HOW ADOLESCENTS IN AN ALTERNATIVE SCHOOL PROGRAM USE INSTRUCTIONAL TECHNOLOGY TO CONSTRUCT MEANING WHILE READING AND WRITING

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HOW ADOLESCENTS IN AN ALTERNATIVE SCHOOL PROGRAM USE INSTRUCTIONAL TECHNOLOGY TO CONSTRUCT MEANING WHILE READING AND WRITING

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Dissertation

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ABSTRACT

The purpose of this qualitative case study research was to investigate how adolescent students constructed meaning while using instructional technology tools in an alternative school setting. Participants included six students who attended a small alternative public education program in the Midwest. Three of the participants were in the intermediate grade level (grades 4-5), two were in the middle grade level (grades 6-8), and one attended the high school (grades 9-12) levels of the program. The participants had been identified with emotional and behavioral disorders (EBD). They were attending this program because they had been unsuccessful in a traditional school setting.

Two research questions guided data collection and analysis: 1) How do six adolescents use instructional technology to construct meaning while reading and writing in an alternative setting and; 2) What are these students’ perceptions of how instructional technology is used in an alternative setting? Data collection included observations, interviews, and pertinent or documents. Data was analyzed using the constant comparative method (Merriam, 2009), with the goal of identifying patterns within the data that could be organized into categories. Comparison of the categories to one another resulted in theory that is grounded in these findings and this context.
Data analysis revealed four major findings: 1) Participants used technology to enhance, deepen and/or facilitate their meaning-making process. The technology itself, however, did not drive the meaning-making process; 2) Technology that was used during the study’s reading and writing events enhanced these responses by providing support for the participants which allowed them to engage with texts in new or deeper ways. As they read poetry and fiction, for example, students favored affective responses. Digital poetry enabled the participants to forge unique interpretations of the text by choosing from a wide range of visual and audio effects. While the technology appeared to enhance or deepen their meaning-making with poetry and fiction, participants enlisted few of its resources when engaging with expository text; 3) Technology used during the study’s writing events provided support for the participants as they moved recursively through stages of prewriting, drafting and revision and; 4) Although these participants did not perceive themselves as technologically savvy outside of school, in school they viewed themselves as confident users of technology when given multiple opportunities to use technology in sophisticated ways.

Two ancillary findings are also of note: 1) The nature of the assignment itself appeared to have a significant influence on both the quality of participants’ meaning-making and their use of technology and; 2) While research has found that students with EBD frequently display disruptive classroom behaviors (Fitzpatrick & Knowlton, 2009), participants in this study demonstrated no such behaviors. In fact, not only were participants consistently engaged by most of the activities, but they also consistently used features of the available technology to support their meaning-making efforts.
For decades, scholarly research has confirmed that in their transactions with text, readers drive the meaning-making process (Galda, 2010; Goodman, 1995; Rosenblatt, 1995/1938, 1978; Martinez & Riser, 1991). Ultimately, results of this study add to and deepen this body of research by confirming readers’ primacy in the meaning-making process, even with new digital literacies available to them through the use of technology.
DEDICATION

This study is dedicated to my husband, Tim, who has always been my number one fan. Without his unconditional love, encouragement, and support this would not have been possible. I love you and thank you for always believing in me.

Additionally, this study is dedicated to my two children, Kaylee and Travis. Always remember to dream big and follow your dreams. They will come true with hard work, perseverance, and determination. I love you both more than words could ever express.
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CHAPTER I
INTRODUCTION TO THE PROBLEM

More than any generation before them, today’s adolescents are immersed in digital technology. According to a recent survey conducted by the Pew Internet and American Life Project, 75% of children ages 12-17 own a cell phone and 69% own a laptop or desktop computer. In addition, 79% of them own an iPod or MP3 player, 80% own a gaming console, and 51% own a portable gaming device. Furthermore, not only do today’s adolescents own technology-generated “gadgets,” but they also have unprecedented access to the Internet, with 94% of teenagers reporting online access (Pew Internet and American Life Study, 2009). Not surprisingly, this increased immersion in technology is changing what it means to be literate for this generation (Leu, Kinzer, Coiro, & Cammack, 2004)

Consequently, as we move further into the 21st Century, it is essential that educators’ understanding of what it means to be literate must be expanded to include digital environments. Leu et al. (2004) argue,

