Professional development practices in literacy and technology integration at socioeconomically different schools

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PROFESSIONAL DEVELOPMENT PRACTICES IN LITERACY AND TECHNOLOGY
INTEGRATION AT SOCIOECONOMICALLY DIFFERENT SCHOOLS

A Dissertation

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The Faculty of the School of Education

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Doctor of Philosophy

by
Kendra M. Boykin
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PROFESSIONAL DEVELOPMENT PRACTICES IN LITERACY AND TECHNOLOGY INTEGRATION AT SOCIOECONOMICALLY DIFFERENT SCHOOLS

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DEDICATION

To my husband. Thank you for helping me believe in myself.
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PROFESSIONAL DEVELOPMENT PRACTICES IN LITERACY AND TECHNOLOGY INTEGRATION AT SOCIOECONOMICALLY DIFFERENT SCHOOLS

ABSTRACT

Socioeconomically disadvantaged and African American students consistently perform lower on literacy assessments that measure reading and writing achievement than their dominant culture peers. The changing nature of literacy itself is making this literacy problem even more challenging. Competencies for interacting in digital contexts, identified as new literacies, are necessary to effectively read, write, and communicate using the Internet and other information and communication technologies [ICTs]. According to extant literature, African Americans and socioeconomically disadvantaged students are more likely than their dominant culture peers to use digital technologies to build traditional literacy (Au, 2006; Harwood & Asal, 2007).

Teachers have an important role in providing all students with the technological experiences that will allow them to be literate in the 21st century (IRA, 2009). The changing nature of literacy underscores the importance of professional development for literacy and technology integration (Karchmer, 2001; Watts-Taffe & Gwinn, 2007). The purpose of this study was to understand how and why teachers may engage students from a socioeconomically disadvantaged school with a predominately African American student population in different digital technological literacy experiences than students from a more socioeconomically advantaged school with a large percentage of African American students. The study focused especially on the roles professional development may play in creating students’ inequitable experiences with new literacies.
Examined through the lens of Kincheloe and McLaren's (2005) recontextualized critical theory: hegemony and ideology, this research study discovered educational practices, including professional development about literacy and technology integration, that have possible roles in reproducing inequalities in education.
CHAPTER ONE: THE PROBLEM

More than half of the nation’s African American and socioeconomically disadvantaged twelfth grade students have trouble reading (National Center for Education Statistics [NCES], 2009). Almost 80% of White and socioeconomically advantaged twelfth grade students do not experience the same difficulties; they have essential literacy knowledge. Unfortunately, these trends are reflected similarly across fourth and eighth grade reading levels, and have remained comparatively unchanged since 1992 (Grigg, Donahue, & Dion, 2007).

Early literacy experiences in kindergarten, first and second grade are crucial for building the foundation for reading and writing proficiency in later school years (Adams, 1990; Snow, Burns, & Griffin, 1998). However, as the recent The Nation’s Report Card (National Center for Education Statistics, 2009) demonstrates, African American and socioeconomically disadvantaged students are not appropriately developing these skills and abilities. Poor students and students of color consistently perform lower on literacy assessments that measure reading and writing abilities than their dominant culture peers. According to the Report Card, 52% of fourth grade African American students and 49% of socioeconomically disadvantaged students are reading below the basic level. These students may be able to read, but not well enough to demonstrate minimum competencies required to understand the purposes of text, make connections between text and personal experiences, make inferences, and identify details (National Assessment Governing Board, 2006). These deficiencies are not as common in the dominant culture; only 22% of White students and 20% of socioeconomically advantaged
students are reading below basic levels (NCES, 2009). This disparity in reading achievement is also evident on other literacy measures. African American and socioeconomically disadvantaged students perform significantly lower than their White and economically advantaged peers on standardized assessments such as the Iowa Test of Basic Skills, the Stanford Achievement Test and non-standardized portfolio assessments (Teale & Gambrell, 2007).

These results raise important questions. Why are there large differences in literacy achievement among certain racial and economic groups? Does instruction differ for African American and White students or for students from different economic backgrounds? Are educators adequately helping all students in the early grades to develop sufficient literacy knowledge? If so, then why are many African American and socioeconomically disadvantaged students performing so poorly in reading throughout their school careers? One answer to these questions is that the low reading achievement of African American and socioeconomically disadvantaged students results from inequitable educational opportunities and experiences (Darling-Hammond, 2007b; Ladson-Billings, 2008). All students are not provided with quality educational experiences that will help them to develop proficiency in literacy.

The changing nature of literacy itself is making this literacy problem even more challenging. Literacy has been, and will continue to be, shaped by historical and social contexts. However, as information and communication technologies (ICTs)—technologies used to retrieve or communicate information such as email, word processing programs, and the Internet (Leu, 2000; Coiro, Knobel, Lankshear, & Leu, 2008)—change and individuals create new ways of using these technologies for communication, so will the nature of literacy evolve (Bruce, 1997; Gitelman, 1999; Warschauer, Knobel, & Stone, 2004). As a result, literacy is deictic—that
is, its definition will continuously be redefined as new technologies for information and communication are created and used (Coiro et al., 2008; Kinzer & Leander, 2003). This interplay between digital ICT access and literacy portends “the new print literacies of the 21st century...Those who cannot access and effectively use new technologies are hampered in ways similar to those people who could not read in an earlier era” (Warschauer & Ware, 2008, p. 228). Therefore, not only should individuals have access to digital technologies; they need to have the knowledge and skills to effectively retrieve, apply, and communicate information in digital contexts, as well as with traditional print resources. Traditional print literacies will continue to be important regardless of how much digital technologies change the ways that we read, write and communicate. They provide the foundation from which other literacies are developed. However, the “new literacies” needed to communicate in digital contexts will become central to the employable and literate person in this technological age (Leu & Kinzer, 2000; Valmont, 2003).

This chapter will define new literacies, explain the significance of digital technologies in 21st century employment, and situate new literacies within the literacy curriculum. Following these sections will be a discussion of teachers’ roles in facilitating the development of new literacies, and current inequities with new literacies experiences. A discussion of these topics will lead to the focus of this proposed study— the probability that current professional development practices may prevent African American and/or socioeconomically disadvantaged students from engaging in equitable experiences with digital technologies, thus inhibiting the development of new literacies.
Digital Technologies and 21st Century Employment

Digital technologies are changing the types of jobs available in the workforce. The blue-collar manufacturing jobs of the Industrial Age are giving way to the white-collar technology-based jobs of information societies (Mikulecky & Kirkley, 1998; RAND Reading Study Group [RRSG], 2002). In addition to the changing nature of work, world economies are becoming more competitive on a global scale. This economic competition is requiring higher levels of literacy from employees that have not been required in the past (Graves, Juel, & Graves, 1998; Leu & Kinzer, 2000; RRSG), underscoring the importance of using digital technologies to access and communicate information (Leu & Leu, 1997; Mikulecky & Kirkley; Richards & McKenna, 2003).

The rapid creation of digital technologies and the influence of those technologies on employment and literacy skills highlight the importance of using the Internet and other ICTs in education. In order for the United States to remain competitive in the Information Age, and “maintain its position as a member of the global information elite” (Harwood & Asal, 2007, p. 96), today’s students must receive experiences in school that will prepare them for active participation in this global economy (Mikulecky & Kirkley, 1998; Morrow, Barnhart, & Rooyakkers, 2002). Academic and economic success will no longer rest on print-based literacy competencies (Castek, Bevans-Mangelson, & Goldstone, 2006; Harwood & Asal; Leu & Kinzer, 2000).

Traditional Literacy and New Literacy Expectations

Traditional notions of literacy encompass a multitude of skills such as reading, writing, and communicating using print resources (Leu, Kinzer, Coiro, & Cammack, 2004; Paterson,
Henry, O’Quin, Ceprano, & Blue, 2003). However, by focusing solely upon the traditional definition of literacy to plan and implement instruction, educators are not preparing students for the new literacies of the future; they are preparing students for literacies of the past (Baker, 2001). Thus, students will not be fully literate if instruction is restricted to the literacy skills needed to read, write and communicate using only print-based materials such as books, paper, and pencils (International Reading Association[IRA], 2009; Kinzer & Leander, 2003; Merchant, 2007). Print-based literacy is characterized by skills such as decoding—word recognition, vocabulary knowledge, word pronunciation, and letter-sound relationships—using context clues to understand the meanings of words, accessing background knowledge to understand the written word, understanding sentence structures, and demonstrating comprehension (Honan, 2008; Walsh, 2006).

New technologies form multimedia, interactive, hyperlinked and nonlinear digital literacy environments. Digital texts—words, multimedia aspects including images, video, and sound, and hyperlinks—are screen-based and malleable (McKenna, Labbo, & Reinking, 2003). This is in dramatic contrast to traditional print-based resources that are paper-based, have finite sets of text, are not malleable, and offer limited visual components such as static pictures (Mackey, 2007; Tierney, Bond, & Bresler, 2006; Smolin & Lawless, 2003).

Understanding the printed word is only one of the competencies needed to interact with digital texts (Walsh, 2006). For example, the decision to click on text or a picture displayed on a screen requires different comprehension strategies than those used for print because there are usually fewer context clues in the text to indicate where the hyperlinks will lead. Students need to know how to purposefully choose hyperlinks to navigate among multiple sets of information.
without becoming distracted. In addition, the expansive amount of information published on the Internet requires students to know how to search and find information quickly, critically evaluating the validity and applicability of the information located. Students also have to interpret multimedia effects and understand their connections to the text. Multimedia may be hyperlinked as well, which requires students to synthesize the information presented in both textual and multimedia forms. Lastly, students need to know how to effectively communicate with others using Internet-based multimedia and other ICTs (Coiro & Dobler, 2007; Johnson, 2009; Warschauer, 2003). As illustrated, the skills and strategies characteristic of print-based literacy cannot be simply applied to digital texts. Competencies for interacting in digital contexts, identified as “new literacies,” will provide students with the knowledge and dispositions to effectively read, write, and communicate using the Internet and other ICTs.

This section defined new literacies operationally by differentiating between print-based and digital texts, describing and providing examples of how students need to function within digital contexts. The following paragraphs will further define new literacies theoretically, situating them within the underlying perspectives that have led to the development of this concept.

New Literacies Definitions and Perspectives

“New literacies” is a broad term, encompassing other terms such as digital literacies, new media literacies, 21st century literacies, information literacy, and multiliteracies (Coiro et al., 2008). The following definition provides a guide for understanding the complexity of the concept:
The new literacies of the Internet and other 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 of our personal and professional lives. These new literacies allow us to use the Internet and other ICTs to identify important questions, locate information, analyze the usefulness of that information, synthesize information to answer those questions, and then communicate the answers to others (Leu, Kinzer, et al., 2004, p. 1570).

Multiple theories regarding new literacies have been developed in fields such as cultural anthropology, sociolinguistics, cognitive science, and information science (Castek et al., 2007; Coiro et al., 2008). These theories have analyzed the changes to literacy in their respective disciplines, informing the new literacies perspective. This perspective, developed by literacy researchers, recognizes that new literacies are more expansive and complex than traditional print literacy, requiring new literacy strategies and dispositions to effectively read, acquire knowledge, and communicate with others using ICTs and the Internet (Leu, Kinzer, et al., 2004).

The new literacies perspective is based on four assumptions: 1) the strategies and dispositions for using ICTs are different from those for traditional print literacy, 2) new literacies are necessary in order for individuals to participate in a global community civically, economically and personally, 3) new literacies are constantly being redefined, and 4) new literacies are complex (Leu, Kinzer, et al., 2004; Richards & McKenna, 2003). The new literacies perspective also recognizes that the Internet is central to the creation of new literacies because it provides a platform for the quick dissemination of new technologies for information
and communication. The rapid spread of technologies by the Internet will require individuals to continuously develop new literacies well into the future (Castek et al., 2007; Coiro et al., 2008).

Unlike traditional literacy, new literacies cannot be defined as a finite set of skills. Rather, literacy must be redefined on a continual basis as new digital technologies emerge (Coiro et al., 2008; Leu, Kinzer, et al., 2004). Currently, new literacies include a variety of skills and abilities such as understanding and critically evaluating information on the Internet, reading information in a non-linear manner, working collaboratively with others using technology, using multimedia to achieve different purposes, using search engines to find specific information, sending and receiving e-mail, sharing information, and using word processors and presentation software to communicate with others (Kara-Soteriou, Zawilinski & Henry, 2007; Leu, Mallette, Karchmer, Kara-Soteriou, 2005).

The technological nature of our society is making digital technologies a curriculum issue (Ornstein & Hunkins, 2004). Literacy, technology, and literacy instruction have always had an interconnected history in which changes in technology influenced occurrences in the literacy classroom (Karchmer, 2001; Leu & Kinzer, 2000). According to the IRA (2009), digital technologies should be integrated into the literacy curriculum to facilitate the acquisition of new literacies competencies. The following list paraphrases key points from the IRA position statement regarding students’ acquisition of new literacies. The IRA posits that students have the right to:

- teachers who know how to effectively use ICTs for instruction and learning.
- opportunities to read, write, create and share collaboratively with students from other countries.
• instruction that develops critical literacies with print and digital sources.
• state reading and writing standards and assessments that incorporate new literacies.
• equal access to ICTs in the classroom.

Students must engage in the wide variety of experiences that reflect how we read and write in today’s society (Castek et al., 2006). The new communication and critical thinking skills that digital technologies require must be addressed by literacy teachers (Kinzer, 2003). Therefore, the new “genre” of digital texts (Johnson, 2009, p. 360) should be cultivated within the context of the literacy curriculum in order to prepare students for future literacy expectations (Zawilinski, 2009).

Although it may be difficult to predict the literacies today’s students will need upon graduation (Leu & Leu, 1997; Leu, 2000), literacy researchers agree that early experiences with the Internet and other ICTs in school are crucial for the development of the knowledge and skills students will need for future literacy work (Castek et al., 2006; IRA, 2009; Karchmer-Klein & Layton, 2006). While some educators may have reservations about using technologies with young students, it is generally agreed that these resources should be a part of the early literacy curriculum (McKenna et al., 2003). Hansen (2008) emphasized the shift toward new literacies experiences for today’s students by stating, “researchers and practitioners have changed the question, ‘Should technology be integrated into early literacy instruction?’ to ‘How can early literacy instruction be enhanced with technology in the best interests of beginning readers and writers?’” (p. 109). Teachers must be cognizant of new literacies practices and provide opportunities for students to develop these competencies in school (Johnson, 2009; Leu, Kinzer, et al., 2004, Marsh, 2007).
Digital Technologies and the Role of the Teacher

Teachers cannot leave it to chance that students will develop new literacies competencies on their own, especially since equal access to digital resources is not guaranteed to individuals outside of the school environment. Socioeconomically disadvantaged students are less likely than their economically advantaged peers to have access to digital technologies at home or in the community (Attewell & Winston, 2003; U.S. Census Bureau, 2007). In addition, even though students may have access to the Internet and other ICTs on a regular basis, they may not have acquired the competencies needed for proficiency in reading, writing, and communicating in digital contexts (Ba, Tally, & Tsikalas, 2002). Schools may be the only place where many students have opportunities to acquire these new literacies (Castek et al., 2006).

In addition, new literacies, which build upon print-based literacies (Leu, Castek, Henry, Coiro, & McMullan, 2004), will be a challenge for students with lower-level print experience to acquire independently if classroom opportunities for that development are not readily available (Attewell & Winston, 2003; Castek et al., 2007; Leu, Kinzer, et al., 2004). Many struggling readers focus on the multimedia aspects of digital technologies, such as images and sounds, because they have difficulty reading and interpreting text. Without teacher guidance, students can focus on superficial and recreational aspects of texts (Attewell & Winston). This may lead students to expect to be entertained by these resources rather than using them in educationally challenging ways (Ornstein & Hunkins, 2004).

Therefore, teachers have an important role in providing all students, including those with lower scores on traditional literacy assessments, with the technological experiences that will allow them to be successfully literate in the 21st century (Castek et al., 2006). Teachers “are not
educating [students] to assume their role as literate, global citizens in the 21st century” (Selfe & Selfe, 2008, p. 86) when opportunities to engage in new literacies practices are not provided. Not all students have equitable opportunities to acquire the new literacies, preventing some from becoming literate citizens of our increasingly technological society (Harwood & Asal, 2007; Swenson, Young, McGrail, Rozema, & Whitin, 2006). Many who do not have the opportunities to develop new literacies are the same students who have historically been marginalized in our educational system.

Inequities in Digital Technologies Use

The vast majority of students who attend U.S. public schools have access to digital technologies, including computers and Internet access, regardless of racial or socioeconomic background (Gray, Thomas, & Lewis, 2010). However, introduction of these technologies have “amplified existing forms of inequity” (Warschauer et al., 2004, p. 584). Although students have access to technology, some groups are not adequately engaged in technological experiences that will develop new literacies. Teachers of African American and socioeconomically disadvantaged students, for example, are more likely to use CAI, primarily in the form of drill-and-practice remedial software programs, whereas teachers of White and more socioeconomically advantaged students are more likely to use technology to facilitate higher-level thinking and the development of new literacies, such as researching information on the Internet and creating presentations (Becker, 2000; Harwood & Asal, 2007; Judge, Puckett, & Cabuk, 2004).

Although poorer students and students of color have access to technology in school, this does not necessarily lead to equitable learning experiences. Using drill-and-practice programs to the exclusion of other Internet and ICT experiences will not develop new literacies (Cohen,
2005; Labbo, Reinking, & McKenna, 1998). Currently, African Americans and socioeconomically disadvantaged students are more likely than their dominant culture peers to use digital technologies to build traditional literacy. Such differential use of technology based on race and socioeconomic status is likely to widen the literacy achievement gap and inadequately prepare African American and socioeconomically disadvantaged populations for the literacies needed in this increasingly global society (Au, 2006; Castek et al., 2007; Heeren, 2007; Sutherland-Smith, 2002).

These interconnected issues raise an important question: How should educators address these disparities? Teachers have significant influence over how technology is integrated into the literacy curriculum (Harwood & Asal, 2007; Judge, 2005; Labbo & Reinking, 1999). However, understanding the importance of new literacies development may be difficult, especially when many school divisions' implementations of The No Child Left Behind Act (NCLB) emphasize the importance of traditional print-based literacy. Currently, high-stakes assessments only measure the reading and writing skills needed to communicate in a print environment. As a result, there is an increased focus on a standardized curriculum, pacing guides that dictate what, how, and when content should be taught, and specific attention paid to the tested content (Cowan, 2008; Kozol, 2005). Therefore, print-based literacy skills receive primary attention in schools that largely educate African American and socioeconomically disadvantaged students, while de-emphasizing using technology to acquire new literacies (Coiro et al., 2008; Tierney et al., 2006; Warschauer & Ware, 2008).

Although schools primarily focus on teaching the specific literacy skills deemed important by NCLB, student achievement in the area of reading has not improved (Dee & Jacob,
2009). As Castek (2007) and her colleagues asserted, “it is the cruelest irony of No Child Left Behind that students who need to be prepared the most at school for an online age of information, are precisely those who are being prepared the least” (Castek et al., p. 36). Educators must begin to focus on how they will prepare all students for the new literacies of the 21st century while ensuring that they have the skills to be successful on high-stakes assessments (Barone & Wright, 2008; Schoen & Fusarelli, 2008; Thomson, Nixon, & Comber, 2006). Focusing exclusively on print-based literacy for certain student populations when others have new literacies experiences in school reflects inequitable educational practices.

**New Literacies and Hegemonic Practices**

Although the current literature on literacy and technology suggests the importance of helping students to develop new literacies in school (e.g., Coiro et al., 2008; Leu & Kinzer, 2000; McKenna et al., 2003), teachers may be reluctant to integrate more advanced uses of digital technologies into the curriculum because research in the area of ICT and academic achievement has not yet been explored extensively, especially in the area of literacy (Coiro, 2005b; Karchmer-Klien & Layton, 2006; Moje, 2009). However, as stated previously, teachers of White and socioeconomically advantaged students are more likely than teachers of African American and socioeconomically disadvantaged students to engage their students in new literacies practices. This phenomenon raises some additional issues. Why are White and socioeconomically advantaged students more likely to be asked to engage in these activities, despite the lack of an extensive research base? We, as educators, encourage the hegemonic structure of schools when decisions regarding technology use may be influenced by students’ race and socioeconomic status.
Hegemony occurs when actions and ideologies are used in ways that marginalize others (Kincheloe & McLaren, 2005). Specifically, hegemony occurs in schools when students from different racial or socioeconomic backgrounds have qualitatively different educational experiences (Kanpol, 1999). Currently, White and economically advantaged students are provided with more opportunities to use digital technologies in school that will advance new literacies knowledge; African American and socioeconomically disadvantaged students are using digital technologies to practice print literacies primarily (Coiro et al., 2008; Harwood & Asal, 2007). If current educational practices persist, our schools will create two groups of individuals with very different knowledge and skills. One group will consist of White and economically advantaged students proficient in both traditional literacy skills and the new literacies. The other group will be comprised of African American and poor students with weaknesses in traditional literacy and an absence of new literacies (Leu, Kinzer, et al., 2004). Swenson et al. (2006) posit:

when frequent access to newer technologies and to the teachers who have the knowledge, skills, and disposition to integrate these technologies into their pedagogy follow racial and/or class lines, the situation threatens to widen the gap between privileged and marginalized student populations (p. 365).

This division of knowledge should not continue if we believe that all students deserve to be literate in this digital age. Not only do students need access to digital technologies; they also need access to teachers who have the knowledge to integrate technology effectively for the development of new literacies. Professional development is instrumental in providing teachers with the knowledge, skills, and dispositions to effectively integrate use of digital technologies into new literacies instruction (Coiro 2005a; Watts-Taffe & Gwinn, 2007). Unfortunately, a lack
of appropriate teacher professional development in new literacies may contribute to inequitable practices in schools.

Digital Technologies and Teacher Professional Development

The changing nature of literacy underscores the importance of professional development for literacy and technology integration (Karchmer, 2001; Watts-Taffe & Gwinn, 2007). New literacies are needed for reading, writing, and communicating in digital environments. Therefore, digital technologies should not be used to support the development of only traditional print-based literacy skills. Teachers need to use these resources in ways that extend beyond drill-and-practice and game-like programs, allowing students to develop the new literacies needed in non-linear, multimedia, interactive and hyperlinked digital environments (Sutherland-Smith, 2002; Valmont, 2003).

For teachers to use technology appropriately to assist students’ acquisition of new literacies, they must have acquired requisite new literacies knowledge, and know how to best select and use digital resources in order to effectively integrate technologies into classroom practice (Solomon, 2002). Teachers with limited knowledge of new literacies and the roles digital technologies play in the literacy curriculum are less likely to engage their students in practices that will develop new literacies and more likely to continue to use digital technologies to support traditional literacy skills (Watts-Taffe & Gwinn, 2007). Therefore, teachers need to engage in professional development experiences that will help them to develop competencies in the uses of digital technologies to support the development of new literacies (Scott & Mouza, 2007; Schmidt & Gurbo, 2008).
Teacher knowledge is instrumental in influencing how students use digital technologies in school (Brinkerhoff, 2006). Professional development has been shown to be an effective means for improving teachers' digital technologies competence, changing attitudes and beliefs toward technology integration, and improving integration expertise (Scott & Mouza, 2007). However, assumptions cannot be made regarding the quality of their professional development experiences. Professional development that lacks a focus on content and pedagogy, hands-on experiences, innovative uses, content-specific examples, collaboration, accountability for participating, creating and implementing lessons are likely to result in limited changes to teacher knowledge and practice (Brinkerhoff; Scott & Mouza). An absence of quality professional development often leads teachers to use digital resources in non-innovative ways that will not develop new literacies, because they do not know how to use these technologies effectively in other ways (Labbo et al., 1998; Scott & Mouza; Turbill, 2001). Unfortunately, this lack of teacher knowledge often results in students using digital technologies to practice basic skills rather than to acquire skills beyond basic knowledge (Watts-Taffe & Gwinn, 2007), which may lead to teaching practices that reflect hegemonic inequities.

The relationship between professional development and students' uses of technology also leads to an additional question, especially when considering that many African American and socioeconomically disadvantaged students use digital technologies differently than their dominate culture peers (Harwood & Asal, 2007) and taking into account that teacher professional development has a large influence on how students use technology in the classroom (Scott & Mouza, 2007): Are teachers of traditionally oppressed student groups more likely to participate in fewer high-quality new literacies-related professional development experiences than teachers
of dominant culture students? This question warrants further critical exploration to uncover whether teacher participation in new literacies-focused professional development contributes to teaching practices that reflect hegemonic inequities in student digital technologies use for the development of new literacies. The following sections will overview the research focus, questions, and methods used in this study to explore this issue.

Paradigm and Perspective

This study is grounded in critical theory, which analyzes injustices in society (Kincheloe & McLaren, 2005). Examining new literacies practices through a critical lens is important because African American and socioeconomically disadvantaged students have historically been oppressed through inequitable educational practices. Unfortunately, these inequitable practices are continuing with the advent of digital technologies. This study explored an aspect of unequal power structures in access to new literacies instruction that may continue to marginalize African American and socioeconomically disadvantaged students socially, economically, and educationally unless teachers begin to use more equitable practices in schools (Warschauer & Ware, 2008).

Paradigms encompass researchers’ specific axiological, epistemological, ontological, and methodological beliefs, serving as “interpretive frameworks” by influencing research questions and guiding interpretation of data generated (Denzin & Lincoln, 2005, p. 22). Rossman and Rallis (2003) identify critical realism as one of the predominant paradigms in qualitative research. It frames exploration of issues of power that are deeply embedded in society.

A concept related to paradigms is perspective. In essence, a study’s perspective is the researcher’s epistemology. Epistemology consists of the researcher’s beliefs about how the world
should be examined, and the perceived relationship between the researcher and what is to be explored (Denzin & Lincoln, 2005). As a result, the perspective presupposes the "criteria, assumptions, and methodological practices" (Denzin & Lincoln, p. 183) for examining a particular area of inquiry within a paradigm. For this study, Kincheloe and McLaren's (2005) critical theory: hegemony and ideology perspective was central to exploring the relationships among socioeconomic status, race and education. A grounded theory research strategy (Charmaz, 2005) helped me to explore, discover and create understanding of oppressive structures relating to digital technologies use in the literacy curriculum.

Purpose of the Study

The purpose of this study was to understand how and why teachers may engage students from a socioeconomically disadvantaged school with a predominately African American student population in different digital technological literacy experiences than students from a more socioeconomically advantaged school with a large percentage of African American students. The study focused especially on the roles professional development may play in creating students' inequitable experiences with new literacies.

Research Questions

The overarching research question for this study was as follows: Can disparities in digital technology use for the development of new literacies be attributed, in part, to the nature of professional development experiences? If so, how and why?

In addition, when comparing teachers at a socioeconomically disadvantaged school with a predominately African American student population to a more socioeconomically advantaged school with a large percentage of African American students:
1) What are the teachers' professional development experiences for technology integration? How, if at all, do they differ?

2) How, if at all, do the nature and/or levels of information and communication technology integration in the literacy curricula for the two teacher groups differ?

3) What are teachers' expressed reasons for integrating technology in the literacy curriculum? How, if at all, do these perceptions differ between the two teacher groups?

Role of the Researcher

The grounded theorist plays an active role in developing theory by generating data, developing and relating data analysis, and writing theoretical propositions. The process is reflexive—the researcher interprets the data through her own world view. As a result, data analysis is dependent on the researcher's interpretation of the data rather than an explanation of the data itself (Charmaz, 2005; Strauss & Corbin, 1994). Because my personal beliefs influenced the design and context of this study and influenced data interpretation, the “researcher as instrument statement,” introduced in Chapter 3 and included in Appendix A, details my feelings, thoughts, and perceptions that led to the decision to undertake this study. Furthermore, data analysis was influenced by my personal beliefs, experiences in the field, and reflection on previous research. Therefore, it was important to record methodological decisions and reflections that led to data analysis decisions. A reflexive journal (Lincoln & Guba, 1985) was employed to make my data analysis procedures transparent. In addition, it was also a means for me to continue reflections on my values and interests related to the study, and reflect on why those insights were staying the same or changing as the research progressed.
Methods

This grounded theory study examined teachers’ technology integration practices in the literacy curriculum and their professional development experiences, comparing and contrasting the collective experiences of teachers across schools with different student populations. Procedures for data generation included interviews, observations, and examination of material culture.

The sample consisted of teachers from two schools with different student populations. One school has a majority population of African American and socioeconomically disadvantaged students. The other school has a large population of African American students, with a majority from more socioeconomically advantaged homes. Six teachers from the socioeconomically disadvantaged school, eight teachers from the more socioeconomically advantaged school, and two individuals from central office—a total of sixteen participants—participated in the study. Each school sample consisted of kindergarten, first and second grade teachers. In addition, the technology specialists, library media specialists, and the computer lab teacher (at the more socioeconomically advantaged school) participated in the study. Observations were conducted in each teacher’s classroom to see how students used technology in the literacy curriculum. Material culture, including student artifacts of literacy and technology integration, were discussed with study participants and analyzed holistically by the researcher. Data were analyzed using a systematic grounded theory process advanced by Charmaz (2006).

Significance of the Study

This study focused on the professional development practices that may prevent students from engaging in equitable educational experiences. Educators have the responsibility to prepare
all students for the knowledge and skills needed to be successful in the 21st century; especially higher-level thinking experiences that are central to acquiring new literacies (IRA, 2009). However, technology use in schools is “compounding or deepening pre-existing educational disadvantages” (Attewell & Winson, 2003, p. 119). Technology practices for African American and socioeconomically disadvantaged students are mirroring the pedagogical practices traditionally used with these students, which often focus upon basic knowledge and recall (Garrison & Bromley, 2004; Gordon, 1999; Means & Knapp, 1991).

These types of pedagogy are becoming increasingly unacceptable in our technological society. The sole method of instruction for many African American and socioeconomically disadvantaged students should not and cannot continue to reflect a transmission model of learning in which the teacher, or computer, presents content to students. This method of instruction allows students to be passive learners who are not encouraged to use cognitively challenging strategies. Students need to be actively involved in applying knowledge by engaging in meaningful, relevant experiences with digital technologies that will develop new literacies. Teacher knowledge is instrumental in ensuring that all students, regardless of racial or socioeconomic background, have equitable opportunities to use digital technologies that will facilitate the development of new literacies (IRA, 2009). All teachers must be engaged in professional development that demonstrates how digital technologies can be effectively integrated into literacy curricula to support new literacies, and communicates the importance of doing so for all students.
Chapter Conclusion

Technology is expanding traditional print-based literacy expectations. As a result, new literacies are needed to read, write and communicate effectively using digital technologies (Leu & Kinzer, 2000; IRA, 2009). All students should engage in appropriate technologically integrated learning experiences in order to develop the new literacies needed in our increasingly technological and global society. However, not all students have similar opportunities to do so. African American and socioeconomically disadvantaged students are more likely to engage in technologically supported learning that mirrors basic skill practice with traditional paper-based literacy materials. Conversely, White and socioeconomically advantaged students are more likely to use technology in ways that will help them to develop new literacies (Au, 2006; Becker, 2000). This research study investigated relationships between professional development and differing uses of digital technologies in literacy instruction. In addition, it uncovered teachers’ beliefs and technology-related instructional practices that led to differing uses of technology in literacy instruction. Chapter 2 presents a review of literature relevant to this research focus.
CHAPTER TWO: LITERATURE REVIEW

This literature review will support the social justice argument that inequitable uses of technology are not permitting African American and socioeconomically disadvantaged students to develop the new literacies needed in this increasingly technological society, and that teacher professional development is key to providing equitable literacy practices. This chapter will first review the relationships among literacy, race, and socioeconomic status. Next, educational resources, focusing upon uses of technologies for developing new literacies, will be reviewed. Successive sections will explore current literacy-related pedagogical practices and uses of technology for African American and socioeconomically disadvantaged students, followed by a review of teachers’ and leaders’ roles in establishing equitable uses of technological resources to support the development of new literacies. The concluding section will explain the theoretical lens—critical pedagogy—guiding this study.

Literacy Development, Socioeconomic Status, and Race

Exposure to literacy in the home and community is the first introduction to formal literacy instruction (Barton & Coley, 2007; Snow, 1991; Stanovich, 1986). All children acquire language and literacy skills such as vocabulary, grammar, and comprehension before they enter school (Gee, 1999; Ely, 2001). However, children may acquire these skills differently depending upon the literacy experiences valued in their cultures. For example, literacy experiences in the dominant culture, such as shared book reading, are not standard practices across all cultures (Van Kleeck & Stahl, 2003). Socioeconomically advantaged families are more likely to engage their children in more early literacy activities specific to school expectations than socioeconomically disadvantaged families (Chatterji, 2006; Gee, 1999; Smith, Brooks-Gunn, & Klebanov, 1997).
As a result, children who are not engaged in literacy activities such as shared book reading, writing, and conversational talk begin school with literacy skills at levels below their peers who have experienced multiple engagements with these literacy activities at home (Brooks-Gunn & Markman, 2005; Ely, 2001; Morrow, 1995; Watkins & Edwards, 1992). As a result, many socioeconomically disadvantaged children do not enter school with the prerequisite literacy skills needed to be successful readers (Snow et al., 1998; Walker, Greenwood, Hart, & Carta, 1994; Xue & Meisels, 2004).

Early literacy experiences influence later reading achievement in large measure. Walker et al. (1994) conducted a ten-year longitudinal study on the literacy and language development of children from various socioeconomic backgrounds. They concluded that children from socioeconomically disadvantaged homes enter school with language and literacy skills below the abilities of their same age peers from more socioeconomically advantaged backgrounds. These deficiencies continue even when students receive literacy instruction in school. Research by Chatterji (2006), Xue and Meisels (2004), and Rathbun, West and Hausken (2004) support the findings of Walker et al., and conclude that kindergarteners from socioeconomically disadvantaged or African American backgrounds learn fewer literacy skills during the kindergarten school year than their socioeconomically advantaged and White peers. These literacy deficiencies continue to grow throughout each year of schooling (The Annie E. Casey Foundation, 2010).

This issue is confounded for many African American students. African American children are more likely to live in socioeconomically disadvantaged households than their same age peers (Au & Raphael, 2000). In addition, African American students are more likely to
attend schools where the majority of students are from socioeconomically disadvantaged backgrounds (Darling-Hammond, 2007b). Hence, lower reading achievement is not a factor of race, but rather is influenced by the contextual factors of socioeconomically disadvantaged households and schooling (The Annie E. Casey Foundation, 2010). Educators are responsible for providing experiences that help students develop the language and literacy skills needed to be successful in school. Focused attention on improving literacy skills may overcome the deficiencies many student groups have when entering school (Barton & Coley, 2007; Gee, 1999). However, as the sections below illustrate, current classroom practices are not improving the literacy skills of most African American and socioeconomically disadvantaged students.

**Literacy Achievement Gap**

The literacy achievement gap—the difference between expected academic achievement and actual achievement (Edyburn, 2007) — has been a persistent and pervasive educational issue. For more than forty years, educators and politicians have committed to the goal of closing the literacy achievement gap between socioeconomic groups. However, little progress has been made (Kozal, 2005; Rosenshine, 2002). Increased educational spending has not closed the achievement gap among racial groups, which has existed for more than twenty years (U.S. Department of Education [USDOE], 2004). Achievement gaps between White and African American students narrowed in the 1980s. However, as academic standards rose in the 1990s, the trend reversed (Moats, 2006).

**Literacy Achievement Gap and Race.** Many African American and socioeconomically disadvantaged students have not acquired the appropriate literacy skills in kindergarten, first, second, or third grade to be successful readers. Although the most recently measured fourth
grade reading achievement gap on The Nation’s Report Card between African American and White students is the smallest ever at the basic level, minimum change has occurred at higher reading levels (Moats, 2006). According to the 2009 fourth grade report (see Figure 1), 52% percent of African American students are reading below the basic level, which means that these students do not have the knowledge and skills needed to read and understand text well. Thirty-two percent have adequate literacy skills and 16% are reading at or above the proficiency level (NCES, 2009). These results demonstrate that less than half of African American students in fourth grade are able to perform the cognitively challenging tasks required to make inferences, draw conclusions, analyze material, make connections to personal experiences, and apply reading skills to real-life tasks. The literacy skills of many African American students are different from those of most White students. Only twenty-two percent of White students are reading below the basic level, 36% have adequate skills, and 42% are reading at or above proficiency (NCES, 2009).

Figure 1. The Nation’s Report Card reading levels presented by race.
These results indicate that many White students currently have literacy skills that far surpass those of African American students. White students are gaining the skills necessary to be successfully literate, whereas more than half of African American students are not. Yet even this is not the full extent of the literacy achievement gap. Not only is there a difference in performance on The Nation’s Report Card based on race; an achievement gap also persists between socioeconomic groups.

**Literacy Achievement Gap and Socioeconomic Status.** Students from socioeconomically disadvantaged homes continue to perform below the reading levels of students who are not eligible for free or reduced-price lunch, which is an indication of socioeconomic status (SES) as defined by The Nation’s Report Card (see Figure 2). Forty-nine percent of the students from socioeconomically disadvantaged homes are reading below the basic level, 34% have adequate skills and 17% percent are reading at or above proficiency. However, 20% of students from socioeconomically advantaged backgrounds have reading skills below the basic level, 35% have adequate skills and 45% percent are reading at or above proficiency (NCES, 2009).

*Figure 2. The Nation’s Report Card reading levels presented by socioeconomic status.*
These achievement results indicate that many socioeconomically advantaged fourth grade students have literacy skills well above that of their socioeconomically disadvantaged peers. These results are troubling, especially when considering that literacy has a large influence on future endeavors. Effective literacy instruction should take place during kindergarten, first, and second grade to ensure academic success in later years (Adams, 1990; Snow et al., 1998). However, many African American and socioeconomically disadvantaged students are not receiving the literacy instruction needed to be successful in academic endeavors and beyond (Darling-Hammond, 2007b). Effective literacy instruction is critical because early literacy skills have a large influence on academic performance in later school years (Lonigan, Driscoll, Phillips, Cantor, Anthony, & Goldstein, 2003; McIntyre, Petrosko, Jones, & Powell, 2005; Walker et al., 1994). The following section will explore the research on the relationship between literacy and academic performance.

**Literacy and Academic Performance**

Students who do not develop literacy skills that reflect grade-level expectations are more likely to continue to read below grade level throughout their school experiences, even with the assistance of remedial programs (Adams, 1990). Although students may enter school with small deficits in reading skills, these deficiencies can grow exponentially and can lead to much wider disparities in reading achievement in later school years (Edyburn, 2007; The Annie E. Casey Foundation, 2010). Therefore, effective literacy instruction is critical in the primary grades. Students who improve literacy skills within the first three years of school are more likely to develop and maintain grade-level reading skills than those students who do not develop appropriate literacy skills during the primary years (Adams, 1990).
School Success

The Nation’s Report Card fourth grade results demonstrate that many African American and socioeconomically disadvantaged students do not have the necessary reading skills to be successful in secondary schools. Achievement gaps from the fourth grade results translate into even wider gaps at the secondary level (Moats, 2006). Kozol (2005) discovered that the average achievement of African American twelfth grade students on state proficiency exams in reading was below the average level of proficiency achieved by White students in the 7th grade; many African American students are reading at an average of five grade-level years below dominant culture students. As a result of inadequate literacy skills, many students graduate from high school without the knowledge to acquire new literacy skills or become critical readers (Snow, 1991).

Federal Mandates in Education

The federal government recognizes the importance of literacy and has been involved in developing ways to improve the academic achievement of students, especially students from socioeconomically disadvantaged backgrounds, since the Elementary and Secondary Education Act of 1965. However, despite the creation of educational programs and billions of dollars spent in federal funding, non-dominant populations continued to score lower on academic measures of reading and mathematics than white and socioeconomically advantaged students (USDOE, 2005; Murnane, 2007). In an effort to address this academic discrepancy, the No Child Left Behind Act of 2001 (NCLB), which is a reauthorization of the Elementary and Secondary Education Act, was signed into law in 2002. This federal legislation, for the first time in history, mandates the course of teaching and learning in all states—matters once the sole responsibility of states and
local school divisions (Allen et al., 2007; Cochran-Smith & Lytle, 2006). Reading First, discussed in detail in the Literacy Instruction section of this paper, is a major federal program under NCLB aimed at improving the literacy skills of students in the primary grades (USDOE, 2002b).

NCLB is concerned with closing the achievement gap by making schools more accountable for student learning through higher standards, measurable goals, and annual assessments. It is expected that all students will be proficient in reading and mathematics by the year 2014. Annual assessments, developed from state standards of proficiency, measure student abilities in reading and mathematics in third through eighth grades. Additionally, each school’s performance is tracked and made public using disaggregated data by student race, socioeconomic status, disability, and limited English proficiency. Disaggregated data provides a means for ensuring that every student group is making progress toward reading and mathematics proficiency each school year, toward the goal of 100% proficiency by 2014. Each state determines a definition of growth—adequate yearly progress (AYP)—for the school divisions and schools. Consequences are severe if student groups do not succeed in improving their academic progress on year-end state assessments. Failure to reach AYP after two consecutive years may result in a replacement of staff identified as being responsible for poor performance. Continued difficulties reaching AYP may result in a decrease in management authority at the school level, a reorganization of the school, changing the school into a charter school, or a complete take-over by the state (USDOE, 2002b).

Since the passage of NCLB, states rather than individual school divisions have more influence over curriculum and assessments. This has led to the development of standards-based
education, also referred to as testing-based accountability. These standards and the resulting assessments have had drastic influences over the nature of instruction in public schools (Diamond & Spillane, 2004; Hines, Conner, Campano, Damico, Enoch, & Nam, 2007; Murnane, 2007). Due to the pressures for students to perform well on state assessments, many schools have increased the amount of time devoted to reading and mathematics instruction, while decreasing time on other non-tested areas such as social studies, science, art, music, physical education and recess (Center for Educational Policy [CEP], 2007; Jerald, 2006).

Increased amount of accountability has also led many states to modify their curriculum to focus specifically on tested skills, thus restricting what and how students learn and limiting deep understanding of the content being taught (Darling-Hammond, 2007a; Scott, 2008; Zhao, 2009). As asserted by Edmonson and D’Urso (2009), “the standardized curriculum and standardized testing that are now commonplace in American schools and endorsed by NCLB both indoctrinate and manipulate students and teachers, forcing narrow understanding of what it means to educate and be educated” (pg. 83). Unfortunately, those students who are more likely to be educated under a narrow curriculum are those who have traditionally scored lower on academic assessments (Cummins, 2007), and therefore are not engaged in educational opportunities that the dominant culture receive (Diamond & Spillane, 2004; Paul, 2004; Smyth, 2008). Review of relevant literature demonstrates that many African American and socioeconomically disadvantaged students have received and continue to receive different—and inferior—educational experiences than White and socioeconomically advantaged students.
Pedagogical Practices

Many African American and socioeconomically disadvantaged students are not receiving instruction that will address their deficiencies and prepare them for more challenging material in school. Nor are they experiencing learning activities that support the critical literacy, higher-order thinking, or complex problem solving skills needed to compete in a global society (Darling-Hammond, 2007a; Gordon, 1999; Kozol, 2005). Their educational experiences are most likely to focus on low-level mundane tasks (Anyon, 1980; Delpit, 2006), supporting Lewis’ (2007) assertion that “segregation persists within schools along social and racial lines” (p. 343). Teachers of poor students and students of color may focus on teaching basic and tested skills so frequently that they de-emphasize teaching those crucial literacy skills that higher achieving students receive (Delpit, 2006; Means & Knapp, 1991), therefore not adequately preparing a sizable proportion of America’s students for future literacy expectations (Gertsl-Pepin & Woodside-Jiron, 2005; Paugh, Carey, King-Jackson, & Russell, 2007).

