Stonier, F., Lucking, R., Al-Hazza, T., & McKinney, S. (2012, February). *Educator perceptions of digital interactive text and new literacies*. Round table presentation at the Eastern Educational Research Association Conference, Hilton Head, SC.

- Stonier, F. & Dickerson, D. (2009, April). *Chinese sociocultural resistance to and acceptance of model science positions*. Paper presented at the American Educational Research Association Conference. San Diego, CA.
- Dickerson, D., Ndunda, M., Sickle, M., Duffy, D., Home, P., Hotchkiss, R., & Stonier, F. (2009, April). *The role of culture in students' mental models of groundwater*. Paper presented at the American Educational Research Association Conference. San Diego, CA.
- Stonier, F. (2009, March). *Literacy Assessment – Running Records, (ECI 468/568)*. Guest lecturer, Old Dominion University, Norfolk, VA.
- Stonier, F. (2009, January). *Cognitive development and differentiation in the K-6 mathematics classroom, (ECI 433/533)*. Guest lecturer, Old Dominion University, Norfolk, VA.
- Stonier, F., Chappell, S., & McKinney, S. (2008, November). *Incorporating best practices in mathematics methods courses: A comparison of teletechnet and traditional classrooms*. Paper presented at the Association for the Advancement of Computing in Education, International E-Learn Conference, Las Vegas, NV.
- Stonier, F. (2008, November) *Promoting family reading and technology literacy: Read Together, Succeed Together*. Accepted for presentation at the meeting of the College Reading Association, Sarasota, FL.
- Stonier, F. (2008, October). *Effective uses for assessment and learning in a secondary classroom, (ECI 455/555)*. Guest lecturer, Old Dominion University, Norfolk, VA.
- Stonier, F. (2008, October). *Effective strategies for teaching geography and economics in a K-6 classroom, (ECI 435/535 - Teletechnet)*. Guest lecturer, Old Dominion University, Norfolk, VA.
- Stonier, F. (2008, October). *Effective strategies for teaching geography in a K-6 classroom, (ECI 435/535)*. Guest lecturer, Old Dominion University, Norfolk, VA.
- Stonier, F. (2008, September). *Promoting safe schools and safe classrooms, (ECI 360)*. Guest lecturer, Old Dominion University, Norfolk, VA.
- Stonier, F. (2008, August) *Technology and literacy in secondary science education*. Science City Wide In-Service for Chesapeake Public Schools. Chesapeake, VA.
- Chappell, S., Stonier, F., & McKinney, S. (2008, April). *An examination and comparison of mathematics methods courses: Incorporating best practices in a technology environment*. Poster Presentation at Old Dominion University Research Expo. Norfolk, VA.
- McKinney, S., Chappell, S., & Stonier, F. (2008, March). *An examination and comparison of mathematics methods courses: Incorporating best practices in a technology environment*. Accepted for presentation at the Society for Information Technology and Teacher

Education International Conference, Las Vegas, NV.

Dickerson, D., Stonier, F., Hotchkiss, R., & Horne, P. (2007, November). *Tablet computers: Exploring the possibilities*. Workshop at the North Carolina Science Teachers Association Conference, Greensboro, NC.

Dickerson, D., Stonier, F., Hotchkiss, R., & Horne, P. (2007, November). *Using the Tablet PC in science class*. Workshop at the Virginia Association of Science Teachers Conference, Williamsburg, VA.

Stonier, F. (2007, October). *Virtual manipulatives in the classroom*. Workshop at the Tidewater Council of Teachers of Mathematics Conference, Chesapeake, VA.

Lucking, R., Perron, N., & Stonier, F. (2007, October). *Prospective and practicing teachers' Internet savvy: The Pew studies recast*. Paper presented at the meeting of the American Association of Teaching Curriculum. Cleveland, OH.

Stonier, F. (2007, July). *Effective strategies for teaching geometry in a K-6 classroom, (ECI 433/533)*. Guest lecturer, Old Dominion University, Norfolk, VA.

GRANTS APPLIED FOR

Teacher Quality Grant, *Virtual Georgia Explorers*, 2011

Verizon Foundation Literacy Grant, *Promoting Family Reading and Technology Literacy: Read Together, Succeed Together*, 2008.

Dollar General Youth Literacy Grant, *Book Buddies Day*, 2007.