The “Pedagogy of Poverty”

Haberman (1991) characterizes the focus on lower-level teaching practices as the “pedagogy of poverty” (p. 291), which will “expand the vast divide between two separate worlds of cognitive activity” (Kozol, 2005, p. 284). Freire (1970) offers an example of an educational practice that results in oppression for all who are subjected to this type of teaching. Freire defines the “banking concept of education,” (p. 58) which refers to the way marginalized groups have historically been educated. The teacher is the ultimate authority over the taught curriculum and as a result, provides students with selected knowledge in which the students are to receive, file and store (deposit). In turn, students memorize facts and passively repeat the information when
necessary. The students’ only role is to be a receptacle in order to receive the information. Unfortunately, the students are not given the opportunity to truly understand the significance of the information taught, nor do they have the opportunity to become active learners in the process. Freire stated, “Education thus becomes an act of deposit, in which the students are the depositories and the teacher is the depositor” (p. 58). Consequently, effective teachers are those who are able to fill their students with large amount of knowledge and the students do not resist or question the knowledge they are receiving. Students are to listen to the teacher and accept the information willingly. Furthermore, this type of teaching emulates the oppressive practices in society, and therefore, is accepted.

The banking concept of education mirrors the pedagogy of poverty. As Freire (1970) asserted, “[it] transforms students into receiving objects. It attempts to control thinking and action, leads men to adjust to the world, and inhibits their creative power” (p. 64). Many teachers may not realize that they are reinforcing the banking concept of teaching in their classrooms, thus encouraging historically marginalized students to be passive learners and oppressing these students. In addition, they may not realize that their instructional practices are allowing injustices and inequalities from continuing.

The NCLB policy has not changed teaching practices for African American and socioeconomically disadvantaged students in large measure. These student populations are more likely to attend schools that are the lowest-performing (Diamond & Spillane, 2004). As a result of testing pressures that teachers encounter, poor students and students are color are more likely to engage in educational experiences that focus on drills and memorization (Smyth, 2008; Willis, 2007). In addition, the transmission model of learning often used is one in which teachers “give”
knowledge to students rather than students attaining this knowledge through purposeful activities (Cochran-Smith & Lytle, 2006). The limited amount of knowledge that students are suppose to learn under NCLB, uniform proficiency standards and the drill method of teaching perpetuate educational inequality and oppression (Edmondson & D'Ruso, 2009; Freeman, 2005). This continued focus on low-level skills can have a detrimental effect on students’ future educational experiences.

The “Matthew Effect”

Learning activities focused on less cognitively challenging assignments will make acquiring advanced literacy knowledge quickly and efficiently difficult, reflecting the “Matthew effect” in which the “rich-get-richer and the poor-get poorer” (Stanovich, 1986, p. 382). The Matthew effect is named after a passage in the Gospel according to Matthew. This passage states “For unto everyone that hath shall be given, and he shall have abundance; but from him that hath not shall be taken away even that which he hath” (XXV: 29). Students exposed to higher-level activities will continue to acquire advanced skills, whereas students with less challenging experiences may have difficulties learning beyond low-level tasks (Stanovich, 1986; Walberg & Tsai, 1983). Instruction focused on specific skill attainment and less time on integrated reading, writing, and talking across the curriculum leads to low reading achievement because students do not know how to apply these basic literacy skills to real-life reading tasks (Bartoli, 1995). This also leads to difficulties when these students are expected to engage in extensive writing activities, critical thinking applications, and problem-solving skills that are expected in higher education or jobs (Au, 2006; Darling-Hammond, 2007b).
As a result, unless teaching practices change, African American and socioeconomically disadvantaged students may continue to have literacy achievement levels lower than their peers (Hallinan, 2001; Means & Knapp, 1991; Singham, 2005). Teachers must use those pedagogical practices that will allow all students to advance their knowledge, skills, and abilities beyond basic knowledge (Delpit, 2006).

**The Need to Change Pedagogical Practices**

Quality teaching and learning are central to improving the academic achievement of all students (Gordon, 1999; Singham, 2005). Effective teaching allows students to become actively involved rather than passively learning through vicarious participation (Haberman, 1991; Neuman & Roskos, 1997; Xue & Meisels, 2004). Therefore, instruction for African American and socioeconomically disadvantaged students should extend beyond the pedagogy of poverty, by focusing on important concepts and overarching ideas, rather than attainment of isolated facts (Delpit, 2006; Haberman, 1991).

All students—not just those from certain racial or socioeconomic backgrounds—can benefit from instruction that is relevant, meaningful, and rigorous. Learning activities typified by active engagement, inquiry-based learning, cooperative learning, hands-on activities, and spending time on appropriate learning experiences while focusing on relevant learning goals may increase learning and narrow the achievement gap between racial and socioeconomic groups (Parsons & Harrington, 2009; Paugh et al., 2007). Although the above educational practices may be *ideal* for African American and socioeconomically disadvantaged students, current federal mandates under Reading First are perpetuating differential educational experiences for these
student groups by focusing on teacher-led, skills-based literacy instruction (Cummins, 2007; Williams & Bauer, 2006).

Literacy Instruction

Reading is defined as the active process of constructing knowledge by using context and prior knowledge to make sense of text (Stice & Bertrand, 1999). However, understanding the printed word is difficult for many African American and socioeconomically disadvantaged students who do not enter school with adequate prior knowledge and literacy skills that will enable them to be successful readers (Snow et al., 1998). Educators have been debating for more than twenty years about the most effective ways to teach reading to children, especially those who come to school lacking foundational literacy skills (Gee, 1999; Moats, 2006). The Reading First policy is the federal government's answer to improving the literacy skills of low-performing youth.

Reading First

Reading First, authorized under NCLB, is the largest early reading initiative ever implemented in the United States with the goal that every child will be a proficient reader upon exiting third grade. This federal reading initiative is based upon the National Reading Panel's (NRP) recommendations for effective reading instruction which narrowly includes the five skills of phonological awareness, phonics, vocabulary development, fluency, and reading comprehension (National Institute of Child Health and Human Development, 2000). Those five skills were chosen on the basis of their "scientifically-based" research, research that was experimental or quasi-experimental in nature, and overlooked other reading skills based on correlational or observational research (Yatvin, Weaver, & Garan, 2003). According to Reading
First, students must be proficient in these specific skills in order to be successful readers. By focusing on these five pillars of reading, it is expected that teachers will improve instruction and increase the reading achievement of kindergarten through third grade students in low-performing, mostly high-poverty schools (USDOE, 2002a).

Funding under Reading First is allocated to states and school divisions to support teacher professional development, instructional materials, diagnostic screening and assessments. However, in order to receive federal funds, schools must institute reading programs that are only developed from the scientifically-based reading research as described above. These reading programs must include explicit and systematic instruction of the five reading components and include a generous amount of time for students to practice these skills using aligned student materials. Reading instruction and practice must occur within an uninterrupted literacy block lasting at least 90 minutes each day. Assessments, including screenings, diagnostics, and classroom-based assessments must measure students’ progress of the five reading components (USDOE, 2002a). Although Reading First may seem ideal for improving the reading skills of struggling readers, the reading achievement gap, as indicated by The Nation’s Report Card, between racial and economic groups continues (Allen et al., 2007; Cummins, 2007; Lee, 2006).

Reading instruction in many of these low-performing schools has changed to follow the guidelines developed by Reading First (Pennington, 2007), consequentially supporting differential instruction between socioeconomic groups (Cummins, 2007; Paul, 2004). The skills-based and teacher-directive instructional pedagogies authorized by Reading First are more likely to be implemented at high-poverty schools. These are the schools that need the additional funding to support the low reading achievement of their students. However, these pedagogies are
problematic because they may not be appropriate to the learning needs of all students (Dudley-Marling, 2005; Gerstl-Pepin & Woodside-Jiron, 2005; Yatvin et al., 2003).

Unfortunately, in order to receive funding, schools must abandon previous reading programs that showed promise in improving literacy skills and use the approved programs, dubbed high quality and scientifically-based by the United States Department of Education, with purportedly proven strategies for improving the reading skills of low-income students. These programs are commercially published, highly-structured, and scripted (Dudley-Marling, 2005; Yatvin et al., 2003). Because their structure details everything a teacher should do and say, these programs are “teacher proof” (Gerstl-Pepin & Woodside-Jiron, 2005, p. 237). It is believed that any teacher, regardless of teaching experience, can improve the literacy skills of low-achieving students by strictly following these scientifically-based programs. The rigidness of these programs ultimately limits creativity, decision-making, innovation, and teachers’ sense of professionalism (Cummins, 2007; Smyth, 2008).

Teachers are under a lot of pressure to ensure that all of the appropriate reading skills are taught efficiently and effectively. Often, teachers have to follow strict pacing guides that dictate when lessons and units will be taught, how content should be taught, and when students will be tested on the materials, therefore leaving little room for innovation. In addition, teachers are often observed by administrators from the division’s central office to ensure they are following the reading program correctly and adhering to the pacing schedule (Allen et al., 2007; Paugh et al., 2007; Pease-Alvarez & Samway, 2008). Pressures to conform to the mandated curriculum and schedule are great since student performance on assessments will be used to evaluate teacher and school effectiveness, funding, and resources (Pennington, 2007; Scott, 2008; Zhao, 2009).
The focus on assessments has narrowed the reading curriculum to those tested skills while overlooking other essential literacy knowledge, leading to a "curriculum gap" (Teale, Paciga, & Hoffman, 2007, p. 344). This curriculum gap persists when teachers focus on scripted programs so much that they fail to engage their students in other essential literacy practices such as literature discussions, writing, and silent reading (Allington, 2006; Yatvin et al., 2003). The curriculum gap is more evident in schools that educate socioeconomically disadvantaged students. Teachers at higher-income schools have more flexibility to engage their students in various literacy activities without focusing so much on student assessment performance (Cummins, 2007). The emphasis on specific and concrete skills has resulted in less meaningful literacy activities for many students (Venable, 2006).

Other Literacy Approaches

Some researchers agree with the findings of the NRP and consider early intervention that focuses on directive and explicit instruction to be effective in improving the literacy skills of students who have not developed adequately in this area. According to many reading researchers, students who are instructed in this systematic manner tend to have better word reading skills than those who are instructed using more holistic practices (Adams, 1990; Foorman, Francis, Fletcher, Schatschneider, & Mehta, 1998; Snow et al., 1998). However, other literacy researchers suggest that the literacy achievement gap will narrow when teachers use multiple instructional approaches, including student-centered activities, instead of one method in isolation. Teacher-led instruction and student-centered approaches can be balanced with literacy activities that teach specific skills, yet teach them in meaningful contexts that focus on applying skills and concepts (Au & Raphael, 2000; Dudley-Marling & Paugh, 2004; Xue & Meisels, 2004).
The NRP and scientifically-based reading programs grossly overlook the importance of independent reading and higher order critical thinking in the development of literacy skills. In light of the changing nature of literacy, these skills, which are paramount to the development of new literacies, should not be ignored. Encouraging all students, including those with low literacy skills, to read, write, and interact with text meaningfully and frequently may give African American and socioeconomically disadvantaged students the skills and confidence needed to be successful readers. Digital technologies— an emerging form of educational resources— can and should be used to support such meaningful literacy activities and the acquisition of new literacies.

Educational Resources

Schools have the responsibility to improve the academic achievement of all students through the equitable attainment and uses of human and physical resources. Research supports the assertion that resource availabilities and teacher quality are strong predictors for student academic success (Darling-Hammond, 2007b; Greenwald, Hedges, & Laine 1996; Stronge, 2002).

Resources and Academic Achievement

African American and socioeconomically disadvantaged students are not achieving at the levels of other students. The absence of equal access to resources, quality teachers, and challenging curriculum may be preventing African American and socioeconomically disadvantaged students from achieving at levels similar to their White and more socioeconomically advantaged peers (Darling-Hammond, 2007b). Although access to
instructional resources may be beyond the control of teachers, use of those resources should not
differ according to racial and socioeconomic groups.

Meaningful and purposeful uses of educational resources, such as books, paper, writing
utensils, and learning manipulatives, can support student learning, regardless of students’ racial
or socioeconomic backgrounds. Limited access to resources cannot be a deterrent to quality
learning experiences; teachers must look beyond the number of resources in the classroom.
Conversely, equal access to high quality resources will not automatically translate into improved
student achievement. Student achievement may improve, however, when resources are used
effectively (Coleman, 1990; Weiss, 1988). Therefore, teachers need to have the knowledge and
skills to effectively design learning experiences with available resources to support student
learning. As a result of the changing nature of literacy, digital technologies are becoming an
increasingly critical resource for literacy instruction.

Technological Resources and Literacy

Educators are expected to help their students learn the knowledge and skills that are
valued in society (Bartolome, 1994). As our society becomes more technical in nature, digital
literacies will become increasingly important (Leu & Kinzer, 2000; Richards & McKenna,
2003). Therefore, teachers need to teach all students, including African American and
socioeconomically disadvantaged students, skills to help them to develop both traditional print
literacy and the new literacies. The literacy achievement gap will only get larger as literacy
demands change and certain student groups are not acculturated to using digital technologies
such as the Internet to read and gather information (Au, 2006; Castek et al., 2007; Leu & Kinzer,
2000). Warschauer (2003) posits the following:
In developed countries, educational uses of computers has the potential to either help overcome or worsen social stratification. On the one hand, technology can be an equalizing force, by giving all students access to a tool/medium that is vital for today’s education. On the other hand, if technological resources are unequally distributed or used in schools, ICT can serve to stratify already existing inequalities (p. 128).

Therefore, issues of equity and access are two very important aspects in ensuring that all students have appropriate experiences with technological resources.

**Access and Uses of Digital Technologies Outside of the School Environment**

Before access to technology in schools is discussed, it is critical to understand the disparities that exist in home technology access and use between socioeconomic groups. Although computer prices have fallen in the past years, the gap in computer ownership and access to the Internet at home between socioeconomic and racial groups has increased (U.S. Census Bureau, 2009, U.S. Census Bureau, 2007). Children from socioeconomically advantaged families are more likely than disadvantaged students to have unlimited access to the computer and Internet at home. However, disadvantaged youths tend to have limited interaction with technology at school or public access locations, such as the library (Camp, Knightly, & Reed, 2006). Providing technology experiences to students at school is especially critical for those students who have limited interactions with technology at home (Ba et al., 2002).

Even when socioeconomically disadvantaged students have home access to technology, they are likely to use these resources differently than advantaged students. At best, socioeconomically disadvantaged students may have a basic understanding of technology, but their interactions do not facilitate the development of new literacies (Ba et al., 2002). Through an
examination of adolescents' home technology experiences, Attewell and Winston (2003), for example, discovered that African Americans from socioeconomically disadvantaged backgrounds interacted with technology differently than their White advantaged peers. Disadvantaged students used the computer to participate in passive experiences such as online window shopping, downloading music and pictures of their favorite musical artist, and avoiding activities that required extensive reading. Conversely, the advantaged students demonstrated their application of new literacies when they used the computer in more active manners. They read articles online, participated in online discussions, posted comments on bulletin boards, created Web sites, and used software programs to complete school assignments.

Some students may gain new literacies through their home interactions with technology (Harwood & Asal, 2007). However, as demonstrated through Attewell and Winston's research, teachers cannot assume that all students with access to technology enter school with the necessary skills to read, write, and communicate in digital environments. Even though the disadvantaged students in Attewell and Winston's research had home access, they had difficulties finding specific information on the Internet and critically analyzing sites for appropriateness when asked to conduct online research in school. Similar to traditional print-literacy, students need to be taught how to use the Internet and other ICTs in ways that will support the development of new literacies (Ba et al., 2002; Johnson, 2009).

Access and Uses of Digital Technologies in School

All students, regardless of socioeconomic status or race, should have equitable access to technological experiences in the classroom. As Becker (2000) asserted, "schools play a critical role in ensuring equal opportunity for less-advantaged children by providing access to a wide
range of enriching experiences including exposure to computer technology” (p. 45). The classroom may be the only place some students use technological resources to develop new literacies (Ba et al., 2002; Castek et al., 2006; IRA, 2009). Access to quality technological resources and effective uses of those resources may provide African American and socioeconomically disadvantaged students with the literacies necessary to fully engage in our technological society. Unfortunately, digital divides are preventing many students from having appropriate technological experiences that will foster new literacies.

African American and socioeconomically disadvantaged students often have fewer technological resources in school than White and socioeconomically advantaged students. This phenomenon is referred to as the first digital divide (Judge et al., 2004; Meier, 2005; Parsad & Jones, 2005). Although African American and socioeconomically disadvantaged students may have less access to technology, the most important issue is how the technology is used to support student learning (Hargittai, 2002; Warschauer et al., 2004). Limited technological resources can be used well and in a manner that supports new literacies development (Kelly, 2008). However, differential uses of technological resources—the second digital divide—is evident in schools that teach African American and socioeconomically disadvantaged students (Attewell, 2001). As a result of this second digital divide, technology is currently being used in ways that will only perpetuate “socioeconomic fragmentation and stratification” (Freebody & Hornibrook, 2005, p. 372). Not only do many African American and socioeconomically disadvantaged students have low literacy skills and less access to educational resources than their dominant culture peers, but they are also having different experiences using technology (Coiro et al., 2008; Judge et al., 2004; Parsad & Jones, 2005). Differential uses of technological resources are giving racial and
economic groups inequitable types of experiences, thus acculturating members of certain groups to different levels of literacy (Ba et al, 2002; Hargittai, 2002).

Even when schools have similar access to technology, socioeconomically disadvantaged and African American students are disproportionately more likely to use computers more often than others to focus upon building low-level skills (Harwood & Asal, 2007; Kelly, 2008; Judge, Puckett, & Bell, 2006). After conducting a national survey of approximately 4,000 teachers, for example, Becker (2000) concluded that socioeconomic levels were correlated with the types of computer learning activities implemented at school. Students from higher socioeconomic backgrounds engaged in constructivist and other similarly innovative activities. They used the computer for writing, making presentations, and analyzing information. Alternatively, although teachers reported weekly use of computer technology in the socioeconomically disadvantaged schools, these students were more likely to use computers for remedial skill practice or to master recently taught concepts.

A more recent study conducted by Judge et al. (2006) noted that students attending socioeconomically disadvantaged schools used computer software more frequently for practicing reading skills, whereas higher socioeconomic students used the Internet more often. Results from the study indicated that frequent use of software reading programs was negatively correlated with reading achievement. Although students were practicing literacy skills on the computer, they were not making expected literacy gains. However, frequent Internet use was associated with positive reading scores. Au and Raphael (2000) stated nine years ago that computer use with African American students would "be more readily employed as high-tech workbooks to track skills progress, with on-screen multiple-choice tasks offering no more opportunity for
communication and higher level thinking than traditional paper-pencil tasks” (pg. 180).

Unfortunately, this trend remains true for various reasons.

Because of NCLB and Reading First pressures, teachers of African American and socioeconomically disadvantaged students may distinctively use digital technologies in their classrooms as tools to support tested literacy content and to assess student learning, therefore not viewing these technologies as means to expand student learning beyond mandated standards (Hew & Brush, 2007; Schneiderman, 2004, Warschauer & Ware, 2008). In addition, teachers may not have the time to effectively integrate technology innovatively during the school day after teaching and learning of the tested content has occurred (Boardman & Woodruff, 2004), nor have the time to focus on innovation during instructional planning time when that time could be spent planning required learning content (Hennessy, Ruthven, & Brindley, 2005).

Furthermore, CAI is more likely to be targeted for use in low-performing schools because they are claimed to be founded on scientifically-based research. Therefore, teachers are under the impression that these programs will assist their students in improving essential literacy knowledge (Bichelmeyer & Molenda, 2006). Unfortunately, these factors lead to inequitable uses of technological resources between racial and socioeconomic groups. For educational technologies to become integral in supporting student learning of new literacies, improvements are needed in the quality of computer-enhanced educational activities (Becker, 2000; Judge et al., 2006; Warschauer, 2003). It is important that teachers are cognizant of digital technologies and how some of those resources are more appropriate for developing new literacies than others (Leu & Kinzer, 2003).
Technology and Literacy

Digital technologies can be used in various ways to support different aspects of literacy. The following section first details the roles digital technologies play in supporting print literacy. Next, cognitively challenging experiences that support traditional print literacies and new literacies will be explained. Succeeding sections will describe the characteristics of digital technologies, the relationships between digital technologies and reading comprehension and digital technologies and writing, and a discussion on primary students’ uses of digital technologies and the Internet. This section will conclude with a discussion of current equity issues surrounding students’ opportunities for acquiring new literacies.

Using Digital Technologies to Support Print Literacy

Digital technologies, such as classroom computers, are often used to develop the automaticity of students’ specific literacy skills (Baker, 2007; Labbo & Reinking, 1999). Educators who use digital technologies in this manner are not concerned with how technology is influencing the nature of literacy. Rather, they are concerned with how digital technologies can be used to support the print-based literacy skills measured on standardized assessments. They view software programs and the Internet as tools—similar to television, overheads, and chalkboards—to teach print-based literacies (Warschauer & Ware, 2008). These software programs can take the forms of drill-and-practice, tutorial, and game-like software (Leu & Kinzer, 2003).

Skill-based approaches are modeled after the behavioral paradigm of learning. Instruction in this paradigm is based on the assumption that students need to learn a specific set of skills, which are taught by the teacher (Anderson & Speck, 2001). Mastery of specific knowledge can
be attained through the sequential delivery of content, practice, and positive reinforcement (Joyce, Weil, & Calhoun, 2004). Computer-assisted instruction (CAI), based on the behaviorist theory of learning, is software or Web-based programs that provide supplemental instruction for specific literacy skills such as phonemic awareness, word recognition, vocabulary and fluency in a multimedia environment. CAI presents content in small steps, provides immediate feedback and reinforcement, contains repetition and practice, monitors student performance, and adjusts instruction accordingly to address weaknesses (Hillman & Moore, 2004; Lonigan et al, 2003; Macaruso, Hook, & McCabe, 2006). These programs are the most common types of computer applications used in elementary classrooms (Niederhauser & Stoddart, 2001; Thomas, 2009; Zhao, Tan, & Mishra, 2000;).

CAI may be used extensively because students can work independently on the computer to practice literacy skills. However, research results have been inconsistent regarding the effectiveness of CAI for improving literacy. Some studies show that students improve skills such as phonological awareness, word and letter recognition after participating in CAI (Englert, Zhao, Collings, & Romig, 2005; Mioduser, Tur-Kaspa, & Leitner, 2000). However, other studies indicate that CAI does not improve student literacy achievement (Paterson et al., 2003; Dynarski, Agodini, Heaviside, Novak, Carey, & Campuzano, 2007), nor is it more effective than traditional teacher-led literacy instruction (Barker & Torgensen, 1995; Lonigan et al., 2003; Wise, Rise, & Olson, 2000). The most recent study by Dynarski et al. was mandated by the US Department of Education, Institute of Education Sciences. NCLB requires that federal money used by schools to purchase educational programs must show effectiveness in improving literacy (Blanchard,
McLain, & Bartshe, 2004). However, the evaluation by Dynarski and colleagues offered conclusive evidence that CAI programs do not lead to long-term measurable gains in literacy.

The lack of literacy gains may be attributed to the skill and drill nature of CAI. Students use these programs to learn specific skills from technology, rather than actively applying this knowledge to new tasks. This leads many students to have difficulty transferring the discrete skills learned to real-life situations (Bransford, 1999). Students often work on CAI independently and in isolation from their peers (Anderson & Speck, 2001). However, students may learn better when they are actively engaged, work collaboratively with others, receive consistent feedback, and apply learned concepts to real-life tasks (Roschelle, Pea, Hoadley, Gordin, & Means, 2000; Wise et al., 2000). As mentioned in a previous section on literacy instruction pedagogy, integrative approaches to technology use in literacy instruction may be more effective in improving literacy skills than skill-based approaches alone (Morrow, 1992; Neuman & Roskos, 1997; Xue & Meisels, 2004).

Often, when computer technologies are used in the literacy curriculum, educators are concerned with how these technologies support the development of basic literacy skills because these are the skills that are tested in this era of high-stakes accountability. Unfortunately, having this view limits the potential of these technological resources (Cowan, 2008). Pressures for students to perform well on assessments may negatively impact teachers' willingness to integrate digital technologies in new ways (Boardman & Woodruff, 2004). It is important for teachers to realize that digital technologies can be used for more than "skill and drill" practice (Anderson & Speck, 2001; Labbo & Reinking, 1999). The use of digital technologies, like traditional print-based resources, should allow students to read, write, and communicate in authentic and
meaningful ways (McKenna et al., 2003). Use of digital technologies can support “richer and more holistic views of reading by helping readers to envision and partake in the world of text; by encouraging students to make intertextual, intratextual, and extratextual connections, and by offering sophisticated means of textual analysis and critique” (Swenson et al., 2006, p. 356). Therefore, students should have opportunities to learn skills beyond those taught through skill and drill, and participate in higher-level literacy activities.

Digital technologies have the potential to engage students more than traditional pencil-and-paper activities (Englert et al., 2005), helping students to develop the new literacies they will need in this technological age (Coiro et al., 2008; Leu, Kinzer, et al., 2004). Through technological engagement, for example, students have the opportunity to develop new literacies through the use of animations, visual graphics, audio narration, video, music, special effects, hyperlinks, search engines, presentation software, and print (Labbo, 2006; Wepner & Cotter, 2002). In addition, engagement with ICTs and multimedia applications may facilitate higher-levels of literacy. The highest level of literacy requires readers to search through extensive amounts of information, distinguish distracters from important information, make high-level inferences about information shared, and use particular knowledge to communicate this information (Bernardo, 2000). Literacy behaviors indicative of high levels of literacy are central to skills and abilities necessary to acquire new literacies. Thus, participation in new literacies activities will allow students to develop high levels of literacy. The following sections delineate digital technologies and the resulting new literacies students will need in order to support the changing nature of literacy.
Using Digital Technologies to Support New Literacies

Unlike the use of structured skills-based software programs, other software programs, including the Internet, if used appropriately, can help students develop the verbal and nonverbal, visual communication, navigation and critical thinking abilities needed to understand and create meaning in digital and multimedia environments (McKenna et al., 2003; Sutherland-Smith, 2002; Valmont, 2003). As mentioned earlier, the strategies for reading, writing, and communicating using digital technologies are different, although they are also dependent on foundational literacies, than those for print-based interactions. Most importantly, the comprehension strategies for reading online are much more complex (Coiro & Dobler, 2007, Johnson, 2009; Karchmer, 2001). Consequently, students need to have competencies in new literacies in order to fully understand the information presented on the Internet (Coiro, 2003a). Valmont (2003) asserted, “students must make intelligent choices when manipulating features in today’s polysymbolic digital environment, and their comprehension is affected by their choices and their application of strategic verbal and nonverbal literacy capabilities” (p. 93). Difficulties accessing and understanding information in digital environments can arise if students are not acculturated to using these technologies (Swenson et al., 2006).

Characteristics of Digital Technologies. The hypertext and multimedia aspects of digital texts are different than corresponding features of traditional print resources. Traditional print is structured, finite, and presented in a linear manner. The pages are either bound in a book or limited by some other means. However, digital texts allow for the interactive and non-linear presentation of information. Hyperlinks are often embedded within digital texts. These hyperlinks, which may be attached to other related Web pages, picture or sound, give the reader
control over the information that will be accessed, which leads to a lot of decision-making by the reader. The reader also has to decide whether to return to the original page she was reading, or continue to explore information through hypertexts (Coiro, 2003a; Johnson, 2009; Swenson et al., 2006).

The multimedia nature of digital texts also calls for different teaching and learning strategies. Traditional print-based texts are comprised of print and two-dimensional graphics. However, digital texts are different. In addition to print, digital text may include animation, photographs, audio, video, and sound. These multimedia components allow students to have different ways of accessing, understanding, and presenting information (Coiro, 2003a). In such a multimedia environment, students need to acquire visual literacy, which is the ability to recognize, interpret, and construct visual messages (Sutherland-Smith, 2002; Watts-Taffe & Gwinn, 2007). Visual literacy also includes knowing how to critically evaluate visual information for accuracy and value (Metros, 2008). In addition, students have to develop media literacy, which is the ability to interpret and construct messages using a variety of multimedia components (Valmont, 2003). The characteristics of digital technology’s interactive, hyperlinked, and multimedia environment changes the way students read and understand information.

**Digital Technologies and Reading Comprehension.** Reading comprehension strategies for reading online are different from those needed in print context (Coiro & Dobler, 2007). Reading online requires higher levels of inferential reading and comprehension skills. Students need to know when it is appropriate to select a hyperlink, why a particular hyperlink should be chosen, and whether the information accessed through the hyperlink is appropriate to the task at hand.
(Coiro, 2005b; Johnson, 2009; RRSG, 2002). In addition, students need to constantly monitor how they are interacting in this digital environment so they will not get off-task (Coiro, 2005b). By clicking on an irrelevant hyperlink or going to another Web site, students can easily lose track of their initial purpose for consulting the originating Web page. Students also need to learn how to use search engines to sift through the infinite amounts of information online and evaluate the information read (Coiro, 2003b; Henry, 2006).

Use of the Internet does not necessarily result in the access of better or accurate information (Sutherland-Smith, 2002). Information published on the Internet does not go through the same editing process as traditional print; information can be published by anyone and the information may be incorrect or outdated. For example, “Help Save the Pacific Northwest Tree Octopus” is a website complete with pictures, videos, facts, frequently asked questions and other sources that “prove” this octopus lives in trees. Twenty-five of the students presented with this website believed it was factual. In addition, all but one of the students felt the website was very credible. These students even had difficulty, even once they were told the animal was fictional, identifying the false information (Krane, 2006). With the variety on information found online, students must have critical reading comprehension skills to decipher real from false. Information may also have hidden social, economic, or political agendas (Coiro, 2003b; RRSG, 2002). Therefore, students need to be careful of how they interpret information online, and know how to use other digital or print-based resources to verify information. Additionally, they need to know how to check author information such as authority/expertise, the date of publication, and citations (Swenson et al., 2006).
**Digital Technologies and Writing.** Although software programs make the writing process easier for students (Jones, 1994; Schmidt & Gurbo, 2008), they should be used to supplement, not replace traditional paper and pencil writing because traditional means of writing are currently valued in society (Leu & Kinzer, 2003) and are the primary means by which students are assessed on writing ability (Barone & Wright, 2008). The malleable screen and keyboard allow students to add, delete, or move particular written sections while leaving other parts of the document undisturbed. This is different than print-based writing. When using paper to write a document, students do not have the freedom to change only those sections they want to modify; they have to rewrite the information all over again (Valmont, 2003). Using the computer to write also results in positive outcomes. Students are often more motivated to write using word processing software and often write longer compositions with better mechanics and spelling (Van Leeuwen & Gabriel, 2007).

The use of digital technologies can also facilitate the development of higher quality documents (McKenna et al., 2003). Word processing software programs have features that allow students to manipulate text, change font color, type and size, and add multimedia such as sound and graphical components to enhance the written message (Valmont, 2003). Although many elementary teachers reserve students’ use of the computer for typing the final copy of a manuscript, students should have experiences using technology for all parts of the writing process, from planning to the final draft. As stated by McKenna et al., “to reap the benefits of technology, and, indeed to prepare children to use the tools of contemporary writing, word processing must be integrated into all phases the writing process” (p. 321). Therefore, students should use the computer as an electronic portfolio that contains incomplete works, documents to
be edited and completed compositions. In addition, students should be encouraged to read and write reactions to other students’ compositions (Leu & Kinzer, 2003) and write collaboratively with classmates to prepare them for the collaborative nature of writing that is often found online (McKenna et al.).

Multimedia user environments, wikis, threaded discussions, and Web logs (blogs) all allow individuals to write, communicate, and collaborate in an online environment. These new genres of writing bring with them new “digital grammars” (Swenson et al., 2006, p. 354). Therefore, students will have to become acclimated to the forms and functions of collaborative virtual writing. Teachers can provide primary students with opportunities to develop the new literacies for reading and writing in digital contexts through age-appropriate technology experiences.

Primary Students and Digital Technologies

The presence of digital technologies in the classroom does not automatically prompt the teacher to integrate literacy instruction (Labbo & Reinking, 1999). Teachers—especially early literacy teachers—must make a concerted effort to integrate technology.

Teachers, even those who teach children at the earliest stages of literacy development, must begin to initiate their students into the use of digital forms of expression, with a vigor equal to that they have dedicated to more traditional printed forms (McKenna et al., 2003, p. 325).

Primary teachers can integrate digital and print-based activities to provide richer literacy learning experiences for students. In addition to enriched learning experiences, digital technologies may also be very motivating to students. Therefore, some students who have been reluctant to
participate in traditional literacy activities may be more willing to participate in activities that involve digital resources (Watts-Taffe & Gwinn, 2005; Verhallen, Bus, & de Jong, 2006). Digital storybooks and multimedia software programs are some examples of digital technologies that can be integrated into the early literacy curriculum to facilitate the development of new literacies.

Children’s literature is an important component in early literacy classrooms. Therefore, adding digital storybooks to the curriculum can be a natural transition from only focusing on print-literacy to integrating new literacies (Leu, Kinzer, et al., 2004). Digital storybooks, which are available in CD-ROMS or through the Internet, provide experiences for developing new literacies. Digital storybooks integrate a variety of multimedia effects, such as animation, video and audio, in an interactive and hyperlinked environment. Students have the option of reading silently as the text is narrated aloud and they can click on hypermedia text to hear pronunciations and word definitions (McKenna et al., 2003; Schmidt & Gurbo, 2008). Not only do these stories facilitate the development of new literacies; they allow students to improve upon traditional literacy skills such as listening, vocabulary development, fluency, decoding, and comprehension (Verhallen et al., 2006; Castek et al., 2006). Whereas digital storybooks provide students with the opportunity to develop new literacies, multimedia software programs allow students to apply their knowledge of new literacies.

Earlier, the behaviorist theory of learning was explained in relation to CAI. Use of other software programs can support the constructivist paradigm of learning in which “students are actively engaged in their learning, not passively absorbing information” (Anderson & Speck, 2001, p. 7). Thus, these programs are very different from CAI because students play active roles
in creating knowledge and applying new literacies. The open-ended nature of these productivity-type programs allows students to construct knowledge by collecting, organizing, and presenting information. Students do not use the programs to achieve mastery of specific concepts; rather, students are expected to develop complex understandings while using the programs (Niederhauser & Stoddart, 2001; Warschauer, 2003). Multimedia software programs such as HyperStudio, PowerPoint, Storybook Weaver Deluxe, Kid Pix, iMovie, and Windows Movie Maker allow younger students to develop new literacies such as writing in digital contexts, creating and using hypertext, and including videos and pictures to create presentations, while supporting traditional literacy acquisition (Cox, 2005; Cramer, 2004; Schmidt & Gurbo, 2008). The Internet can also be appropriately used with primary students to facilitate the development of new literacies.

**Primary Students and the Internet**

The Internet provides students with the opportunity to play educationally-related games, use search engines to find information, and read text. However, one of the most powerful uses of the Internet in the early literacy classroom is access to a variety of fictional and non-fictional literature. Leu and Castek et al. (2004) posit, “today, opportunities exist for our students to travel to new places and experience richer and more powerful responses to children’s literature when the Internet is thoughtfully integrated with the classroom literature program” (p. 497). Many school and classroom libraries are limited in the amount of books students have access to throughout the school day. Conversely, the Internet provides students with access to a plethora of free children’s literature and informational literature (Castek et al., 2006). In addition, students can also add to this knowledge-base by publishing information online in forms such as
magazines, stories and poems (Cooper & Kiger, 2006; Reinking, Labbo, & McKenna, 2000). Sharing literature and communicating information about literature are central to building early literacy skills.

Reading and communicating information through the Internet is an authentic way for students to become engaged in reading, writing, and communicating using digital technologies (Castek, Zawilinski, Barton, & Nierlick, 2008). Collaborative Internet projects and workshops are two activities that provide students with opportunities to become actively involved in online learning experiences. Collaborative Internet projects are online experiences where students work collaboratively on a common problem or a common topic (Leu, 2001). Literature-based projects allow students as young as kindergarteners to engage in discussions with other students online (Karchmer-Klein & Layton, 2006). Students read literature or research a particular topic, work collaboratively with classmates and then share their responses over the Internet (Castek et al.). They can participate in projects where they expect to receive responses back from other students, or they can participate in projects where they do not expect to receive responses. Responses to literature can be posted in the form of poems, re-written story endings, essays, pictures of story scenes, or any other perspectives (Karchmer-Klein & Layton).

By participating in these projects, students gain the higher-level thinking skills such as collaborative problem solving, analysis and critical evaluation skills central to new literacies (Karchmer-Klein & Layton; Leu, 2001). In addition, students may be more motivated to publish online because they have the opportunity to share their work with people nationally and globally (Castek et al., 2006). Lastly, Collaborative Internet projects expose students to other students in different cities, states, and countries, thus exposing them to new cultures. Exposure to diversity
helps students build multicultural experiences, which is very important in our global society (Leu, 2001; Leu, Castek, et al., 2004).

Internet workshops, another activity that engages students in online experiences, allows students to work independently on a literature-based project and then share findings with classmates. After reading a work of literature, students research a specific topic that was mentioned in the text. Research is conducted on the Internet through particular websites that may have been pre-selected by the teacher for grade-level and topical appropriateness. Students then share the findings of their research with classmates (Leu, 2002). Although Internet workshop and collaborative Internet projects facilitate the development of new literacies, they can also support traditional literacies as well if carefully planned in relation to curriculum standards (Castek et al., 2008). The following study illustrates the influence authentic Internet experiences, using email, can have on improving the achievement of students identified as having low literacy skills.

Teale and Gambrell (2007) described a successful literacy classroom where socioeconomically disadvantaged and African American elementary students engaged in authentic literacy instruction, combining print-literacy and the Internet. These students read literature and engaged in conversations with adult pen pals, which prompted higher-level thinking through book discussions and letter writing. The authors attributed student success to active real-life engagement in literacy activities. After two years of implementation, students who participated in the program scored higher on a nationally normed standardized assessment of reading achievement than those students who did not participate.

As the previous examples of collaborative Internet projects, Internet workshops, and constructive uses of email illustrate, there are many ways in which digital technologies can be
used to support the development of new literacies, and if planned accordingly, traditional literacy as well. However, inequitable uses of digital technologies are occurring in our schools. Computer use for African American and socioeconomically disadvantaged students tends to focus on traditional literacy skills with an emphasis on basic skill practice and less on innovation, thus supporting the pedagogy of poverty.

*Current Equity Issues*

African American and socioeconomically disadvantaged students do not have the same opportunities to develop new literacies as the dominate culture. This may be due to the regular practice of teaching specific, isolated concepts to students at-risk of acquiring literacy skills (Blok, Oostdam, Otter, & Overmaat, 2002; Reitsma & Wesseling, 1998). In addition, CAI may be used frequently with African American and socioeconomically disadvantaged students because it reinforces skills and reduces amount of time teachers spend on remedial instruction (Englert et al., 2005; Kulik & Kulk, 1991). Au (2006) asserted, “when schools adapt literacy programs based on transmission models and a heavy emphasis on lower-level skills, computers are more likely to be treated as electronic workbooks for further reinforcement of skills” (p. 364). The use of CAI and other digital technologies for basic skill practice mimic paper worksheets. As a result, the educational potential of these digital technologies are not fully realized. African American and socioeconomically disadvantaged students need digital learning experiences beyond those offered by CAI software programs to help them develop the higher-cognitive skills and new literacies needed in their literacy futures.

As stated earlier, access to digital resources at school is not sufficient to improve traditional and new literacies to the point of “being educated in the twenty-first century” (Becker,
2000, p. 66). More important is the quality of students’ experiences with digital technologies. The ways in which students engage with these resources influences the development of new literacies (Au, 2006; Ba et al., 2002). Therefore, the teacher’s role is instrumental in engaging students in equitable new literacies experiences with digital technologies (Singham, 2005; Singleton & Mast, 2006; Watts-Taffe & Gwinn, 2007). Cowan (2008) posited, “to operate a school system that limits teachers’ capacities and their use of technology to only those items that fit well in a standardized, test-driven, accountability-based curricula is an injustice that should be challenged” (p. 59). Technology practices that go beyond using CAI with African American and socioeconomically disadvantaged students will enable them to develop the new literacies needed for future literacy expectations. Although it may be difficult for teachers to implement and sustain new and innovative teaching practices in high-stakes school environments (Boardman & Woodruff, 2004; Schoen & Fusarelli, 2008), teachers should be encouraged and supported in trying new techniques with digital technologies. Innovative and cognitively challenging technology use can occur when teachers gain the knowledge and skills needed to integrate digital technologies effectively and meaningfully into the reading curriculum.

**Teachers’ Use of Digital Technologies to Support Literacy**

Although new literacies are not specifically at the forefront of educational policies, national and local mandates support the integration of technology, which can in turn, allow students to develop new literacies. Title II, Part D of NCLB states that elementary and secondary teachers should learn how to effectively integrate technology into the curriculum in order to improve student academic achievement. Standards from The National Council of Teachers of English (NCTE) (2008), the IRA (2009) and The National Technology Plan (U.S. Department of
Education, 2010) state students should use digital technologies proficiently, use ICTs for independent and collaborative communication, research and creation, and incorporate critical thinking and problem solving using digital tools.

Additionally, most educational standards including the Virginia Standards of Learning (SOL) for primary students support the need for meaningful technology integration in the curriculum (Virginia Department of Education, 2002). The Computer Technology Standards of Learning for Virginia Public Schools (Board of Education Commonwealth of Virginia, 2005) states students should use technology for writing, communicating, and publishing (C/T K-2.7), use technology for locating, evaluating, and collecting information (C/T K-2.5), and use technology to solve problems and make decisions (C/T K-2.6). In addition, English SOLs for kindergarten, first, and second grade focus on using technology to read and write (K.12, 1. 12h, and 2.11d). It is important to note that although education is focused on accountability, educators must work together to provide students with the opportunities to develop the skills needed to read, write, and communicate in this increasingly global technological society (Scheon & Fusarelli, 2008).

However, the presence of standards does not guarantee that students will have technology integration experiences to acquire new literacies; the teacher decides if and how technology will be used in the classroom. These decisions are based on the teacher’s own beliefs regarding the value of technology in the curriculum, whether technology use will support her teaching philosophy, and her own knowledge of technology (Ertmer, 2005; Wepner & Tao, 2002). Therefore, participation in professional development is necessary for teachers to understand how technology has changed and will continue to change the nature of literacy, how new literacies are
developed through students’ use of ICTs, and the critical nature of ensuring that all students have this knowledge (Coiro, 2005a; Hughes & Scharber, 2008; IRA, 2009).

Professional development is especially critical for those teachers who educate African American and socioeconomically disadvantaged students. These teachers are more likely than teachers of White and socioeconomically advantaged students to lack technological skills (Attewell, 2001). This lack of technological knowledge may prevent many students from adequately developing new literacies. In an era in which technology will continuously redefine literacy, and ICTs are instrumental for information and communication, no teacher should lack the knowledge, skills and dispositions to appropriately infuse technology into the literacy curriculum.

Teacher Knowledge

Teachers need to be knowledgeable regarding how to use digital technologies to support new literacies. Nevertheless, teachers may not be fluent in technological literacy. As McKenna and colleagues (2003) stated, “it is not trivial to note that today, for the first time in the modern era, teachers have an obligation to prepare children to become literate in ways in which the teachers themselves might not be fully literate” (p. 325). Although teachers have reported participating in recent technology-related professional development (Gray et al., 2010), many teachers do not feel they have the knowledge and skills to effectively integrate technology into the literacy curriculum (Hansen, 2008).

Technology Skills

Teachers’ use and comfort using technology is negatively correlated to their years of teaching experience. Newer teachers, those who have taught fewer than ten years, are more
comfortable using technology than veteran teachers (NCES, 2000; Russell, O’Dwyer, Bebell, & Tao, 2007). In addition, few veteran teachers have the desire and support to integrate technology into instruction (Hughes & Scharber, 2008). Newer teachers are more likely to use digital technologies for personal purposes and to have technology integration experiences in pre-service teacher education courses than teachers who began teaching before digital technologies were considered instrumental in instructing students (Harwood & Asal, 2007).

However, comfort using digital technologies does not necessarily translate into classroom practice (Russell et al., 2007). Groth, Dunlap, and Kidd (2007), for example, found that although pre-service teachers had extensive college classroom experiences integrating technology into literacy lessons, they did not understand the value of technology integration and did not integrate technology into literacy instruction during student teaching. Limited experiences integrating technology during student teaching translates into limited technology integration as a hired teacher (Groth et al.). However, failing to integrate technology meaningfully is not acceptable. According to Hansen (2008), “technology may never replace teachers, but teachers who do not use technology will be replaced by those who do. It is apparent that the role of the teacher in this pedagogical rethinking is critical” (p.117). Therefore, all teachers ranging from new teachers to veteran teachers need to learn how to integrate technology into literacy instruction.

Technological pedagogical content knowledge (TPACK) is one framework helpful for understanding how teachers gain the knowledge and skills necessary for effective technology integration.
Literacy Content Knowledge and Pedagogical Content Knowledge

Integrating technology into the curriculum is a complex task. There are many factors that influence how and why technology is integrated. Thoughtful and carefully planned technology integration will only occur after teachers are comfortable with the content of the curriculum, know how to select appropriate instructional methods, and understand how to choose the best technological tools that will support the goals of the curriculum (Koehler & Mishra, 2008; Russell et al., 2007). Placing technology in classrooms does not guarantee that teachers will use the technology, or that they will know how to effectively integrate it to support student learning (Glazer et al., 2005; King, 2002). As Pierson (2001) asserted:

technology in the hands of a merely adequate teacher will lack the experienced and thoughtful motivation necessary to embed it within a context of sound teaching practice. Conversely, technology in the hands of an exemplary teacher will not necessarily result in integrated and meaningful use (p. 27).

Teachers have to develop technological skills and attain certain knowledge in order to integrate technology effectively. One model for addressing the development of knowledge that is instrumental in technology integration is the Technological Pedagogical Content Knowledge (TPACK) model developed by Koehler and Mishra (2006). TPACK is a framework for understanding how teachers apply content and pedagogical knowledge to the effective integration of technology in instruction (Koehler & Mishra, 2008). The following sections will detail the components of TPACK, beginning with content knowledge and ending with effective technology integration.
As mentioned above, before technology becomes a part of the curriculum, teachers must understand the relationships among content, pedagogy and student learning. The teacher's content knowledge (CK) and pedagogical content knowledge (PCK) enable students to reach the goals of the curriculum. Teachers with appropriate CK know how to organize learning experiences, present the content, and provide explanations on the importance of this topic in the curriculum (Shulman, 1986). When examining the CK of literacy teachers, they should have a firm understanding of the content knowledge that will enable students to read and write such as knowledge of the reading process and appropriate reading theories (Schmidt & Gurbo, 2008).

Once this content knowledge is attained, teachers should have both knowledge of general pedagogical practices, and also know how to select the best instructional methods to teach particular content, or pedagogical content knowledge. Koehler and Mishra (2008) stated, “PCK covers the core business of teaching, learning, curriculum, assessment, and reporting, such as the conditions that promote learning and the links among curriculum, assessment, and pedagogy” (p. 14). Therefore, PCK is knowledge of how to teach the content so that it is understandable to students. Teachers with this knowledge understand why a topic is easy or difficult for students, anticipate misconceptions students may have about the topic, and use different strategies to teach particular strands in the content (Shulman, 1986). PCK for literacy teachers encompasses: 1) teaching literacy as a developmental continuum, 2) using a variety of teaching methods and strategies to meet the individual needs of students, 3) establishing a literacy environment, 4) using a variety of approaches that motivate students to read, and 5) employing different strategies and tools to assess learning (Schmidt & Gurbo, 2008). However, PCK will continue to change as literacy is constantly being redefined. Schmidt and Gurbo reported, “since technology
has the potential to change the nature of literacy and also the way literacy learning occurs, teachers must continually refine their PCK based on what technology can contribute to literacy learning in the elementary classroom (p. 67). Therefore, literacy teachers need to be cognizant of how technology can be used to support the changing nature of literacy.

A firm understanding of literacy CK and PCK underlie any decisions regarding when and how instructional resources are used in the classroom. This knowledge base is expanded even further when digital technology is chosen to purposefully become a part of the literacy curriculum. Teachers need to have a deep understanding of content, pedagogy and technology to know when to use digital resources to best support traditional and new literacies (Watts-Taffe & Gwinn, 2007). Shulman’s ideas of content knowledge and pedagogical content knowledge are central to understanding how teachers learn to integrate technology in the curriculum (Koehler & Mishra, 2008; Pierson, 2001).

**Technological Pedagogical Content Knowledge**

Educators in the English Language Arts must especially address the changing nature of literacy because literacy and technology are closely interrelated (Hughes & Scharber, 2008). As a result, the skills and strategies for engaging with new literacies must be integrated into the literacy curriculum (Coiro, 2003b). It is important to note that this focus on new literacies does not change the focus of the literacy curriculum (Hansen, 2008). The “integration of technology into literacy instruction should contribute to and enhance, not replace or detract from, aspects of exemplary literacy learning” (Watts-Taffe & Gwinn, 2007, p. 20). Technology use should support traditional print literacy while allowing students to read, write, and communicate using digital technologies.
Effective technology and literacy integration is defined by: a) integration of traditional and new literacies, b) encouragement of critical thinking, c) inquiry learning, d) integration of literacy instruction with content-area instruction, e) social interaction and collaboration, f) differentiation to meet the individual needs of learners, g) equity of access to technological resources, h) classroom as a learning community, i) preparation and flexibility in implementation, and j) sustained focus on the importance of print-based literacies (Watts-Taffe & Gwinn, 2007). Therefore, literacy teachers must know when, where, and how to use technology in the curriculum to support student learning. Technological knowledge (TK) and technological content knowledge (TCK) are instrumental in making decisions regarding technology use.

The choices teachers make regarding how and why to use digital technologies is dependent on their knowledge of these resources (Harwood & Asal, 2007). As Harwood and Asal asserted, “good education starts with good teachers, and in our era of digital technologies this must include familiarity with new technologies” (p. 92). Teachers with TK are familiar with the productivity software, writing tools, and other digital technologies that can support literacy instruction such as digital storybooks, Inspiration, Kid Pix, Power Point, Microsoft Word, and the Internet (Watts-Taffe & Gwinn, 2007; Wepner & Tao, 2002). In addition to being aware of these digital resources, teachers need to know how use of the technologies changes the content and pedagogical approaches in the literacy curriculum. Teachers with TCK know how reading, writing, and communicating change when students engage in literacy activities with technology (Schmidt & Gurbo, 2008). As mentioned in an earlier section, digital technologies allow nonlinear reading in a hypertext and multimedia environment, leading to different interactions
with print (Swenson et al., 2006). In addition, TCK is especially important because many of the software programs and Internet technologies were not developed for education; they were developed for business and communication purposes. Therefore, teachers have to overcome “functional fixedness” and envision new and different ways for using these technologies to support student learning (Koehler & Mishra, 2008, p. 17). This technical knowledge, combined with content and pedagogical knowledge, is instrumental for the effective integration of technology and literacy (Schmidt & Gurbo).

A multifaceted set of knowledge is needed before teachers can integrate technology meaningfully in the curriculum. Therefore, teachers must “understand the complex relationships between content, pedagogy, and technology or technological pedagogical content knowledge (TPACK)” (Schmidt & Gurbo, 2008, p. 71). The teacher needs to make decisions regarding the content to teach (CK), the best instructional approach to teach the content (PCK), and the manner in which this content knowledge will change when students use technology (TCK) (Schmidt & Gurbo). By understanding the interconnectedness of content, pedagogy, and technology, the teacher learns how technology can be integrated meaningfully into current practices, which may eliminate haphazard and ineffective technology integration.

Schmidt and Gurbo describe how a literacy teacher used her knowledge of TPACK to purposefully and effectively integrate technology in a first-grade literacy lesson. The goal of the lesson was to assist students in developing the conventional literacy skill of fluency. First, the teacher read a predictable storybook to the class. Next, the teacher informed the students that the class will create their own predictable storybook. After collaborating with classmates, each student created his own page for the storybook using the multimedia software program Kid Pix.
Students also narrated their writings using the audio feature on the program. Once students completed their page, the slideshow was shared in a whole-class setting. Paper copies were then printed so students could read the book in class to practice fluent reading.

As illustrated in this case, the teacher had specific goals for technology integration. As a result, technology use was carefully planned and implemented to support literacy. The teacher understood how to best use technology in the literacy lesson. In addition to practicing a traditional literacy skill, students in the example also practiced new literacies while participating in the Kid Pix storybook activity. Students used a multimedia software program that enabled them to word process and present their books digitally. In addition, they worked collaboratively with others using technology and used graphic and audio files to enhance the text. As illustrated, the new literacies did not have an overbearing presence; traditional literacy was the focus.

In another example offered by McKenna et al. (2003), kindergarten and first grade teachers integrated technology into their classroom practices. Although the framework of TPACK was not specifically addressed in this example, it is clear the teachers had a strong knowledge of content, pedagogy, and technology, and the interaction of those three elements for effective technology and literacy integration to address traditional and new literacies. After listening to a story about bats read aloud by the teacher, the students participated in computer activities during their center time. During this time, the students listened to an audio recording of the same book on the computer, used the hypertext feature to hear pronunciations and definitions, and clicked on illustrations to retrieve more information about bats. Next, students used Kid Pix to write a story about bats. Traditional literacy skills were also strengthened by students' purposeful interactions with technology. These kindergarten students constructed
concepts about print by reading text from left to write and recognizing the speech-to-word matches. In addition, the students applied their knowledge of literacy to compose stories.

In order to create learning experiences that give students opportunities to engage in both traditional and new literacies, teachers must have a considerable amount of professional knowledge to make these learning experiences successful. Professional development can help teachers learn how to use their knowledge of content, pedagogy and technology to construct learning activities that facilitate the development of new literacies with the context of the curriculum.

Professional Development

Professional development can be defined as the processes that assist teachers in developing deep content knowledge about the subjects they teach, and in turn, improve student learning experiences (Guskey, 2003; The National Staff Development Council [NSDC], 2001). These professional development opportunities encourage teachers to engage in critical thinking about current pedagogy, develop new instructional methods, and evaluate how new instructional strategies influenced student learning experiences (Kelleher, 2003). The rapidly changing nature of technology and an increase of ICTs in the school environment suggest urgency for ongoing professional development for literacy and technology integration (Karchmer, 2001; Watts-Taffe & Gwinn, 2007). However, professional development for literacy and technology integration has been inadequately addressed.

Inadequacies of Professional Development for Literacy and Technology Integration

Teacher training for technology and literacy integration has not been a top priority in education (Morrow et al., 2002). Although teachers have more resources available through
technology than ever before, many have not received sufficient training in the effective uses of
digital technologies to enhance student learning (USDOE, 2004; Morrow et al.; Scott & Mouza,
2007). Poorly designed and implemented professional development does not allow teachers to
understand how technology can be used to support student learning (Russel et al., 2007). To
paraphrase from Scott and Mouza (2007), effective professional development for technology
integration should a) improve teachers' understanding of their subject matter with respect to
technology, b) increase their experience using technology, c) improve their experience using
technology in the classroom, d) encourage leadership roles within and outside their school, e)
and establish a sense of community to support classroom implementation of technology (p. 263).
However, many current professional development practices for literacy and technology
integration do not meet these criteria for effective professional development. As a result, these
professional development sessions have little influence on teachers’ decisions to integrate
technology meaningfully into the literacy curriculum.

Teachers are more likely to learn how to use technology through division-wide courses,
workshops, and institutes (Hansen, 2008; USDOE, 2003). However, these professional
development models have not been shown to change teacher practice (Schrum, 1999). In
addition, many professional development sessions are not effective because they frequently lack
hands-on experiences or are too brief, such as one-day or half day presentations, for teachers to
internalize the information (Glazer et al., 2005; Gora & Hinson, 2003; Rodgers & Pinnell, 2002).
Participation in longer professional development sessions—that is, more than nine hours—is
more likely to improve teachers’ confidence using technology than shorter sessions (NCES,
2000).
Teachers who effectively integrate technology into literacy actively seek out other professional development opportunities outside of those offered by the school division. In addition, rather than seeing professional development as a one-time activity, they view professional development as ongoing (Watts-Taffe & Gwinn, 2007). The knowledge and skills learned through division-wide professional development can be enhanced by school-based opportunities tailored to the needs of the students and teachers within the school (Guskey, 2003). Multiple opportunities to learn both outside of the school setting and within the school environment offer powerful ways for teachers to develop competencies (Glickman, Gordon & Ross-Gordon, 2007; Putnam & Borko, 2000).

Currently, professional development focuses too much on learning specific technology in an isolated context (Glazer et al., 2005; Shenton & Pagett, 2007). Although teachers need to have adequate technology skills before integration occurs (Heeren, 2007; Karchmer, 2001), the development of technological competence should not be the primary goal of the professional development session. Professional development programs designed to develop competencies on learning how to use email, word processing, or the Internet are not sufficient to provide teachers with the knowledge and skills necessary to integrate technology into instruction. Alternately, professional development should develop technological competence with respect to the curriculum and current teaching practices (Domine, 2006; Scott & Mouza, 2007; Watts-Taffe & Gwinn, 2007). The more teachers participate in professional development programs specifically targeted to technology integration in a particular content area, the more likely they are to integrate technology in the curriculum (USDOE, 2003; Hansen, 2008; Hughes & Scharber, 2008). Therefore, teachers need to participate in professional development that explicitly shows
how digital technologies can be used in literacy instruction to develop new literacies (Schmidt & Gurbo, 2008).

When teachers do not have the appropriate knowledge to integrate technology into the curriculum innovatively, meaningfully, and purposefully, they tend to use CAI as their form of integration (Labbo et al., 1998; Scott & Mouza, 2007; Turbill, 2001). In addition, technology is least likely to be integrated into literacy instruction when teachers do not understand its role in developing traditional literacy skills and new literacies (Reinking et al., 2000). Therefore, in order for literacy instruction to include effective uses of digital technologies, teachers need to broaden their definitions of literacy to include new literacies. Otherwise, students will likely continue to use computers as digital worksheets (Hassett, 2006; Labbo, 2006). If teachers define literacy as gaining meaning from text, then they are less likely to see the role of technology in supporting literacy skills. As Labbo asserted, “when the only definition you have of literacy focuses on print-based skills, every computer activity you design begins to resemble paper and pencil learning” (p. 28). However, if teachers have a multiliteracies perspective, then technology will probably play a larger role in developing literacy skills (Turbill, 2001). Ongoing effective professional development in a supportive environment can help teachers reevaluate and expand their idea of literacy and gain the knowledge, skills, decision-making strategies and confidence to effectively integrate technology in the literacy curriculum (Watts-Taffe & Gwinn, 2005; Watts-Taffe & Gwinn, 2007).

*Effective Professional Development for Literacy and Technology Integration*

The changing nature of literacy requires new approaches to professional development (Leu & Kinzer, 2000). Coiro (2005a) posits, “if educators are to keep up with the advances in
technology and the resulting changes in literacy, it is imperative that schools adopt new practices for professional development (p. 203). Effective professional development opportunities for literacy and technology integration provide teachers with frequent hands-on and authentic experiences that illustrate how existing technologies can support specific reading and writing activities (Schmidt & Gurbo, 2008). Professional development for literacy and technology integration should encourage teachers to reflect on the following questions:

- How can you design the curriculum so technology use supports the tenets of effective literacy instruction?
- How can you design the curriculum so technology use supports your particular students as learners, both in terms of the content to be learned and the process by which they will learn it? (Watts-Taffe & Gwinn, 2007, p. 107)

Teachers have to approach literacy and technology integration with critical thinking and reflection in order to design meaningful technology experiences. Therefore, the above questions require teachers to decide upon the content that is important in the curriculum, reflect on current teaching practices, and decide how those practices might change when integrating technology (Watts-Taffe & Gwinn, 2007).

Because the new literacies perspective has emerged relatively recently, qualities of effective professional development practices for the integration of literacy and technology are currently being researched (Watts-Taffe & Gwinn, 2007). However, Coiro (2005a) has identified three main characteristics of effective professional development in the area of literacy and technology integration. These tenets of effective professional development for literacy and technology integration are not unique to this area; they are based on effective professional
development practices in literacy education and technology integration overall. These ongoing professional development opportunities are developed with the understanding of the technology developmental continuum, teachers' beliefs, and the importance of collaboration for building capacity.

*Technology Developmental Continuum.* An understanding of the technology developmental continuum provides for more effective professional development. Every teacher has different technology competencies and beliefs about the roles of technology in instruction. These background experiences and beliefs influence how quickly teachers move through the developmental continuum, and as a result, use technologies in their classrooms. Using the developmental continuum as a framework, professional development facilitators can provide opportunities that are specific to each teacher's technology competency and learning expectations (Coiro, 2005a; Russell, 1995).

Teachers may go through many developmental stages before they acquire the knowledge and skills to integrate technology into instruction (Dwyer, Ringstaff, & Sandholtz, 1991; Lloyd & McRobbie, 2005; Russell, 1995). Teachers often move through a series of stages ranging from basic knowledge to innovative uses. Russell found that teachers progressed through the following different stages sequentially: a) awareness of a technology, b) learning the process—learning how the technology works c) understanding and application of the process—understanding how to use and apply the technology to complete specific educational tasks, d) familiarity and confidence, e) adaptation to other contexts, and f) creative applications to new contexts. As stated earlier, individuals enter the continuum at different levels and may move through these stages at different rates. However, it is important to remember that movement from
adoption to innovative uses of technology is an incremental process (Dwyer et al.). Expecting teachers to be innovative shortly after learning about a particular technological tool may result in limited implementation and negative attitudes toward technology integration (Thomson et al., 2006).

The developmental continuum reiterates that professional development in the area of technology and literacy integration cannot be one-size-fits all. Professional development should address teachers' individual needs and experiences (Coiro, 2005a). Some teachers may have very limited technology experiences. Therefore, their professional development needs will be different from those of other teachers who use technology frequently for personal or educational reasons. In addition to technological competence, beliefs play an important role in facilitating technology integration.

*Teachers' Beliefs.* Beliefs guide a teacher's decision to integrate technology into instruction (Coiro, 2005a; McKenna et al., 2003). Teachers are more likely to integrate technologies when they believe they are effective instructional tools (Watts-Taffe & Gwinn, 2007; Zhao & Cziko, 2001; Zhao & Frank, 2003) and use supports their philosophies and pedagogies (Ertmer, 2005; Franklin, 2007; Zhao, Pugh, Sheldon, & Byers, 2002). Sandholtz, Ringstaff, and Dwyer (2000) asserted, "If beliefs govern behavior, the process of replacing old beliefs with new becomes critically important in changing educational practice in schools" (p. 257). The new literacies perspective calls for changed beliefs about the role of technology in literacy instruction (Coiro et al., 2008; Leu, Kinzer, et al., 2004). Instructors of all students, especially those of African American and socioeconomically disadvantaged students, must change their beliefs and resulting pedagogies regarding digital technologies—using these
resources to primarily practice literacy in the skill-and drill format or not using technology at all in literacy instruction—to include more integrative and cognitive challenging activities that will allow students to develop new literacies. If this change does not happen, African American and socioeconomically disadvantaged students will continue to participate in inferior and hegemonic literacy practices.

However, changing beliefs regarding the purposes of technology use in literacy instruction can be very problematic, especially when teachers prefer traditional print literacy activities over activities involving reading and writing using digital technologies. It may be difficult for some teachers to accept that digital resources can be used in pedagogically powerful ways to enhance teaching and learning (McKenna et al., 2003). In this case, it is important to create “cognitive conflict” (Hughes & Scharber, 2008, p. 101) within literacy content knowledge to combat beliefs. Teachers must compare and contrast current pedagogical practices against new ideas and suggestions (Scott & Mouza, 2007) and learn about new perspectives in literacy instruction by engaging in practices with new technologies (Hughes & Scharber). However, this change does not come about easily (Scott & Mouza). Zhao and Cziko’s (2001) perceptual control theory offers an explanation on why changing beliefs regarding technology can be difficult.

According to perceptual control theory (Zhao & Cziko, 2001), teachers must see a real need for integrating technology, and they must believe that technology can be used to help their students reach appropriate educational goals. If a teacher perceives current pedagogical practices as being effective in reaching educational goals, then they are unlikely to change current practice. However, if teachers realize that current practices would benefit from adjustments, then they are likely to change pedagogy (Staples, Pugach, & Himes, 2005; Zhao & Cziko). Perceptual
control theory can be used to understand the ways technology is used currently in the literacy curriculum with certain student populations. Teachers may not be aware that CAI is not preparing students to acquire new literacies. However, as teachers begin to understand the reasons for changing pedagogical practices, see a need for integrating technology and literacy, understand how digital technologies can help students reach literacy goals and participate in appropriate professional development, they are more likely to use technology in ways that will support students' development of new literacies.

Although a change in beliefs is important, the decision to change pedagogical practices and try something new does not happen quickly. Teachers must progress through a series of steps in order to adopt new practices. Rogers' (2003) theory of the "innovation-decision process" (p. 168) can be used to understand how teachers decide to use an innovation—in this case new literacies and the digital technologies needed to support these skills—and how that decision influences beliefs. The first step in this process is for teachers to acquire knowledge about an innovation. Therefore, teachers need to understand the differences between traditional literacies and new literacies, know why new literacies are important, and become knowledgeable of the most appropriate methods and resources to use to help students acquire new literacies. Next, an opinion is formed and decisions are made regarding whether or not to use a particular innovation. Specifically, teachers will decide whether they want to adopt the new literacies perspective and decide how this change will influence their pedagogy and the goals of the curriculum. Lastly, teachers must use digital technologies in an actual lesson that supports new literacies development. This action reinforces or disconfirms beliefs regarding the role of new literacies in literacy instruction. As stated earlier, beliefs regarding the role of technology integration can be
difficult to change (Scott & Mouza, 2007). However, beliefs must change if technology is to become an integral part of literacy instruction (Hughes & Scharber, 2008; McKenna et al., 2003).

The following is an example of how teachers' beliefs about the roles of technology in the writing curriculum changed when they participated in professional development that was ongoing and supportive.

Scott and Mouza (2007) analyzed professional development efforts focused on the integration of technology and writing to support the changing nature of literacy. The purpose of this two-week professional development session was to develop technological competence and TPACK. Kindergarten through twelfth grade teachers were introduced to new digital technologies and provided with opportunities to practice integrating those technologies in the writing curriculum. Teachers entered the professional development session with basic technological competence such as word processing, using the Internet to search information, and operating multimedia software. Therefore, the purpose of the professional development was to develop advanced knowledge with familiar technologies—word processing software, the Internet, and multimedia software—and to develop new knowledge with unfamiliar technologies such as software for digital storytelling, and online communication tools such as blogs and wikis.

Not only did teachers improve their technological competence; they also improved their pedagogical understanding of how different digital technologies could be used to support the goals of the writing curriculum. Teachers were then encouraged to integrate digital technologies into writing instruction and attend additional follow-up professional development sessions. Scott and Mouza found that teachers changed their beliefs regarding the role of technology in the writing curriculum after considerable acquisition of new knowledge and application of that
knowledge with their students. Teachers had more confidence in their technological abilities and they were able to provide specific examples detailing why digital technologies should be used in the writing curriculum. Learning about the technologies not only prompted teachers to reevaluate their beliefs about the roles of technology in learning and teaching, but also their pedagogical beliefs regarding writing instruction. Teachers changed their beliefs regarding the roles of technologies after they saw that student learning was positively impacted by this integration. Students were more motivated to write, they produced more authentic texts, and began to think about new ways of writing.

As the previous example demonstrates, beliefs about digital technologies can change via direct, positive experiences with their instructional use. In addition to personal experiences, the beliefs and experiences of colleagues also have a large influence on how teachers view the roles of technology in the curriculum and their willingness to learn about technology integration (Levin & Wadmany, 2006; Oncu, Delialioglu, & Brown, 2008; Scott & Mouza, 2007). Learning is a social process and people within an environment have a large influence on what and how something is learned. Opportunities for professional growth are especially enhanced when teachers from different teaching backgrounds and expertise engage in conversations about teaching and learning (Putnam & Borko, 2000). These social interactions are important in a school environment that has a vision for technology integration (Coiro 2005a; Watts-Taffe & Gwinn, 2007).

**Collaboration.** Teachers need opportunities to reflect and share with colleagues during professional development opportunities (Darling-Hammond & Bransford, 2005; Shamburg, 2004; Zhao et al., 2002). Collaboration among colleagues is especially important with the
ongoing changes in technology and the impact these changes have on literacy (Watts-Taffe & Gwinn, 2007). When integrating technology into instruction, it is important that teachers critically reflect on the possible changes in pedagogies as a result of incorporating particular technologies, a change in their beliefs systems about teaching and learning, and their experiences in an open, collegial environment (Dwyer et al., 1991; Ertmer, 2005). A collaborative environment characterized by ongoing peer support, sharing and modeling is more likely to facilitate change in teaching practices than guest speakers, one-day trainings, or demonstrations (Glazer et al., 2005; Lyons & Pinnell, 2001; Rodgers & Pinnell, 2002). Therefore, by engaging in meaningful and ongoing conversations about the role of technology in the curriculum, teachers may be more likely to see the value of ICT integration in the literacy curriculum (Lloyd & McRobbie, 2005).

While teachers should have the opportunity to participate in professional development in a variety of settings, (Watts-Taffe & Gwinn, 2007), they need practical experiences within a supportive school environment to support focused and sustained technology integration (Barone & Wright, 2008; Watts-Taffe, Gwinn, Johnson, & Horn, 2003). As asserted by Putnam and Borko (2000), “although settings away from the classroom can provide valuable learning opportunities . . . integrating the ideas and practices learned outside of the classroom into one’s ongoing instruction program is rarely simple or straightforward” (p. 6). Participation in extensive professional development may improve technology skills. However, it may not change technology integration practices to result in higher-quality activities—integration may reflect poor quality and limited connection to learning goals (Brinkerhoff, 2006). Because it is often difficult for teachers to apply the information learned during professional development to their
own classroom practice, many teachers need professional learning experiences situated within their own schools and classrooms (Putnam & Borko) to see connections between the information learned at professional development and educational goals of the curriculum (Brinkerhoff). Actual use of digital technologies to support new literacies is important because teachers’ self-efficacy, which is informal self-assessment of their capabilities, improves when they have successful experiences in the classroom (Tshannen-Moran & Hoy, 2007). Therefore, positive instructional experiences with unfamiliar technologies can change the teachers’ opinions of them, leading teachers to use the new tools and resources more in instruction (Matzen & Edmunds, 2007; Oncu et al., 2008; Scott & Mouza, 2007). This situated learning is especially important for teachers of traditionally low-performing students because they need to know specifically how technologies can be integrated into the curriculum while supporting required standards and preparing students for high-stakes assessments (Meier, 2005).

Professional development for literacy and technology integration can take many different forms. However, to assist teachers in overcoming some of the challenges inherent in technology integration, teachers must participate in ongoing and targeted professional development within a collaborative environment that will meet their individual needs and the needs of their students (Coiro, 2005a; Lyons & Pinnell, 2001; Watts-Taffe & Gwinn, 2007). This teacher knowledge is instrumental in ensuring that all students have the opportunities to develop new literacies.

Challenges to Technology Integration Professional Development

There are some constraints when it comes to professional development for technology integration in this era of instructional accountability. Professional development funded by Reading First grants are required to be research-based and aligned with the reading curriculum.
The focus must be on the five components of literacy instruction—phonemic awareness, phonics, decoding, fluency, and comprehension. A concrete focus on those literacy elements are one way to ensure that teachers have the appropriate skills needed to teach these components effectively in their classrooms (USDOE, 2002a; Teale et al., 2007). In addition to the mandates imposed by Reading First, the content of professional development implemented in low-performing environments focuses on ways the new information learned can be directly applied to the existing curriculum and assessments (Hew & Brush, 2007; Overbaugh & Lu, 2009).

Therefore, new literacies pose an interesting question for administrators and teachers according to Boardman and Woodruff (2004): should professional development on new literacies be provided even though it does not mirror tested material or should new literacies professional development be ignored in favor of professional development directly related to instructional standards? Perceptions of digital technologies’ importance in students’ lives have a large influence on how these resources are used in the classroom.

A Need for Critical Research on Professional Development Practices

Many African American and socioeconomically disadvantaged students are not prepared to read and communicate in this technological society. They are not acquiring sufficient traditional literacy skills, nor are they receiving learning experiences that will prepare them for new literacy expectations. Educators cannot continue to marginalize these students who historically have been overlooked and underprivileged. African American and socioeconomically disadvantaged students should have the same experiences as the dominant culture to develop the literacy skills needed in society. Literacy instruction and technology use cannot continue to mirror the pedagogy of poverty. All educators have the responsibility to prevent this social
injustice from continuing to occur. We must ensure that technology is used in equitable ways, regardless of socioeconomic background or race.

As this review of relevant literature has demonstrated, racial and socioeconomic inequalities exist regarding how teachers use digital technologies with their students. Previous research has addressed this issue and uncovered correlations among race, socioeconomic background and differential uses of technology (Becker, 2000; Judge et al., 2004; Parsad & Jones, 2005). This research is primarily descriptive in nature, detailing differential use, but not delving into the decisions teachers make regarding technology integration. Other literature is theoretical in nature, describing how technology integration should occur in the literacy curriculum in order to promote new literacies (Coiro, 2005a; Kara-Soteriou, et al., 2007; Labbo, 2005). However, this research does not explore issues of race and socioeconomic status in the context of these practices.

Limited theoretical and empirical research exists regarding the role of professional development in the area of literacy and technology integration (Scott & Mouza, 2007; Watts-Taffe & Gwinn, 2007). This research does not discuss the role of professional development in equitable literacy practices. Critical analysis of teacher professional development opportunities could provide a clearer understanding of some of the underlying factors within professional development that may contribute to the differential uses of technology in the literacy curriculum, and in turn, impact the development of new literacies. Therefore, it is important to explore those factors that may underlie teachers' decision-making, relating those factors to larger structural issues to explain inequitable literacy-related digital technology practices in schools. The following section, Chapter Three, details the methods for critical research study.
CHAPTER THREE: RESEARCH METHODS

In order to become literate in our increasingly technological society, students need experiences reading, writing, and communicating using the Internet and other ICTs (Coiro et al., 2008; Leu & Kinzer, 2000). However, not all students have the opportunity to engage in practices that will develop these new literacies, and in turn, become literate. Research indicates that students’ uses of technological resources are highly correlated to race and socioeconomic status, with African American and socioeconomically disadvantaged students more likely to engage in technological practices that emulate traditional print-based literacy experiences, disregarding those involving new literacies development (Coiro et al., 2008; Harwood & Asal, 2007; Warschauer et al., 2004). Decisions regarding digital technologies’ use in school do not rest with students; teachers control how these resources are implemented in the classroom.

Unfortunately, disparities in educational practices involving new literacies are not unique to our current information-based society. African American and socioeconomically disadvantaged students have been marginalized in our schools historically. Educational researchers have begun to shed light on the disparities in digital technology uses in today’s schools and are discussing the repercussions equitable experiences can have for certain student populations.

Although it is important to acknowledge these discrepancies, research has largely neglected to address why teachers are providing inequitable digital technology experiences in terms of critical theory. To meet the educational needs of all students, especially African American and socioeconomically disadvantaged students, we must understand the impact that race and economic status have on teachers’ decisions to use digital technologies to support the development of new literacies. Teacher knowledge of technology integration, which is largely
built through professional development opportunities (Coiro, 2005a; Watts-Taffe & Gwinn, 2007) influences how students use technologies in the classroom (Labbo, 2006; Schmidt & Gurbo, 2008; Turbill, 2001). Therefore, this research critically examined teacher professional development in the area of technology and literacy integration to discover how teachers at racially and economically different schools may gain the knowledge and skills to integrate digital technologies to support new literacies. In addition, this research also explored why digital technologies use may differ depending on the population of students taught. The research was conducted at two urban schools within the same school division in eastern Virginia, United States, selected with particular focus upon race and economic status.

The overarching research question for this study is as follows: Can disparities in digital technologies use for the development of new literacies be attributed, in part, to the nature of professional development experiences? If so, how and why? The research was guided by the following questions:

When comparing teachers at a socioeconomically disadvantaged school with a predominately African American student population to a more socioeconomically advantaged school with a large percentage of African American students:

1) What are the teachers' professional development experiences for technology integration? How, if at all, do they differ?

2) How, if at all, do the nature and/or levels of information and communication technology integration in the literacy curricula for the two teacher groups differ?

3) What are teachers' expressed reasons for integrating technology in the literacy curriculum? How, if at all, do these perceptions differ between the two teacher groups?
This chapter describes the qualitative methods utilized to critically explore literacy-related educational technology professional development experiences at two racially and economically different schools by generating and analyzing data. This chapter will begin with a description of the critical realist paradigm and critical theory perspective framing this research study. Following a description of the study's paradigm and perspective, the discussion will focus on its grounded theory research strategy, and the specific methods used to conduct this study. A description of the research sample and setting will follow, then explication of data generation and analysis procedures. The chapter will conclude with criteria of quality and ethical safeguards in place to ensure this study was conducted competently and fairly while protecting the rights of participants.

Paradigm, Perspective and Research Strategy

A paradigm is the researcher's view of the world. This view has a large influence on the research process, guiding how research is conducted and analyzed (Lincoln & Guba, 1985). Patton (2002) defines a paradigm as:

- a world view—a way of thinking about and making sense of the complexities of the real world. As such, paradigms are deeply embedded in the socialization of adherents and practitioners. Paradigms tell us what is important, legitimate, and reasonable. Paradigms are also normative, telling the practitioner what to do without the necessity of long existential or epistemological consideration (p. 69).

Therefore, paradigms are shaped by the researcher's epistemology (the relationship of the researcher to what s/he knows), ontology (the believed nature of reality) and methodology (the study of the research process). The researcher's paradigm influences how research is conducted
and analyzed. As such, paradigms are vital in qualitative research because of its interpretative nature (Denzin & Lincoln, 2005).

Critical Realism Paradigm

Rossman and Rallis (2003) identify four primary classifications of paradigms: positivism, interpretivism, critical humanism, and critical realism. This research study adopted the critical realism paradigm. Critical realists believe that knowledge is socially constructed and it is possible to understand reality independent from individuals' perceptions. Therefore, critical reflection is the only way to understand this reality (Denzin & Lincoln, 2005). Reflection allows for the critical realist to identify and describe why social issues related to power occur (Dobson, 2002). The critical realism paradigm was appropriate for this research study because I examined inequitable new literacies practices in schools. Critical realism was also suitable for this research study because it is founded on many of the same principals of the critical theory perspective (Kincheloe & McLaren, 2005) used in this research.

Critical Theory Perspective

Critical theory is ever-evolving due to the development of new theoretical insights and societal problems (Kincheloe & McLaren, 2005). As an attempt to define critical theory, Kincheloe and McLaren offer a reconceptualization that defines the nature of critical theory in the 20th and 21st centuries. A reconceptualized critical theory focuses on the issues of equality and freedom in democratic societies. In addition, it purports that society and history have a large influence on how individuals view themselves and the societies in which they live, thus shaping the ontological beliefs—the believed nature of reality—of critical theorists. Ontologically, critical theorists believe that phenomena should be examined historically because they are
shaped by various social, political, cultural, and economic values that have become normative over time (Denzin & Lincoln, 2005).

Critical theorists seek to empower oppressed groups by uncovering the injustices in society, or a sector within society. They believe in the importance of discovering these injustices by dialoging with individuals to gain a deeper understanding of the meaning of their experiences (Guba & Lincoln, 2005). By writing about these injustices, critical researchers reject a neutral position on a topic and adopt a position of activism. They want consumers of the research to understand that they desire a more just world for oppressed individuals. Therefore, research is more than a description or an interpretation of a phenomenon. The critical researcher's epistemology—the relationship of the researcher to what s/he knows—purports that values are instrumental to making meaning from research findings (Denzin & Lincoln, 2005). The researcher's interpretations are essential to analyzing, conceptualizing, and reporting findings. Therefore, critical theory-based research reflects the ideologies of the researcher, which are explained at the beginning of the inquiry. It seeks new theoretical insights to further understand the ways power and oppression work in society (Kincheloe & McLaren, 2005). It asks: “What constitutes power, who holds power, and in what way is power utilized to benefit those already in power?” (Jennings & Lynn, 2005, p. 16). This focus leads to the intended outcome of critical theory, which is to encourage political action that will change the way society has been for the oppressed (Kincheloe & McLaren).

As mentioned above, critical theory is a general theory and is comprised of more specific paradigms that are applicable in different interpretive communities. This qualitative study was situated in the reconceptualized critical theory of power: hegemony and ideology (Kincheloe &
McLaren, 2005). This critical theory focuses on how beliefs and practices work in cultural institutions to oppress individuals and produce inequalities. The concept of hegemony is important to discuss when exploring issues of oppression in critical research. Using the definition of hegemony coined by Antonio Gramsci, hegemony occurs when the actions and ideologies of those in power are used in ways to marginalize others, dominating one social group over another (Kincheloe & McLaren). It is present in cultural institutions, such as schools, when educational practices are based upon factors such as students' race, class, and/or gender, resulting in different types of knowledge given to these groups (Kanpol, 1999). These hegemonic ideologies are actively constructed by individuals and embedded in ongoing instructional practices.

Corresponding practices become institutionalized over time, heavily influencing individuals on certain issues, and maintaining the status quo (Jennings & Lynn, 2005; Kincheloe & McLaren). The following section will explain the research strategy employed in this study to examine hegemonic literacy and technology integration practices.

*Research Strategy: Grounded Theory*

Grounded theory is a research strategy that allows the researcher to carefully study a phenomenon in order to understand how and why participants construct meaning and act in particular situations (Charmaz, 2006). Grounded theory employs an extensive amount of data collection and systematic analysis (Creswell, 1998; Corbin & Strauss, 1990) and is a manner of "thinking about and conceptualizing data" (Strauss & Corbin, 1994, p. 275). Strauss and Corbin state:

Grounded theory is discovered, developed, provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon . . . one does not begin with
a theory, then prove it. Rather, one begins with an area of study and what is relevant to that area is allowed to emerge (p. 23).

By systematically collecting and analyzing data, the researcher is able to develop theories—abstract understandings—that are derived, or grounded, in generated data (Charmaz, 2005). A brief description of grounded theory is explained below. This strategy will be explained in more detail in the Data Analysis section of this document.

In order to develop theory about participants’ experiences, multiple data sources are sought (Charmaz, 2006). Gathering data from multiple sources of information allows for the triangulation of data. Instead of relying on one source to provide information, the convergence of multiple sources further strengthens assertions and improves the validity of findings (Charmaz; Miles & Huberman, 1994; Strauss & Corbin, 1994; Yin, 1984). For this study, data were generated with interviews, observations, and examination of material culture. I studied and analyzed data by coding, which is the first analytic step in grounded theory. Coding is the process of examining, segmenting, labeling, sorting, and comparing data to devise analytic relationships (Charmaz).

Once data are coded, the researcher further studies, compares, reflects on, and interprets these codes to develop preliminary analytic categories, which are abstract ideas about participants’ experiences. Several categories may be created, with each category including codes with similar themes or patterns. These categories are refined, and become more theoretical, as the researcher further analyzes the data. The categories, and the relationships the researcher interprets among the categories, provide conceptual understandings of the phenomenon. Analytic categories are then further refined through the generation of additional data that test and refine
their conceptual underpinnings. Ultimately, theoretical understandings of participants’ experiences—grounded theory—are constructed (Charmaz, 2005; Charmaz, 2006).

The definition of theory in the grounded theory approach advocated by Charmaz (2006) is different from the conventional positivist definition of theory. Charmaz’s approach does not focus on the objective explanation and prediction of relationships or hypothesis-testing. Rather, her approach to grounded theory takes an interpretive stance and focuses on understanding a phenomenon by examining patterns and connections. Grounded theorists with this view accept subjectivity and multiple realities. They recognize that theoretical understanding in grounded theory is abstract and based on the researchers’ interpretation of a phenomenon (Charmaz, 2006). Data are not something that can be objectively discovered, and researchers are not impartial actors in the research process. Data generation is dependent upon the researchers’ experiences, beliefs and values (Charmaz, 2005). This research study was conceptualized after reflecting on my personal beliefs regarding race, socioeconomic status, and education. Therefore, my personal values and experiences were instrumental in choosing the critical framework of the study, and these values also influenced data collection and analysis. I wrote a Researcher as Instrument statement (see Appendix A). This statement describes my experiences, beliefs, values, expected findings, and an explanation of what I was willing or not willing to discover in this research.

Deeply reflecting on methodological and data analysis decisions, and values and intentions are important in qualitative research because these beliefs and perspectives have a direct influence on the meanings that are made of the data (Charmaz 2005; Rossman & Rallis, 2003). Reflexivity is “a conscious experiencing of the self as both inquirer and respondent, as teacher and learner, as the one coming to know the self within the process of research itself.”
(Lincoln & Guba, 2000, p. 183). It is a process of questioning and understanding the data, while being conscious of one’s perspective and the perspectives of the participants (Patton, 2002).

Below, Patton describes the importance of reflexivity in qualitative research:

The qualitative analyst owns and is reflective about her or his own voice and perspective; a credible voice conveys authenticity and trustworthiness; complete objectivity being impossible and pure subjectivity undermining credibility, the researcher’s focus becomes balance-understanding and depicting the world authentically in all its complexity while being self-analytical, politically aware, and reflexive in consciousness (p. 41).

In order to achieve this balance, it was important that I maintained a reflexive journal. This reflexive journal allowed me to reflect on personal roles and reactions to information gathered. This journal was kept daily and contained information on scheduling and logistics, personal reflections on growing insights, and methodological decisions (Lincoln & Guba, 1985).

Furthermore, grounded theorists understand that participants construct reality differently based upon their perspectives and experiences (Charmaz, 2006). The realities of teachers at primarily socioeconomically disadvantaged and African-American schools may be constructed differently than those teachers at schools that educate children from racially diverse and more socioeconomically advantaged homes. Therefore, it was important to explore and contrast these realities to understand those educational structures that may marginalize particular student groups. Such research is necessarily value-laden. Therefore, researchers who adopt Charmaz’s stance of grounded theory seek to:

- Conceptualize the studied phenomenon to understand it in abstract terms
• Articulate theoretical claims pertaining to scope, depth, power, and relevance
• Acknowledge subjectivity in theorizing, and hence the role of negotiation, dialogue, understanding

Therefore, my analytic interpretations of participants’ experiences and an interpretation of how these individuals construct their realities became the basis of the developed theory (Charmaz, 2005).

This research study employed the grounded theory strategy because the methods inherent in grounded theory are appropriate for studying issues of social justice (Charmaz, 2005). Grounded theory methods allow the researcher to deeply explore a social justice issue—by scrutinizing and interpreting interviews, observations, and material culture—to understand the processes of power and privilege that allow inequitable experiences to manifest. The grounded theorist examines the individual experiences of participants, studies participant actions, and examines the social contexts in which these behaviors occur (Charmaz, 2006). As a result, the researcher is able to generate and analyze data, and develop analytic relationships among the actions of participants, current social structures, and historical practices to understand how and why participants engage in inequitable practices (Charmaz, 2005). This analysis of data in my study should provide new theoretical understanding of power and oppression (Kincheloe & McLaren, 2005). The following section details the sample selection, data generation, and data analysis procedures of this study.
Selected School Division

The school division selected for this study is located in eastern Virginia. It is a racially and economically diverse school division with approximately twenty elementary schools. Although the school system is diverse, the populations of many of the schools within the division are not. Some of the schools have a majority population of African American and socioeconomically disadvantaged students whereas other schools have racially diverse populations and more socioeconomically advantaged students. I originally planned to include one socioeconomically disadvantaged school with a high population of African American students and one socioeconomically advantaged school with a majority population of White students. Teachers at a socioeconomically disadvantaged school agreed to participate. However, teachers at the socioeconomically advantaged schools with a large percentage of White students declined to participate in this study. Fortunately, teachers at a more socioeconomically advantaged school, compared to the socioeconomically disadvantaged school selected to be included in this study, with a large population of African American students, were willing to be participants.

State and Division Reading Curriculum Influences

Although the Virginia Department of Education (VDOE) does not mandate a specific reading curriculum, the VDOE specifies how reading instruction should occur in the primary grades. Instruction must be guided by scientifically-based research which consists of phonemic awareness, alphabetic knowledge, phonics, fluency, vocabulary, and comprehension while being aligned with state standards and benchmarks. The department offers further guidance for Title I schools by recommending textbooks and materials that are scientifically-based and have been
demonstrated to enhance the literacy skills of lower achieving students. Individual school divisions have the flexibility of selecting a vendor from the approved list of textbooks or must receive approval by the VDOE to use non-recommended materials (VDOE, 2009).