AWARDS AND CERTIFICATIONS

Postgraduate Professional License in the Commonwealth of Virginia, Effective July 1, 2007 to June 30, 2012, License Number: PGP-0618540

Phyllis V. Roberts Scholarship, Chesapeake Reading Council, 2007.

PROFESSIONAL DEVELOPMENT

Service

UWG Preview Day, April 2012

UWG Green Committee, Member, Head of Green Energy Initiatives, Fall 2011-Present

UWG Faculty Development Mentoring and Retention Committee, Member, Fall 2011-Present

UWG Disciplinary Appeals Committee, Member, Fall 2011-Present

UWG Preview Day, November 2011

Family Feud for Saint Jude Sponsored by Sigma Gamma Rho Sorority, Invited Guest Participant, November 2011

Volunteer for the 26th Annual Great Computer Challenge, sponsored by WHRO, Norfolk, VA, May 2011

Judge for Norfolk Public Schools 7th Annual Science Fair, February 2011

Reviewer for School Science and Mathematics Journal, Fall 2010

Judge for Norfolk Public Schools 6th Annual Science Fair, February 2010

Judge for Norfolk Public Schools 5th Annual Science Fair, February 2009

Educational Graduate Organization, Vice President, Old Dominion University, 2007-2008.

Portlock Primary Social Studies Representative, Chesapeake Public Schools, Chesapeake, VA, 2005-2007.

Mentor teacher, Portlock Primary, Chesapeake Public Schools, Chesapeake, VA, 2006-2007.

Parent and Community Involvement Action Team, Portlock Primary, Chesapeake Public Schools, Chesapeake, VA, 2006.

Instructional Planning Committee, Portlock Primary, Chesapeake Public Schools, Chesapeake, VA, 2004-2006.

Continuing Education & Training

CITI Training: Social and Behavioral Responsible Conduct of Research Curriculum, Completed 3/12/12

University of West Georgia ITS Training: Open Text (Beginner), Completed 11/2/11

University of West Georgia ITS Training: Remote Desktop, Completed 9/8/11

University of West Georgia Faculty Trainings: Ethics, Comprehensive Loss Control, Motor Vehicle Safety, and Right to Know, Completed 8/2/11

CHIN 111F Beginning Chinese (audit), Old Dominion University, Fall 2009.

Tidewater Writing Project, Old Dominion University, Summer 2004.

Software Programs and Special Technologies

Microsoft Office 95, 98, 2000, XP, Vista, Windows 7 (Word, PowerPoint, and Excel), SPSS, Blackboard, Tablet PC, SMART Board, Basic Web Design

Current Affiliations

Eastern Educational Research Association

COLLEGE TEACHING EXPERIENCE

Spring 2012 Integrating Curriculum, Instruction, and Classroom Management for Pre K-5 Classrooms (ECED 3721 – 03), University of West Georgia, Instructor

Spring 2012 Integrating Curriculum, Instruction, and Classroom Management for Pre K-5 Classrooms (ECED 3721 – 02), University of West Georgia, Instructor

Spring 2012 Teaching Content and Process: Social Studies (ECED 4261 – 01), University of West Georgia, Instructor

- Spring 2012 Practicum III, Supervision (ECED 4284 – 04), University of West Georgia, Supervising Professor
- Fall 2012 Integrating Curriculum, Instruction, and Classroom Management for Pre K-5 Classrooms (ECED 3721 – 04), University of West Georgia, Instructor
- Fall 2012 Teaching Content and Process: Social Studies (ECED 4261 – 02), University of West Georgia, Instructor
- Fall 2012 Teaching Content and Process: Social Studies (ECED 4261 – 01), University of West Georgia, Instructor
- Summer 2011 Developmental and Instructional Strategies for PK-6 Social Studies (TLED 435/535), Old Dominion University, Instructor - Teletechnet Course
- Summer 2011 Classroom Management and Discipline (TLED 360), Old Dominion University, Instructor
- Spring 2011 Classroom Management and Discipline (TLED 360), Old Dominion University, Instructor
- Spring 2011 Developmental and Instructional Strategies for PK-6 Social Studies (TLED 435/535), Old Dominion University, Instructor - Teletechnet Course
- Spring 2011 Developmental and Instructional Strategies for PK-6 Social Studies (TLED 435/535), Old Dominion University, Instructor
- Fall 2010 Classroom Management and Discipline (TLED 360), Old Dominion University, Instructor
- Fall 2010 Developmental and Instructional Strategies for PK-6 Social Studies (TLED 435/535), Old Dominion University, Instructor - Teletechnet Course
- Fall 2010 Developmental and Instructional Strategies for PK-6 Social Studies (TLED 435/535), Old Dominion University, Instructor
- Fall 2010 Integrating Early Childhood Literature, Language Arts, and Social Studies Across the Early Childhood Curriculum (TLED 593), Old Dominion University, Instructor
- Summer 2010 Classroom Management and Discipline (ECI 360), Old Dominion University, Instructor - Two Sections: 31831 & 32593
- Summer 2010 Developmental and Instructional Strategies for PK-6 Social Studies (ECI 435/535), Old Dominion University, Instructor - Teletechnet Course