All schools must use assessments that measure specific skills and provide teachers with reliable and valid information about student performance (VDOE, 2002). The PALS (Phonological and Literacy Screening) assessment is one measure approved by the VDOE and utilized by the majority of the divisions in the state to screen kindergarten through third grade students on fundamental literacy skills. Early reading intervention is provided to those students who demonstrate deficiencies on PALS. This intervention consists of additional small group instruction with an explicit focus on foundational literacy skills. These foundational skills consist of rhyme awareness, beginning sounds, alphabets, concept of word and word recognition for kindergarteners and spelling, word recognition, and oral reading in context for first through third graders (The Rector and the Board of Visitors of the University of Virginia, 2007; VDOE, 2002).

Following the recommendations developed by the VDOE, the school division advocates a balanced literacy approach emphasizing phonics, phonemic awareness, and comprehension. Although many divisions in the state receive Reading First Funding, this is not one. The school division has developed its own reading and professional development plans. Reading instruction occurs daily within a two and a half hour block of time equally devoted to cultivating reading and writing skills. Whole group instruction, small group instruction and independent work for kindergarten through second grade students consist of scientifically-based basal reader activities and specific SOL skills. Early reading intervention is provided for kindergarten through second grade students with low PALS scores by a reading interventionist. This intervention is thirty
minutes daily and consists of explicit, systematic instruction in phonemic awareness, phonics, and vocabulary skills. Additionally, second grade students with low PALS scores participate in a CAI program twice a week. This program provides differentiated practice and assessment of sight words, phonics, vocabulary and comprehension.

All teachers are provided with the reading curriculum, basal, supplementary materials and pacing guides for planning instruction and preparing students for mandated assessments. Reading assessments for all students occur throughout the year. PALS assessments are administered in the fall, winter, and spring and benchmark testing occurs every semester. Since primary students do not participate in SOL testing, these assessments are the foremost measures used to determine the effectiveness of reading instruction and personnel.

The language arts department monitors implementation of the reading curriculum. In addition to ensuring that all students participate in reading groups daily and teachers adhere to the pacing guides, the department works with individual teachers whose classes have low reading benchmark scores. These teachers are provided with materials for students to use that focus on specific areas of weakness. In addition, individuals from the department model lessons and work closely with teachers to improve student achievement. Student achievement data are frequently monitored and used to tailor professional development sessions throughout the year.

Division Technology Focus

The school division recognizes that technology professional development is necessary for teachers to integrate digital technologies effectively into instruction. Not only does the system expect teachers to have technological competence; they also want teachers to have the knowledge to effectively integrate digital technologies into instruction to support teaching and
learning. The division has offered technology professional development consistently during the past five years.

Professional development is offered in the traditional seminar format, online instruction, and distance learning. The school division tailors professional development to the needs of instructional personnel. Every year teachers complete surveys that detail their technology professional development needs and the division attempts to meet these needs in future professional development sessions. In addition to these division-wide professional development sessions, each school has the flexibility to focus on technology related issues that are central their school and the teachers within the school. The technological resources available in the division, and the focus on technology professional development, warrant further investigation of digital technologies use and teacher professional development practices in the early literacy curriculum.

**Sampling Methods**

Purposeful sampling—the selection of information-rich cases—was used for this study (Patton, 2002). This sampling method gave me the opportunity to focus on the experiences of teachers at specific schools to better understand the issues of digital technologies use and teacher perceptions of professional development practices. In a grounded theory study it is important to locate participants in a variety of settings who can provide important contextual information during data generation (Creswell, 1998). It would have been difficult within the timeline of this study to examine the educational practices and experiences at all of the schools in the selected school division. Therefore, it was important to select those cases “that would yield the most information and have the greatest impact on the development of knowledge” (Patton, p. 236). A purposeful sampling method selected those cases that were important to this study.
Purposeful sampling consists of a variety of different strategies (i.e., deviant case sampling, intensity sampling, typical case sampling and chain sampling) all with a particular rationale for selecting cases (Creswell, 1998; Miles & Huberman, 1994). For the purposes of this research study, criterion sampling was the sampling method (Gall, Gall, & Borg, 2003). Criterion sampling requires the researcher to select cases that meet particular criteria. This sampling method was chosen for this study because prior research indicates that digital technologies use differs according to the race and socioeconomic status of students in the school (Attewell, 2001; Coiro et al., 2008; Harwood & Asal, 2007). Therefore, following the findings of previous research, two schools with different student population characteristics in terms of race and socioeconomic status were expected to indicate a difference in students’ digital technologies use. Criterion sampling allowed me to select schools with different student population characteristics. By selecting one school with a large population of African American and socioeconomically disadvantaged students and another school with a majority population of African American students from more socioeconomically advantaged homes, examination of practices and perceptions in these two schools provided rich information that was analyzed and compared, thus leading to logical theoretical generalizations.

Once the schools were selected, another sampling method was employed to select the individual teachers. This study focused on digital technologies in the early literacy curriculum. The IRA (2009) and literacy researchers (Castek et al., 2006; Leu et al., 2004; Zawilinski, 2009) have emphasized the importance of introducing digital technologies in early literacy instruction to prepare students for 21st century literacy expectations. Therefore, by situating this research in a particular curriculum, I limited the scope of this research to study teacher perceptions and
student digital technologies experiences in relation to the literacy curriculum. By no means was
I ignoring the fact that new literacies transcend all subject areas and grade levels. However,
进一步 qualitative research is specifically needed in the area of new literacies and technology
integration (Burnett, 2009; Warschauer & Matuchniak, 2010).

Kindergarten, first and second grade teachers were selected to participate. However, as
mentioned above, the timeline of this study did not permit the exploration of all of the early
literacy teachers’ experiences regarding digital technologies and professional development. I met
with teachers and invited them to participate in this study. Six teachers from the
socioeconomically disadvantaged school and eight teachers from the more socioeconomically
advantaged school agreed to participate. In addition to classroom teachers, each school has a
technology specialist whose job is to assist teachers with technology integration and identifying
professional development needs. This technology specialist was also selected to participate in the
study. In addition, participants identified the library media specialists and the computer lab
teacher (at the more socioeconomically advantaged school) as having an influence on students’
digital technologies experiences. I also interviewed two technology specialists from district
administration to better understand the role of the schools’ technology specialists. Therefore, a
total of sixteen participants were included in this study.

This small sample size allowed me to study each context in depth (Miles & Huberman,
1994). By focusing on the experiences of a small group of educators, I was able to generate
sufficient, “rich” data that made known their “views, feelings, intentions, and actions as well as
the contexts and structures of their lives” (Charmaz, 2006, p. 14). By engaging in interviews,
observations, and analysis of material culture with this selective number of teachers, I gained a
deeper understanding of their views and experiences, leading to data that were conceptually deep and focused, and generating grounded theory that is credible. I compared the experiences of the teachers at different schools and provided theoretical understandings detailing if, how, and why disparities in digital technologies use for the development of new literacies may be attributed to the nature of professional development experiences.

Data Generation

Grounded theorists use a variety of data sources to inform theoretical understandings of a phenomenon (Charmaz, 2006). Interviews, observations, and analysis of material culture were the data sources used in this study to explore teachers’ professional development experiences with digital technologies in the literacy curriculum. Multiple data types, such as interviews, multiple observations, and material culture triangulate data and offer a deeper view of participants’ experiences than one method alone (Charmaz, 2005). Therefore, all three data types used simultaneously to generate data provided me with the knowledge to better understand teachers’ experiences.

Interviews

One method for exploring the personal beliefs and experiences of teachers is through in-depth interviews. The purpose of these interviews is to learn about participants’ assumptions, experiences, and actions in order to develop a theoretical framework (Charmaz, 2006). Therefore, these interviews were intensive because they gave me the opportunity to explore ideas, ask questions about described experiences, and learn about the participants’ thoughts, feelings, and actions. In turn, the participants had opportunities to describe and reflect on experiences in a deeper manner. These intensive interviews were designed using a few, open-
ended questions that permitted the participants to reflect on experiences (Charmaz; Patton, 2002). These questions were semi-structured to provide a focus applicable to the topic, yet flexible enough to allow the exploration of participants’ individual experiences and unanticipated shared ideas (Charmaz; Patton, 2002).

An interview guide (see Appendix B) was taken with me to the interviews. The interview guide provided structure and contained the open-ended planned questions and probes. Probes were asked to “deepen the response to a question” (Patton, 2002, p. 372) in order to further explore a topic. Detail-oriented probes and elaboration probes were the two types of strategies used to get a better understanding of teachers’ perceptions and experiences. Detail-oriented probes ask who, what, when, where, why and how questions. Elaboration probes include nonverbal gestures such as head nodding and asking the participant to elaborate on a particular response (Patton). In addition, the interviews were tape-recorded. Tape-recording the interviews allowed me to give full attention to each participant. It also provided the means for me to transcribe the interview for later data analysis. Lastly, notes were taken during the interview to remind me of key points and to help structure follow-up questions that would help clarify and extend previous statements.

Each participant engaged in two interviews, with the exception of the technology specialists who each participated in three interviews. Each interview lasted approximately one hour, giving me approximately two to three hours of data generated with each participant. The initial interview included questions regarding students’ digital technologies use, teachers’ perceptions of professional development-related practices, and student background factors. The
second interview, a follow-up interview, asked the participants to elaborate on particular topics discussed in the initial interview and events observed during the scheduled observation.

In order to ensure that I understood the shared information correctly, member-checking was used. This is a process in which I checked with the participants to ensure that I accurately understood the information that each participant shared. It also gave the participants the opportunity to disagree or add additional information (Rossman & Rallis, 2003). Member-checking is the most important step for ensuring accuracy of the data collected and establishing credibility (Lincoln & Guba, 1985). The first level of member-checking occurred during the interviews. To ensure clarity and understanding, I restated key points and summarized information shared. Participants were invited to correct any information or add information they believed was important. The second level of member-checking occurred after interview transcription. Approximately one week after each interview, participants received a written summary of the interview and were asked to correct any misunderstood information. Finally, drafts of the reports of interview data were complied in a case summary. The third level of member-checking asked each participant to read their case summary to ensure that I understood and reported the information correctly (Lincoln & Guba). Information gathered from member-checking was used to further develop conceptual categories (Charmaz, 2006). Conceptual categories described large amounts of generated data and focused on general, rather than specific, concepts.

Observations

The second form of data generation pursued was observation. Observations allow researchers to examine additional information that cannot be solicited through interviews
(Patton, 2002; Yin, 1984). Each participant's classroom was observed for approximately one to two hours following the initial interview to create an opportunity to see digital technologies practices in the literacy curriculum that were directly relevant to this study. Teachers were asked to invite me into their rooms when they were integrating technology into the literacy curriculum. Student experiences with the digital technologies were observed, noting the types of experiences they were engaged in and perceived level of passive or active interaction. Both descriptive and reflective notes were taken during all of the observations. Descriptive notes detailed the actions that occurred. Reflective notes were subjective and included my reflections and interpretations of the observed events (Creswell, 1998).

**Material Culture**

Lastly, material culture was examined. Material culture includes the physical artifacts researchers use to unobtrusively gain a better understanding of participants' "social worlds" (Rossman & Rallis, 2003, p. 198). Although students were observed using computers in a literacy context, it was also important for teachers to provide examples of their students' literacy and technology integration experiences. These examples further informed me on how teachers perceived technology integration in the literacy curriculum. Teachers were asked to bring these artifacts—examples of how students used digital technologies—to the first interview and discuss them. Teacher discussion of these artifacts was necessary for me to understand what the students were asked to do using the digital technologies, and why. Examples of their work provided additional information on how digital technologies were used in the classroom. Interviews, observations, and material culture were analyzed using the following data analysis procedures for developing grounded theory.
Data Analysis

Grounded theory methods are a means for generating and analyzing data to construct theories that are grounded in data. Data analysis in grounded theory is a systematic process, with flexible guidelines, which changes generated data into research findings (Charmaz, 2006; Patton, 2002). Analysis is ongoing, and each step further refines data into theoretical constructs. Charmaz asserted, “Like a camera with many lenses, first you view a broad sweep of the landscape . . . you change your lens several times to bring scenes closer into view” (p. 14). The methods for analyzing data are initially broad. However, they become more detailed as analysis progresses. Developing theory consists of coding, developing categories, elevating select categories to theoretical constructs, and then writing a theoretical explication of how meanings, actions, and social structures are created (Charmaz). Interpretations of participants’ experiences through the lens of Kincheloe and McLaren’s (2005) reconceptualized critical theory of power: hegemony and ideology shaped analysis of content. The following section details the steps involved in developing grounded theory.

As mentioned in the above section, interviews, observations, and material culture were the sources of data that were analyzed using grounded theory methods. Coding is the first process of examining this data closely, pulling it apart, and naming it using specific labels in order to make sense of information (Charmaz, 2006; Miles & Huberman, 1994). These labels describe abstract ideas that are interpreted by the researcher. Coding, which consists of two phases—initial coding and focused coding— is critical because they are the first steps of analysis that moves the data from concrete information to analytic interpretations (Charmaz). It is important to note that I did not try to fit the data into perceived codes or categories. Rather, the
codes and categories emerged through analysis of data. It was critical that I remained open to exploring any theoretical concepts that may be defined (Charmaz).

*Initial Coding*

Coding consists of a variety of methods, such as word-by-word, line-by-line, and incident-to-incident (Charmaz, 2006) to understand what is happening in a particular phenomenon and what those actions mean (Charmaz, 2005). The coding procedures of grounded theory insure that data are systematically and carefully analyzed in a manner that ensures findings are grounded in data and related theories (Corbin & Strauss, 1990). For this study, interviews, including teacher discussions of students' uses of digital technologies, were transcribed, then analyzed line-by-line. I read each line carefully, and then assigned a short name that described participants' actions, asking “what theoretical categories might these statements indicate?” (Charmaz, 2006, p. 45). Coding data as actions—describing what the participants were doing—kept analysis close to the data and prevented me from making conceptual leaps prematurely (Charmaz, 2006). In addition, coding every line allowed me to see data in new ways because I was not examining it holistically; I examined each line individually, which reduced the occurrence of applying preconceived ideas to data. Line-by-line coding allowed me to go deeper into the data and reflect on my analysis of it critically and analytically. In addition, by coding each line, I was able to identify data that needed further inquiry, which was addressed in future interviews or observations (Charmaz, 2006).

Incident-to-incident coding was used to analyze observational data. Incident-to-incident coding is different from line-by-line coding in that it focuses on making comparisons among observed incidents. By examining my fieldnotes, I was able to compare and code similar
observed events, and then code dissimilar events (Charmaz, 2006). It was through line-by-line and incident-to-incident coding whereby I begin to understand the participants’ worldviews, which helped me better understand their practices in the classroom.

The next step after completing line-by-line and incident-to-incident coding was to engage in constant comparative coding. This first step of constant comparative methods compares data with data (Charmaz, 2006) to find similarities and differences and to revise codes (Corbin & Strauss, 1990). In addition, the constant comparative method grounds the researcher in collected data, thus focusing attention on data rather than preconceived biases (Corbin & Strauss).

As such, data generated through interviews, observations, and material culture were coded by constant comparison. For example, data within the same interview were compared, then compared to other interviews completed by the same participant, and then compared to interviews conducted with other participants. The codes were examined and analyzed for their suitableness to ensure they accurately described the data. Codes were renamed when necessary. Once data were initially coded, another method further sorted, synthesized, integrated and organized data. This step is focused coding, which is described in the following section.

Focused Coding

Focused coding develops codes into potential categories. During this coding phase I examined codes developed through the initial phase, and selected codes that were the most significant, and used those to name larger areas of data (Charmaz, 2006). To do this, I had to become more analytical to carefully examine data and make decisions regarding the codes that best described the data. Again, the constant comparative method was used to compare data to
data and data to codes. This process of comparing data to codes refined those codes that were selected to represent larger amounts of data.

It was very important during initial coding and focused coding that I did not let preconceived ideas become codes automatically. All concepts developed had to be relevant to the data (Charmaz, 2006). Charmaz offers the following questions that helped me to analyze during the process of coding:

- Do these concepts help you understand what the data indicate?
- If so, how do they help?
- Can you explicate what is happening in this line or segment of data?
- Can you adequately interpret this segment of data without these concepts?
- What do they add? (p. 68).

Reflexivity is important when coding. I had to reflect on my decisions during coding to ensure that codes accurately described the actions and processes of the participants, not my ideas of what should happen. Therefore, there were clear connections between data and codes (Charmaz, 2006). Writing about the coding process helped me reflect on and analyze my decisions and interpretations. Therefore, it was important that I made note of all data analysis decisions in memos.

**Memo-Writing**

Memo-writing took place while I was writing in my reflexive journal. Recall, a reflexive journal is a place where methodological decisions and reflections that lead to data analysis decisions are recorded (Lincoln & Guba, 1985). Memo-writing is an important part of developing grounded theory that occurs throughout the research process. Writing begins during
the first instances of coding and concludes at the development of theory. This process details the creation of codes, categories, properties, and generative questions. Memo writing is important because it gives insight into the conceptual development and revision of theory (Corbin & Strauss, 1990). These memos included my thoughts on data analysis, comparisons and connections between data, and questions that should be addressed. I recorded and analyzed what was going on in the data, participants’ actions, and interpretations of how the participants thought, felt, and acted. Reflecting on data and engaging in constant comparative methods prompted me to reconsider previous codes for their applicability and identify those codes that could be elevated to theoretical categories (Charmaz, 2006). Memo writing also helped me clarify relationships among categories.

Categories are more abstract than codes, yet they also describe data. They subsume codes with similar themes and patterns and best describe the ideas, events, and processes that are occurring in data. Categories are important because they are “the cornerstones of a developing theory. They provide “the means by which a theory can be integrated” (Corbin & Strauss, 1990, p. 7). By grouping codes into categories, I was able to ascertain emerging lines of thought. Theoretical sampling helped me to expand categories that were lacking data.

*Theoretical Sampling*

Theoretical sampling is the process of collecting data to clarify and explain, in more detail, a particular category. This process focuses on conceptual and theoretical development, not representing a population. Charmaz (2006) stated, “Initial sampling in grounded theory is where you start, whereas theoretical sampling directs you where to go” (p. 100). Theoretical sampling helped me determine the types of data needed to fill conceptual gaps. In order to determine if
categories needed expanding, I asked, “are categories analytically thin? Insufficiently supported? Are ideas about the relationships between categories hazy? Are they indistinct but perhaps suggestive?” (p. 104). If categories needed elaboration, I generated new data through tightly focused interviews, observations, and analysis of material culture to strengthen categories.

Coding and memo-writing began with the very first piece of data generated. By beginning the analysis process early, I was able to see gaps in the data. This knowledge helped refine future data generation sessions. In addition, data analysis was ongoing, which Creswell (1998) defines as a “zig-zag process—out to the field to gather information, analyze the data, back to the field to gather more information, analyze the data, and so forth” (p. 57). Ongoing data analysis was important because it illuminated relevant concepts to inform the theoretical sampling needed in succeeding interviews, observations, and analysis of material culture (Charmaz, 2006; Corbin & Strauss, 1990).

I placed codes into categories, identified categories that needed to be strengthened, engaged in constant comparative methods by comparing codes with codes and codes to categories, and identified relationships between categories. I examined each category for conceptual robustness and underwent theoretical sampling if gaps in analysis were present. Memo-writing became more abstract and conceptual as I engaged in this process to develop theoretical concepts. Next, I continued to write and analyze categories until categories were saturated—“when gathering fresh data no longer sparks new theoretical insights, nor reveals new properties of your core theoretical categories” (Charmaz, p. 113). Once no new themes emerged, data analysis illuminated central and minor categories. The central categories were elevated to theoretical concepts because they contained the most meaningful data and furthered data
analysis. The decision to change a category to a concept came after categories were compared to other categories to determine which category stood out the most. Theoretical concepts became the foundations of explanations regarding differential technology practices in racially and socioeconomically different schools.

In grounded theory, the researcher must know how to theorize in order to analyze data and develop relevant theory (Charmaz, 2006). This depth of thinking requires awareness of variables that might not be initially known and the interrelation of those variables (Strauss & Corbin, 1994). This awareness is referred to as theoretical sensitivity. Strauss and Corbin (1990) define theoretical sensitivity as “a personal quality . . . the attribute of having insight, the ability to give meaning to data, the capacity to understand, and ability to separate the pertinent from which isn’t” (p. 41-42). Theoretical sensitivity allows the researcher to examine issues from multiple viewpoints instead of focusing on preconceived notions (Charmaz). Theoretical sensitivity emerged from my professional knowledge of the issues being studied. It also evolved through conversations with colleagues about extant literature, data analysis, and conceptual understandings. Therefore, it was important for me to read literature and engage in discussions pertinent to the research study in order to facilitate more comprehensive data analysis and theory development. I met with fellow students, individuals interested in educational equity, and college professors to discuss data generation, depth of analysis, and category refinement. Once theoretical constructs were developed and selected, the written document was created.

**Constructing the Written Document**

After constructs were identified as being appropriately robust, the memos in which these constructs were contained were sorted, diagramed, and integrated in order to develop and explain
the emerging theory (Charmaz, 2006). Sorting allowed me to compare and organize constructs, determine the order in which constructs best described the phenomenon, refine theoretical links, and organize the way I presented the phenomenon, constructs, and theoretical statements. Diagramming is another means of refining theory. This process presents constructs and their relationships in a visual image and gave me the opportunity to review and improve theoretical analysis of constructs. Lastly, memos on each of the constructs were integrated to describe the major category that was identified to theorize how meanings, actions, and social structures are created. Therefore, the written document does not focus on describing causal relationships; the document explicates my interpretive understanding of the ways hegemony may operate in the educational settings studied.

My theoretical understanding was strengthened through the process of writing and rewriting the document. It is through the writing process where my grounded theory became more theoretical and comprehensive. I then constructed the argument for my study to explain why this grounded theory made a significant contribution to educational research (Charmaz, 2006). The written document includes a balance of theoretical interpretation, empirical evidence from interviews, observations, and analysis of material culture, and relevant literature. The following processes for analyzing and developing the resulting grounded theory were followed to ensure quality research.

Quality Criteria

The following criteria for evaluating grounded theory studies, especially those focused on issues of social justice, was developed by Charmaz (2005; 2006). Grounded theory studies that claim to make a valuable contribution to scholarly research must be situated within relevant
literature. In addition, explication of the developed theory must illuminate understanding of the actions and meanings of a phenomenon and assist readers in understanding how the theory was constructed. Therefore, the study must be credible, original, and useful (Charmaz, 2006) in order to show that the study is trustworthy, or competently and ethically conducted (Rossman & Rallis, 2003). The hallmarks of trustworthiness are subsumed under Charmaz’s criteria of quality. Credibility focuses on the reliability and validity of data generation, data analysis, and interpretation. Originality is concerned with the newness of insight and the significance of the research. Finally, usefulness focuses on the applicability of the findings outside of the context of the study (Charmaz).

Charmaz (2006) offers the following questions for the grounded theorist to consider during data generation and analysis to ensure that the results of social justice research are trustworthy.

_Credibility_

- Has your researcher achieved intimate familiarity with the setting or topic?
- Are the data sufficient to merit your claims? Consider the range, number, and depth of observations contained in data.
- Have you made systematic comparisons between observations and between categories?
- Do the categories cover a wide range of empirical observations?
- Are their strong logical links between the gathered data and your argument and analysis?
- Has your research provided enough evidence for your claims to allow the reader to form and independent assessment- and agree with your claims? (p. 182).
**Originality**

- Are your categories fresh? Do they offer new insights?
- Does your analysis provide a new conceptual rendering of the data?
- What is the social and theoretical significance of this work?
- How does your grounded theory challenge, extend, or refine current ideas, concepts, and practices?
- Have you drawn links between larger collectives or institutions and individual lives, when the data so indicate?
- Does your grounded theory make sense to your participants or people who share their circumstances? Does your analysis offer them deeper insights about their lives and world? (Charmaz, 2006, p. 182).

**Usefulness**

- Does your analysis offer interpretations that people can use in their everyday worlds?
- Do your analytic categories suggest a generic processes?
- If so, have you examined these generic processes for tacit implications?
- Can the analysis spark further research in other substantive areas?
- How does your work contribute to knowledge? How does it contribute to making a better world? (Charmaz, 2006, p. 183).

The above criteria guided my research. My adhering to these criteria will also help the readers of the results of this grounded theory study make judgments about the quality of the processes used to carry out the research study and the resulting plausibility of the developed theory.

Furthermore, all transcripts, memos, reflexive journals, and documents related to data generation
and development of grounded theory will be maintained for anyone interested in assessing the rigor of the study. These materials will also be kept electronically for a potential audit. In addition to following the standards of quality advocated by Charmaz, the study also meets the criteria for ethical treatment of human subjects (Rossman & Rallis, 2003).

The research review boards at both The College of William and Mary and the local school division approved the study before any data were generated. Once approved, informed consent was given before the participants were allowed to participate in the study (see Appendix J). The consent form detailed the purpose of the study and their rights as participants. In addition, they were also informed that they were not obligated to answer every question and could withdraw from the study at anytime without penalty. I discussed the consent form with the participants and encouraged them to ask questions or address any concerns.

Since I worked with current teachers in a local school division, it was important that the privacy of these individuals was protected (Rossman & Rallis, 2003). Therefore, their names, the identities of the schools, and any other identifying information were not and will not be shared with others. In order to prevent critical information from becoming public, pseudonyms mask the true identities of participants, the schools, and the school division. Participants were asked to select their pseudonyms. These pseudonyms were the only names used throughout the study in written and oral forms. Participants were informed that the information linking them to the pseudonym was destroyed at the conclusion of the study. In addition, special care was taken to ensure that written communication protected the identities of participants. Participants were informed that e-mail communication may not totally protect their identities due to potential security breaches. Therefore, they had the option of receiving member-checks and other
communication through telephone, e-mail, or other written forms of communication, such as standard mail or personal delivery, if they chose. All participants chose to receive communication by e-mail.

*Authenticity*

Another measure of this study's quality is authenticity. Authenticity is "an approach to inquiry that aims to generate a genuine or true (i.e., 'authentic') understanding of people's experiences" (Schwandt, 2007, p. 13). Authenticity was established using Guba and Lincoln's (1989) five criteria of authenticity (fairness, ontological authenticity, educative authentic, catalytic authenticity, and tactical authenticity). The first criterion is fairness—the representation of each respondent's views of the phenomenon in a balanced manner. Fairness was established by member-checking throughout data generation. I ensured that I accurately understood information that was shared by restating participants' responses, asking for clarification, and asking follow-up questions. In addition, I spent a considerable amount of time interviewing, observing and conversing with participants about material culture to get a better understanding of the phenomenon of interest. Therefore, the study's grounded theory is based on well-triangulated data and prolonged engagement (Guba & Lincoln) with research participants. I also engaged in peer debriefing (Guba & Lincoln) throughout the research process with college professors, fellow students, and individuals interested in educational equity. Peer debriefing allowed me to discuss and reflect on data generation and interpretations with individuals experienced with critical research, hegemony, literacy and digital technologies. Engaging in peer debriefing frequently throughout the research process gave me opportunities to deepen my reflections on data interpretation and emerging grounded theories to ensure that I was interpreting data fairly.
The second criterion, ontological authenticity, is "the extent to which respondents’ own constructions are enhanced or made more informed and sophisticated as a result of having participated in inquiry" (Schwandt, 2007, p. 14). This was met by engaging in member-checking and asking follow-up questions as described above. By listening to me repeat responses, asking for clarification, or probing deeper into a question, the respondents hopefully became more aware of themselves as the study progressed. Next is educative authenticity. This is achieved when participants learn about other participants’ perspectives. To ensure educative authenticity, I sent a summary of the study’s findings to all of the participants so they could learn about others’ experiences and perspectives, thus hopefully prompting reflection upon how their own perspectives compared with those of others who participated in the study.

As mentioned earlier, social justice research is concerned with change, and ultimately, I hope that the results of this study will encourage educators to change their practices. The remaining two criteria of authenticity—catalytic authenticity and tactical authenticity—are concerned with central tenants of social justice research: action and empowerment (Guba & Lincoln, 1989). Catalytic authentic is the extent to which participants feel a need to take action as a result of participating in a research study. Tactical authenticity is achieved when the participants feel empowered to act. Hopefully, by reading the results of the research study, participants will be made aware of inequitable technology-related new literacies practices and will feel empowered to make learning equitable for all.
CHAPTER FOUR: RESULTS

Previous research has suggested that teachers of African American and socioeconomically disadvantaged students use technology differently than teachers of dominant culture students, thereby impacting students’ new literacies development (Coiro et al., 2008; Harwood & Asal, 2007; Swenson et al., 2006). The purpose of this study was to examine, through the lens of Kincheloe and McLaren’s (2005) reconceptualized critical theory of power: hegemony and ideology, teachers’ beliefs, actions, and professional development experiences to determine how and why teachers from two racially and socioeconomically different schools may use technology differently with their students.

This chapter will first present the history and role of Information Technology Resource Teachers (ITRTs) — technology specialists responsible for assisting teachers with technology integration. Next, contextual information—including school demographics, teacher participants, and available school technologies at Appleton Elementary, a predominantly African American school with a majority population of socioeconomically disadvantaged students; and Bellmont Elementary, a school with a large percentage of African American students from more socioeconomically advantaged homes—will be presented. Successive sections will examine teachers’ expressed reasons for integrating technology and the nature and levels of technology integration in the literacy curriculum. Lastly, ITRTs’ beliefs, ideas, and their presented professional development sessions will be analyzed.

History and Role of the ITRT

ITRTs are licensed teachers who are responsible for showing classroom teachers how to integrate available technologies into the curriculum to accommodate students’ diverse learning
styles and improve academic achievement (Coffman, 2009; Virginia Department of Education, 2008). ITRTs in Jaxson School Division are required to be licensed teachers with at least three years of successful teaching experience. Advanced degrees in curriculum and instruction, instructional design, or instructional technology are preferred, but not required. In addition, ITRTs must have considerable proficiency using technology and the ability to provide professional development to instructional staff. The two ITRTs in this study have bachelor’s degrees in elementary education and teaching certification. They do not have advanced degrees, and stated that they have either taught themselves how to use education technologies or have received professional development from the school division showing them how to use technology.

The Virginia General Assembly mandates that at least one ITRT be assigned per 1,000 students in each school division (Coffman, 2009). Due to Jaxson School Division’s student enrollment, there are twenty ITRTs in the division, many of whom work at multiple schools. Each ITRT in this study worked at her respective school (Appleton or Bellmont) for two full days each week in addition to dividing her time between two other schools in the division for the remainder of the week.

According to ITRT interview data, in order to provide all teachers across the division with equitable technology professional development, all ITRTs engage in the same learning opportunities presented by the division’s technology resource specialists or others, such as representatives from Apple Computers, Inc., even if their schools are not equipped with the same technologies. The division’s directors of library media and technology decide upon the types of technologies that ITRTs need to learn to use to support instruction. ITRTs participate in
professional development about once each month, either in a formal learning session or an informal meeting. Formal professional development can range from half days to two full days, depending on the technological focus. Meetings, held online or in person, allow ITRTs to discuss technology ideas or issues with their colleagues. ITRTs are also encouraged to email or text message one another between meetings. The purpose of these discussions is to find better ways to assist teachers with technology integration. Once ITRTs have learned about a particular technology, they are expected to show teachers at their respective schools how these technologies can become part of instruction, giving teachers ongoing and embedded professional development.

Appleton Elementary School

Appleton Elementary is a Title I school with a student population of approximately 300 students. Eighty-three percent of the students are from socioeconomically disadvantaged homes, 88% are African American and 1% are White. School administrators identify this school as participating in a “21st Century School” initiative in which all teachers are encouraged to use digital technologies in instruction to—according to the school’s Web site—“prepare students for the future.” Teachers in this study described Appleton’s students as entering school with limited computer technology experiences at home, so school is an important place for them to receive these experiences.

School Personnel

Six teachers from Appleton participated in the study. Patricia is a kindergarten teacher, Nila teaches first grade, and Marlee and Robin are second grade teachers. In addition to classroom teachers, I also included resource personnel that were identified by teacher
participants as influencing student technology use. These teachers are Pam and Sarah. Pam is the library media specialist and Sarah is the ITRT. Demographic information about Appleton teachers, including the number of years they have taught at Appleton, is included in Table 1.

Table 1

<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Race</th>
<th>Degree</th>
<th>Teaching Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patricia</td>
<td>Kindergarten</td>
<td>African American</td>
<td>Bachelor’s</td>
<td>2</td>
</tr>
<tr>
<td>Nila</td>
<td>First</td>
<td>White</td>
<td>Masters</td>
<td>5</td>
</tr>
<tr>
<td>Marlee</td>
<td>Second</td>
<td>African American</td>
<td>Bachelor’s</td>
<td>5</td>
</tr>
<tr>
<td>Robin</td>
<td>Second</td>
<td>Latina</td>
<td>Bachelor’s</td>
<td>7</td>
</tr>
<tr>
<td>Pam</td>
<td>Library Media Specialist</td>
<td>White</td>
<td>Masters</td>
<td>15</td>
</tr>
<tr>
<td>Sarah</td>
<td>ITRT</td>
<td>White</td>
<td>Bachelor’s</td>
<td>3</td>
</tr>
</tbody>
</table>

The majority of the teachers interviewed have taught at Appleton for five or more years, with many of the teachers having ten or more years of teaching experience. With the exceptions of Sarah and Pam, participating teachers do not have educational backgrounds in instructional technology. Appleton teachers were required to take basic technology courses offered by the school division before they were issued their laptop computers. Kathy, the school division’s ITRT specialist for elementary schools, described the competencies teachers were expected to have after participating in initial technology professional development. She stated:
Teachers are taught the mechanics of [a word processing and presentation software]. Once they have that then you’ve got to show how you can integrate it into the curriculum.

There are two pieces, first teach them to use it as a productivity tool so the teacher will learn how to do a newsletter, lesson plan, flyer. Then how you can use that with your students and how can I incorporate it into their curriculum, how can I help my students use those different tools.

As illustrated above, Appleton teachers are expected to have a basic understanding of how they and their students can create electronic documents. Although the school division offered frequent professional development on digital technologies, participating teachers indicated that the majority of their technology professional development came from Sarah, the school’s ITRT. Marlee was the only teacher interviewed who had participated recently in division-sponsored technology professional development. She reported that the past summer’s professional development addressed uses of digital media players, digital cameras, digital visualizers, and Skype, and she was given all of the technologies discussed at the professional development to use in her classroom during the year of this study. She described the four-day professional development by saying, “It was fast-paced, but I was so excited that I learned it.” Although she participated in this session and her colleagues did not, she indicated that she did not share the information with them because doing so was not required.

Available School Technologies

Every Appleton classroom is equipped with three to four student desktop computers with Internet connections. Available software programs include Kidspiration, Pixie, and iWork. Kidspiration is a graphic organizer program that allows students to incorporate pictures and
words to express and share ideas (Inspiration Software Inc., 2010). Pixie is a paint program in which students can use text, voice, videos and animations to create digital books and podcasts (Tech 4 Learning Inc., 2010), and iWork provides opportunities for word processing and creating presentations (Apple Computers Inc., 2010). In addition to desktop computers, other digital technologies at Appleton include Interwrite pads, digital cameras, video cameras, and two class sets of student laptop computers. There is also a division-wide license for students and teachers to access Web-based resources such as Nettrekker, Discovery Education, and Brainpop.

According to Terry, the Title I ITRT specialist for the school division, all Title I instructional classrooms received mounted interactive whiteboards during the year of this study and non-Title I instructional classrooms will receive these resources when funding becomes available.

Although Appleton has a plethora of technological resources for students and teachers, the primary focus for technology use during the year of this study was on the interactive whiteboard system recently purchased by the school division. Terry stated the interactive whiteboard was selected because the division wanted to purchase technology that would be useful for improving the academic achievement of “at-risk students” and “these kids in our Title I schools who need that little bit extra” in order to help Title I schools meet accreditation and AYP criteria. Terry also described the instructional pressures teachers face as a way to validate the importance of using the interactive whiteboard in instruction. He stated, “You have to stay on pace with the pacing guide. You have the curriculum guide. Everything is very regimented so we have to find different ways to do the same things without using a worksheet.” Therefore, the interactive whiteboard is praised as a valuable asset in the Title I classroom because it provides another means for teaching and keeping students in pace with the curriculum. Teachers can
upload videos and content-related activities, students can manipulate objects on the screen, and responses to questions can be immediately assessed using the student voting systems built into the interactive whiteboard software.

Though interactive whiteboards may assist with instruction, Kennewell, Tanner, Jones and Beauchamp (2008) stated, “Interactive whiteboards may be seen as a backward step, in that it gives a new impetus to traditional, teacher-centered approaches” (p. 71). Other research supports similar assertions about interactive whiteboard use (BECTA, 2004; Hall & Higgins, 2005; Kelley, Underwood, Potter, Hunter, & Beveridge, 2007). Placing the mounted interactive whiteboards in Title I classrooms, while postponing the placement of these boards in non-Title I classrooms, is communicating implicitly that at-risk students need the type of direct instruction that this technology can facilitate. In the process, students may become acclimated to technology use that is teacher-directed and can ultimately encourage passive learning (Gillen, Littlejohn, Twiner, Staarman, & Mercer, 2007; Schmid, 2008; Wood & Ashfield, 2008) and possibly limit opportunities for higher-level interaction with digital technologies. As a result, students’ new literacies experiences may be different from that of their peers at socioeconomically advantaged schools if educational technologies are primarily used in teacher-directive ways.

Bellmont Elementary

Bellmont Elementary has approximately 450 students. Fifty-eight percent of the students are African American and 36% are White. Seventy-six percent of the students are from more socioeconomically advantaged homes, which is defined as not being eligible to receive free or reduced-price lunches. School administrators stated that the school does not have as many
available digital technologies as other schools, but they do expect teachers and students to use the technologies located in the computer lab and in classrooms.

School Personnel

Eight teachers from Bellmont participated in this study. Courtney and Dee teach kindergarten, Rebecca teaches first grade, and Chloe and Susie are second grade teachers. In addition to these five teachers, Barbara, the language arts computer lab teacher, Lauren, the librarian, and Sydney, the ITRT, also influence students’ digital technologies experiences. Demographic information about Bellmont teacher participants is included in Table 2.

Table 2

Participating Bellmont Teacher Descriptions

<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Race</th>
<th>Degree</th>
<th>Teaching Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bellmont</td>
<td>Overall</td>
</tr>
<tr>
<td>Courtney</td>
<td>Kindergarten</td>
<td>White</td>
<td>Master’s</td>
<td>1</td>
</tr>
<tr>
<td>Dee</td>
<td>Kindergarten</td>
<td>White</td>
<td>Bachelor’s</td>
<td>17</td>
</tr>
<tr>
<td>Rebecca</td>
<td>First</td>
<td>White</td>
<td>Master’s</td>
<td>2</td>
</tr>
<tr>
<td>Chloe</td>
<td>Second</td>
<td>White</td>
<td>Master’s</td>
<td>6</td>
</tr>
<tr>
<td>Susie</td>
<td>Second</td>
<td>African American</td>
<td>Bachelor’s</td>
<td>6</td>
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<tr>
<td>Lauren</td>
<td>Library Media Specialist</td>
<td>White</td>
<td>Master’s</td>
<td>19</td>
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<td>Barbara</td>
<td>Language Arts</td>
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<td>Bachelor’s</td>
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<td>Computer Lab</td>
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<td>Sydney</td>
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Bellmont teachers included in the study have a variety of teaching experiences at the school. Most of the teachers interviewed have more than five years of experience at Bellmont, with many of the teachers having more than ten years of teaching experience overall. With the exceptions of Lauren, Barbara, and Sydney, participating teachers do not have educational backgrounds in instructional technology. All of the teachers were required to undergo the same initial technology professional development as the Appleton teachers. Bellmont teachers indicated that they have not participated in any recent technology-related professional development that was offered outside of the sessions taught by the school’s ITRT.

Available School Technologies

Many technologies available at Bellmont are similar to those at Appleton, with the exception of the number of desktop computers available in each classroom. Every classroom is equipped with four to six student desktop computers with Internet connections and Kidspiration, Pixie, and iWork. Teachers and students have access to Interwrite pads, digital cameras, video cameras, two class sets of student laptops, Nettrekker, Discovery Education, and Brainpop. Since Bellmont is not a Title I school, teachers do not have mounted interactive whiteboards in their classrooms—a fact which contradicts previous research findings that socioeconomic advantaged students are more likely to have more technological resources available in their schools (Attewell, 2001; Meier, 2005). However, there are two portable interactive whiteboards at Bellmont for all teachers to share.

Appleton and Bellmont have some of the same technological resources. However, there are some differences in the numbers of desktop computers and interactive whiteboards located in the schools. Although they have different amounts of technologies in their school, use of those
resources is more important than availability (Kelly, 2008: Warschauer et al., 2004).

Participating teachers’ beliefs and ideas about how students should use technology were found to influence the nature and levels of students’ technology experiences in the literacy curriculum.

**Appleton Teachers’ Beliefs, Ideas, and Actions**

Appleton teachers stated explicitly that technology should be integrated into the literacy curriculum because it “exposes” students to digital resources. For example, Patricia (kindergarten) stated, “On my end I want to give them as much exposure as I can because of their economic situation where they don’t have that [exposure at home].” Marlee (second grade) stated, “They need the exposure to keep them advanced, to keep them up with the technology because it is for their future.” Appleton teachers stated that their students enter school with few technology-related experiences at home. Therefore, they believe that it is important for their students to see and interact with technologies—specifically the interactive whiteboards and desktop computers—in their classes. However, Appleton teachers’ ideas that students should be “exposed” to technology may lead their students to interact with it superficially, rather than using it to access information or create products for educational purposes. This has the potential to limit the technological experiences Appleton students have in the classroom and may acculturate them to lower-level uses of technology.

The focus for technology integration at Appleton does not seem to emphasize students using digital technologies to read, write, and communicate. Rather, technology is more likely used intermittently in the literacy curriculum for skill practice. This impacts the purposes, nature and levels of technology integration in the Appleton primary literacy curriculum.
Student Access to Technology

Marlee (second grade) and Robin (second grade) postpone the majority of students' independent technology-based activities until the latter part of October or early November. This means that students are in school for at least two months before they use technology consistently. When asked why most students have not had the opportunity to use desktop computers earlier in the school year, Marlee stated, “When [students] finish their work they go to a center, which is optional. But they have to wait now because we just finished their literacy testing so [students] have to wait until the [remedial kids] finish the reading program.” Literacy screening occurs from mid-September to mid-October. Since literacy screening had just concluded when Marlee made this comment, the only students at the time who were permitted to use desktop computers were the six students identified as having lower-level skills on the literacy screening, who were mandated by the division to use a skill-based remedial reading program to improve their literacy skills. Other students are permitted to use desktop computers more consistently once the remedial students are no longer required to use their program frequently during the week.

Other students’ experiences with desktop computers are secondary to those of the remedial students in the room. Marlee stated, “The [remedial] children use the reading program every day and the other children use computers when they are available for Accelerated Reader (AR)—a program in which students can practice their comprehension skills (Renaissance Learning, 2010). Desktop computer use is “optional” and can only be used based on availability. In addition, only students who have finished their class work are permitted use desktop computers, further delineating who has access to technology. In this case, access to desktop computers is reserved for certain students to practice skills, privileging students who are faster
workers to practice comprehension tests on AR, leaving other students with very limited opportunities to use desktop computers during class.

Robin’s (second grade) students use desktop computers later in the school year as well. She stated, “We haven’t had much of a chance to get on computers too much this year.” She was also waiting until literacy screening was completed in October before she would form her reading groups and plan the literacy centers, including use of desktop computers, which students would rotate among independently during the literacy block. I visited Robin’s classroom in the middle of November, and this was the very first day on which her students used desktop computers. Like Marlee, Robin required only the remedial students to use the desktop computers to access their program, whereas the other students did not have that opportunity. In addition, students’ actions demonstrated that they would have benefited from using the computers at the beginning of the year. Many did not know how to log into the program or navigate it without accidently closing the window. In addition, during an observation, one student spent twenty minutes sitting at one of the desktop computers because she did not know how to type her name and password correctly.