- Summer 2010 Reading and Writing in the Content Areas (ECI 408), Old Dominion University, Instructor
- Spring 2010 Developmental and Instructional Strategies for PK-6 Social Studies (ECI 435/535), Old Dominion University, Instructor - Teletechnet Course
- Spring 2010 Classroom Management and Discipline (ECI 360), Old Dominion University, Instructor - Three Sections: 21214, 21575, & 30389
- Fall 2009 Developmental and Instructional Strategies for PK-6 Social Studies (ECI 435/535), Old Dominion University, Instructor - Teletechnet Course
- Fall 2009 Developmental and Instructional Strategies for PK-6 Social Studies (ECI 435/535), Old Dominion University, Instructor
- Summer 2009 Developmental and Instructional Strategies for PK-6 Social Studies (ECI 435/535), Old Dominion University, Instructor - Teletechnet Course
- Summer 2008 Science Technology English, (四川师范大学) Sichuan Normal University - Chengdu, China, Instructor
- Spring 2008 Developmental and Instructional Strategies for PK-6 Social Studies (ECI 435/535), Old Dominion University, Instructor - Teletechnet Course
- Fall 2007 Developmental and Instructional Strategies for PK-6 Social Studies (ECI 435/535), Old Dominion University, Instructor - Teletechnet Course

PUBLIC SCHOOL TEACHING EXPERIENCE

- 2003-2007 Portlock Primary, Second Grade Teacher, Chesapeake Public Schools, Chesapeake, VA. – Title 1 School
- 2002-2003 Norfolk Highlands Primary, Second Grade Teacher, Chesapeake Public Schools, Chesapeake, VA. – Title 1 School
- 2002 Butts Road Primary/Deep Creek Central Elementary, Second Grade Summer School Teacher, Chesapeake Public Schools, Chesapeake, VA.
- 2002 Greenbrier Intermediate, Long-term Substitute Teacher, Chesapeake Public Schools, Chesapeake, VA.

OTHER WORK EXPERIENCE

- Fall 2008 Recruiter for Old Dominion University Field Based Graduate Program, Master's in Education with Reading Specialist Endorsement, and Master's in Education with Math Specialist Endorsement.
- Summer 2008 English Instructor for Longre English Training Center. Ke Hua Bei Lu and Ba Bao Jie locations – Chengdu, China.
- Spring 2008 Recruiter for Old Dominion University Field Based Graduate Program.
- Summer 2007 ODU Tidewater Writing Project Writing Camp Site Director/Instructor, Old Dominion University, Norfolk, VA.
- Summer 2006 ODU Tidewater Writing Project Writing Camp Instructor (ages 11-17), Old Donation Center, Virginia Beach, VA.
- 2002-2006 After School Remediation Tutor, Portlock Primary, Chesapeake Public Schools, Chesapeake, VA.

REFERENCES

- Dr. Daniel Dickerson**, Associate Professor of Science Education, Old Dominion University, Norfolk, VA 23529. Tel. (757) 683-4676, E-mail: DDickers@odu.edu
- Dr. Robert Lucking**, Professor, Teaching and Learning, Old Dominion University, Norfolk, VA 23529. Tel. (757) 683-5545, E-mail: RLucking@odu.edu
- Dr. Sueanne McKinney**, Associate Professor of Mathematics Education, Old Dominion University, Norfolk, VA 23529. Tel. (757) 683-4917, E-mail: SMcKinne@odu.edu