Patricia’s (kindergarten) students were not acclimated to frequent desktop computer use at the beginning of the school year either. She stated, “They are really young and having them take turns is a little of a challenge. I usually open up computers during recess/free time. I have a couple of CD-ROMS that I use. They listen to a story being read, alphabet matching.” I observed Patricia’s class in October and November, and on both occasions, students did not use desktop computers during the literacy block. Instead, they engaged in teacher-led interactive whiteboard
activities. Patricia stated that her students were “really young”—five and six years old—which deterred her from establishing desktop computer use as a part of the literacy curriculum.

Marlee, Robin, and Patricia provided their students with limited opportunities to use desktop computers at the beginning of the school year, demonstrating their belief that it is acceptable or normal for their students—predominantly African American and socioeconomically disadvantaged young children—to have minimum access to technology, an educational resource central to developing new literacies. The teachers’ actions seem to imply a belief that technology use is only important in the literacy curriculum to practice literacy skills. This contributes to the oppressive and hegemonic nature of schooling for African American and socioeconomically disadvantaged students, which is further exacerbated by substandard expectations regarding the types of digital technologies experiences these students should have in school.

*Computer Lab Experiences*

Sarah, Appleton’s ITRT, would like for teachers to use the computer lab more often. She stated, “In the past two weeks I sent out a computer lab schedule so teachers can sign up for computer lab time. Quite a few have signed up so they can get their kids into lab, but not enough have signed up.” Nila (first grade) was the only teacher interviewed at Appleton who takes her class to the computer lab. Although she takes her entire class to the computer lab once a week, she restricts her students’ digital technologies experiences. She stated:

I take my whole class to the computer lab and let them take an AR test in there. I try to take them once a week to get them used to taking AR tests and to get better at it. So maybe by second grade it will be easier for them to sit down and take a test.
I asked Nila if she takes her class to the computer lab for any reason other than to practice AR tests. She stated, “We don’t have time for that.” Her priorities clearly lie in teaching her students how to take AR tests. She is not willing to use the time spent in the computer lab on any activities other than AR. I also asked her about the types of technology competencies she wanted her students to have at the end of the year. She responded, “I want every one of my students to go to second grade and be self-sufficient at taking an AR test.” Therefore, it seems that the only skill she wants her students to get out of their experiences with digital technology in first grade is to know how to find their name and book in the AR database and take a corresponding comprehension test. These decisions support lower-level expectations with regard to technology and literacy integration.

**Skill-Based Digital Technologies Experiences**

Teachers ask their students to use technology in ways that reflect their philosophies of reading instruction (Labbo, 2005). For example, Nila (first grade) stated, “I have some real strong principles when it comes to teaching them to read. The main thing is I believe if they don’t get the basics of phonics then they are not going to be able to read” and Marlee said that students should be “taught the basics and basic phonics skills so they will be able to read something.” This focus on getting “the basics of phonics” is emphasized in how Appleton students use digital technologies.

First and second grade teachers interviewed indicated that their students use Starfall—a Web site that provides students with phonics practice—and AR. Nila (first grade) indicated that she uses Starfall primarily because “It is phonetically correct.” Nila also stated that she likes the program because it provides her students with structured phonics-based activities that they can
complete independently. Students can listen to sounds and words being pronounced, listen to short stories, and play language-related games. In addition, it contains multimedia effects such as sound, graphics, and animation.

Marlee indicated that even though Starfall was “optional” in her classroom, she likes to use it because she believes it “gets them reading... I especially use it for reading and reading comprehension.” Robin (second grade) was the only teacher participant at Appleton who allowed her students to access other literacy-based Web sites to practice literacy skills. She stated, “They can go on computers and do reading comprehension Web sites. Those working on phonics can do that. They read stories and answer questions.” The Appleton teachers interviewed restrict student experiences on desktop computers to phonics or comprehension-based activities. They probably believe that these activities are the most appropriate digital technology experiences to assist their students’ learning.

Nila (first grade), for example, stated, “At their age AR is their technology.” I asked Nila if her students do anything on desktop computers other than AR or Starfall, such as word processing, and she stated:

If they were older students that might be something we would lean more toward. I would say third grade and up but not for this age. We have too much to do, we are in the process of learning how to read and write, and they have so much that we have to cover at this level that those aren’t things that we have to be doing.

Nila’s comment suggests that she may not realize that other digital technologies beyond skill-based practice can help her students develop essential reading and writing skills. Marlee (second grade) also posited that her students only need to know how to effectively take an AR test before
they are promoted to third grade. She has two extra laptops in her classroom that she is able to use with her students for the duration of the school year. She uses the laptops to support student work with AR, also, saying, “Students can come in and do their AR... so everyone can have a turn using AR.”

Appleton teachers’ continued emphasis in first and second grade use of skill-based software communicates to students that this level of technology is “what they should be doing.” This communicates that the students are not supposed to use digital technologies to engage in higher-level literacy activities than AR. Only “advanced” students are envisioned to have those experiences.

*Digital Technologies and ‘Advanced’ Students*

Marlee (second grade) indicated that she is willing to provide students with greater technology competencies with different digital technologies experiences. Although Marlee’s students use AR and Starfall occasionally in class, she stated that she thought that some of her students would be ready for other digital technologies experiences, such as the graphic organizer program Kidspiration.

I think we have one activity in Kidspiration. I haven’t planned anything. I have several students who would be ready for that type of thing because they are advanced. The advanced students I try to give them more things, more options to do with computers. If time permits for them I will be willing for them to learn more and use the two laptops I have.

The “advanced” students—students identified as having more technology skills—are the ones whom Marlee would have using technology to access more than just skill-based Web sites.
Unfortunately, Marlee is not the only teacher interviewed who believes that ability level should dictate the nature of digital technologies experiences in the literacy curriculum. Robin (second grade) also indicated that the level of students she has in her class prevents them from engaging in digital technologies experiences such as Kidspiration. She stated:

I’ve been wanting to use Kidspiration to start their writing on computers but I just haven’t been able to do that yet, just management... Like last year that’s what I really wanted to do but there was no way with my kids being at different levels is hard but I haven’t done it just yet with them. But now that I have this [interactive whiteboard] I’m excited.

In addition, Robin stated that Sarah, the ITRT, “brought up before that we could do a podcast.” However, she offered an explanation as to why she has not engaged her students in other higher-level digital technologies activities such as working collaboratively on movies or podcasts.

I would love to make a movie of them, a podcast of them doing something and have them in charge of doing the whole thing. We could do a play or something. That would be awesome. They wrote the play because that’s reading. They acted out. Somebody is working the camera. Then we all work together to edit or something. That would be awesome if we could do something like that. I wouldn’t be the one to say we are going to do this play. I would love for them to create a story and use their imagination and just feel freedom with it. I don’t think they get a lot of that in school it is so— do this, do this, do this, do this.

When asked why her students have not done the envisioned activities, Robin stated that they have different ability levels. She stated, “Just having so many various learning, not even learning
styles, just having people on kindergarten level and third grade level.” Robin’s comments suggest that she believes that her students would be able to engage in these activities if they were all on the same instructional level. However, since some students are at a “kindergarten level” whereas others are at higher levels, Robin feels they could not do these projects. She would rather have her students engage in technology experiences that are “do this, do this,” skill-based activities because they are probably the most manageable with her students.

Emphasis on Independent Technology Use

Appleton teachers’ actions and comments indicated they do not think the majority of their students are capable of using digital technologies differently in the literacy curriculum. Nila (first grade) illustrates this point when she stated, “They can do Starfall and they can do AR. Those are both huge accomplishments for being six years old.” Her idea that Starfall and AR—programs in which students sit in front of desktop computers to read and use the mouse to answer questions—are “huge accomplishments” is potentially detrimental to the students’ future technological facility and new literacies acquisition.

The Appleton teachers interviewed choose to emphasize those technologies that they believe their students can use independently. Robin (second grade) stated, for example:

Last year I brought in the laptop cart and it is just chaotic and I would like for them to be able to do that. I don’t know if it’s just the grade, if it’s their maturity, if it’s me, if it’s a combination of all of it or if they are just not ready.

However, when students use desktop computers to practice literacy skills, as Robin stated, “A lot of the kids do really well when they get on computers and play games. They are able to play
the games independently and are attentive to what they are doing.” In addition, Marlee (second grade) stated:

I would like to change, have more options of things to do on computers and they could be able to do it by themselves, be more independent. For instance if I set the laptops up and a program, select a lesson, answer questions based on the questions, more independent.

Teachers want students to be “independent” on desktop computers to practice skills. As stated earlier, Nila (first grade) takes her students to the computer lab so they can be “self-sufficient” taking an AR test and Robin stated she wanted students to “do more stuff independently because … that’s what they are going to be asked to do in third grade. Here, it’s written down for you, this is what you are supposed to do, now do it.” Appleton teachers want their students to gain the competencies needed to complete skill-based tasks independently. However, in the process, they are creating electronic learning environments for their students that are tightly controlled, involve following strict directions, and limit student creativity.

As illustrated above, Appleton teachers’ comments suggest that they believe most Appleton students are not capable of successfully engaging in educational technology experiences other than using skill-based programs. This may explain why students use AR and Starfall extensively in Appleton classrooms. Appleton teachers may label their students as not being able to engage in practices different from lower-level uses of technology, using students’ abilities and technological inexperience as the basis for their decisions. Therefore, AR and Starfall are seen as appropriate levels of technology integration for their students. Dominant ideologies regarding the competencies and capabilities of African American and
socioeconomically disadvantaged students may prevent Appleton teachers from believing their students can use technology differently.

Teachers’ beliefs and ideas regarding Appleton students’ uses of technologies contribute to an “inequitable power matrix” (Kinetchoe & McLaren, 2005, p. 309) of new literacies knowledge between the students who have the knowledge valued in dominant society and those who do not. These ideologies continue to oppress historically marginalized students (Kinetchoe, 2005). Appleton students engage in technology practices that are teacher-directed or computer-directed, which limits and controls the types of new literacies knowledge students acquire. Use of the interactive whiteboard can also support teacher-directive technology experiences (Kennewell et al., 2008; Gillen et al., 2007) and may result in inferior learning opportunities for Appleton’s students.

Uses of Interactive Whiteboards

As stated previously, Appleton teachers received mounted interactive whiteboards in their classrooms at the time of this study. Sarah, the ITRT, stated that she believed the presence of the interactive whiteboard in the every classroom would facilitate more technology integration. Teachers indicated that she has been supportive with assisting them with using this technology. Marlee (second grade) stated, “[Sarah] is meeting us during our grade level for the [interactive whiteboard] training” and Patricia (kindergarten) stated, “[Sarah] came in here. She showed me how to set it up and showed me some of the websites.” Sarah stated that she will offer more professional development on interactive whiteboards as the school year progresses.

Participating teachers indicated that they look forward to using the interactive whiteboard in the literacy curriculum because they can place Web sites such as Starfall and PBS Kids.com
on the board and go through the activities offered by these Web sites as a class. Nila (first grade) stated:

Now that we have [an interactive whiteboard] we can do a lot of activities, dragging, doing interactive sites that for language. In fact we have already done Starfall on the [interactive whiteboard] in fact they loved it. I pulled it up on the board and I let one child come up to the board and do a little bit of the activity.

The teachers interviewed believe that the interactive whiteboard will expose their students to more technology use because it will allow them to guide students through Web sites as a class. In addition, they also believe it will provide the students with limited technological competencies to use technology in a controlled, teacher-guided, and therefore more successful manner. Robin (second grade) stated, for example:

Students’ lack of technology use hinders school use because you have to do baby steps, you have to gauge where people are at. I think that might change with use having the [interactive whiteboard] because that is just them, coming up, working it like this (using fingers). When it comes to the Mac it definitely does [hinder technology use]. When we are in reading groups and I put someone on computers and they are having a choice activity or on [the remedial program] I can’t be taken away from guided reading and say okay hit the back button okay this is where you are at and why is it stuck, and when you are stuck you go up here and do this— and so yeah it definitely can hinder. Honestly it is just not worth it. You are just frustrated you just want to move on— okay then read a book. If you can’t do computers then you can go get a book and sit down. Unfortunately, yeah.
As Robin stated, it is “not worth it” for her to be disturbed during small-group reading instruction to help students on desktop computers, and would rather have students to “go get a book and sit down.” Robin’s comment suggests that she values whole-group interactive whiteboard activities more than students using desktop computers independently, and believes that students will get many technology experiences through interaction with the interactive whiteboard.

These sentiments are shared by Patricia (kindergarten). Because her students are “really young,” Patricia prefers to use the interactive whiteboard in whole-group instruction. Patricia explained why she favors the interactive whiteboard over desktop computers:

Most [students] know how to sit on computers and click, click, click and they don’t know what they are clicking, but they are just clicking and ‘why are you turning this off?’ That’s why I said that’s kind of like hopefully we will get to that [using computers] more often. I like to do the [interactive whiteboard] because I can help them. It’s hard for me to sit one-on-one on computers with them.

Patricia and Robin may not believe it is necessary to help students develop the competencies needed to use desktop computers independently. Rather than taking the time at the beginning of the school year to show their students how to effectively use desktop computers, they prefer students’ technology experiences to be teacher-guided, allowing them to use technology to develop and practice specific literacy skills.

Although many Appleton students enter school with limited desktop computer experiences, they do not have frequent opportunities to develop these competencies in school. The placement of the interactive whiteboard in every classroom may further limit the amount of
time students have using technology. Instead of interactive whiteboards being an asset to students in socioeconomically disadvantaged schools, they may be a detriment to the students, because when focusing upon their use, teachers may be inadvertently limiting student autonomy, and acculturating them to engage in the types of lower-level thinking reinforced by skill-based practice using technology. The following examples of how interactive whiteboards were used in two classrooms at Appleton illustrate how use of those boards can potentially limit students' new literacies development.

Patricia (kindergarten) was observed using the interactive whiteboard with her students to practice beginning letter sounds. The lesson was one that was downloaded from a database of online lessons. The display was a brightly colored picture with animation and sound. For the first lesson, each student had a turn touching a picture that began with the letter 'b'. The following lesson allowed students to touch a picture that began with the letter ‘j.’ Patricia selected the students who would come to the interactive whiteboard to select a picture. Students appeared to be very excited about coming to the board to touch a picture. Their use of the interactive whiteboard was limited, however, because every student in the class had to have a turn touching a picture that began with the appropriate letter. As a result, each student was at the board for a few seconds. Although this activity provided students with interactive digital experiences, their direct experience was short-lived. They observed other students using the technology for the rest of the time spent on the lessons.

I observed Marlee (second grade) using the interactive whiteboard to teach a literacy lesson. She projected a comprehension worksheet onto the board. Students read in their basal readers, and then Marlee asked students to find the correct answer to each question in the story.
She did not allow any of the students to come up the interactive whiteboard to annotate or select the correct answer; she did this instead. Students sat at their seats for twenty minutes while the teacher taught from the interactive whiteboard. In this case, there was no student interactivity with the board. It was used to present content and support teacher-directed use.

The technology experiences these students had inside of the classroom were similar to their experiences in the library. As stated earlier, teachers identified Pam, the library media specialist, as having an impact on students’ technology use in school. The following section details her beliefs and actions regarding how students should use digital technologies.

Students’ Technology Experiences in the Library

Appleton students have technology experiences both in and outside of the classroom, including in the library. Although Pam is the library media specialist, she serves informally as the school’s computer lab instructor. Pam stated that she is responsible for traditional librarian duties such as checking out books, organizing shelves, developing lessons, and teaching appropriate library-related content to students. Students have class in the library once each week for 40 minutes. About half of that time is devoted to students using computers, whereas the remaining time is dedicated to book selection and check-out.

Pam acknowledged that being responsible for many tasks—classroom management and book check-out—, in addition to students’ limited competencies, prevents her from allowing students to engage in meaningful computer activities during their time in the library. She stated that her actions “hold the kids back.” Repeated statements about her “frustrations” working with Appleton students indicated that those feelings influenced her actions. Pam’s description of her frustrations included statements such as, “They don’t know how to use a mouse, how to click it,
how to turn it. They need to be taught the very basics;” “You are running around like a chicken with its head cut off ‘cause one minute they are on the site and the next minute they are off the site,” and “When they are using [computers] it is frustrating to the teacher... it takes so long to do a lesson.” Her statements suggest that to her, it is easier, and less frustrating, to have students with limited technology competencies work with a skill-based literacy Web site that requires only basic mousing skills than it is for the same students to engage in more advanced uses of technology.

Pam stated she would have the students use technology differently if they had better technology skills. She said that she would show them “how to integrate things, how to do research and put in hands-on, fun, interesting things that spark imagination.” It is interesting that Pam recognizes that she could be engaging the students in different technology-related activities in the library, but that she makes a conscious decision to forgo these experiences because many students do not enter Appleton with what she believes to be sufficient technological competencies to do more with educational technologies.

Summary of Appleton Teachers' Beliefs, Ideas, and Actions

Teachers seem to have adopted hegemonic beliefs, ideas, and practices regarding when, why, and how students should use digital technologies. Based upon participating Appleton teachers’ depictions, it seems that Appleton kindergarten, first, and second grade students only have experiences in classrooms and the library to use technologies that support specific skill remediation, rather than activities that would encourage them to use technology at higher cognitive levels and develop the literacies needed for the 21st century. Teachers’ assumptions about Appleton students’ abilities cause the students to have limited time using technology
independently and no experience with activities in which they create or apply their learning in digital environments. The next section will describe Bellmont teachers’ beliefs, ideas, and actions and resulting students’ digital technologies experiences.

Bellmont Teachers’ Beliefs, Ideas, and Actions

Whereas Appleton teachers integrate technology into the curriculum in order to “expose” their students to digital technologies, Bellmont teachers integrate technology because they believe it is important for students to “access information.” “Access” implies higher-level interaction with digital technologies—more than would be necessary for “exposure”—and brings to mind strategic ways of interacting with digital texts. Courtney (kindergarten) stated, for example:

In the classroom they can see books, magazines but they also need to know you read when you are on computers also. There are just as important resources online as there are in our classroom. I think in the age of society that they are its even more on computers than with books. Books are becoming more and more obsolete so they are going to need to know how to get to those resources. At this age level we are not going to have them researching topics online, but just knowing that things are available to them is what I want them to get out of here.

Courtney’s statement implies that Bellmont students are going to be expected to know how “to get to those resources,” or access information, digitally in the 21st century and therefore, they need literacy experiences that are not restricted to books.

Participating Bellmont teachers stated that their students enter school having had many technology-related experiences at home. They believe that it is important to build upon students’
technological competencies in school. Rebecca (first grade) stated, for example, "I think that they are the students that come in with a certain amount of skills and we kind of foster that by showing them these different ways of kind of accessing information." According to Bellmont teachers, it is important for their students to use desktop computers independently during literacy centers as a way to access information.

*Student Access to Technology*

Participating Bellmont teachers indicated in their interviews that kindergarten, first and second grade students have frequent opportunities to use classroom desktop computers. Interview data suggests that students use desktop computers independently three to five days a week for approximately 25 minutes each day. Unlike many participating Appleton teachers who do not provide their students with frequent opportunities to use desktop computers at the beginning of the school year, Bellmont teachers allow students to get acclimated to using different literacy-based Web sites soon after the school year begins, suggesting that technology use is an important part of the literacy curriculum and that they will be expected to use it independently and frequently. Students in all of the participants' classes were observed in October and November navigating literacy-based sites, choosing activities to complete, and reading stories online. In addition, I noticed that use of desktop computers was a planned part of work at the literacy centers for every child. Students rotated from an independent literacy center to desktop computers when it was their group's time to do so. Therefore, all students observed in participating Bellmont classrooms had an opportunity to use desktop computers multiple times during the week. Although remedial second grade students have to use desktop computers to
practice their literacy skills, just like the students at Appleton, Bellmont teachers ensure all students, not just a select few, have access to computers during literacy instruction.

Furthermore, Bellmont kindergarten students are learning how to use technology at the beginning of the school year. Courtney (kindergarten) stated, “The first week of school I did a lot of modeling. I would take four or five students over at a time” and Dee (kindergarten) stated, “They started going on computers the second week of school and have been on ever since.” Recall that Patricia (kindergarten) at Appleton does not allow her kindergarten students to use technology independently because she believes that they are “too young” to do so. However, Courtney and Dee allow their Bellmont kindergarteners to use Web sites independently. Bellmont teachers’ actions may imply that they believe that it is important for their students to begin using technology independently at earlier ages, reflecting dominant ideologies that technology use is important for young socioeconomically advantaged individuals.

*Digital Technologies Experiences*

Whereas Appleton students only used skill-based programs such as Starfall and AR, Bellmont students have some other technology-related literacy experiences in their classrooms. Bellmont’s Web-based bookmarks organizer—which contains links to selected Web sites organized by grade level and content area—is created and maintained by the school’s ITRT and librarian, and includes a variety of literacy-based Web sites, including skill-based games, reading games and online stories. Bellmont students were observed using the bookmarks organizer to access different Web sites and programs.

Susie (second grade) indicated that she does not dictate to students where they must go when they use desktop computers during their work at the literacy centers in her classroom. Most
of her students were observed playing a mystery game in which they had to read clues to solve the puzzle. A few students were also observed opening the Pixie program and exploring with writing and drawing. Susie mentioned that some of her students create graphic organizers in Kidspiration as well during their time in class using computers. Susie is the only teacher observed at Bellmont who allows her students to navigate through the Web bookmarks organizer freely. Dee (kindergarten) said that her students will have this freedom as the school year progresses. She stated, “Eventually they will be able to pick out the site they want” from those linked via the online bookmarks organizer. Dee stated that Sydney, the ITRT, wants students to be able to access these sites independently. Susie supported this goal, saying, “I think the choice is good for them because throughout the day it is so structured...It’s secure, safe sites but yet they are learning. They get the chance to explore and choose what they want.” Susie also allows students to access any other software programs available, including Pixie and Kidspiration. Susie’s actions may indicate that she believes her students have the competencies to purposefully choose hyperlinks, navigate Web sites and work through an activity, thus helping to build her students’ new literacies. She establishes that desktop computers are not just for specific skill practice; they can be used for other learning activities.

Courtney’s kindergarten students also have various experiences on desktop computers during work at their literacy centers. She does not restrict these experiences to literacy-based games. Courtney indicated in her interviews that she often finds content-related stories and activities her students can explore independently while they are using the computers. She stated, “I try to tie it into what we are doing in the classroom and if there isn’t anything specifically, that’s when they do some kind of phonics-based Web site.” Courtney’s kindergarten students
were observed independently navigating an online story on Christopher Columbus. The story was read to them as they followed along. They were also navigating back and forth between the story and clicking on pictures to get more information. Students were also observed asking one another for help if they had trouble navigating the Web site. In addition to accessing Web sites that provide more than discrete skill practice, Bellmont students also have opportunities to create electronic documents.

According to teacher interview data, some of the first and second grade students at Bellmont have begun using the graphic organizer program Kidspiration in the literacy curriculum. Teachers indicated that they like using it as part of writing instruction because they can display the program on the interactive whiteboard or on student desktop computers and students can “point, click, drag and type.” In this way, students are learning how to brainstorm ideas digitally, type information, and add graphics to enhance written messages. Some of the teachers either indicated that they are interested in using Kidspiration or they have already started using the program more this year because, as Rebecca (first grade) stated, “since our technology specialist has asked us to do more [interactive whiteboard] and Kidspiration, I thought about trying to use it more in the Language Arts block.” Chloe (second grade) is also trying to use Kidspiration more during instruction. She stated:

We use Kidspiration. I didn’t do much [last year]. They have the whole webbing thing on there for organizing the webbing and I’ve used that a lot. We are using webbing a lot for writing... I would like to teach creating their own.

Rebecca and Chloe are taking suggestions from the ITRT to use different digital technologies in the literacy curriculum.
Although Sydney would like for teachers to use interactive whiteboards more during instruction, some of the participating Bellmont teachers stated they were not using the boards often in instruction because of the quantity of boards in the school. There are only two interactive boards available. Participating teachers indicated that they are responsible for checking-out the interactive whiteboards for a two-hour period and then returning them to the library once they are finished. As Susie (second grade) stated, “the [interactive whiteboard] is very difficult to get and bring over here.” Therefore, although the ITRT may suggest that teachers use this technology, they may not use it frequently based on its limited availability. Sydney stated that she was trying to get one of the interactive whiteboards relocated to the section of the building that houses kindergarten, first and second grade so that it would be more accessible to these teachers. Although participating Bellmont teachers may not use interactive whiteboards often during instruction, they are providing their students with other technology-related experiences.

Participating Bellmont teachers’ actions indicate that they believe students should use technology independently, even if they are in kindergarten, and that digital technologies experiences should include uses that are more than just skill-based practice. As described above, Bellmont students are engaging in several of the types of technology-enhanced instructional activities in which socioeconomically advantaged students engage in school. However, some of their technology experiences emphasize lower-level uses.

*Skill-Based Digital Technologies Experiences*

Similar to teachers at Appleton, Bellmont teachers also use technology in ways that support their philosophies of reading. Courtney (kindergarten) stated, “I think it is important to
have phonics first because that’s how they start and then you can move on to teaching them to blend, to read” and Chloe (second grade) stated, “They need sight words as well as need to know the phonetic skills. I think a good literacy learner is able to take a skill, take a phonics spelling skill and apply it to their reading and writing.” Therefore, because participating Bellmont teachers believe phonics acquisition and practice is important to their students, they use technologies that they believe allow their students to develop these skills. Rebecca’s (first grade) statement illustrates this point. She said:

I think technology lends itself better to phonics skills where use through various programs to manipulate the blends sounds, phonemes, to kinds of isolate the sounds and put them together... I think this level for phonics is the best way to utilize technology.

In addition to technology supporting phonics instruction, Bellmont teachers also believe technology is important because it teaches students. Courtney (kindergarten) stated, “It definitely offers some good support and resources where the kids can go on and practice what they are doing on computers rather than with a person.” One perceived benefit of using these skill-based sites is, as Chloe (second grade) stated, “[they are] kind of teacher-assisted, operated without me having to stand there.” In addition, as Susie (second grade) stated, “I don’t have an assistant and I have some kids who need remediation.” Participating Bellmont teachers integrate technology into the literacy curriculum because it provides students with computer-assisted instruction for “practice” and “remediation” and therefore, as Dee (kindergarten) stated, becomes a “vital part of our literacy centers.”

Participating kindergarten and first grade teachers at Bellmont do not limit students’ Web-based experiences to one or two sites; students have the opportunity to access different
Web-based resources such as Starfall, Internet4classrooms.com, Scholastic.com, and Spellingcity.com. Teachers indicated that they select Web sites that best support the skills they want students to practice on a particular day. Courtney (kindergarten) stated that Web sites are used often because “they are designed so little people can navigate through it...It also works very well with the center rotation.” Rebecca’s (first grade) students were observed interacting with a Web site in which they chose the correct vowel sound that matched a picture, such as “nose” or “knee.” After fifteen minutes, they rotated to another center where they practiced their spelling words using a different Web site. Spelling word practice with this program is very similar to playing the game “Hangman.” Students have to spell the word correctly or they will lose the game. Students seemed to enjoy working with these Web sites. However, the programs are skill-based and focus on practice rather than higher-level learning.

Student technology experiences in second grade are low-level as well. Some of the second grade students in Chloe’s (second grade) class were observed using a division-mandated, skill-based program, whereas other students used desktop computers to access AR, which, according to Chloe, is used “to influence them and encourage them to read because it is something different. It is not a book, it is on computers.” Chloe and Susie (second grade) indicated that their students use desktop computers to take AR tests, but they do not emphasize this use as much as the other teachers at Bellmont do, indicating that they believe AR use is important, but not the predominant technological experiences their students should receive in school.

This emphasis on “teacher-assisted” uses of digital technologies—using Web sites that provide students with skill practice—has the potential to limit the new literacies knowledge
students receive in school (Cohen, 2005; Labbo et al., 1998) and mirrors the lower-level teaching of socioeconomically disadvantaged students. Interestingly, Bellmont is a more socioeconomically advantaged school in which teachers value skill-and-practice Web sites for use in the literacy curriculum. When used in this way at both Appleton and Bellmont, socioeconomically different students learn to use technology in the same ways, which does not reflect previous research results that socioeconomically advantaged students are more likely to use technology at higher levels than their disadvantaged peers (Attewell, 2001; Au & Raphael, 2000; Coiro et al., 2008).

Bellmont teachers may have their students use skill-and-practice Web sites, not because this is the only way they believe their students can engage in technology practices—they have demonstrated otherwise—but because skill-based uses of technology may have become ingrained in teachers’ expected instructional practices. For example, Dee (kindergarten) stated:

The children are not on [a technology-based literacy program] where I can print out information and find out exactly what they have been doing. For instance we used to have [a program] which I personally loved. It is no longer in our school system. You could actually print out and see where they have [weaknesses]. They recognized all their letters. Do they know all of their sounds? Are they actually spending a lot of time on phonics or are they attempting to read some books. I loved that program but I am happy with what we have. I wish we had a program [like that]...where you can actually put in kids names and follow their progress.
Nila (first grade) from Appleton made a similar comment. She stated:

I think it was a good thing when we had [a technology-based literacy program] because they had a set program and it was really good for them. Now I kind of have a set program. I use Starfall and it's not the same, but it is still good.

Therefore, Dee (Bellmont) and Nila (Appleton) like for students to use Starfall because the practice is very similar to what they would have experienced with their previous literacy-based software program. This program was in the school system for five years before it was discontinued.

As Apple (2004) stated, school personnel pass down the "legitimate knowledge" (p. 43) that students are expected to have. Phonics and other foundational skills that are included in the early literacy curriculum may be defined as legitimate knowledge that all students, regardless of race or socioeconomic status, are expected to acquire in school. Therefore, using educational technologies may be seen as a valued way of reinforcing these foundational literacies. As a result, teachers may believe that they should have their students use skill-based literacy programs because it is the norm that has been established in primary educational settings.

Teachers' Knowledge of Digital Technologies

When asked to describe other ways in which they integrated technology into the literacy curriculum, participating teachers at Bellmont stated that they are unsure of how technology could be used differently, but they expressed a desire to learn more. Their hesitation about different uses of technology may stem from a lack of knowledge regarding how to integrate available technologies meaningfully into the literacy curriculum. As Chloe stated, "Just for my own security, I use what is familiar to me."
Bellmont teachers explained that the previous ITRT provided few professional development sessions regarding the types of technologies that were available at the school. Susie (second grade) said:

When I first came into teaching we used to have to get certificates, we used to go to workshops and things like that. They kind of phased that part out… I think we maybe had one [professional development session] last year [given by the ITRT], but I would like to see more because I can’t even think on the top of my head. I know we had instruction on the [interactive whiteboard] and the LCD projector and things like that and that was a couple of years ago.

Participating teachers indicated that they are still unaware of the full range of digital technologies available. As Susie further stated, “I would like to have a strong grasp of what we have here” and Chloe (second grade) echoed, “I would really like to know what is over there and be shown how to use it.” Therefore, teachers may choose for students to use desktop computers because they are the technologies with which they are the most familiar. Dee (kindergarten) illustrated this point when she said, “I am really not that familiar on how to incorporate the technology other than what we are doing with the daily computers.”

Participating Bellmont teachers have not learned how to use digital technologies differently at division-level Language Arts meetings, either. Chloe stated:

I’ve gone to a few language arts meetings and all of the ones that I have been to in the last couple of months they say you can offer computers as your free choice, but they don’t tell you what to do on it.
Because desktop computers are a “free choice,” this implies that they may not be conceptualized by the school division as being an important part of the literacy curriculum. Teachers may not be given examples on how computers can be used to support new literacies development. Susie, who is also the Language Arts coordinator at Bellmont, stated that all of the discussions at the division meetings regarding technology have focused on the interactive whiteboard. She stated, “I’ve been doing this for six years as far as the instructional leader and the most fresh thing that I can remember is them talking about the [interactive whiteboard],” primarily discussing the lessons that could be downloaded and used for instruction. Since teachers seem not to be learning about higher-level literacy ideas from the division, this responsibility may belong to the school’s ITRT.

**Teachers’ Interest Regarding Higher-Level Uses**

Participating Bellmont teachers stated they were interested in their students learning how to word process, research online, create documents in Kidspiration, and use any other digital technologies that allow them to “use technology in different ways and not just using it as the race car thing, not just as a game, but as a learning tool also,” as Susie (second grade) stated. Courtney (kindergarten) said, “It would be neat to get them all to a point where they can do an activity, keyboarding and mouse.” It seems that participating Bellmont teachers want students to use technology for more than games and practice. Rebecca shared a digital technologies experience she would like for her first graders to have. She said:

I had a teacher across the hall at my other school who used iPods in her classroom— that was pretty cool. She wrote a grant for that. That is something I could see myself possibly trying to put into the first grade curriculum. It is intimidating sometimes because you are
teacher of 6 and 7 year olds but if I had the proper training on how to bring it down to their level then that would be something that I would like to explore.

Rebecca wants to bring a real-world technology—in this case, iPods—into the literacy curriculum. Her statement indicates that she believes first grade Bellmont students may possess the skills and abilities to use iPods successfully. As stated in an earlier section, Appleton teachers do not want their students to have technology experiences beyond skill-based Web sites because they feel that these experiences are not appropriate for their students' grade and/or ability levels. However, participating Bellmont teachers expressed an interest in their students learning how to use technology differently from how they are currently using it. Thus, these teachers may realize that they have the power to provide students with different digital technologies experiences.

Knowledge Acquired from Sydney, the ITRT

Participating Bellmont kindergarten teachers also realize that Sydney, the ITRT, may be instrumental in showing them how to use available technologies more effectively. The kindergarten teachers who were part of this study's sample appreciated that Sydney met with them to discuss different uses of digital technologies. Dee stated:

I would love to learn some new things, whatever is available and I believe our ITRT will be wonderful, I think. She shows me what to do and I can do it with the children …To know what's good for the school may be fine [but] I want to know what to teach with five year olds. What can I teach? What can I use? What's available for me to do with five year olds in the early learning stages? I think [the ITRT] will be very good. She was meeting with us the other day.
Dee also expressed that Sydney was “more accessible” than their previous ITRT, and seemed more willing to work with them to show them how to integrate technologies differently. In addition, Courtney is learning new ideas from this ITRT. She said:

[Sydney] gives us ways to use a program to meet the lesson. Most of the stuff that we are doing right now is extra when I have the kids go on the computers is extra like when I have the kids go on a phonics game it is in a center rotation but the activities that [Sydney] came up with are things that they are not learning when they are on computers for center rotations but they are a lesson that I can do. Some of them are whole group, some of them are small group, but it is something that they would actually be learning for the first time and it wouldn’t have to be something they are reviewing.

Courtney and Dee may be beginning to realize that digital technologies beyond desktop computers can be integrated into the curriculum for more than skill-based whole-group or small-group experiences. This realization may be a result of Sydney’s professional development ideas and approaches.

*Students’ Technology Experiences in the Library and Computer Lab*

Bellmont has more time and human resources allotted than Appleton to help students develop new literacies knowledge. Bellmont students have two resource periods per week during which they are given the opportunity to engage in technology-related activities: in the library and the language arts computer lab. Similar to Appleton students, Bellmont students go to the library once each week for 45 minutes. However, instead of focusing the library time on using one particular literacy-based Web site, Lauren, the Bellmont librarian, stated that she varies what students do during the library block, taking inspiration from what students are learning in their
classrooms to guide “whatever I can reinforce in here.” Therefore, library classes are not a disconnected part of the students’ educational experience. Rather, they are opportunities for students to interact with technology while reviewing curriculum content encountered in their classrooms.

Lauren indicated that most of students’ time in the library is dedicated to technology-related activities such as accessing literacy-based, content-related, and/or other sites posted on the library’s Web bookmarks organizer, which students are taught by Lauren to access independently. Students also have opportunities to complete whole-group whiteboard activities or watch streamed videos from Discovery Education. These varied opportunities for students to access and interact with digital technologies expose them to the multimedia and multimodal aspects of these resources, and in the process may acculturate them to using these technologies to access information.

In addition to weekly digital technology experiences in the library, every student at Bellmont receives 45 minutes of instruction per week in the language arts computer lab. The previous principal at this school received a grant to hire Barbara as a computer lab instructor to support language arts. Barbara expressed that her idea of technology integration is not limited to students using literacy-based Web sites and software programs. In addition, she supports primary students’ acquisition of literacy skills through Pixie and word processing activities. Barbara uses software programs that allow students to create electronic documents because she believes they are valuable to students, stating that these programs “draw out that originality, that creative thinking” in students. Barbara’s comments about originality and creativity indicate that she values technology use as a way for students to expand and demonstrate their literacy skills, not
just practice them. Observational and interview data indicated that Barbara provides Bellmont students with integrative reading and writing experiences with technology.

I observed a second grade lesson in the computer lab that demonstrates these opportunities. Barbara explained that students were going to annotate a story about birds. Students listened to the story and annotated certain parts. Next, she told the students that they would be using the program *Pixie* to draw a bird on a branch. The purpose of this activity was to extend the concept of annotation. She used the LCD projector to project her computer image of *Pixie*, reminding students how to access the program and select the text box feature in order to write their names on the electronic document. It was obvious that the students had used the program multiple times, because they did not have any trouble getting into the program or using the tools to create their pictures.

Barbara wants Bellmont students to integrate technology meaningfully in the curriculum. She stated that primary students use *Kidspiration* often to create graphic organizers, connect visuals to the written word, and begin writing stories. Her statements that “they need to be able to use the computer to find materials” and “the [Internet] is a tool to use and not a play toy” also indicated that Barbara views technologies, including the Internet, as educational tools that students should use to acquire knowledge, not something to be used for recreation only. In addition to primary students’ word processing stories, organizing information using *Kidspiration* to “show what they know,” and completing drawing and writing activities in *Pixie*, Barbara stated she was also interested in teaching second grade students how to use *Nettrekker* because “that is the grade in which you start to do simple reports and simple explorations to find out information.” Barbara’s implementation of *Nettrekker*, as well as other activities in which
students are engaged in the language arts lab should help to provide them with opportunities to
develop the communication, navigation, reading comprehension and critical thinking skills
necessary to create understanding in hyperlinked, Web-based environments (Johnson, 2009; Leu,
Kinzer et al., 2004).

Barbara also stated that she is interested in varying the technologies students use in class.
She stated, "I have tried to keep up with the new innovations, new things as they come out." She
illustrated this assertion by saying, "I would like to learn more on how I can further use [digital
media players], blogs. I would like to know how that could be fully implemented." She has
expanded her ideas regarding the types of sources that could be used to support literacy learning
beyond paper-based materials to include traditional school technologies such as classroom
computers, and nontraditional technologies such as digital media players and Web logs. Barbara
and the other participating teachers at Bellmont express interest in providing their students with
different technology experiences.

As the previous descriptions of the two schools' technology experiences demonstrated,
Bellmont early elementary students have twice as many new literacies development
opportunities outside of the classroom than students from Appleton do. They go to the language
arts computer lab and library each week, compared to Appleton students who have only library-
based instruction for computer-related activities once each week. In addition, Appleton and
Bellmont kindergarten, first- and second-grade students engage in different levels of new
literacies experiences. Generally, Appleton students access only one literacy-based Web site per
session, whereas Bellmont students access multiple literacy-based and content-based Web sites,
in addition to using software programs that allow them to create electronic documents. The
different experiences early elementary students have in terms of resources at the two schools provide them with different types and levels of new literacies experiences.

**Summary of Bellmont Teachers' Beliefs, Ideas, and Actions**

Like participating teachers at Appleton, teachers at Bellmont have also adopted hegemonic beliefs, ideas and practices regarding when, why, and how students should use digital technologies. Based upon classroom observations and participants’ depictions, however, it seems that some Bellmont teachers choose to provide students with opportunities to navigate the Web bookmarks organizer, read online stories and use Kidspiration independently. However, early elementary students also use literacy-based Web sites often in the Bellmont curriculum. Therefore, students have a balance of experiences in their classrooms, the computer lab and library that may help them to develop new literacies in addition to practicing literacy skills. Most participating teachers at Bellmont indicated that they wanted to become familiar with available digital technologies and were interested about learning how to further integrate technology in the literacy curriculum. Teachers also stated that some of their beliefs, ideas or practices regarding technology have been influenced by Sydney, their ITRT.

**The ITRT and Professional Development**

Although ITRTs across the division receive the same professional development, teachers and students at each school in the division may not have equitable experiences with digital technologies. According to Kathy, the school division’s ITRT specialist for elementary schools, ITRTs have the flexibility to choose the technologies they believe may best support content. She stated:
We also have ITRTs in our schools and these teachers are resource teachers and work directly with classroom teachers as far as modeling lessons, preparing with the teacher lessons that will show them how to use the 21st century skills, 21st century technologies, 21st century initiatives into what they are doing already… How can I incorporate 21st century skills into what I’m doing with [content]? So the teachers come up with the curriculum. Then work with the ITRT to learn how to integrate these tools. That’s where the ITRT really helps. That’s where the professional development stems.

The division does not mandate teachers to use specific technologies in instruction. The nature of the ITRTs’ position in the school empowers to make decisions regarding the digital technologies to be emphasized. Thus, ITRTs have the potential to be “agents of change” in their schools (Virginia Department of Education, 2008, p. 10). When asked how they choose the technologies to share with teachers, Sarah (Appleton) stated:

We are tailoring everything to the to the teacher’s needs. We are giving them a choice. I am the teachers’ support system. Anything with technology, questions, problems, I am basically their first line of defense, model lessons, show them how to use everything.

and Sydney (Bellmont) responded:

I tend to pick the things that are stressed the most that they are going to be using on a daily basis or using the most first and then kind of then see where their interests lie after that. I go to a grade level meeting and ask what are some things you are already good at and what other things would you probably want to learn about or be able to use and go from there. It all depends on the interest level and what they want and need. If they are not sure or if they pick something and I think there is something else that will help them
more or be easier to learn I will suggest it... We take everything we know and customize it to the teacher and grade level.

The ITRTs statements that they “suggest,” “customize,” and “show [teachers]” how to use everything imply that they have an active role influencing the nature and levels of technology integration occurring in school. Therefore, it can be posited that ITRTs’ beliefs and ideas regarding the types of technologies that should be used with each school’s population shape the nature of teachers’ technology-related professional development.

Sarah’s Beliefs and Ideas: Appleton’s ITRT

Sarah encourages Appleton teachers to use technology for reading and writing activities because “It is something different. It is fun and the kids are such in a generation that they are used to using technology at home. It is easier for them to learn that way and it is just fun.” She focuses on the peripheral aspects of technology such as sound, animation, and graphics for engaging students in the classroom with the expectation that these activities will improve learning, reflecting an “edutainment” view of technology integration (Buckingham & Scalon, 2005, p. 46).

Students and Web-based Literacy Practice. When asked to provide examples of how she integrates technology into literacy instruction, Sarah commented that she worked with a small group of second grade students last year at the request of a classroom teacher. The purpose of this meeting was to support students’ acquisition of the literacy content being taught in the classroom. Sarah explained the context of this session by stating, “We did computer stuff. We did games and the educational sites that fit into what she needed.” The games and educational sites Sarah referenced are those that she selected and posted on the school’s Web bookmarks
organizer for students to access in the classroom. An examination of the Web sites suggests that the vast majority of them consist of literacy-based activities that can be classified as games. These games are media-(sound, graphics, and/or animation) and skill-based activities in which students practice particular skills, such as reading comprehension, grammar, and spelling. Students select correct responses by clicking on the correct word or phrases and are given immediate feedback regarding the accuracy of their answers. Students might find the games to be fun, but their educational purpose is remedial, focusing upon discrete skill attainment. Sarah may be focusing on the entertainment value of educational technologies as a way to hold students’ attention and possibly keep them engaged in learning. However, she may not realize that in the process, she is supporting and reinforcing lower-level technology use for Appleton students.

*Sarah’s View about Students’ Competencies.* Sarah’s views about the role of technology in the literacy curriculum may stem from a lack of confidence regarding what Appleton primary-grade students may be able to do independently on desktop computers. When asked to describe the skills she would like students to have by the end of the school year, Sarah replied:

With kindergarten probably mouse skills, basic, basic stuff because they are just babies. Just being able to move the mouse around and just click on things, that is just, if they can do that, that is just fine, and possibly identify the letters on the keyboard so they can get use to it. The first graders, a little bit more in depth, maybe creating something in Kidspiration, something simple. Second graders should be able to at least type sentences maybe.

Sarah’s phrases such as “probably,” “if they can do that,” “possibly,” and “maybe” suggest uncertainty regarding what she believes Appleton students may be able to do, and illustrates low
expectations of the competencies they may be able to acquire, implying that the students are capable of engaging in only basic or simple tasks. Students who do not enter school with the competencies valued by the dominant culture are often viewed as not being able to acquire the skills necessary to engage in higher-level activities (Kincheloe, 2005). Sarah’s statements suggest that she believes it to be easier and more practical and appropriate for Appleton students to play games on desktop computers because it may be difficult for them to engage in higher-level activities, such as creating electronic documents. Limiting Appleton students’ experiences with digital technologies to game-based Web sites has the potential to devalue technology’s new literacies potential (Okan, 2003), and set a low expectation of the types of technology experiences that Appleton students could have in the literacy curriculum.

Using Technology to Assist Teaching. In addition to indicating that technology should be integrated in the literacy curriculum because it is “fun” for students, Sarah stated that technology integration is important “to make teaching easier for the teachers.” She focuses on technology to assist teachers in giving students knowledge, reinforcing what Freire (1970, p. 58) referred to as the “banking concept of education,” where teachers provide knowledge and students retain that information. The technologies Sarah recommends that teachers and students use are those in which the teacher, or a desktop computer, prompts and the students reply. As a result, students’ opportunities to engage in higher-level thinking in digital environments are limited because they are receiving, rather than creating, information. The technology-based learning activities in which Appleton students engage mirror the skill-based learning in which socioeconomically disadvantaged and African American students have traditionally received in school (Oakes, 1985; Kozol, 2005).
Sarah’s view that technology should be used “to make teaching easier for the teachers” is reflected in the nature of the technology integration she encourages teachers to use. When asked how she facilitated the integration of technology into reading and writing activities Sarah stated, “For reading there are several Web sites the teachers can go to, especially Starfall to help their kids with reading. Using the [interactive whiteboards], there are several thousand lessons already made that teachers can integrate some things with writing” and “I did send out a list of Web sites for centers … the kids can do these Web sites independently.” Sarah’s ideas about technology integration involve accessing already-created materials to support students’ acquisition of basic literacy skills. Her emphasis on independent Web site activities, interactive skill-based lessons, and uses of technology for the sake of making “teaching easier” for teachers may not prepare the African American and socioeconomically disadvantaged students at Appleton for the advanced literacy competencies needed for the 21st century (Delpit, 2006; Zhao, 2009). When Sarah discusses student use of creation activities, such as Kidspiration or writing documents, she seems to be hesitating about what students may be able to accomplish. However, she seems very enthusiastic about students using Web sites and interactive whiteboards to practice literacy skills. Her expectations of what students are able to do lead her to focus on lower-level uses of technology with this population of students.

Student Use of Interactive Whiteboards. Sarah recognizes that technology use in the literacy curriculum is lacking. She stated, “I think we need more of it. I think it is not connected right now.” Sarah explained that many teachers are reluctant to incorporate technology into lessons. However, she believes effective technology integration is dependent on having more technology available, failing to realize that use of available technology is more important than
access in changing students’ new literacies practices (Au, 2006; Kelly, 2008; Valmont, 2003). Sarah stated that technology integration in the literacy curriculum will become more widespread once interactive whiteboards are placed in every instructional classroom. She said:

I would like for [students] to have more experiences, a lot more that what they are getting and I think once every classroom has the [interactive whiteboard] they are going to get those experiences… I would like to see an entire reading block done using no paper, all technology, computers, the [interactive whiteboard], the whiteboards, just hands-on.

Sarah believes the interactive whiteboards are a valuable asset to classroom technology practices. However, opportunities for students to develop new literacies knowledge with the interactive whiteboards are dependent on the types of activities in which students engage while using these boards. Sarah’s envisioned whiteboard activities were very similar to what students currently do in the classroom with Web sites, which is to reinforce basic literacy skills.

When asked how she would like to see the interactive whiteboards used in the primary grades for literacy instruction, Sarah paused to think, and then said:

I know that they have stories every week in their readers. They could take a picture of the book and they could annotate over it. There are so many things they can do. They can do word sorts. It’s just wide open.

By “take a picture of the book” Sarah meant the teacher could take a picture of the pages in the book using the document camera connected to the interactive whiteboard and the students, as a class, could annotate passages using the interactive whiteboard’s pen. Another proposed interactive whiteboard activity involved students doing “word sorts” by dragging words that
begin with particular letters or that have certain vowel patterns to be subsumed under appropriate categories.

Sarah believes that interactive whiteboards are appropriate for Appleton students to use because “They learn hands-on. They are the kinesthetic types of kids.” When I asked Sydney to describe how the students at Bellmont best learn, she stated, “I don’t think anybody can get a sense of how [in a school] students learn because each kid learns differently.” Teachers of non-dominant culture students often assume that their students best learn according to a particular learning style. Therefore, they may focus on one particular method of teaching students that is supposed to be suitable for their learning style and overlook instruction that would provide students with different educational experiences (Gutierrez & Rogoff, 2003; Scott, 2010).

Because Sarah believes Appleton students learn “hands-on,” she may be focusing on uses of the interactive whiteboard—because they provide some tactile experiences—in favor of other uses of technology. However, Sarah’s thoughts about how teachers and students can use the interactive whiteboards involve little “hands-on” experiences in which students are manipulating, moving, or creating. As illustrated above, students only write or manipulate objects on the interactive whiteboard when invited by the teacher to do so, and these interactions last only a short period of time. Interactive whiteboards may be appropriate for kinesthetic learners, but they are not the only experiences students should have, regardless of learning style. There are other activities that these students could engage in with other ICTs that would facilitate more hands-on and new literacies experiences.

Summary of Sarah’s Beliefs and Ideas. Sarah suggests that students access Web sites to practice literacy skills. In addition, Sarah views technology as a way to “make teaching easier for
teachers.” Therefore, she provides teachers with links to Web sites and interactive whiteboard flipcharts so that they can easily use these sources in their classrooms. Lastly, she believes that technology integration will become more widespread now that interactive whiteboards are placed into every classroom at her school. Sarah’s focus on Web sites and interactive whiteboards communicates implicitly to primary Appleton students that this is the level of technology integration they should have in school. As the ITRT, Sarah has knowledge of a large array of educational technologies that could be used to support teaching and learning in the literacy curriculum. However, she decides to focus upon the technologies that she believes best support the needs of Appleton students and accommodating to the habits of teachers. Unfortunately, these technologies place parameters around the types of literacy knowledge students can acquire and confine literacy-related learning activities to those that support traditional literacies.

**Sydney’s Beliefs and Ideas: Bellmont’s ITRT**

Sydney believes that technology is important in the literacy curriculum because, “It’s just one of those things that has to evolve because it is part of the world. It is how things are being done every day out in the real world.” In order to provide Bellmont primary-level students with “real world” experiences, she insists that they use digital technologies meaningfully and as an integral part of the literacy curriculum to read, write and communicate. In doing this, she is indicating her belief that Bellmont students have the skills and competencies needed to use digital technologies for more than skill practice.

*Uses of Digital Technologies to Facilitate “New Literacies”.* This is Sydney’s first year at Bellmont and she is trying to change how students have traditionally used technology. She stated, “I’m not just talking about putting the kids on computers… not just an extra, a
supplement, a bonus, free time kind of thing.” It had been common practice for Bellmont students to use classroom desktop computers during the literacy block on a daily basis for literacy skill reinforcement. However, Sydney does not want drill-and-practice Web sites to be students’ only exposure to technology because when they use these sites, students are “just doing and reinforcing skills that they probably already know” and the literacy-based Web sites “are a little rote.” Sydney’s statements suggest that she recognizes technology can be used for more than skill practice and can be used to purposefully achieve educational goals. She stated:

> It becomes part of their life, another book, another pen, another marker, another tool that they have to be able to learn and accomplish what they need to accomplish. It’s not one of those things where I go onto computers and use technology just for fun it is to really have a goal, have a purpose and use it as a tool and not just use it as entertainment.

It is interesting that Sydney is discouraging using technology for entertainment, whereas Sarah, Appleton’s ITRT, supports the use of technology because it is “fun.” These differences in beliefs may be attributed to the ITRTs’ thoughts about how their students can and should use technology. Sarah may think that students should use technology for fun because it requires them to think at lower cognitive levels, and therefore, appropriate for their competencies. Sydney may believe students have the competencies to use technology in educationally powerful ways.

Sydney clearly demonstrated her beliefs that students should engage in technology use beyond drill-and-practice Web sites by encouraging teachers and students to use technologies that support the creation of electronic documents. She said:

> Anytime you can get the students creating something that has to do with literacy and not just do the activity that is presented in front of them like Starfall—that is not really
manufacturing anything. It is just doing and reinforcing skills that they probably already know. Or if not, they are learning it when they are doing the game or activities. Whenever you have kids manufacturing or coming up with their own ideas, like the digital storytelling, like Kidspiration as an individual, where you can do individual or groups of manipulating pictures, creating it from scratch, an activity or a final product that shows what they know and what they understand.

Rather than focusing on the attainment of isolated literacy skills, Sydney wants Bellmont students to engage in innovative activities. Although she never mentioned the phrase “new literacies” during interviews, she has strong beliefs regarding the types of technology experiences that may facilitate what is generally accepted as new literacies knowledge. She stated:

What I would like to see an evolution to not just going on Web sites to reinforce a skill or teach a skill, but to actually have students create things, where they have to do multi-steps, I have to think about this information, synthesize the information, create a product and show you what the product is.

Sydney’s use of the word “evolution” signifies that she wants students to move from simple to more complex technology-supported activities during which students can create electronic documents. Her beliefs regarding how technology should be used with Bellmont students supports the way socioeconomically advantaged students have traditionally been taught in school (Coiro et al., 2008; Harwood & Asal, 2007; Kelly, 2008) in that she is encouraging students to create electronic documents. Due to her influence upon Bellmont teachers’ technology integration practices, Sydney’s beliefs and ideas about the types of technology
experiences Bellmont students should have may help to allow the more socioeconomically advantaged students at this school to attain the new literacies valued in dominant-culture society.

*Student Use of Interactive Whiteboards.* Bellmont has only two interactive whiteboards in the school for all teachers to share. However, every instructional classroom at the school will receive mounted interactive boards once funding becomes available. Since it is difficult for all teachers and students to have equal access to the two mobile interactive boards at the school, I asked Sydney how she would like for all teachers and students to use them once they become more readily available in the classrooms. She stated,

> I would love to see them have a lesson or have an activity up that they could use during their literacy groups. If they use it during whole group [instruction], that’s fine. But I think it is very effective for kids to go up without the teacher necessarily standing over top of them directing everything that they are doing, to explore and do… So in kindergarten they could have that activity as part of their morning centers of language arts and have a group of three to four kids doing that activity, where it is moving stuff around, writing stuff, that kind of thing.

Instead of focusing on whole-group, teacher-directive uses of the interactive whiteboard, Sydney would like for students to use it in small groups, insisting that students should be in charge of their own learning. During one of the interviews she stated, “if kids do the teaching they tend to understand better.” Therefore, by students teaching and engaging in digital whiteboard activities, rather than the teacher directing learning at all times, Sydney believes that students will learn more. They would engage in some of the same interactive whiteboard lessons that the teacher would present more traditionally, such as flipcharts that focus on a particular skill, or a
Kidspiration activity. Use of the interactive whiteboard is not used to create electronic documents in Sydney’s example, nor may it facilitate higher-level thinking. However, students would have more autonomy in how they would engage with the technology, and have more hands-on experiences than they would in a teacher-directed activity, thus using the interactive whiteboard in less oppressive ways.

Summary of Sydney’s Beliefs and Ideas. Sydney wants early elementary Bellmont students to begin using technology to create electronic documents. She stated that students are often not learning new information when they engage in skill-based practices. Projects in which students have to create documents could prompt them to think at higher cognitive levels. In addition, Sydney believes that student use of the interactive whiteboard—rather than teacher use—is more effective in the literacy curriculum because they have more autonomy.

Summary of Sarah’s and Sydney’s Beliefs and Ideas

Sarah (Appleton) and Sydney (Bellmont) have differing beliefs and ideas regarding why and how digital technologies should be integrated in the literacy curriculum. Sarah supports skill and game-based technology practices, whereas Sydney espouses students participating in technology-related activities to facilitate higher-level thinking. The participating ITRTs did not say that their recommended practices were based upon their students’ socioeconomic or racial demographics, but their thoughts and actions revealed underlying assumptions about the experiences that students should have in school. These underlying assumptions are most likely couched in dominant ideologies about how different classes and races should be taught. Therefore, teachers often unconsciously act on these ideologies when making instructional decisions (Apple, 2004). The ITRTs’ beliefs and ideas about student uses of digital technologies
probably influence the nature and content of professional development sessions at their schools, including how they share technology ideas and the types of technologies they encourage students to use.

**Sarah’s Implemented Professional Development: Appleton**

When I asked Sarah how she was encouraging primary teachers to use digital technologies in literacy instruction she stated, “I have not done a lot of training on the language arts.” However, she stated that she “did send out a list of Web sites...The primary teachers do a lot of Web sites. They are downloading flipcharts [for use with the interactive whiteboard].” Sarah’s statements may suggest that she believes that use of Web sites and interactive whiteboards are an appropriate level of technology integration for primary students at Appleton. This can reinforce lower-level thinking and hegemonic beliefs and ideas that lower socioeconomic students need only engage in educational practices that ask them to receive, rather than allow them to create, knowledge (Freire, 1970; Mixon, 2007). Teacher interview data in this study indicates that Sarah has not provided as much professional development recently as has Sydney. Although Sarah has not specifically focused on technology and literacy integration, she has presented a few technology-related professional development sessions.

*Podcasts and Kidspiration Professional Development.* Although most of Sarah’s presented professional development for Appleton teachers has been focused upon the interactive whiteboard, showing teachers primarily how to download and create interactive flipcharts, she mentioned that other technologies could be used in the literacy curriculum as well. She said:

[Students] could probably create little movies, podcasts on things they are learning in the classroom. I made a movie last year with one second grade class. The teacher had filmed
everything and I sat with a few kids and we put it together. That can be done. Podcasts are very simple, but with teachers that don’t understand how to do it, it takes quite a few extra steps. And I have no problem helping them. A lot of teachers don’t like to ask for help.

Sarah’s thoughts that podcasts could be integrated into the literacy curriculum involve a new literacies perspective, and differ from her previously expressed ideas of students using technology primarily to practice literacy skills. Although she has shown teachers how to use podcasts during a professional development session, she is not encouraging teachers to use them with their students. None of the teachers interviewed indicated that Sarah has further discussed podcasts or that they have attempted to have their students create podcasts. In addition, Sarah has not presented any other professional development sessions about this technology.

Sarah has also provided professional development on Kidspiration. She stated, “I have done professional development with Kidspiration because there are so many different free downloads they can use.” This session was offered last year in a group setting. She stated that one teacher requested that she work closely with him on using this technology with his class. Although Sarah may have presented professional development on Kidspiration, participating teachers said that they have not used it in their classrooms. In addition, Marlee was unsure if the desktop computers in her class have this program installed, saying, They have Kidspiration, I think, on two of my computers.”

Interview data from Sarah suggests that she may not emphasize use of podcasts or other digital technologies that may facilitate students’ development of new literacies because she perceives some types of technology integration as imposing upon teachers’ time. She stated, “I
was a classroom teacher so I know what they are dealing with. I know what they are going through. I completely understand and so that is why I don’t push.” In addition, Sarah may prefer for teachers to approach her regarding technology integration, rather than offering instruction on the topic. She said, “I am here for them, but they have to ask. I’m not a mind reader.” Instead of being perceived as forcing teachers to integrate podcasts or other digital technologies that may engage students in higher-level learning, Sarah may prefer to present lower-levels uses of technology such as drill-and-practice Web sites and interactive flipcharts that are easily accessible via the school’s Web bookmarks organizer, and are consistent with the levels of technology integration currently in use at Appleton.

Sarah further described the professional development session on podcasts that she offered. She stated that it was presented in an after-school session, a manner in which some technology-related professional development is presented at the school. Sarah said:

I showed them in how to do a podcast in a professional development session. I created it with one teacher and then I gave them directions. Last year I gave them technology binders. But I gave them technology binders so they could keep directions in them and I gave them directions on how to make a podcast and I did walk them through it during a staff meeting.

Sarah’s statements that she “gave them directions,” “I don’t push,” and “they have to ask” implies that she may introduce, but not suggest, how technologies can be integrated—teachers have to request to learn more. However, the lack of time Sarah spends explaining the roles of these technologies for enhancing teaching and learning may communicate to teachers that uses of
these technologies are not preferred or important for students, possibly reaffirming teachers’ beliefs regarding the types of technologies Appleton students should use.

*Interactive Whiteboard Professional Development.* When I met with Sarah at the beginning of October, she was excited to discuss the different types of professional development she was going to offer during the school year. Teachers had requested to learn more about Nettrecker, iWork, and making movies, and she was beginning to schedule professional development sessions for the year to include a meeting each month for interested teachers to address these technologies. When I asked why she was going to provide these professional development sessions, Sarah replied, “a lot of [teachers] don’t know how to use them and it’s my job to provide this training for them.” She further explained that the purpose of the sessions were to discuss “the functions... they layout of the program...how to email it or save it as a PDF or a word document so that everyone could see it” and that “[teachers] can use Nettrekker to search for activities.” Therefore, it seems that the purpose of these sessions were to show teachers how to use these technologies rather than showing teachers how their students could use them to enhance learning.

However, within a month of this conversation, the focus of professional development changed from discussing different technologies to highlighting only one: the interactive whiteboard. This shift happened because all classrooms were equipped with these boards, and therefore, as Sarah stated, “That is where the need is right now. That is what the teachers are asking for.” Professional development on the interactive whiteboard focuses on all of the technology’s equipment including voting systems, interactive slates, and flipcharts. Sarah
presents the professional development in optional weekly sessions. Sarah described these sessions by saying:

I have chosen one little skill, one little technique they can take back to their classrooms and use with their kids…I’m focusing on the voting devices, how to set up and how to use them in the classrooms. There are different things on the tool bar that [the teachers] don’t know what [they are]. It’s simple stuff I’m doing with them, thirty minutes and their done. I don’t want to make them. The administration agreed if they didn’t want to come then that’s fine.

The professional development offers general instruction on using the interactive whiteboard instead of the learning goals for particular grade levels or content areas. She further stated:

I am doing a professional development for the [interactive whiteboard]— making flipcharts and having them, just maybe kindergarten, first and second grade teachers at this time, and then maybe third, fourth, and fifth, and they are going to make something skill focused and its going to be an hour of making something so they can take it back to the classroom…They are going to bring their pacing guides, all of their essential knowledge and vocabulary, whatever they need they will bring that with them. They can create it as a grade level, they can create it individually, however it best fits their needs. I will be there to assist them.

Sarah seems to be focusing the interactive whiteboard professional development on certain skills in order to get teachers acclimated to using this technology. This focus on the interactive whiteboard has possibly reduced teachers’ opportunities to participate in other technology-related professional development.
Summary of Sarah’s Implemented Professional Development. Sarah has presented limited professional development on Kidspiration and podcasts. However, she indicated that she does not “push” teachers to integrate these technologies. None of the participating teachers indicated that they have used Kidspiration or podcasts with their students. In addition, Sarah has not focused professional development offerings on technology integration in the literacy curriculum. She stated that she sends teachers links to literacy-based Web sites, which is the level of technology integration teachers use most in their classrooms. In addition, Sarah’s professional development sessions during the study focused primarily on uses of the interactive whiteboards. Appleton teachers reported that they are using the interactive whiteboards in instruction, including downloading content-related flipcharts and using the digital visualizer to display images.

Sydney’s Implemented Professional Development: Bellmont

Sydney wants to change Bellmont students’ technology use. By the end of September, she had met already with each grade level’s teachers to discuss ideas for technology integration. She stated her goals for professional development focus upon teachers learning about the technology and how it could be effectively integrated into a particular lesson, providing teachers with situated learning opportunities (Putnam & Borko, 2000). When asked how she thought teachers were going to change their technology practices, she said, “It is going to take time, support from me and administration, just the overall expectation of that is what they are supposed to do.” Sydney recognized that she is instrumental in helping teachers transform technological practices. In addition, she realized that she is a source of power in the school. Her
beliefs and actions, in conjunction with those of the school’s administrators, have the potential to establish the “overall expectation” for how technology should be used by Bellmont students.

*Grade-Level Professional Development.* In order for teachers to understand the “expectation” for student technology use, Sydney meets with each grade level to show them how to use technology in the literacy curriculum. Sydney’s approach to professional development is different from the types of sessions Bellmont teachers had in the past. Instead of providing whole staff development on particular technologies, Sydney stated that she prefers to meet with teachers during grade-level planning because “It is more authentic and means more to them if they can kind of direct where the professional development is needed.” By meeting with teachers in small, grade-specific groups, she is able to informally assess their technology competencies and learn about the digital technologies they would like to use in instruction. Authentic professional development sessions like these are identified in professional development literature as effective because teachers are able to learn how technologies can support particular literacy activities (Schmidt & Gurbo; Scott & Mouza, 2007; Watts-Taffe & Gwinn, 2007). Her thoughts regarding how Bellmont students should use digital technologies may express how she perceives the importance of higher-level new literacies experiences for the school’s students.

*Kidspiration and Interactive Whiteboard Professional Development.* Sydney does not want student use of literacy-based Web sites to become commonplace, because she believes that students are not gaining new knowledge while using them. Sydney stated that teachers may use literacy-based Web sites often because it provides students with structured literacy practice, similar in form to the discontinued division-sponsored literacy program. However, she realizes
that teachers need to learn how to integrate technology differently than what they have been taught in the past. Sydney stated, "they haven’t been exposed to [other ways of using technology]. It is one of the things where you have to lead them in the right direction."

Therefore, her idea of "[leading] teachers in the right direction" includes professional development sessions on students creating products with available technologies, including interactive whiteboards. She stated that she is working with teachers to show them different ways that students can use the interactive whiteboards, and had met with the first grade teachers to show them how to upload Kidspiration onto the board. She said, "I have no fear of students using the board, taking the pen." "Taking the pen" implies that Sydney would prefer that students actively use the board instead of passively absorbing information presented by the teacher who is using the board. Therefore, Sydney is encouraging teachers to have their students use Kidspiration in addition to writing, reading, and annotating.

A few participating teachers at Bellmont indicated that they were trying to use Kidspiration more because Sydney had asked them to do so. However, participating teachers stated were not likely to use the interactive whiteboards because they were difficult to access. Sydney’s push for Bellmont students to “take the pen,” “[participate in] doing and showing and manipulating,” “synthesize the information” and participate in activities in which they create electronic documents is reminiscent of Anyon’s (1980) research, in which socioeconomically advantaged students were expected to engage in creative assignments, while being in charge of their learning.

"New Literacies” Professional Development. Sydney’s first foray into changing students’ technology practices was with the kindergarten teachers. She stated that she met initially with
them to discover the types of technology-related activities they would like to do with their
students. It was during this time when the teachers shared that they wanted students to make an
alphabet book. Sydney suggested that students use iPhoto—a program that allows individuals to
organize, edit and share photos (Apple Computers Inc., 2010)—and digital cameras to make a
book, and the teachers agreed. Sydney described the next professional development sessions as
showing teachers, step-by-step, how to make a digital storybook. Sydney stated that she planned
to co-teach the technology lesson with the kindergarten teachers, scheduling a date for the
activity to begin, meeting with the students in small groups to take the pictures, and then making
the book with them. Sydney stated that she wanted to take this process slowly so that teachers
could learn how this activity could work easily during regular literacy center work in their
classrooms. As stated earlier, Courtney and Dee, the two participating Bellmont kindergarten
teachers, indicated that they are learning new things from Sydney’s professional development
sessions, and are changing their perceptions regarding how their students can use technology.

Sydney would like for teachers to understand that students can be self-sufficient using
technology beyond skill-based Web sites. She stated:

A lot of teachers get hung up on how much time and effort it takes to do creation types of
things on computers but what is hard for them to understand is after the first or second
time you have had those kids be specifically interacting in a creation activity—
Kidspiration or PowerPoint, Keynote, photos, kind of multi-step project that you would
do on computers. Once they have done it a couple of times they are pretty proficient at it.
It doesn’t take kids long. The first book you do, yeah, it’s probably going to take you a
week or two to do to get it set up and get it done because you are still figuring out the
management of it, but once you have that down packed you can direct the kids to get the camera, go to desktop computers, write the sentences. They can become more independent.

The types of embedded and grade level-based professional development that Sydney is providing may be instrumental in changing educational technology practices, helping teachers to transition from using Web sites to other digital technologies for literacy instruction.

**Summary of Sydney's Implemented Professional Development.** Sydney has presented professional development on Kidspiration, interactive whiteboards, and iPhoto, preferring to meet with teachers at grade level meetings rather than large staff meetings. Some of the participating teachers indicated that they are trying to use Kidspiration more in instruction and would like to use the interactive whiteboards if they were more accessible. The kindergarten teachers interviewed indicated that they have been learning how to integrate technology differently in the literacy curriculum, and looked forward to students creating electronic books using iPhoto.

**Summary of Sarah's and Sydney's Implemented Professional Development**

Sarah (Appleton's ITRT) and Sydney (Bellmont's ITRT) have different approaches to technology-related professional development and emphasize different technologies in their schools. Whereas Sarah does not focus professional development sessions on technology and literacy integration, sending a list of Web sites to support literacy instruction to teachers instead, Sydney prefers to show teachers how available technologies can be integrated into the literacy curriculum to facilitate higher levels of student learning.
As illustrated, the professional development that division ITRTs experience does not seem to have a strong influence on what they share with teachers. Due to the positions of power that they hold in their assigned schools, ITRTs construct opportunities for inequalities to manifest when they decide to highlight certain digital technologies while deemphasizing others. Recall that hegemony occurs when those in power marginalize others through their actions, beliefs and ideas, which results in different types of knowledge given to different groups of individuals (Kanpol, 1999; Kincheloe & McLaren, 2005). Unconsciously or not, Sarah and Sydney are providing their schools’ students with fundamentally different digital technology competencies and new literacies knowledge based upon their professional development priorities. The following chapter, Chapter Five, explains the role of hegemony in shaping teachers’ and ITRTs’ beliefs regarding how and why they may use technology differently with their students.
CHAPTER FIVE: DISCUSSION

This research study examined student uses of digital technologies and teachers’ professional development experiences through Kincheloe and McLaren’s (2005) reconceptualized critical theory of power: hegemony and ideology. Previous research has indicated that students’ uses of digital technologies for the acquisition of new literacies fall along racial and socioeconomic lines (Corio et al., 2008; Harwood & Asal, 2007; Parsad & Jones, 2005). Some theoretical literature has described how technology integration should occur in the literacy curriculum to support new literacies acquisition (Kara-Soteriou et al., 2007; Labbo, 2005; Watts-Taffe & Gwinn, 2007). However, no research studies have examined the roles of hegemonic beliefs and practices by teachers and technology specialists in creating inequitable new literacies experiences at racially and socioeconomically different schools. Therefore, this research study examined the beliefs of educators, including those of the schools’ ITRTs, which may contribute to differential uses of technology in the literacy curriculum. Findings indicate teachers’ hegemonic beliefs may influence students’ technology use and the nature of teachers’ professional development opportunities.

The first part of this chapter reviews the framework of hegemony and ideology. Next, beliefs and the resulting professional development practices of the ITRTs will be explained in relation to hegemony theory. Successive sections detail teachers’ expressed reasons for integrating technology and the nature and levels of technology uses at the two different schools. The final section includes recommendations for future research based upon the findings of this study.
Hegemony and Ideology Framework Revisited

Hegemony, according to Gramsci (1971), refers to the oppressive nature of society and the resulting inequalities through meanings, values and actions that occur as a result of the dominant culture’s power. It is important to note that this oppression does not occur solely as a result of physical force. Cultural institutions, such as schools, play important roles in shaping peoples’ consciousness to support the dominant culture’s power through hegemony and ideologies (Apple, 2004; Kincheoe & McLaren, 2005). Hegemony is so embedded in society’s history that resulting assumptions, understandings and practices cannot be changed easily (Williams, 1977). It provides a means for ideology, which is more than a system of beliefs held by an individual, to influence how we see and understand the world.

Ideologies are the result of social practices that have come about due to unconscious lived experiences and the influences of social institutions (Gramsci, 1971). Ideology and hegemony become intertwined when dominant ideologies become the basis for how everything is viewed in society and are used as a means to rationalize thoughts and actions (Bartolome, 2007; Brookfield, 2005). Therefore, hegemony is more than “mere opinion” or “manipulation” (Apple, date 2004, p. 4); it is deeply embedded in our consciousness and therefore it becomes perceived reality. As a result, neither teachers nor schools are neutral (Apple). Whether educators are aware of it or not, the hegemonic ideologies embedded in society drive educational practices and influence how students are perceived and treated, contributing to the reproduction of a stratified society that oppresses certain groups of individuals (Apple, Brookfield). The hegemonic beliefs and ideas of IRTTs may influence the nature of presented professional development at their schools.
Contrary to the results of previous research (e.g., Hansen, 2008; USDOE, 2003), technology-related professional development at the two schools in this study is not primarily presented through division-level courses or workshops. Rather, professional development is provided by the schools’ ITRTs and is ongoing throughout the school year. Sarah, Appleton’s ITRT, and Sydney, Bellmont’s ITRT, provide different professional development at their schools, the nature of which are grounded in dominant ideologies. Their beliefs and ideas regarding technology integration could potentially provide students at socioeconomically different schools with different technology experiences in the literacy curriculum.

The hegemonic ideologies embedded in society have made it seem “natural” for students to be educated differently. According to Gramsci (1971), “each social group has its own type of school intended to perpetuate a specific traditional function, ruling or subordinate” (p. 186). Although social groups in today’s society are not sorted into particular types of schools intentionally, dominant ideologies inform the “commonsense consciousness” of individuals in schools, leading teachers to instruct students differently on the basis of their race or socioeconomic status (Williams, 1977). The commonsense consciousness is formed by hegemonic ideologies presented by the dominant culture with regard to how different classes and races in society should be understood (Gandin, 2006). Therefore, this consciousness is part of teachers’ daily lived experiences, and their thoughts and actions make sense to them. According to Apple (2004), the ideologies that form the basis of the commonsense consciousness often result in unintentional hegemonic educational practices. Hence, in this study, hegemonic ideologies embedded in society and reflected by participating ITRTs influences their thoughts
regarding appropriate student technology experiences and professional development practices for teachers.

Individuals in schools choose the "cultural resources" that are important for their students to know how to use in society (Apple, 2004, p. 2). Teachers' perceptions of students' abilities may influence how they choose the cultural resources to use with their students. In this case, the cultural resources in question are the digital tools emphasized in teachers' professional development at Appleton and Bellmont by the ITRTs. Appleton's ITRT chooses to focus on lower-level uses of classroom computers and interactive whiteboards, whereas Bellmont's ITRT envisions students using multiple digital tools—such as digital cameras, computers, software programs, and interactive whiteboards—individually and creatively.

Sarah's (Appleton) views regarding how students should use technology approximate Freire's (1970) ideology of oppression. Students are encouraged only to use technology that allows them to practice specific skills on literacy-based Web sites. In addition, Sarah encourages Appleton teachers to use technology that makes "teaching easier" by focusing on Web sites and premade lessons for the interactive whiteboard. Neither students nor teachers are encouraged to use technology outside of the teacher-directed/computer-directed mode. In comparison, Sydney recommends that Bellmont students should engage with digital technologies experiences that go beyond entertainment and drill, allowing them to synthesize information to demonstrate learning.

Although both schools have similar access to most of these technological resources, the ITRTs choose professional development that focuses on different tools for their schools' populations. The types of digital technologies experiences emphasized by the two ITRTs during teachers' professional development have the potential to stratify students by social groups, the
practice of which is embedded in historical ideologies and practices (Gandin, 2006). For example, students from dominant culture backgrounds are often given experiences in school that allow them to have more flexibility and autonomy over their learning. Conversely, African American and socioeconomically disadvantaged students are often provided with opportunities that stress structure and conformity (Anyon, 1980; Apple, 2004). These patterns are demonstrated by the schools in this study. Lower-level uses of technology, compared to higher-level uses of technology may lead to the development of different knowledge and skills, empowering one group of students over the other.

The hegemonic beliefs and ideas that frame the ITRTs’ conceptualizations of how and why students should use technology may also influence the professional development they offer teachers. Sarah’s professional development is limited in the area of literacy and technology integration, and focuses primarily on teachers’ uses of the interactive whiteboard as the school year progresses. Her commonsense consciousness regarding the skills and abilities of Appleton students may be based on low expectations of what they can do with technology and are consistent with dominant ideologies of non-dominant culture students. Therefore, Sarah’s professional development permits the continuation of hegemonic attitudes and educational practices. Sarah’s professional development focuses on technologies that required minimal involvement by students and may reaffirm teachers’ current practices that technology should be used for teacher-directed instruction and the practice of skills.

According to her commonsense consciousness as well, Sydney develops professional development that she believes is appropriate for the teachers and students at Bellmont. This is Sydney’s first year at Bellmont, and during one of her interviews, she indicated that she wants to
change the nature of students' technology integration experiences there. Prior to her arrival, students primarily used technology to practice basic literacy skills. However, Sydney asserted that these students are capable of interacting with technology at higher levels, possibly because their skills are similar to those present in dominant culture students. In order to facilitate changes in technology integration, Sydney meets with teachers during grade-level planning, slowly showing them how to use digital technologies in instruction. She approaches the sessions by discussing technologies teachers would like to use, demonstrating how technologies can be used differently to meet curriculum goals and allowing teachers to become familiar with the tools. Sydney’s approach to professional development has been identified in the literature as being more successful in facilitating technology integration (e.g., Hansen, 2008; Hughes & Scharber, 2008; Schmidt & Gurbo, 2008).

Sydney’s beliefs about what Bellmont students are capable of doing with technology prompts her to try to change the nature and levels of technology use at the school. Although it is not possible to determine if disparities in digital technology use in early elementary classrooms in the two schools can be attributed to the nature of professional development experiences—because this study was conducted at the beginning of the school year and Sydney is new to Bellmont—it is evident that the two ITRTs had different beliefs and approaches to professional development for technology and literacy integration. Sarah and Sydney help define “legitimate knowledge” (Apple, 2004, p. 43) for teachers, and ultimately, legitimate knowledge for the teachers’ students through their differing lenses of commonsense consciousness.
Expressed Reasons for Integrating Technology

Classroom teachers at Appleton and Bellmont have similar reasons for integrating technology into the literacy curriculum. Teachers at both schools indicated that technology is an important part of society and therefore, students should have technological experiences in school. These replies indicate that participating teachers know that their students will need technological knowledge to be competitive in the 21st century, and school is one place where students can gain these competencies. However, consistent with previous research results (e.g., Corio et al., 2008; Judge et al, 2004; Swenson et al, 2006; Warschauer et al., 2004) students in this study do not have equitable opportunities to acquire new literacies because of their teachers' beliefs and resulting actions.

Teachers at Appleton and Bellmont indicated that they integrate technology into their literacy teaching because it allows their students to practice specific skills, such as phonics or reading comprehension, either independently or in a guided session. Using technology in this manner is expected because teachers are likely to use technology to support the attainment of tested competencies, especially in this era of high-stakes accountability (Cowan, 2008; Warschauer & Ware, 2008). Appleton teachers' hegemonic beliefs and ideas about the importance of technology in the literacy curriculum leads students to begin computer experiences during the second month of school or later, using them optionally during free time or when other schoolwork is complete. Conversely, Bellmont students are taught how to use computers during the first month of school, and typically use them three to five days each week during literacy instruction.
These notions of how students should be acclimated to using technology during their early elementary years may have been based upon teachers’ commonsense consciousness, with which students from socioeconomically disadvantaged homes with limited competencies and access to computers may be envisioned to use technology differently than peers from socioeconomically advantaged homes with technological competencies. As Apple (1995) stated, schools play a very important role in reproducing a stratified society. Teachers’ actions may be well intentioned, yet still reinforce the domination of one class or race over another (DiMaggio, 1979). It is evident that teachers at both schools are putting educational practices in place that are based on their commonsense consciousness to support a stratified society. Based upon time spent interacting with digital technologies in the literacy curriculum, Appleton students are less likely to acquire new literacies knowledge in school when compared to their peers at Bellmont.

**Nature and Levels of Technology Integration**

Consistent with results of previous research, skill-and-practice programs in which students practiced print-based literacy in multimedia environments are the most common types of technology integration experiences students had at both schools (Zhao et al., 2000; Niederhauser & Stoddart, 2001). However, the Appleton second grade students who have the most technology experiences are those required to participate in a remedial Web-based literacy program twenty minutes per day and three times a week, during which they answer questions, receive feedback, and then answer successive questions. First- and second-grade students, when permitted, access Starfall and AR during their times on the computer. In addition, Appleton students interact with familiar Web sites on the interactive whiteboard. Participating teachers believe that these literacy-based Web sites are a valuable way for students to use technology.
However, this level of technology use reinforces Freire’s (1970) “banking concept of education,” (p. 58) in which the teacher or computer provides students with the knowledge they are supposed to learn, limiting their opportunities to become active learners.

Unlike Appleton students, Bellmont students’ skill-and-practice experiences are supplemented by reading and listening to online stories, accessing different Web sites located on the school’s Web bookmarks organizer, and using Pixie in the language arts computer lab. However, counter to previous research (Au, 2006; Harwood & Asal, 2007), Bellmont students do not consistently use technology at a higher level. They access Web sites often to practice basic literacy skills, which also limits their opportunities to become active learners. Teachers stated that they value skill-based software programs because they provide their students with opportunities to practice foundational literacies independently. Assumptions about the literacy-related technology experiences they should have in school may influence how all students use technology in the primary grades.

*Potential Barriers to Higher-Level Uses of Technology*

Hegemonic ideologies often arise as the result of older practices that are viewed to be acceptable in the present (Kinclioloe, 2004). Many years ago, classroom computers in the Jaxson School Division were used as a resource for students to practice specific literacy skills in a program that tracked student progress. However, even though this program was discontinued, the trend may have remained ingrained in teachers’ practices and may have influence how they use technology in their classrooms now. Therefore, student uses of technology to practice specific skills may have become part of teachers’ commonsense consciousness, believing it is the normal way of integrating technology (Gandin, 2006). However, Bellmont students’ technology
experiences are not restricted to those that only allow them to practice literacy skills. Teachers’ assumptions about students’ capabilities may explain why Appleton and Bellmont students engage in different levels of technology experiences.

Hegemony occurs in education when certain students are selected to gain knowledge that other students do not have the opportunity to acquire (Apple, 2004). Participating Appleton students are not likely to use technology—such as the classroom computers,—often because teachers have reservations regarding students’ abilities to use the computers independently. Participating Appleton teachers described their frustrations working with students who do not enter school with technical competencies. They stated that students’ lack of mouse or keyboarding skills are a deterrent to incorporating higher levels of technology integration in the literacy curriculum. In addition, Appleton teachers have concerns regarding their students using technology, such as Kidspiration to organize and plan writing or making podcasts. According to the participating teachers, these types of activities are suitable for “advanced” students, but not the average student in the class.

Appleton teachers focus on students’ lack of technological competencies as an indicator of abilities, and therefore establish different norms and values for those students who do not seem to possess the skills and abilities valued in the dominant culture. Appleton teachers’ beliefs and ideas are consistent with previous research, which stated that teachers of African American or socioeconomically disadvantaged students often have low expectations regarding students’ capabilities (Crawford, 2007; Valencia, 1997). Students who have the skills and knowledge valued by dominant power are viewed as having greater capabilities (Kincheloe et al., 2005). This may explain why Bellmont students and “advanced” Appleton students will possibly have
more opportunities for higher level digital technologies experiences and more exposure to new
literacies knowledge than the “average” Appleton student. Teachers’ hegemonic beliefs and
ideas stratify students and accustom racially or socioeconomically different students to divergent
expectations and values (Apple, 2004).

Participating teachers may believe that they are helping students improve their reading
abilities by focusing on uses of digital technologies to practice specific skills. However, they are
ultimately reproducing inequality and reinforcing social structures by further defining legitimate
knowledge for non-dominant culture students (Apple, 2004). This process is cyclic in nature
because hegemonic actions are “confirmed” and seen as correct, thereby prompting teachers to
continue corresponding educational practices (Williams, 1977). This becomes teachers’ reality
for how technology interaction should occur (Apple). In addition, they continue to use
technology in these manners because it supports their perception of good instruction (Cuban,
1986).

Participating Appleton teachers believe that their students should use skill-and-drill
software because they are able to use it successfully. They stated that students using these
programs were attentive and improved their reading achievement. Therefore, using the
framework presented by Williams (1977) to understand their observations, these teachers have
not foreseen a reason to change their practices. When technology integration consists of skill-
and-practice, students are successful, which “confirms” teachers’ practices and reinforces their
ideas regarding appropriate digital technologies experiences for their students. Confirmation of
hegemonic educational practices allows differential practices to continue in schools through the
production of knowledge that oppresses and empowers certain groups of students and reproduces inequitable practices (Apple, 2004; Gandin, 2006).

Appleton Elementary has a majority population of African American students from socioeconomically disadvantaged homes. In comparison, Bellmont Elementary consists of a higher population of more socioeconomically advantaged and African American students. Both schools have a large number of African American students. It is interesting that the teachers, especially the ITRT, at Bellmont, appear to disregard students’ race when envisioning digital technologies experiences for Bellmont students. African American students who possess an attribute that is valued in society—in this case socioeconomic status—are less likely to encounter racism (Hooks, 2000; Day-Vines, Patton, Baytops, 2003). According to Day-Vines and colleagues, “an African American who lacks privilege on the basis of race may well experience privilege on the basis of socioeconomic status” (para. 20). Therefore, teachers are not as likely to make educational decisions based on students’ race if the students are from more socioeconomically advantaged homes. The results of the present research study support this assertion because Bellmont teachers did not restrict students’ experiences with digital technologies to those that are oppressive. Teachers’ comments imply that because many of their students enter school with the knowledge and skills valued in dominant society—competencies they have acquired as a result of being more socioeconomically advantaged than their peers at other schools— their roles as teachers are to provide their students with experiences that will prepare them for 21st century literacy expectations.
Implications for Future Research

This research began to explore how hegemonic beliefs and ideas potentially influence professional development practices, the nature and levels of ICT integration, and rationales for technology use in the early elementary literacy curriculum. Hegemonic beliefs and actions of the teachers in this study may contribute to inequitable digital technologies practices and new literacies experiences for students. ITRTs have hegemonic beliefs as well, and these beliefs were found to influence the nature of professional development at their schools.

Dominant ideologies at Bellmont may have arisen as a result of the socioeconomic status of students at the school. Bellmont is a racially mixed school with more African American than White students. However, it was selected to be included in the study because the vast majority of students were from more socioeconomically advantaged homes than the students at the other school selected for this study. Therefore, future research should further explore racially mixed schools like Bellmont to explore the attributes present for it to reflect dominant ideologies that benefit the “dominant culture.” Would an ITRT at a school with a vast majority of African American students from socioeconomically advantaged homes engage teachers in literacy and technology integration professional development that reflect dominant ideologies? Conversely, would the ITRT at a school with a vast majority of White students from socioeconomically disadvantaged homes engage teachers in oppressive digital technologies practices?

Teachers are often unaware that they are active participants in educational practices that are oppressive to certain groups of students (Apple, 2004). This research study discovered educational practices, including professional development about literacy and technology integration, that may have possible roles in reproducing inequality in education. Although the
findings of this study are limited to the two schools and participating teachers included in this research and therefore are not generalizable to all racially and socioeconomically different elementary schools, the results of the study can be generalized to theory. Professional development may not neutral; it may be based on the ideologies of providers and filtered through the commonsense consciousness of teachers. Therefore, in order to overcome oppressive educational practices for students' development of new literacies, educators, including professional development providers, must reflect upon their classroom and professional development practices and discuss the possible underlying causes for their assumptions and actions.

The school division also has the responsibility to provide higher-level literacy and technology integration professional development for the ITRTs. The central office personnel interviewed in this study stated that the division wants students to have the knowledge and skills necessary to use technology proficiently in the 21st century for communication and collaboration. However, the professional development offered to the ITRTs focuses primarily upon the operational aspects of technology and sample skill-based or teacher-led activities, instead of delving deeper into new literacies expectations and experiences for students. In-depth professional development regarding literacy and technology integration is especially important, since ITRTs do not necessarily have the same level of technology knowledge, or know how technology can be integrated differently in the literacy curriculum. Therefore, ITRTs need to gain the competencies necessary to support teachers in new literacies endeavors through division-level professional development. If this is not done, the nature of the digital technology
experiences students have at their schools may continue to be dependent upon the ITRTs' interpretation of how technology should be used with the schools' different populations.

Even if an ITRT develops a new literacies perspective, however, external pressures may make it difficult for them to persuade teachers to change the ways technology is currently integrated in the literacy curriculum for skill-based practice. The school division has invested in technology developed by commercial companies, who stress that their products can help improve student achievement on standardized tests. Therefore, the technologies are primarily being used by teachers for instruction rather than students acquiring the knowledge and skills needed to read, write, and communicate digitally. Division and school administrators want students to perform well on mandated assessments, and may view technology as a way for students to gain the necessary competencies to do so. This view regarding technology as a tool to reinforce specific content may displace many higher-level uses of technology in the primary classroom. Therefore, the ITRTs' influence may be a small, but important, way to ensure equitable technology practices for students. Although external pressures may encourage teacher-led and lower-level uses of technology in the literacy curriculum, an ITRT with knowledge of 21st century literacy may be able to influence the development of new literacies. By providing teachers with practical examples, consistent support, and reasons to rethink their literacy instruction, ITRTs can show teachers how existing classroom technologies can be used to teach in qualitatively different ways. The resulting balance of skill-based and higher-level literacy uses of digital technologies may begin to provide more student populations with opportunities to develop new literacies.
Appendix A

Researcher as Instrument Statement

Growing Up

As an African American, educator, and someone who believes in the importance of literacy in education, work, and life, the issues of literacy and equity are dear to my heart. For most of my life, I have had a blind eye toward issues of race. I believe this stems from my childhood. I grew up in a military family and moved around a lot throughout the United States. As a young child, I was always one of the few, if not only, African American students in my class and neighborhood and all of my closest friends were white. Fortunately, most of my peers did not make me feel any different. As a result, race was not an issue I thought about very often until one of my peers made a derogatory comment toward me at a birthday party. It is so strange how I remember his statement from over twenty years ago. He said, “Wouldn’t this party be better if it were an all White party?” At first I thought he was thinking about clothing color; he wished everyone wore something white. Then I actualized realized what he meant. I felt so small at that moment. All eyes were on me. But, I had to try to enjoy my friend’s party until my parents came to pick me up. That statement has stuck with me for this long because it was at that time when I realized my skin color might have an impact on the way people thought about me.

It is hard to believe that at six years old someone could have such strong feelings about someone from another race. Did this six year old boy really understand what he was saying to me? Did he realize how much it hurt me? I wonder where he received this mentality. It could have been from the environment in which he was raised, something that he heard on television, or maybe an idea that he created on his own—which I doubt. I do not think that he intentionally
made this comment. I truly believe that sometimes people are very unconscious about their thoughts, feelings, and actions and do or say things they believe are right.

*Enlightenment*

While growing up, I always thought racism was something that happened in the mid part of the twentieth century. My parents would share stories with me regarding how they were bussed to another school far away from their home and how they remember seeing “White Only” signs at the store, water fountains and other places. My idea of racism was that kind of racism -- overt racism. I thought about racism as something that Dr. Martin Luther King, Jr., Malcolm X, Medgar Evers and others fought so hard for and lost their lives over. I thought that we, as a nation, had truly overcome. I thought that as time passed, race issues became better. However, racism still exists, although it may not be as obvious as it was in the past. The election of Barack Obama as President sparks hope. As I began to read books during my doctoral studies, I became more cognizant of issues of race and inequity in the 21st century. The emergence of critical race theory and the writings of Gloria Ladson-Billings really highlight this issue. It is important that people continue to research these issues, especially as our society becomes more diverse. We need to continue to engage in open and honest conversations about education in order to change practices and make improvements in the education of all students.

Issues of race and inequity have caused me to stop and think about what other students like me were going through in this day and age. I especially think about this issue when I visit schools that educate students who are primarily African American and from socioeconomically disadvantaged backgrounds. Although I am from a middle class background, I attended school with many students from economically disadvantaged backgrounds, and many would consider
the middle and high schools I attended to be economically depressed. The vast majority of
students who attended these schools then and now receive free or reduced price lunch. I have
always placed educators on a pedestal and had never thought about inequitable practices until I
was enlightened by literature on this topic. Therefore, research about race and educational
practices have made me wonder. Could teachers really use different teaching practices depending
on who they are teaching? It hurts me to think that my teachers would have used different
teaching practices with me and my peers because of our color or perceived economic status. I
hope I had the same educational opportunities as other students at schools where majority of the
students were of the dominant culture, but there is no way for me to find out. I just have to hope
that I had the best educational experiences that my teachers could provide for me.

I was one of the lucky students to have parents who were able to provide me with
supplementary resources throughout the school year and summer to prepare me for different
educational expectations. They knew what to do in order to ensure that I succeeded. However,
some African American and socioeconomically disadvantaged students do not have this privilege
for various reasons. These are the students who should be receiving the best educational
experiences. Unfortunately, this is not the case. Parents send their children to school to give their
children the opportunity to succeed in life. But it is hard for students to succeed if they are not
given a chance to be successful, if expectations are not high, and teachers make assumptions
about abilities based upon background. We cannot make excuses such as “he lives in this part of
town, what else can you expect”. Regardless of where students live or the color of their skin,
they can learn, and they can learn at higher levels if we provide them the opportunities to reach
and succeed.
Enter . . . The Internet

It is ironic that the one thing I resisted so much growing up -- the Internet -- has become one of my passions. I remember my mother wanted to get an Internet connection, which was Prodigy, in our home in the early 1990s. She conversed with me about this technology because she thought it would help me greatly in school because it was a way of getting information. I resisted! Although my friend next door had this technology, I had no desire to get it too. Who needed this technology and what would it really do to help me in school? Encyclopedias, dictionaries, and textbooks were just fine with me. Although we had a computer, I basically used it to play video games, my favorite was Captain Comet, and make birthday banners. I slowly became more interested in digital technologies my last year in high school when I joined the Computer Club. Luckily, I began to see the value of digital technologies and the Internet when I transited to college. I took a technology course for one of my teaching certification classes. We learned about all types of technologies in the class -- overhead projectors, scanners, and the Internet. One of my favorite assignments was to design a web quest, which was a fascinating project. I designed a web quest on Ancient Egypt and included many kid-friendly links that would help children learn more about Ancient Egypt. I was really excited about this project because, if used, it would take kids beyond worksheets to learn about a topic. It was around this time my eyes were opened to the value of technology in education. I consider myself lucky because I have learned how important digital technologies and new literacies are in the 21st century -- mother was right! I wonder how many people still have the mentality I had over ten years ago regarding encyclopedias, dictionaries, and textbooks?
As a Teacher ...

As a former classroom teacher, this topic has prompted me to engage in a lot of reflection. I taught second grade at a school with a large population of socioeconomically disadvantaged students. Many of these students were struggling readers with limited support at home. Most of them did not like to read or participate in reading groups. However, reading was my favorite subject to teach and I liked to make it fun. I would engage the students in different types of reading activities and games to make learning to read enjoyable. There was a lot of flexibility in the types of reading activities I could do during my first two years of teaching. I wanted to make reading fun for the students because I remember how much I loathed reading groups in elementary school. I disliked reading in the basal textbook and was not very fond of completing worksheets after a discussion of the story was held. Therefore, as a teacher, I wanted students to participate in reading groups that kept them active and engaged.

Unfortunately, the school system adopted a new reading program during my third year of teaching and it was expected that all teachers would follow the teacher's edition strictly when instructing reading groups. I did not like this mandate because I am not a huge fan of basal readers. I was especially unhappy about this decision because I had just completed my master's degree as a reading specialist. I spent a lot of time and effort working on this degree, and I was expected to put this new knowledge and creativity to the side and follow these preplanned lessons! I remember being terribly unhappy at the in-service focused on this new program. I really felt this program insulted my intelligence.

The teacher's edition of the new reading program was in almost perfect condition when I left my teaching position the following year. I think I followed the program for a few days, then
went back to my old teaching methods. My students read the books that were expected, but I put my own spin on the lessons. I remember one lesson where the students made puppets for a Reader’s Theater. One student, who was often very disruptive and who did not speak to me often, smiled during the reading group after they had practiced the play and were making their puppets, and said “thank you.” I asked him to clarify why he thanked me, and he said something to the effect that he was excited to perform the play in the classroom. This made me feel very happy about my instructional decision. Although my students were African American and socioeconomically disadvantaged, this did not change my beliefs about what they should have learned -- I thought about what they had the potential to learn. I had high expectations for their learning and provided them with different learning opportunities that expanded beyond basic skill knowledge.

**Technology in School**

My classroom, like the other classrooms in the school, was equipped with three computers. Each teacher was also given a laptop and portable laptops were also available in the school. We were expected to use the computers with our students on a regular basis. For the most part, we had control over the types of activities students engaged in such as Kidpix, Inspiration, and Word, but it was expected that all students would participate in the CAI program. The CAI program was already in use in kindergarten and first grade, and school administration thought it would be a great idea for the second graders to have access to this program as well. We (teachers) had to spend two full days in professional development sessions on the implementation of this program. We were taught about all the great things this program would do for students’ reading abilities and the information it could provide us to better tailor reading
instruction. Every student was expected to work on this program three days every week, 20 minutes each session for optimum impact.  

Although this program was colorful and looked fun, the kids were not engaged. How engaged can you be if you are only listening for directions and clicking on certain objects (example--click on the duck that makes the short a sound)? I guess this would get pretty boring after a while. I would often see students looking around the classroom when they were supposed to be working on the computer. Some students liked to work on the game whereas others wished they could do something else. I began to get frustrated because their reading scores were not improving like I initially expected. In addition, I really think that some students were not trying their best on the computer games. It was around this time that I realized that CAI was not the best method to teach kids. Currently, I am no longer a full-time teacher; I substitute part-time. I have often found in my experiences as a substitute teacher that CAI is used in the classrooms entirely too much. I have been to many classrooms, and in every case students practice basic skills on the computer during computer time, either through a software program or website. It bothers me to think that teachers actually believe they are integrating technology when they use it this way. Classroom computers and laptops should get more use than this. Students need to learn that computers have much more potential than to be used as a game system.  

Even before CAI was introduced into my classroom, this was not the only time students would use the computer. I would also have my students engage in other computer activities such as creating pictures and stories in Kidpix, Inspiration, and Word. They would work on assignments individually as I worked with reading groups. Work would then be printed and displayed in the classroom or in the hallway. I would also sign my class up for the computer lab
about once a week so they could all work on the computers at the same time. My favorite activity was for them to type the final draft of the papers. As a look back, I realize that this was not the best activity that I could have done with the computers, but at least I tried to use them. To get other ideas I would walk around the halls to see what other teachers were doing or discuss activities with the other second grade teachers. I had a fascination with using computers in the literacy curriculum even before I knew about new literacies. My students' experiences could have been better if I were provided with more professional development.

*Professional Development Experiences*

I participated in a few professional development sessions on technology integration. One professional development session, titled Future Kids, met once a week for a few weeks after school. The schools' technology integration specialist taught us a variety of digital technologies that could support students' learning such as PowerPoint and databases. Another professional development session was division-wide and focused on the integration of technology in math. Some neat information was shared. For example, I learned how students could use digital cameras to make a slideshow presentation in KidPix. Unfortunately, this was the extent of my technology-related professional experiences. The teachers at my school used technology, and we did have the support from a technology integration specialist. However, I believe that we needed more professional development to really learn how we could truly integrate technology into our busy instructional days. How would technology integration look in a real math lesson with real students? Or how could technology be effectively integrated into a literacy lesson? I think that I, and the teachers at my school, could have done a better job of integrating technology if we just had some additional knowledge.
I tried one of the technology integration suggestions from one of the professional
development sessions. I wanted to re-create the math lesson that integrated technology and math.
I checked out a digital camera from the school's library and then took my class on a field trip
inside of the school to look for geometric shapes. We took pictures of those objects then returned
back to the class to make a slideshow in KidPix. My goal was to divide the students into groups,
then work with individual groups to make slideshow presentations. However, the lesson did not
go as expected. I had a very difficult time with classroom management. In addition, I could not
remember some of the steps involved in creating the slideshow. Needless to say, the lesson was a
disaster. I was so disappointed in myself because I really thought this would be a great lesson,
but it turned out to be horrible. This lesson seemed so easy when it was presented at the
professional development session. However, lessons are very different when implemented with a
class full of students compared to a few adults.

After this lesson did not go as planned, I was very reluctant to use technology again in
new and different ways. However, I begin to play around with some of these technologies on my
own, and realized how they could benefit's students learning experiences. Unfortunately, I, and
the other teachers at the school, really did not venture too far from our comfort zones -- KidPix,
Inspiration, and Word. Students used these programs on a continuous basis and really seemed to
enjoy them. I realize how hard it can be to integrate technology into instruction if you really do
not know what you are doing. In addition, it can be very frustrating to integrate technology if
teachers do not understand the value of technology or feel it will take too much time away from
the tested curriculum. We are in a standards-based era where we are accountable for how much
students learn within the school year. This puts teachers under a lot of pressure. Therefore, I
understand why some teachers may put technology on the back burner -- they do not know what to do with it, they do not have the time to learn about it, and students are not going to be tested on it, so what is the point? However, we, as educators, need to change our mentality regarding digital technologies. Digital technologies are becoming very important in our world. Doubters just need to watch a couple of commercials for computers and mobile phones and they will definitely see how.

Inequities Continue

When I began to read the literature about new literacies and issues of inequity, it made my stomach cringe. I cannot believe that some students are being deprived of expanding their literacy knowledge because of their race and socioeconomic status, and I hope I did not deprive any of my students as an educator. Literacy is very important in order to be successful in every aspect of life. Literacies involving digital technologies are becoming even more important as they become a part of almost every aspect of our lives. Educators need to become aware of issues surrounding new literacies and equity, and reflect on their own teaching practices. My goal is to explore why these inequitable practices are occurring in schools in order to bring awareness to teachers and educational leaders at all levels. If African American and socioeconomically disadvantaged students do not acquire new literacies, and our society continues to expand technologically, then what types of jobs and quality of life will these populations have? Discussions of inequity are not confined to new literacies, it involves other educational experiences that will occur in education if we do not put a stop to it now.

I see myself as an advocate. Individuals, especially parents who have children, may not be aware of the practices that reflect hegemony occurring in schools -- I am their voice.
Hopefully, this research will encourage teachers to think about their instructional practices in the classroom, especially those involving digital technologies, and think about whether they allow the race and socioeconomic status of students influence types of technology experiences. I also want teachers to become more aware of the importance of digital technologies, new literacies, and the importance of their role in facilitating the development of new literacies. I hope that my research will encourage educators such as curriculum writers, principals, teachers, and others within the educational community to want digital technologies integration to occur in the curriculum. Educators need to make it possible for new literacies development to happen for all students through the placement of digital technologies in classrooms and the necessary professional development in place for teachers.

According to the research I have read, I expect to find that teachers in racially and socioeconomically disadvantaged schools use digital technologies differently with their students. I expect that African American and socioeconomically disadvantaged students will use CAI more than students of the dominant culture and students from the dominant culture engage in more digital technologies experiences. I also expect that teachers from both schools have not been adequately prepared to use digital technologies. However, teachers at White and socioeconomically advantaged schools are more likely to have the initiative to learn how to integrate technology and more likely to work together to make their vision of technology integration a reality. I am willing to discover that all teachers have participated in professional development sessions that focus on technology and literacy integration and they have the support systems in place to effective integrate technology into the curriculum. I am also willing to discover that teachers are busy and they believe they do not have the time to plan for or use
technology in the classroom; there are a lot of pressures that are preventing them from using technology the way they would like to use it. Additionally, I am willing to discover that race or socioeconomic status of students are not the only factors that cloud teachers' judgment about what students should learn in school and that teaching practices are the same at racially and socioeconomically different schools, especially in the light of NCLB. However, I am not willing to discover that students do not show an interest in digital technologies or that they are so apt at using digital technologies that there is no need to focus on it in school.

Although this research will discuss issues that some may view as negative, I do not see this research in a negative light. I believe by bringing to the forefront these issues, and discussing issues of inequity, we can make changes in the educational experiences of all students. Therefore, I see this research as something positive that the educational community should and will embrace.
Appendix B

Interview Guide for Initial Individual Interviews

*Literacy and Technology Integration*

1. What is your philosophy of reading instruction?

2. How do you feel about technology integration in the literacy curriculum? To what extent are your views consistent with the school’s technology focus?

3. How, if at all, do you integrate technology into reading and writing activities?
   
   Please describe a few typical activities.

   How do you select these activities?

   How, if at all, do students use software programs such as (Kidpix/Powerpoint/Word etc.)? The Internet?

   How often do your students use technology for reading/writing?

4. To what extent do state and division reading mandates influence your students’ technology use? To what extent do “school pressures” influence students’ technology use?

*Reasons for Technology Use*

1. Please describe the population of students you teach.

2. Why do you use technology for reading/writing activities with your students?

3. What drives your decision to use or not use technology?

   a) Where do your students learn how to use digital technologies? (home/school)

   b) What is their knowledge of technology? Does this influence what you do?

   c) To what extent do your students’ backgrounds influence the way you plan to use technology in the literacy curriculum? Why are these influences?
4. How, if at all, would you like to change the technology-related experiences these students have in your classroom?

Professional Development Experiences

1. What are your professional development experiences with digital technologies?
   
   Who offered these experiences? (division/school)
   
   How many? To what extent was participation mandatory?
   
   Please describe these experiences. What are your opinions of these experiences?

2. How do you learn how to use technology at the school level?
   
   a) In grade level planning, to what extent do you and your colleagues discuss technology integration? Why?
   
   b) How does the ITRT support your uses of technology? Innovation?
   
   c) How else do you learn how to use technology in instruction? (magazines, talk to other teachers, the Internet etc.)

3. Thinking in relation to the literacy curriculum, what kind of technology-related professional development, if any, would you like to experience? Why? Do you think you could request it at the school-level? Would you counter any resistance?

Ending Questions

1. Is there anything that you might not have thought about before that occurred to you during this interview?

2. Is there anything else you think I should know to understand your technology integration practices better?

3. Is there anything you would like to ask me?
Appendix C

Verbatim Interview Excerpts

Initial interview, Robin (second grade teacher), Appleton Elementary
K: What is your philosophy of reading instruction?
R: You need to make sure they know how to read first. In second grade we get a lot of different levels. We need to figure out what they are weak in and make that better. Hopefully by now they know the skills. What I really want them to get into is learning to like reading so they get that thirst for knowledge from reading. The reading instruction is a matter of finding what they are weak at and finding out different activities, figure what kind of learn they are. Some kids learn with flash cards. A lot of the kids do really well when they get on the computer and play games. K: You use the computer as a way for students to enjoy reading and as a way for them to learn?
R: Yes, they are able to play the games independently and are attentive to what they are doing by themselves because they are self paced rather. This is something they like to do rather than me say according to the division this is what I am suppose to teach you to do in guided reading, I’m suppose to teach you word ladders. Kids don’t necessarily get that. You have to find out what they like. If you are going to do what you like and what you are comfortable with you are not going to reach every learner.
K: That’s true. How does technology fit in with your philosophy of reading?
R: I think technology gives you a lot of opportunities to find the different ways that people learn. I use it not only for my students but for me. I am constantly looking on the computer for lessons plans as to how to help kids because I don’t know it all and I don’t have time to read a book all of the time. So I Goggle a lot.
K: You said that technology addresses different learning styles and that you use technology as well to find lessons.
R: Also like in second grade especially we use technology as reading intervention instead of having a separate teacher they go on the computer. They do an activity called Lets Go Learn it takes them through different levels. They start out at a level that is predetermined by a test then they go through that. Also I have used it before to show them context clues it just gives you wider range to do stuff. You can’t do some stuff with a transparency or a worksheet. They don’t see how to go back and find the information which is a big problem that we, at least that I have, in second grade. Like that have a question, well what happened first in that story? Well they don’t know where to go first. Unless you have something big where you have to see it, you have to go to twenty different people individually and say “there’s first, there’s first”, now we have the promethean board, before I had the SMART board, or I can put it up on the projector through my computer and put it up on the projection screen and we can go up I had an Interwrite pad and we could highlight what we were talking about everybody could see what we were doing at one time. Once you do that, then they can do it individually. They can go on the computer and do reading comprehension websites for those people who are ready for it. Or those who are still working on phonic skills can do that.
K: You mentioned reading comprehension websites. Do you find different websites were they can read?
They read stories and then they answer questions and get points

Is that Accelerated Reader?

No. It's not AR, I can't give you a specific . . . Starfall does it, I think, but Between the Loins PBS kids, they have a ton of different things. I using it for my five year old because she just loves PBS kids. I'm looking over her shoulder and going wow! The kids who are strong readers, I think we have to teach kids also the love for reading, that reading takes you places because they don't get it. They've been growing up with tvs and video games when I was little I would do for fun. I would go outside and read a bike and read a book outside. They have so many opportunities to do other stuff. When I ask my kids why do you read they answer “because I have to. You don't read because reading is fun? Reading is not fun. I can put them on a website where a story is being read to them because they are not strong readers and they are scared they are not going to be able to do it they get the fantasy that reading can you.

You use different websites.

Do you rotate? Sometimes they go to PBS kids, sometimes to another website?

Yes, and I'm constantly looking for new websites because there are new ones that you find all of the time and now especially with the Promethean board they have lessons that can go with reading comprehension. Especially that is another focus I want to work with these kids is building up their vocabulary because they don't have a big knowledge of words like 'hollow' they don't understand what 'hollow' means, they don't encounter that. They don't know what a gully is, even though gully is a word in their story, we cover it. If you ask them what a gully is, “I don't know what a gully is". They don't understand what a ditch is because they are not exposed to a lot of words.

Okay, so you use websites as a way for students to build their vocabulary knowledge.

If I can give them the opportunity to be exposed to vocabulary words like that on a different website then I would like that.

Do you find that they enjoy reading stories online?

Yeah. They do because it is moving pictures it's what they are use to. Instead of, which I still wish they could use their imagination and get that scene themselves that you would get by just reading the book but I guess baby steps.

So online stories are a stepping stone to kids becoming interested in reading?

Let them do it this way and then say, here's a book, and you get to imagine what this looks like and you get to imagine what that person looks like rather than someone saying what this person looks like.

In addition to websites, do you use any other types of technology for reading and writing activities?

I've been wanting to use Kidspiration to start their writing on the computer but I just haven't been able to do that yet, just management. Like last year that's what I really wanted to do but there was no way with my kids being at different levels is hard but I haven't done it just yet with them. I did make a program one time we were talking about diversity for social studies. I let the kids draw a picture of what they thought diversity meant, then we took a camera and talked about it and made a little video like a slideshow.
R: I did that my first year. I did not do much with technology last year, just with the kids I had. I used a lot of the Interwrite pad but that was it, but now that I have this (Promethean board) I’m excited.

K: Yes, that Promethean board is pretty neat. What kind of technology experience would you like your students to have at the end of the year?

R: I would like them to be able to do (technology) more independently. We haven’t had much of a chance to get on the computers too much this year. I remember from last year when they would go on the computers some kids are really good at navigating it and other kids aren’t. If I could get kids to navigate it independently to where they had confidence and felt if I get off this website it is okay I’m not going to panic. At this stage if they go somewhere they don’t know they just stop they want to hide the fact that they just messed up. They will sit there quietly. If I could just get everyone on the same level of just being able to navigate at least the web and the different websites I give them I’ll be happy. I’ll also be really pleased if I could get them typing confidently instead of pecking. That’s a lot to ask.

K: Do you allow your kids to type, to type stories?

R: No, not yet. Typing up stories is something else that I would like to be able to do. I think they would like it better. Right now we sit down and do the hamburger model. My goal is to do it on the computer. I think they would like it better. I think they would feel more grown up doing it and they might be more apt to doing it. Right now they are like we have to write our paragraph.

K: Have you used any other programs besides the websites, you mentioned you would like to use Kidspiration and word processing software- is there anything else you use?

R: I use the Interwrite pad. It is like a Smartboard that they can use. It has a Bluetooth in it. You can pass it around the room and they can draw, highlight, they can underline. I actually used that a lot last year because I like the Smartboard, but then you have kids getting up and sitting down, and with the Smartboard you had to reorient it. And kids are clumsy, they fall into stuff. I really didn’t like them getting up and down. I used the Interwrite a lot because we could put a story on the projector they can take the pen and highlight and circle, I had them draw pictures. If I can figure out how to integrate art and technology, because I really think art helps comprehension, be able to do things like that.

K: How do you pick the activities that your students are engaged in, the technology activities?

R: I explore websites I’ve learned that you have to go through the whole game to make sure it is on their level. A lot of times you look at it and say okay that looks good and then you set it up and realize it is too hard or too babyish. You have to do things yourself first and make sure it is right for your kids. You still have to differentiate because what’s good for this kid isn’t going to be good for somebody else. It could be too complicated or too easy.

K: Do you find that the state or division reading mandates influence the way your students use technology?

R: I don’t think so. We follow what’s expected, the curriculum but I think it is up to the teacher up to how you are integrating technology.

K: So you have a lot of flexibility in how you use technology?

R: The district does not say how things should be done. I think they know there are a lot of people who are not technology savvy and they are afraid of it. That’s all it is they are afraid of new things. Once you do it, it is not that hard. I don’t think the state pushes.

K: Do you feel any pressures at the school to use technology or to not use it?
R: To use it definitely. Which is a good thing because it is, this is what people are going to be doing. But I also don’t think that we should, like art, I don’t think we should take away those things either because it another thing, different type of learners, people who have to touch and feel and see, and they you have other people who are okay just with technology, they do it all the time. But also when you use big things like this, this is for everybody to see. If you ask them to do art on the Promethean board they might be scared to do it because they don’t know how to draw, whereas if is just my little piece of paper this is me showing you what this means to me and its only for your eyes then they have the confidence to do it.

K: So the Promethean board is not always the best tool to use in every situation, sometimes you should use paper, because everyone in the classroom can see what someone is doing.

R: I don’t think that the Promethean board has to be used all of the time. I think you can have all of it. I think sometimes school systems or schools forget that you can do it all, that it (the Promethean) doesn’t always have to be used 95% of the time.

Initial Interview, Susie (second grade teacher), Bellmont Elementary

K: What is your philosophy of reading?

S: My philosophy of reading is in order for each child to reach their full academic capability they need reading in order to be lifelong learners because they need that reading in all subjects and they need that to take them into adulthood.

K: So reading is a way for them to be lifelong learners?

S: Correct.

K: How do you feel about technology integration in the literacy curriculum?

S: I feel that it plays a strong role because it helps children to give them different avenues as far as... I'm drawing a blank... I can give you an example of what I have in my classroom.

K: That would be great.

S: For instance in my classroom the AR component really helps them with that comprehension piece. Then they go as part of their centers they go under the portaportals and it has different comprehension games on there and it also has different literacy skills so they really enjoy that because they think they are having fun but they are learning at the same time. That’s a good piece too. Also for remediation it’s a good piece for remediation also.

K: So your kids use AR for the comprehension component and you also have some games on the portaportal that link to different literacy skills. Do you use Starfall?

S: Wow. You were reading my mind. I was about to say that Starfall is an excellent tool for the kids that need help with the phonetic piece.

K: What are the names of some of the other websites you use as well?

S: Um... there are so many. It is easier for me to probably show you.

K: That’s fine. I can look at the computer programs when I come to your room for the observation.

K: How is your view of technology consistent with the school’s technology focus?

S: A lot of the technology that I’ve used, we’ve had different people to come in to introduce the different technology and they are the reps throughout the city so I know that, but however, this question might be coming a little bit later, I’m the instructional leader for language arts for the school, but I sit in with other instructional leaders and I know sometimes they have different...
things like Promethean boards and different things that we don’t have in our school. But the things that we do have the reps come in and help us.

K: What is your role as the instructional leader?

S: Well I go to the meetings and I gather information to bring back to the staff. I go through our SOLAR reports and I look at it and see if there is an area we are weak in. I go to the principal and say hey, we need to come up with some strategies because I see that a far as grade level or the school we really need help in this particular area. And then we just come up, we brainstorm different strategies. And then I also do workshops. We do make it an take it workshops and for instance the new thing when I was talking to the director for research and evaluation she had some very good points about the children being able to have their book in front of them when they take the AR test to get them use to finding, making sure that they can find it in the selection because a lot of them are read and guess so we are trying to get away from that in the city and let the kids be able to use their book. They are going to have to go back in the passages and find the answers so they can become more successful on those tests. So just little things like that I just bring it back to the table and share it with the staff.

K: So whatever is discussed at central office you bring back and talk with the staff?

S: And I’m also like if the principal needs me to do anything, like if there is a teacher that needs help with annotation I help the teacher with that. And there are a couple of other things I do. I also do the Literacy Night where the parents come in as students and they come to their child’s classroom and the teachers have to show the parents exactly what we do during our language arts block so they can take that home so they know exactly so the kids can have that literacy piece.

K: You play a strong role in making sure that parents understand what is expected of their children and that teachers have the resources they need in order to make instruction better.

S: Exactly, right.

K: You mentioned that some representatives come in and talk about the technology piece. What types of technology are they talking to you about?

S: For instance she came in and talked to our grade level about BrainPop. Some of the teachers may not know. She talked about how you could integrate that into a center.

K: Is that a representative from the company or central office?

S: No, it’s the ITRT from our school.

K: What else has the ITRT discussed?

S: That is about it.

K: Just the Brainpop piece?

S: And she just said that if we need her to email her and she will be willing to come in.

K: At your curriculum meetings do you discuss technology or other ways to use technology. I know that you mentioned the Promethean board. Are there other technologies that are discussed?

S: That is really the only thing. That last couple of years, I’ve been doing this for six years as far as the instructional leader and the most fresh thing that I can remember is them talking about the Promethean board. We found out that Title I schools had access to that.

K: So do they give you examples of lessons that you can do with the Promethean board? What are they really pushing?

S: I’ll have to get my notes. Can I go get them?

K: Yes, that’s fine.
S: Okay, they have new Promethean board flipcharts on context clues for grades 3 and new Promethean board folder is in the Language Arts warehouse, which is in the SAC vault that teachers can have access to.

K: What is in the Language Arts folder in the SAC vault?

S: That’s a good tool for teachers to go on they have different ideas as far as centers, center ideas.

K: Do these ideas relate to the computer or just language arts in general?

S: Just language arts.

K: Have they discussed how the computers can be used in language arts centers.

S: As far as using our Let’s Go Learn. We use the Let’s Go Learn as part of our centers.

K: That’s for remediation

S: Yes, and that’s as much as they talk about.

K: Okay, so you can use the Promethean board, you can access the flipcharts to teach particular content areas

S: If you have the Promethean board. We haven’t had any kind of training that shows us how to use the Promethean lessons on the SMARTboard.

K: Is there anything else that they talk about regarding the Promethean? So far that has been a major focus area, just using the SMARTboard or if you have it, the Promethean, to use it teach whole group lessons on certain content areas.

K: You mentioned some of things your kids do in the classroom during centers. Do you use technology in any other way in your classroom for reading or writing activities?

S: That’s mainly it for the reading and writing, just centers. We are going to other subjects and I use the computer for other subjects. For reading and writing that is my main block.

K: How else do you use technology in the other content areas?

S: I use the Brainpop, I use, honestly I go and Google different sites and I find PowerPoint presentations then I use it, use the PowerPoint presentations and the kids seem to like that. I use that for whatever we are studying.

K: Okay, you use that to teach whole group?

S: I use the LCD projector.

K: Do your students use the Internet for activities other than those on the portaportal?

S: Well I usually go on the Internet and pull it up for them.

K: What kind of technological competences would you like for your students to have by the end of the school year?

S: I would like to see them more able to be able to, for instance I get the carts with the laptops and have them um you know we go find different sites, things like that, but with just me and no assistance it takes a lot of them cannot work the laptops without the mouse. It can get very, it takes a lot of time for just one person. I would like to be able to pass them out and they be able to just listen to my oral directions and get on the Internet and find the different sites I’m telling them through my instructions. A lot of them they can’t work the piece for the mouse and so forth.

K: Are those sites things that are in other content areas?

S: Yes,

K: And you just want them to go up there. Are they games or learning sites?

S: They are learning sites. Whatever the SOL skill focus is.
K: So it is very difficult to get them to use their finger to navigate.
S: Especially, now I have some whose parents have laptops at home so they are able to use their finger to navigate. Some have never seen a laptop so they are like I can’t do it, I can’t do it. So we all know it is the technology age and they need to be equipped with that.
K: Are there any other technology competencies you would like for them to have other than the laptop skills?
S: Um, yeah for instance today I had they were on the language arts sights on the computer and some of them they just wanted to go to the straight games, they knew how to navigate out of what I had I just want to continue to be able to find different sights and things that stimulate their curiosity because a lot of them were getting kind of bored. I thought that they would enjoy it. But I just want to continue to let them see the importance of technology. I want them to use technology in different ways and not just using it as the race car thing, not just as a game, but as a learning tool also.

Only Interview, Terry (Title I ITRT Specialist), Central Office
K: What new technologies are becoming available to the Title I schools?
T: Actually this year we have begun 21st century classroom program where all of the instructional classes within Title I schools are receiving promethean boards along with digital visualize and we are giving them a cart where they are able to store all of their materials. All of our schools have televisions. Hopefully we will be able to get all of our televisions out and run the promethean boards. We also have interactive tablets that the kids are able to access as well as the teachers use those as well as the response system— acti-vote and the acti-expressions that come with the promethean board. We purchased one set of acti-votes for the younger grades and active-expressions for the older grades. We will be adding more as we go along with our program.
K: Why were Title I schools chosen to receive the promethean boards first?
T: First of all funding for Title I they have a larger funding stream we are able to pull from whereas the non Title I schools, middle, and high schools, they don’t have that available funding stream where we are allocated a larger pot of money to pull from. We looked at the educational benefits that it will provide for our students we are dealing with at-risk students looking at the research our division leadership in terms of the technology department looked at Promethean whole system we had interactive whiteboards, smartboards for a few years now, and normally for the elementary we had 2 per building we actually had 1 extra the Title I purchased for use two years ago. After looking at what we felt would work best for our students we decided the head of the technology department looked at the different systems out there. Actually they purchased a Promethean board and put in a non Title I school and kind of piloted that program with her and saw what she was able to do with it. She was in the library and she just loved it and so they researched it further and we decided to go with the promethean boards. We started out this year with 8 in each of our Title I schools (14 schools) and then as more funds became available we purchased more Promethean boards for the instructional rooms and libraries. Except for art, PE and music are the only ones due to funding who do not have Promethean boards. The other school s will get Promethean boards as funding becomes available.
K: So essentially once funds become available the other school will get the Promethean boards as well?
T: That's the technology focus. Funding money is available they will start to implement those in the elementary schools first and kind of filter up to middle schools and high schools. We usually would see it the other way around.

K: Why is there a focus at the elementary level?

T: I think we just felt that if we could get the kids early especially the Title I because with our kids coming from the backgrounds they are coming from they are not given the opportunities at an earlier age that the schools at a non Title I school would receive. If we could do some different types of things. Being able to have kids interact with this technology is going to hopefully get them started at this early age so that when they move up and up it's just going to be infused in what they do. We are building two new prek-8 schools and they will have promethean boards in the school. We want to get them first and in the hands of those teachers and start the kids from day one have them ingrained in the 21st century learning. Once they leave our schools that is what they are going into.

K: My paper specifically focuses on kindergarten, first, and second grade students and technology so I think it is very interesting that the focus

T: is at that

K: level as well

T: Yeah, it's really important with younger kids and a lot of times some people think that 'well its not developmentally appropriate for the younger kids or they won't get as much usage out of it as the older kids' well I've worked in a first grade classroom last year and they loved it [Smart board] and they loved it. A lot of the teachers are making it a daily part of their instructional routine. They just come in. They have everything from lunch count, attendance, it's just becoming a part of their instruction.

K: So is really being used as an instructional tool?

T: Yes, that's the focus is it should be used as an instructional tool. It can be used for instructional I would say we tried to look at how much teachers should be instructing using this board and we pretty much came with about 75% of their day because the biggest problem we encountered with the teachers at the very beginning was the board was in the center of instruction so it would be in the middle of the classroom and the teachers were worried that they were losing their chalkboard and whiteboard space and in their mind thinking well oh, I can use this as my whiteboard, I can write on it, I can do my morning work up their ready to go. I can put all of my subjects up there. I can go from subject to subject seamlessly without erasing everything that is up there. The biggest hurdle to get them to understand is that we are not taking something away, we are adding to what they are already doing.

K: The Promethean boards, I know they are very similar to the Smart board in some respects, why is there a focus on the Promethean board? Why was the Promethean board chosen?

T: I think the promethean does a good job of putting everything into a nice, neat educational package. All of the, I know when we had a Smartboard equipment we had a Smartboard but then we had, we would have a projector, just whatever projector we had. You had to have speakers so if you wanted to have speakers to had to get that. You had to hook up, pull up your projector, hook it up, put your speakers up and then start it up. Whereas this is, everything is seamless, it is already there, you can just take a remote control and turn it on, just plug it up, put your USB port in and plug up your cables for your projector and everything is already built to the wall. They hook everything up. We give them a cart, put laptop on the cart, plug it up, and they you are
ready to go. They did a good job with putting all of their components to their activ-board system all in one nice, neat package. So when you install the Promethean software, you are getting everything in there with it. You are able to access your acti-votes, your activ-expressions. I just went into a classroom and did a lesson with a teacher and I was able within 30 seconds I had the kids voting. Before we had inter-write clickers which were totally separate system so then we would have to hook that up, plug it up to the computer and turn it on and then the kids would have to, it was just a time consuming process whereas this is, they provide a lot of support, they have a wealth of lessons that are made by teachers they have lessons by state standards so if there is certain SOL you can go and find lessons that correlate with that SOL. So I mean, for us, it was the best system where as Smart is a good system, but not being the totally educational kind of system this is, Promethean is k-12 based, it is an educational company. That is there focus, it is education, whereas Smart is more you may find a smartboard in a business office or out in the work world. You may find it there whereas you won’t find a Promethean out there.

K: I’ve seen some orange Promethean boards and some grey ones. Is there a difference?
T: yes, no.
K: Okay
T: The orange, they have used orange. Orange what they tell us is based- Promethean is based out of the United Kingdom whenever you look at interactive whiteboard studies, you are mainly going to find them from the United Kingdom or Australia. You are going to start finding more and more they are coming from the States. I did a lot of research when I was taking my classes for my ed leadership on the professional development with technology and when I looked everything that I found was mainly coming from the United Kingdom because they have had them and they have used them. The orange from what I was told was what you find in education in Europe. So if somebody, if it was stolen, and you took it to a pawn shop, and oh, I’m trying to sell this projector and its orange you know that it was an educational – but with Promethean you cannot turn it on unless you have a remote. There is no way to turn on the projector unless you have a remote, so if somebody does take it, unless they have a remote, they can’t turn it on. And so know I think this board (the grey) is a different design. It is larger, it is 87" verses 78" which the orange one is a 78" and this one has speakers built in whereas the other (orange) has speakers that you have to purchase then they kind of mount it to the sides somewhere. I like the grey a little better. It is less obtrusive when you kind of walk into a classroom. There is no other difference.

K: There are no other differences.
T: That’s right, no other major differences.
K: You mentioned 21st century learners earlier. Could you elaborate on that?
T: What we mean by that, our student now what we have is this web 2.0 that is this digital student we didn’t have ten years ago, 20 years ago the time they are really able to sit up and look at something everything is digital, everything is very quick from learning how to use a remote control when they are three or the computer. My little girl is four and she was able at three she was using the computer, she was using the mouse on the computer doing simple starfall, so they are brought up in this electronic, digital Internet based world we didn’t grow up in. They are going to be in jobs that are going to require them to communicate across the country, across the world, the students today do different things, blogging, wikis, all different kinds of things that we didn’t do but we have to have our students when they come to our building we expect them to
kind of go away from what they know, what they are use to and sit down in your nice little rows and listen and I want you to write notes on the board and that is not how they learn. We have to tailor what we do to meet the needs of our kids instead of trying to make our classroom tailored to the teacher, we need to say, how can they learn best. We need to make sure that we are doing that instead of just trying to teach the way we have always taught.
Appendix D
Observation Notes Examples

Observation, Barbara (Language Arts Computer Lab), Bellmont

The computer lab is situated in the part of the building near the library and upper grades. This location is also where the morning show is produced every morning. Not only is Barbara the computer teacher, but she also manages the morning show program.

There are 30 computers in the lab. One row of eight computers is situated in the middle of the room. A small row of four computers is placed in front of the one row of windows in the class and the other computers are placed along the two parallel walls. A cart with an LCD projector and laptop computer are placed in the middle of the room. The one feature of the room that is undeniably impressive is the mass of brand new Mac computers with 17” screens and amazing monitor clarity. A retractable screen is located in front of the room, directly in front of the row of eight computers. Earlier, Barbara explained that she was offered an interactive whiteboard in place of the projector screen, but she rejected the offer because the interactive whiteboard would be difficult to see and utilize with the bank of computers in the middle of the room. She also felt that with the limited amount of interactive whiteboards available in the school, the boards would be best saved for the classroom teachers to use.

The twenty second graders are promptly escorted to the room by their classroom teacher. About an equal amount of White and African Americans are students in this class. Barbara instructs the children to go to a computer and wait until further instructions are given. The children find their computer which is marked by a folded paper nametag that sits atop of the computer screen. Most of the students do not log in, however a few do not listen and log in prematurely. The students are scolded for not listening. Once all of the kids are in place, Barbara tells them that they are going to finish listening to a story and annotating important parts. The students start about halfway through (they started working on this story last week—a story on birds). Interestingly, the story is recorded onto Barbara’s iPod. The original source of the story was a reading package CD that belonged to the books the students are using today. The school division discounted that reading program, but allowed the teachers to keep the books. Barbara explained that the books were a valuable language arts resource that could be used in her class.

Barbara stops the iPod at certain points so that she and the class can annotate the story at certain points. She asks the class questions about the text and pictures and instructs them to underline certain text. Overall, the kids do a nice job of paying attention and answering the questions. They follow along with the story and underline what the teacher tells them to underline. I was very impressed that the kids followed along so well. She must have established firm classroom rules and have effective classroom management because of the kids were involved. In addition, maybe
the kids were involved because they were listening to a story being read through an electronic device and not the teacher. Therefore, the teacher was able to observe what was going on in the class, and in turn the students knew that the teacher could see them instead of worrying about her place in the book.

Thirty minutes into the class session Barbara stops the book annotation lesson and instructs the students that they would be using the program Pixie to draw a bird on a branch. This activity will further extend the concept about annotation. She uses the LCD projector to project her computer image of Pixie on the board, reminding students how to access the program and select the text box feature. The LCD projector and the screen come in handy because she is able to show all of the students what she needs them to do. This is very helpful instead of going from computer to computer to make sure the kids know what to press. After she shows the kids on the LCD projector, she instructs the students to click on the appropriate icons and text boxes. She then tells them to select the text box and place it in the upper left hand corner. After students do this they are to write their names in the box. Again, the students are able to follow these directions without any trouble.

Barbara then reminds the students that they will draw a bird on a tree branch and holds up the paper book to remind students they can use the pictures of the birds as an example to help them draw their picture. She tells the students that she would like for them to take their time and put details on their birds (beaks, eyes, feather, legs, and talons). She walks around the room to ensure that students are working correctly.

After they have worked on this activity for 15 minutes they are instructed to click file and save as. They are also informed that they will work on this activity again next week. It was obvious that they had done this before because very few students asked questions on how to do this. The kids were instructed to not click anything else. The classroom teacher enters and glances at what the children had been working on. While the children line up the computer teacher saves their work.

Observation, Robin (second grade teacher), Appleton

I was invited into the classroom during the literacy block. I noticed that there are twenty children the class. Eighteen are African American and two are white. The desks are set-up in a U-shape in the middle of the classroom. There is a newly mounted Promethean board placed on the front of the blackboard. (I wonder why the board was placed here- 1) to deter teachers from using the blackboard or 2) this was the only place to put it). The teacher used the Promethean board earlier in the morning the do the lunch count. The students had the opportunity to go up to the board to drag their names to their lunch choices. In addition, the teacher also had a count-down feature set on the board so that the students could see how much time they had left in their centers. In
addition to a Promethean board, there are four new 17” Mac computers located on a table in the computer center.

I entered the class while the teacher was explaining how center rotations work. Surprising, although students have been in school over two months, the teacher is just now starting reading groups and centers. Three centers are set up in the class: computers, free play and a literacy-based game. A chart is located behind the reading table that indicates where the children will go when they are not with the teacher in the reading group. I sit in front of the computer center so that I can observe the students working on the computers. The first center rotation begins. Four students are instructed to access the program “Lets Go Learn” on the computer. Robin gave them cards with their user name and password to use in order to log into the program. Two of the students had trouble logging in. Two students were very proficient in accessing the program. One student accidentally logged off of the site and just sat there-- not knowing what to do. The student sitting next to her (one the proficient students) helped her find the site and log back into the program. Another student was not familiar with the letters on the keyboard and spent about 10 minutes logging into the program. She called for the teacher to help her log back into the program. Robin had to leave her reading group for a moment to help this student.

The Let’s Go Learn program consists of a variety of activities where students practice specific literacy skills. The program tracks what they students work on and keeps track of their progress. The program has animation and audio. Observed students read a story, clicked on unfamiliar words to hear pronunciations, clicked on words to fill in the blanks, practiced phonics and beginning words sounds, and reading comprehension. One thought that I had about this program is that students may be successful on this program because it meets their learning styles. However, they may have difficulties when they have to transfer this knowledge to paper-pencil assessments.

The second group rotation occurred after twenty minutes. This time the teacher made sure that students logged in correctly before she began her reading group. Most of the students were engaged in the program. However one student was looking all over the room instead of looking at the computer screen. Robin reminded him to remain focus on his task. Similar to the first group, one student accidently logged out and did not know how to log back again. She ended up on the main webpage for the program but failed to notice the log-in screen on the left side of the site. Robin had to help this student log back in.

Again, after 20 minutes the third group rotated to the computers. These kids did not have to participate in “Let’s Go Learn.” They were instructed that they could complete an AR test on the computer or go to the free choice center. One student seemed very excited that he could go to the computers. He sat down at the screen and just looked at it, then he looked at his friends at the free choice center. He fiddled with the mouse for a few minutes, but never clicked on the AR
icon. He remained in the computer center, but turned his body around so that he could play with his friends in free choice. It was obvious that this student is interested in using the computer, but not interested in taking an AR test when he could be doing something else, something fun, instead. Not a single student used the computer to take an AR test. Those four computers were completely unoccupied during this center rotation. I thought at one time a student was going to her desk to get a book to take an AR test, but she was putting something in her desk instead. I wonder why the teacher does not allow the students a choice as to what they can do on the computer such as Pixie or a literacy website. It is a shame that these computers were not used during this time. I also wonder if the pressure of having to use the computer to only take an AR test is going to deter kids' interest in the computer. I hope that the students will have more opportunities to do something else on the computers during center rotations as time progress.

Observation, Courtney (kindergarten teacher), Bellmont

Courtney has a very large classroom with five desktop computers and 22 students. She has 14 African American students and 8 White students. Her students sit in groups at tables. Her class is very brightly decorated with student work displayed on the walls. She has a word wall at the front of the room with many big books for her students to read.

When I entered Courtney’s class her students were just beginning their literacy lesson. Courtney invited all of the students onto the rug at the front of the classroom. They went over a literacy lesson where the teacher read a story and the rest of the students listened. The students were pretty attentive to the lesson and followed along with the coral reading. Next, Courtney reviewed some words that were in the story that were to be placed on the word wall. Then they alphabetized a few words familiar words. This entire literacy activity lasted five minutes. Then Courtney explained that students to were going to have reading groups and participate in literacy centers. Courtney walked over to the five computers that were already on the Christopher Columbus website. Courtney told the students that since today was Columbus day they were going to learn about him on the computer She spent about a minute or so explaining what the students were supposed to do (read the story, click the icon to advance the story or go back, click on pictures or words, ask a neighbor if they need help). Students seemed to understand these directions. They didn’t ask any questions and seemed to have done this before.

Next, Courtney told the students they were going to start their reading block rotations. One group would work with her, one group would work with the assistant, one group would work at centers in the room (coloring, writing, working with manipulatives) and the last group would work on computers. Each group stayed at their location for about 15 minutes, except for the computer group. Since the computer activity was fairly short, most of the kids stayed on the computer about 5-10 minutes then they completed a cut and paste phonics activity on the letter ‘a’. The
kids on the computer did very well. They put on their headphones and navigated the site. They did not talk nor were they off-task. A few kids asked their neighbor a question if they were stuck or confused about something and the helping students seem very knowledgeable and happy to help. Students even stayed on the appropriate website. No-one navigated out of the site. What I thought was most impressive was that these students were kindergarteners and they worked very well on the computer. In addition, none of the students complained when it was time for them to get off of the computer. She set a timer when the group rotations began. Therefore, when the timer sounded after 15 minutes, students rotated to their next group. They knew exactly where to go.

While students were working independently or with groups, Courtney met with leveled reading groups. Each group read a story that was appropriate to their reading level and they seemed to really enjoy working with the teacher at this time. Students read the story individually and aloud in a choral reading session. Students seemed to be very on task as well during the individual reading groups.
Appendix E

Open Codes Example

Open Codes From: Dee (kindergarten teacher), Bellmont

I'm very much in favor of (technology integration) I'm very open to whatever is available to us

Open code: In favor of technology integration

at this level so far I have used the computers on a daily basis with the language based site we use

student use computers daily

things like Starfall, PBS kids, we have a portaportal a listing on the children's computers where I

use variety of websites

can put them on different sites at this point in time I don't, I'm not, the children are not on one

not using portaportal

where I can print out information and find out exactly what they have been doing. For instance

can't monitor students' progress on computer

we used to have BTL which I personally loved it is no longer in our school system. You could

liked BTL

actually print out and see where they have they recognized all their letters, do they know all of

can't monitor students' progress on computer
their sounds are they actually spending a lot of time on phonics or are they attempting to read

*use computer to practice phonics*

some books I loved that program but I am happy with what we have. I wish we had a program I

*like current website resources*

think it is called PBS Island where you can actually put in kids names and follow their progress

*would like to follow kids progress*

but I have not done that personally yet. So that I like the daily 25 minutes a day as far as the

*kids use computers 25 minutes a day*

computer technology as far as the use of other equipment I haven’t done as much as that.

*Have not used other technologies other than computers*

However, we have a new ITRT who we have been meeting with actually this last week she is

*ITRT met with teachers*

meeting with all of use. She is going to help us use the equipment that is available but it is often

*ITRT going to help teacher use technologies*

used by the upper grades. She said she is going to see how we can work it out where we can have

*ITRT trying to make tech more accessible*

it more available on our hall. It is just one of those things getting to the library to check it out. If
**tech not accessible**

we just had one here on our side or our grade level like an LCD projector there are some great

**would like to have accessible tech for grade level**

things we can do with children if we could project them. We studied Johnny Appleseed recently

**could do more if tech was accessible**

and there was a cute little story online but I needed the LCD projector, never got there to do that

**need LCD to show website whole group**

so of course I read them a story. I would like, I'm very open to using more technology but it's

**open to using technology**

not as available to me. The ITRT will definitely teach us how to use it. I am very happy with her

**ITRT will teach how to use tech**

and we had other ITRTs but its becoming more important I think this year she seems more

**technology use is becoming more important**

involved with the teachers and kind of showing us what to do. I am open to learning. I have to

**ITRT committed to working with teachers**

see things done I am a visual learner myself I got to see it. You can tell me how to do something

**have to see how to use technology**
but I probably would remember I have to actually see it and use it. What she said she would do

*have to use technology to learn*

would show us how to use the iPhoto. She sat here the other day and she showed how we could

*IIRT showed how to use iPhoto*

make books using that. That is so cool. I don’t know how to do that but I would be willing to

*willing to learn how to use iPhoto*

learn very much so.

[On portaportal ] the main thing I have been on first is the Starfall but there are several sites for

*Variety of sites on portaportal*

science and social studies not just, I’m concentrating on language, there is math up there also.

*Sites on portaportal from different subject areas*

The two that I mainly use this year are Starfall and PBS we are encouraged to have the kids ...

*Primarily use Starfall and PBS*

we would pull up the portaportal but they actually could click on the correct site. Some of them

*kids could select site from portaportal*

could do that eventually and so I’m most familiar with those two sites right now. But there are all

*teacher most familiar with Starfall and PBS*
others there was a memory game up there and we put them on the computers and the children

*memory game on website*

that was on the portaportal. There are some holiday and seasonal sites that are good. I have not

*some seasonal websites on portaportal*

explored all of them yet. The portaportal looks interesting and change a little bit what they do up

*portaportal can change what kids normally do online*

there even that 25 minute morning rotation. As long as it is related in the morning to language

*computer rotation during language arts block*

arts. But it is available and it is a site, it is all there together and the ITRT is going to have a little

*portaportal is available for use*

marking up there for Kindergarten and she will run it by me and our teachers whether we like it

*portaportal organized by grade level*

or not and she will put it on there for us. She is looking at our pacing guides. We have 9 weeks

*ITRT will place teacher approved websites on portaportal*

pacing guides. She will send the sites to us that she thinks will be interesting or good for our

*ITRT will send new sites to teachers for approval*

level and then we get to pick and choose and she will load them for us or have our librarian load
teachers select websites from ITRT choices

them for us. The last few years that, 2-3 years, that’s pretty much occasionally we have gotten

get other tech occasionally

the LCD projector for a special occasion. I don’t use it on a regular basis, I would like to learn

get LCD occasionally

about it more. Again, availability, it would use it more if I had one here. And just to see exactly

tech accessibility

what equipment I could use. I am not use to high-tech we have new teachers that have been in

limited tech competencies

college and really been studying and learning with those equipment. I have been here a while I

not familiar with technology

get into my routine. I am not as high-tech as I would like to be. I would like to learn. But I don’t

would like to improve technology competencies

use it on a regular basis other than mostly the sites we are on for the daily computer.

Don’t use other technologies regularly

(word processing) not yet, that could be something she could show us about so far they are just

ITRT can show word processing ideas
exploring books and words and letters pretty much that. The ITRT the touched of some of what

*Students use technology to explore the printed word*

you are saying. Maybe that is something else, it may be on the portaportal but I actually haven’t explored all of that.

*Haven’t explored portaportal*

On computer 25 minutes every day during the morning.

*Frequency of computer use*

I’ve taught over the years, the standards, the effect of technology probably in my room where I

*standards*

have been doing this is not high tech. I cover all of the standards but I usually do it the way I

*cover standards using low tech methods*

have done it before. I would like new ways of using technology but then again the ITRT is going

*would like new ideas regarding tech use*

to be awesome that way she is really going to show us how we can do that. I am really not that

*look forward to tech ideas*
December 16, 2009

Memo Writing: Beliefs about Reading

Beliefs are how teachers view the role of reading/the purpose of reading/the goals of reading instruction. The teachers expressed that phonics and whole language instruction is extremely important to their students. These views of reading guide what they do in the classroom.

Chloe stated:

I would say know how to read but even within that I think they need a combination of phonics as well as whole language. They need the sight words as well as need to know the phonetic skills. I think a good literacy learner is able to take skills, takes a phonics spelling skills and apply it to their reading and their writing. So if we are able to spell all of the –ake words they can also read it when they are reading so kind of a combination of reading and writing and using them together.

Teachers are not going to engage in practices that run counter to their beliefs about what is important in their classroom. These beliefs are personal, not a single teacher expressed that particular standards guided their beliefs of reading, although teachers are required to follow the Standards of Learning. Whole language and phonics are expressed as being important for kindergarten through second grade students. Teachers also expressed that reading is a means for students to reach their academic capabilities. For example Susie states:

My philosophy of reading is in order for each child to reach their full academic capability they need reading in order to be lifelong learners because they need that reading in all subjects and they need that to take them into adult hood.

Therefore reading is viewed as a section of discrete skills and also the means by which to learn more.

Relation to Rationalizing

Rationalization is the clear connection teachers see between technology and literacy. It is their reason for using technology in the classroom. Teachers expressed that they primarily use the classroom computers during the literacy block. Why do they use it during this time? Students use the computer to practice those skills that have been emphasized in the curriculum. Students use websites that emphasize specific literacy skills. These teachers see a clear connection between
what they are teaching and what students are doing independently. These computers are “learning centers”. Dee states:

This is such an important part of our day, such important exposure for our kids and to get into the computer and look at these stories. It is almost like a learning center on its own... it is such a vital part of my morning, language arts rotation

Rebecca stated:

I think technology lends itself better to phonics skills where use through various programs to manipulate the blend sounds, phonemes, to kind of isolate the sounds and put them together. For reading comprehension it is at a higher level when they are able to read passages on the computer in a higher grade I can see that being more appropriate I think this level for phonics is the best way to utilize technology.

The teacher does not have to do any additional planning, setting up, or teaching kids how to do something during this time. The teacher can conduct a small reading group while students are working independently on the computer. Teachers are reluctant to use technology if there is not a clear connection between a skill and what students will have to do, especially if extra planning is involved. However, one teacher realized that her students were engaging in “extra” activities. Teachers are willing to learn how to use technology differently; they just have to be shown how. Courtney stated:

Most of the stuff that we are doing right now is extra. When I have the kids go on the computer is extra like when I have the kids go on a phonics game it is in a center rotation but the activities that she [ITRT] came up with are things that not they are not learning when they are on the computers for center rotations but they are a lesson that I can do. Some of them are whole group, some of them are small group, but it is something that they would actually be learning for the first time and it wouldn’t have to be something they are reviewing.

When teacher were asked how they would use the Promethean board they responded that they would use it to teach literacy skills whole group. Regardless of the types of technologies students are using it is to review a skill through a website, where all they are doing is clicking, or the teacher is using technology, such as the interactive whiteboard, for instruction.

Two of the non-classroom teachers have realized the importance of using technology differently-active getting students involved in doing something other than accessing a website. Maybe
they see this because they are not responsible for teaching the kids essential literacy knowledge, they are resource teachers.

*Rationalizing and Valuing are connecting categories.*

Teachers have to see the value of using a certain technology to teach or reinforce particular skills.

**December 20, 2009**

**Memo-Writing: Motivation: Wondering about the motivation for using technology.**

Motivation refers to looking forward to using technology. Many teachers have expressed that participating in PD has motivated them to want to use technology. Also in their descriptions of activities they would like to do they refer to professional development as a motivating factor. In order for it to be motivating they have to learn how to use the technology and be given practical applications on how to use the technology in the classroom. Motivation does not necessarily lead to action, but it is a start. The key is to have more positive experiences with technology PD. Another motivating factor is seeing colleagues use technology. They ask about the technology is used. Teachers have to see technology in a positive light in order to be motivated to use it. However, motivation only lasts so long. They need constant positive experiences with technology, accessible technology, and the feelings to want to continue to have their kids use technology.

**December 21, 2009**

**Memo Writing: ITRTs and Professional Development**

The ITRT at Bellmont is making more of an effort to get teachers involved in using different technologies. She is actually imposing herself in the planning periods and classroom time to use the technologies. She is not just telling teachers to contact her, she is actually making time across the grade level to do these things. Although it is still the beginning/middle of the year and she is new to this building, it seems like she is putting more of an effort into getting teachers to use these technologies rather than just showing them. The ITRT at Appleton has shown teachers how these technologies could be used but she hasn’t gone into the intricate detail and I don’t think she will because of the interactive whiteboards. I have a feeling that the interactive whiteboards will be the biggest focus the next couple of years. Teachers understand that technology is important but they don’t understand that students need the opportunities to use these technologies- to interact with them-to use them for a purpose.
I am in the processing of raising my focused codes to conceptual categories. I have decided to remove TPACK as a conceptual category because that is something exhibited by a few in the study, only Barbara and Sydney. The teachers did not express TPACK.

As far as professional development goes, these are some of the major ideas:

- Professional development is primarily offered by ITRT
- Professional development focuses on those concepts that teachers request
- Focuses on ideas that are deemed important
- Is most likely general information
- Depends on the goals of the ITRT
- Often leaves teachers wanting more
- Leaves teachers feeling lost
- Is too general
- Has to be focused and given multiple times
- Has to be geared toward their tech ability
- Gives guidance
- Have to see a need

I need to dig deeper into professional development. What do some of these feelings mean? I need to review the professional development statements, one school at a time and really examine what these teachers are saying. What are their perceptions about the professional development? In a way my research has steered away from the initial ideas because these teachers have not had as many PD experiences as I had expected.
Appendix G

Reflexive Journal Entries Examples

October 9, 2009

My first interview was with Sarah. Some of the most interesting information was that she expects more technology use once interactive whiteboards are put in every classroom. However, my thoughts are that if teachers are not using what they have now they are not going to use something different. They have to want to integrate technology and it is going to be very interesting to talk to the teachers about new technology and if that has any effect on how they teach and what the students do. I was honestly very surprised to find out that this school participates in professional development once a month on a technology topic. It is going to be very interesting to see the types of hands-on activities these teachers have. Good follow-up questions would ask something like “are the professional development sessions different each time- learning about a new technology- or do they focus on the same topic for a couple of sessions?” “Do you go into classrooms for a considerable amount of time to see how teachers integrate technology?” “Are teachers expected to use the technology once it is introduced?” “Are professional development sessions subject specific?” “Are teachers asked to create lessons and you watch?” “What kind of professional development sessions have focused on tech use in the literacy curriculum?” These are some questions that I will ask in the follow-up interview. I’ll schedule this interview for November, this way I will have had a chance to meet with all of the teachers at the school once and this will provide some more questions that I can ask her. I really need to find out about the nature of professional development at this school.

I also met with “Pam” today. When I explained the topic to her she flat out said that professional development has no effect on technology use in the schools. This interview ran twice as long as the previous one with Sarah. Pam had a lot on her mind, probably due to the fact that she is wearing three hats at that school which is amazing. Her codes were actually very different from Sarah’s which tells me they gave very different perspectives on the same question. Both of the interviews were similar when they stated that students use the computer primarily to practice traditional reading and writing activities. I was very surprised at the lack of meaningful activities. Keyboarding is not meaningful. Granted, I’m pretty sure that teachers get frustrated when they take their students to the computer lab and they are unable to type in a faster manner. In addition, from the way that she and Sarah are talking, the teachers do not use the computer lab or laptop computers often with their children. The students do not have a lot of time to use the computer. I expect to find that they only time students use the computers as a class is when they use it during the literacy block. This teachers are getting frustrated and leaving everything for Pam to do. In addition, they are not well staffed. They definitely either need an assistant or computer lab person in that school on least a half time basis. I am so surprised that the school is
set up this way. I can really tell that Pam wants the students to use the computer, I can hear the passion in her voice, unfortunately, she does not have the support to do what she wants to do. However, what she is doing is very low-level. Both Pam and Sarah engage their students in Starfall.com and Brainpop.com. I am going to check out that site to see what it is about. In addition, she mentioned that she wanted teachers to share more information about their tech use that would be a good area to follow-up on with other teachers. They have the technology to share, but how much are they actually sharing during planning time, how much are teachers actually collaborating? I’m going to have to think of some good follow-up questions for Pam. The bulk of her questions are going to come from the observation and other teachers’ comments.

Nov. 5

The interview with the Title I ITRT specialist was very informative. The school system wants students to be 21 century learners. He explained it. They want kids to have new literacies, but he didn’t say “new literacies”. However, I wonder if teachers know what a 21st century learner is at their grade levels. I am going to ask them that question.

What does a 21st century learner look like? Do you have the skills to instill 21st century skills? Why are 21st century skills important to your students?

It sounds like the school division has the resources in place to make new literacies accessible to all. However, it is somehow not trickling down to the teachers. For one thing, professional development is very limited. It is rarely offered after school, during school, and limited spots are available for the summer. How are teachers suppose to learn new things if these opportunities are not available? It would be so interesting to talk to the teachers who have participated in the summer professional developments to find out why they have sought out this professional development. That would be a great follow-up study. Teachers cannot understand how valuable digital technologies are if they are not given the chance to learn. As expected, the interactive whiteboard is a tool for the teacher. Similar to a high-tech blackboard that meets the needs of all learners. It addresses many learning styles. Teachers are encouraged to use the interactive whiteboard in all aspects of teaching, and ultimately replace the need for a blackboard. I need to do research on the interactive whiteboard to find out the research rationale behind this technology.

April 14, 2010

I also need to make sure that I weave the research questions into the document, making sure that the questions are answered.

How can I look at this through my critical lens- hegemony/ideology?
1) Sarah actively decides how tech will be used. This was illustrated in her example of what she did with the students. She placed websites on the Web bookmarks organizer and used these websites with the students when she had the opportunity.

2) I don’t think that she sees that technology should be used more for skill practice

3) Technology should be used to help with reading

4) Oppression is occurring because she is limiting what students are exposed to in school. She does not have a vision of technology integration that extends beyond skill and drill practice. She believes this is appropriate for the students at this school.

5) Her beliefs will influence what she emphasizes to the teachers- she is not showing them how to use anything differently. She does not want to use tech differently.
Appendix H

Interview Member Checking Examples

Initial Interview, Chloe (second grade), Bellmont

K: What is your philosophy of reading?

C: I think the most important thing is to get them at a young age motivated to read. Make reading exciting. I think it is important to provide a wide variety of text in a classroom.

K: So you feel it is important for students to be motivated to read?

C: Yes, they need to read books on tons of levels. I think it is very important to expose them to a wide variety of different texts. One of our goals this my first year teaching second grade but I have always tried to find them something fun to read.

K: How does technology fit into your philosophy that students need to be exposed to a wide variety of text?

C: I think it is a good thing. I use a lot of computers I use AR there are tons of different interactive websites they use from day to day. For some of our lower students it’s called Lets go Learn so there are things that are used. I’m sure there are more I can do it is kind of my main issue were I guess challenge with it is finding the time to get everything.

K: Your students use AR and other literacy-based sites. You stated that it is a challenge to use more technology.

C: The time in the day to pull we have one SMART board in the school and it’s in the other hallway its pushing up here the convenience of it is a little difficult now I kind of make do with what I have in here.

K: Why do you believe it is important to integrate literacy and technology?

C: I think literacy is extremely important it doesn’t always have to be paper-pencil. The interactive websites one we use a lot is Starfall. That one is really nice I used a lot in kindergarten for the sounds.

K: You used Starfall as a kindergarten teacher. Why do you use it with your second graders?

C: It’s nice to use hear because you have such a nice variety of learners. I have students some of the short vowel sounds still aren’t masters. Some of the other blends and diagraphs are not mastered yet. That website is nice because there are four or five different levels and then there are books they can read, they can click on words they don’t know. It is kind of teacher assisted, operated assisted without me having to stand there. They can kind of pick and choose something on their level without me saying take this test and I will program you somewhere.
Initial Interview, Marlee (second grade), Appleton

K: What is your philosophy of reading?

M: What is my philosophy of reading? We’ll I know the background of our children they do not read a lot. But my philosophy is we teach them the basics and basic phonics skills they will be able to read something.

K: So you want your students to have the basic phonics skills so they can read?

M: They may not be at the same level but will be able to read based on their learning styles. So I just really feel that children can learn we just have to pull it out of them.

K: Why do you use technology with your students?

M: I think is great because I use it a lot. And because they generation now is the generation that watches a lot of tv, there are hands on with those remote controls so I gear my lessons on the Promethean board and I try to find exciting lessons for them using the technology and then I use them to engage. Its seems like they hold the information better than just sitting the old fashioned reading we have pictures and diagrams to really show them, they do a great job. So I really love, I use technology for every content, I love technology.

K: So the kids seemed to be more engaged in learning when you use the Promethean? Is that why you want to use technology?

M: Well here at the school they want all teachers to be exposed to technology and use it in their classrooms. That is why they have gotten us these Promethean boards they are going to be putting these boards in all of the classrooms now. Here they are really big at using technology. That comes from administration and from the school division.

K: How do you use the Promethean board?

M: I download the flipcharts.

K: Does downloading flipcharts require planning?

M: You have to plan because you have to gear the lessons toward your students. You do have to go in and look at the lessons, you see… I don’t like this lesson. You really have to do your research.

K: So you carefully look at the flipcharts to use with your students. Does this take a lot of time?

M: Usually on the weekends I am planning what skills and what lessons I am going to introduce to my students using the technology. You have to play around with it, you have to make sure that everything works you really have to sit I sat at my dining room tables hours looking at different lessons and going to different websites looking for different content areas that I was teaching so it is a lot of research. You gear it toward the grade level and age of your students.
Appendix I

Interview Summary Examples

Member Check Example from School 1

Message sent to Nila
October 14, 2009
I have attached a summary of the information you discussed during the first interview. Please focus on the content to make sure that I have represented your ideas accurately. Feel free to make any changes or additions. If everything is fine, just send an email to let me know.

Interview #1 Summary “Nila”

Naturally I believe that every child can learn but I know that they all learn differently and they learn at their own pace. I do have high expectations. I have some real strong principles when it comes to teaching them to read. The main thing is I believe if they don’t get the basics of phonics then they are not going to be able to read.

I think it was really a good thing when we had Breakthrough to Literacy because they had a set program and it was really good for them. Now I use Starfall. It’s not the same but it still has the same benefits. My biggest problem is that the computers are always breaking down or half of them are not working. It is very difficult to make everything over there (at the computer center) work when I am suppose to be in reading groups. For example, today I had to leave guided reading to work on the computer. That is one of my big frustrations. We definitely need an upgrade. The computers are so outdated it is horrible.

Kids like technology and that is how they learn. You can’t teach like you did years ago, that is not how children learn now. You have to learn about technology and use it. I like it. I don’t have a Promethean board yet but I am going to get one soon. And it will be just a matter of learning how use it.

The students basically use the computers for Starfall and AR. The computer in the corner is designated for AR. They read an AR book and take an AR test. I take my class to the computer lab once a week to take AR tests because they are young and they are not use to taking them yet.

The state and division promote technology use. They want us to use technology and they give us professional development to learn how to do it. We get a lot of support in that area. I went to a class recently for Promethean and they said we could come to more if we wanted to.

The administration promotes technology use. We want to get to that point where we are all using it. Technology is primary used in Language Arts unless I do something special. Technology is going to be used in the other subject areas once I get the Promethean board. We will probably do the DOL on the Promethean among other things. I have to look at what is out there for me to do.
Most of the kids learn how to use technology here. Most of our children do not have computers at home. They do not know how to operate the mouse so we basically start out teaching the basics. Some of them know how to use the keyboard they have to look at it, which is good because it is letter recognition. We went to the lab yesterday and I noticed that this one girl just did not have the concept that she needed to put weight on the key. That makes me think that she has never touched a computer because she just kept touching it lightly. I was trying to get her to put her initials in for an AR test. I’m like you have to push it all the way down. Even though that’s really a basic thing to us, it’s something she has got to learn.

I’m sure that I wouldn’t have to work so hard at teaching them the basics if they have computers in the home. It doesn’t discourage me from having the kids use the computers. I encourage the parents to go to the public library to use the computers there.

I do not check out laptops. It is more efficient to use the computer lab. We will continue to go to the computer lab once a week for the entire school year.

My first technology class was taken at Thomas Nelson. Before I took that class I wasn’t really very good at computers. That class taught me a lot of basics. After that I took two classes with the division and I learned how to do hotlists. At one point, when I first starting teaching here, I put the hotlists and homework assignments on my K12 planet. However, the parents did not look at it. Our parents are getting better. They have come a long way from when I first starting teaching so now I believe we actually have parents who are looking at the websites.

We always have professional development and the ITRT helps us with anything that we need to learn. We are using D2L this year. D2L allows for communication within the building. Teachers can discuss back and forth information. A lot of times administration will ask us questions such as what is our philosophy. Some participation is expected and some is optional.

I use CD player every day. I try to set the mood in the morning with some softer music. Sometimes I’ll play certain types of music if they are working quietly. I use it to teach phonics songs and I use it to teach things about social studies. I tend to use it a lot in almost everything. To me it’s a great tool.

We have been using United Streaming. They are little videos that teach science and social studies. The ITRT is really good. She is always willing to help us if we need help.

I would like one-on-one hands-on promethean training. I plan to request one-on-one training with Promethean. You can learn only so much in a group. In order to learn how to use a technology you have to practice and play around with it a little bit.

Nila Responded
October 19, 2009
I tried to make changes in red. See if this works for you. I am a little concerned that some of the info I gave will specifically tell who I am. See attachments.
My Response to Nila  
October 19, 2009

Thanks for taking the time to read through the summary carefully and make additions. This information will not go directly into my paper. This summary is just to make sure that I have accurate information. I will be pulling out specific quotes to illustrate certain points once I start writing my paper. I will be careful to not select quotes that would make you identifiable. I will send an email to you regarding the quotes that will be placed into my paper. This email will be sent late December. Please let me know if you have any additional questions or concerns.
Thanks
Kendra

Member Check Example from School 2

Message sent to Sydney  
December 7, 2009

I have attached a summary of the information you discussed during the second interview. Please focus on the content to make sure that I have represented your ideas accurately. Feel free to make any changes or additions. If everything is fine, just send an email to let me know.

Interview #2 Summary “Sydney”

The time I spend working with teachers depends on the day and the week. There could be weeks that I work directly with teachers or have some kind of training or planning sessions. I may work with different teachers 2-3 hours of one day total. There could be times like yesterday when I didn’t have any direct contact with teachers other than email because there was benchmark testing. It just depends on the need and the projects going on.

The biggest thing is time and teachers don’t like to spend a lot of outside time past the school day. In addition, they have so much going on during the day plus other obligations in terms of meetings that will take their planning. The other is probably interest or the technology is too hard to learn, it’s too overwhelming. It can be difficult trying to get teachers to buy into how you do it and the reason behind doing it.

I tend to pick the technologies that are stressed the most, the ones they are going to be using on a daily basis or using the most and then kind of then see where their interest lies after that. I go to a grade level meeting and ask about their familiarity with technology and their interest in learning how to use other technologies. I will suggest certain technologies if they are not sure or if their suggestion might be too difficult to learn. I’m open to anything whenever I meet with teachers. It depends on their direction.

I met with the kindergarten teachers twice. During the first session we brainstormed what they wanted to do and the second I showed them how to make a book in iPhoto. I provided the pictures and loaded all of the pictures from my computer and made a sample book to teach the procedure. We are waiting for the end of benchmarks and the end of the nine weeks to start.
Eventually I will meet with a small group of students to take pictures and make books. This will occur every week or every other day, depending on the schedule.

iPhoto and digital cameras are something that all levels of technology users. You can print it, share it, create a slideshow, or burn on a DVD as movie. The technology is very accessible because they have laptops. The school has lots of digital cameras. The ultimate goal is for kids to take pictures and teachers help kids create the words.

A lot of the central office professional development is done by ITRTs. It is just a matter of we have gotten together as a group and these people have said they can teach it after school hours. We all have the same kind of training to be able to do that. I will offer training as teachers request it. If I see something becoming a grade level problem I will offer to help. They can always request training from me. If I am not qualified to do it I will get someone else who is.

I like to do small group professional development and do it based on need because it think it is more authentic and means more to them. I can't really predict what we are going to need in the future. I would like to meet with the grade levels and see how they are doing with the update of the Open Office software.

Nettrekker has been around for 2-3 years. Teachers have been shown it, but I don’t know how much they use it. I know the librarian promotes it. I haven’t personally done any Nettrekker training but it is my first year here. Gaggle.net is new this year. They only have a limited number of seats. As teachers request it or come up with good ideas for how they are going to use it we can set up training. I have set up training for Gaggle.net at my other school. I haven’t heard of any need or use for it here.

Gaggle.net will be more effective for 3rd-5th because of the multiple steps. K-2 still has a hard time logging into Brainpop (user name and password.). 2nd graders can use Nettrecker because they are old enough to understand what you do when you need to search. It is really valuable because it eliminates the stuff you would get from other online sources.

K-2 should be able to go on to the computer, follow simple 2-3 step directions, go to safari and click on the portaportal site. They should be able to understand basic computer use, how to use the mouse, and how to quit safari. They should also know how to get into Kidspiration and manipulate it in its simplest form.

21st century learner is one that can assimilate technology into their content and what they are learning. It becomes part of their life, another step, another book, another pen, another marker, another tool that they have to be able to learn and accomplish what they need to accomplish. It’s not one of those things where I go onto the computer and use technology just for fun it is to really have a goal, have a purpose and use it as a tool and not just use it as entertainment.

I think any teacher has the understanding of what we need to do. I don’t know if they have, it’s not even necessarily the skill, it’s the motivation, it’s the complete buying into the concept of technology is a tool to accomplish a goal and not for entertainment and not for reward and not for something extra like an extension. Technology should be part of what you are doing and be
seamless into that. If you are going to pass out a worksheet you should be able to have a website or something on the computer just as easily for them to do, and to grade it, and assess it and understand why you are using it just as you would a worksheet.

I just introduced Promethean to 1st grade. I showed them how to get RSS feeds of the latest feedback of new updates in their email, and focusing some the use of promethean just to get them interested and showing them how it works easily on the software. Promethean software works on SMART board so they can start looking at Promethean software, downloading flipchart, and understanding how it can be integrated into some of the lessons. It's a complete interactive type of software. I love to see kids learn from the Promethean. I have no fear of students using the board and taking the pen. It is also good for addressing different learning styles.

What I would like to see is an evolution of technology -- to not just use websites to reinforce a skill or teach a skill, but to actually have students create things. Where they have to do multi-steps and synthesize the information. That is why I like doing the books with the kindergarteners. Books can be done in any grade and be an effective tools to show understanding. A lot of teachers get hung up on how much time and effort it takes to do creation types of things on the computer. However, what is hard for them to understand is after the first or second time you have had those kids work on a creation activity they become pretty proficient at it. It doesn’t take kids long. The first book you do with iPhoto is probably going to take you a week or two, but once you have that down packed you can direct the kids to get the camera, go to computer, write the sentences. They can become more independent.

A combination of things are preventing creation type activities such as accessibility and flexibility. It is a matter of taking the time and effort to check out the technologies and be willing to share the use of these technologies with other teachers in the building.

I understand there is push toward technology, but I have not seen on the SAC vault blueprints, curricula, or specific technology infused lessons. I guess central office probably is not pushing technology because they understand the accessibility issues.

Teachers still have to teach the concepts without the technology. If teachers want to use technology they have to figure out a way to infuse it into the curriculum. The blueprints are so prescriptive of what you are suppose to do, when you are suppose to do it, and how you are suppose to do it, and here is a lesson to be able to do for each thing. If those things don’t include the specifics of how technology should be used, then teachers are not likely to use technology. In addition, SAC provides website resources and movie clips. However a teacher has to search through these items to figure out which lesson goes with the movie clip—it’s not organized in a manner where teachers can easily find what they are looking for.

Often, there is no purpose or motivation for teachers to use technology because their test scores are fine. Technology is not needed or preferential because what they are doing right now works. You hear a lot of teachers say “this is really cool and I would like to do this and that,” but you don’t necessarily see it after you hear that because what they are doing works. Using technology, especially if it has to be retrieved from another area in the building, can become tedious.
Just that step of having a Promethean board in your room hooked up with a projector is a huge integration part. You can do anything and everything and the kids don’t even have to open a book. Everything you need them to learn can be done on the Promethean board. Once everybody has a promethean board then the curriculum can be rewritten to include use of the flipcharts and other Promethean technologies. When we become uniform with one thing we can start sharing, integrating, and developing creation activities.

As long as I’ve worked for the division technology has always trickled down. It has started in middle and high and finally it gets down to elementary school. This time it is flipped and is starting in elementary school. This where the interest is, this is where the spark is.

Sydney Responded
December 9, 2009
Wow this looks great. Made some additions and changes hope it helps.

Message sent to Sydney
December 9, 2009
I have noted your additions and changes. Thank you for taking the time to read through the summary carefully.

Kendra

Sydney Responded
December 9, 2009
Thank you for all your hard work and thoroughness.
Good luck with the rest of your dissertation.

Member Check Example from Central Office

Message Sent December 8, 2009
Thank you so very much for meeting with me a few weeks back. Your insight on technology is is very valuable to my paper. I have attached a summary of the information you discussed during the interview. Please focus on the content to make sure that I have represented your ideas accurately. Feel free to make any changes or additions. If everything is fine, just send an email to let me know.

Interview Summary “Kathy”
The i21 program was a professional development session offered over the summer. That was where we selected one teacher from each school. We were trying to change our traditional type schools into 21st century classrooms so we provided the teachers with the tools that they needed and then along with those tools we also provided training. We gave them extensive professional development on how to integrate these technologies into the curriculum.
We are putting interactive whiteboards into elementary Title I schools. These boards require teachers to change the way they teach so we have given them extensive training on how to integrate these boards into their curriculum.

We also have ITRTs in our schools and these teachers work directly with classroom teachers to show them how to use the 21st century skills, 21st century technologies, and 21st century initiatives into what they are doing in the classroom.

Kids can use iPods to create podcasts that go along with SOL skills. Then they can have that iPod to interactive with, listen to and use. There are flip cameras where students can record and look at the recording. These are tools that kids use every day. We are trying to bring those into the classroom so they can learn how to use those to improve what they do every day.

I think the ideas for professional development comes from the teachers. They want to learn how to incorporate 21st century skills into what they are teaching. They work with the ITRT to learn how to integrate these tools. We find out where the needs are from the teachers and then we also look at new innovations. As new innovations come we will share those with the teachers and show them how to use it.

This year our department really made an emphasis to met with all of the curriculum leaders and the teacher specialist to give them an overview of all of the initiatives that we have. We meet with them to show them everything that we have and to ask their input on how these technologies can be used to improve student achievement.

We have professional development all of the time. We have a lot of courses online and we also have face to face meetings. Our ITRTS are also working with the principals to offer professional development at staff meetings and during teachers’ planning times. ITRTS are continuously going around helping teachers with their needs.

Kids are use to technology, that interactivity. If they walk into schools and we have none of these they are not going to be engaged. You cannot live in an environment like that and then come and sit and just do pencil and paper. Students should be taught the proper use of all available technologies, including the safe use of the Internet even at the kindergarten level. Technology use should not be separate. It should be integrated into everything teachers do. The vision is to open them up to what’s out there and teach them how to use these as tools to be successful, productive citizens.

We should not only focus on technology. We also need to teach them communication skills, working together on projects, collaboration and showing that these technologies are just a way to get to the end goal.

Change is difficult. A lot of teachers are kind of set in their ways and it takes time to evolve. They have to see how technology can benefit teaching and learning. They also have to have successful experiences using technology. It is easy to get frustrated. The biggest factor to participating in technology-related professional development is time. People are busy, and to learn a new skill for us takes time. Teachers are often focused on something else during after-
school professional development. We need to encourage professional development during planning time. Some principals to give them time off during the morning to participate in professional development. Offering professional development in the summer is also a benefit especially if the teachers receive some incentives like technologies to use in their classroom.

We encourage teachers to take baby steps toward using technology because we recognize that teachers have a lot to do. We are also trying to work with administration when they have principals' meetings to show principals everything that we have and how we integrate the technology. Whenever we do a class or a meeting we model the technology, we try to use the technology so they see us using it. I think that is the best thing, the more you see it the better you are able to use it.

Kathy Responded  
December 10, 2009  
Hey Kendra - Pleasure meeting with you. I think this represents what we discuss. Good luck with your final project. Take care!
Appendix J

Informed Consent Form Samples

(Teachers)

Study Title: An Examination of Professional Development Practices in New Literacies at Racially and Socioeconomically Different Schools

Researcher: Kendra Boykin, Doctoral Candidate, The College of William and Mary

The purpose of this study is to examine the technology-related professional development practices at racially and socioeconomically different schools. I understand that I will be asked to participate in a series of 2-3 individual interviews, lasting no longer than an hour each. Each interview will be conducted in person and scheduled at my convenience, over a period of approximately three (3) months. These interviews will focus on my professional development experiences as an early literacy teacher. I will also be asked to provide one or more material artifacts that I believe represent students’ digital technologies experiences in the literacy curriculum. In addition, I will allow the researcher to observe my students engaging in literacy-related digital technologies experiences that represent typical activities. Observations will be scheduled at my convenience and will consist of 1-3 hour-long observations.

I understand that I will choose a pseudonym, which will be used to identify me throughout the study and in any published results. At the conclusion of this study, the key linking me with the pseudonym will be destroyed. I also acknowledge that individual discussions will be audio taped to ensure the accuracy of the data analyzed. At the conclusion of the study, the tapes will be erased and will no longer be available for use. All efforts will be made to conceal my identity in the study’s report of results and to keep my personal information confidential.
I am aware that I may refuse to answer any question asked, and I may withdraw from the study at any time without penalty. I understand that there is no personal risk or discomfort directly involved with this research. I am aware that I may report dissatisfactions with any aspect of this study to Dr. Tom Ward, Associate Dean in the School of Education, 757-221-2358 or tjward@wm.edu and/or the Chair of the Protection of Human Subjects Committee, Dr. Michael Deschenes, 757-221-2778 or mrdesc@wm.edu. I am aware that I must be at least 18 years of age to participate. My signature below signifies my voluntary participation in this project, and that I have received a copy of this consent form.

Date ___________________ Signature ___________________

Print Name ______________________________________

THIS PROJECT WAS FOUND TO COMPLY WITH THE APPROPRIATE ETHICAL STANDARDS AND WAS EXEMPTED FROM THE NEED FOR FORMAL REVIEW BY THE COLLEGE OF WILLIAM AND MARY PROTECTION OF HUMAN SUBJECTS COMMITTEE (Phone: 757-221-3966) ON 2009-09-08 AND EXPIRES ON 2010-09-08.
Participant Informed Consent Form

(Central Office)

Study Title: An Examination of Professional Development Practices in New Literacies at Racially and Socioeconomically Different Schools

Researcher: Kendra Boykin, Doctoral Candidate, The College of William and Mary

The purpose of this study is to examine the technology-related professional development practices at racially and socioeconomically different schools. I understand that I will be asked to participate in an interview, lasting no longer than an hour. I understand that I will choose a pseudonym, which will be used to identify me throughout the study and in any published results. At the conclusion of this study, the key linking me with the pseudonym will be destroyed. I also acknowledge that individual discussions will be audio taped to ensure the accuracy of the data analyzed. At the conclusion of the study, the tapes will be erased and will no longer be available for use. All efforts will be made to conceal my identity in the study's report of results and to keep my personal information confidential.

I am aware that I may refuse to answer any question asked, and I may withdraw from the study at any time without penalty. I understand that there is no personal risk or discomfort directly involved with this research. I am aware that I may report dissatisfactions with any aspect of this study to Dr. Tom Ward, Associate Dean in the School of Education, 757-221-2358 or tjward@wm.edu and/or the Chair of the Protection of Human Subjects Committee, Dr. Michael Deschenes, 757-221-2778 or mrdesc@wm.edu. I am aware that I must be at least 18 years of age to participate. My signature below signifies my voluntary participation in this project, and that I have received a copy of this consent form.
THIS PROJECT WAS FOUND TO COMPLY WITH THE APPROPRIATE ETHICAL STANDARDS AND WAS EXEMPTED FROM THE NEED FOR FORMAL REVIEW BY THE COLLEGE OF WILLIAM AND MARY PROTECTION OF HUMAN SUBJECTS COMMITTEE (Phone: 757-221-3966) ON 2009-09-08 AND EXPIRES ON 2010-09-08.
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