In an information age, we believe it becomes essential to prepare students for these new literacies because they are central to the use of information and the acquisition of knowledge. Traditional definitions of literacy and literacy instruction will be insufficient if we seek to provide students with the futures they deserve. (p.1571)
Kinzer (2010) adds that, “Definitions of literacy must acknowledge that what people read and write as well as how they use and understand what they read in digital environments, involves more than encoding and decoding alphabetic/linguistic elements.” (p.52)

Historically, what it means to be literate has continuously changed over time. Typically, these changes have occurred as a response to changes in society. For example, in ancient civilizations, cuneiform tablets were invented to document business transactions and tax records for a growing agriculture society (Leu et al., 2004). Additionally, with the appearance of each new literacy tool, such as the pencil, paper, or the printing press, the meaning of what it means to be literate changed. In the United States, with the establishment of democracy, the expectation was for citizens to become informed participants in their government therefore expanding the definition of what it means to be literate. Throughout history, social contexts have profoundly shaped the nature of literacy and literacy instruction and will continue to do so in the future (Leu et al., 2004). Currently we are in a time where the tools for literacy are changing so rapidly that what it means to be literate is changing just as rapidly.

The metamorphic nature of what it means to be literate has prompted Leu & Kinzer (2000) to call literacy a “deictic” term. This means that the definition of literacy changes with time. What it means to be literate now will not be the same as what it means to be literate tomorrow, next week, next month, or next year. Kinzer (2010) further explains that “constant changes in technology and evolving tools result in equally quick changes in literacy practices” (p. 52).
There are three conditions that contribute to the deictic nature of literacy. First, the rapid changes in technology itself contribute to the rapidly changing nature of literacy. For instance, twenty years ago it was not necessary to use a word processor and ten years ago few students accessed the Internet or sent emails. Now these technologies are an important part of many classrooms, and we can only imagine what the list will look like in the future as new technologies are emerging daily (Leu & Kinzer, 2000).

Second, the deictic nature of literacy is influenced by what Leu (1999) calls “envisionments” or events that occur when users of technology imagine new possibilities for literacy and learning. Leu & Kinzer, (2000) observe that “Envisionments take place when teachers, children, and others imagine new possibilities for literacy and learning, transform existing technologies to construct this vision, and then share their work with others”. Third, we now have the ability to download new technology instantly from the Internet and can therefore disseminate that new technology to a mass audience in an instant. Because of this, while the technology itself is swiftly changing it is simultaneously disseminating the new literacies, constantly changing the definition of what it means to be literate. In addition, these changes to the form and function of literacy are happening at a pace faster than ever before (Leu, 2004). Moreover, integration of technology occurs at different levels (Reinking, Labbo, & McKenna (2000).

Piaget (1970) established a learning theory based on the assimilation and accommodation of knowledge. Piaget believed that knowledge was assimilated when new information is merged with existing information. Moreover, he posited that knowledge was accommodated when existing knowledge is restructured to form new
information, which eventually transforms the way a learner views and understands the world.

Drawing upon Piaget’s (1970) philosophy, Reinking et al. (2000) suggest that educators can use the theory of assimilation and accommodation as a framework to begin thinking about how new technologies can be used or not used in the classroom. Assimilating technology assumes that technology is viewed first in terms of existing technologies and then the familiar tasks in which they are applied. Examples of assimilating technology would be skill based computer games, using a word processor instead of handwriting assignments, and using computer time as a reward for completing conventional assignments.

Reinking et al. (2000) believe that “Accommodation when applied to new technologies and literacy, means adopting an orientation that entertains the idea that literacy itself may be changing in light of those technologies” (p. 114). When technology is accommodated into instruction, it is used in ways that alter the instructional environment so that teaching and learning may occur differently than before technology was used (Reinking et al., 2000). Examples of accommodating technology would include asynchronous discussions, writing with blogs and wikis, and digital storytelling. According to this paradigm, when educators see them only in terms of assimilation, new technologies alone cannot transform instruction (Reinking et al., 2000).

Adolescent Use of Technology

Today’s adolescents are technologically savvy and very comfortable with the social use of digital media (Kinzer, 2010). Studies have shown that the majority of
adolescents use the Internet for more than accessing information. In fact, they outside the classroom they use it for content creation, information production, and interacting within online networks and/or communities (Kajder, 2010). Because of the nature of these interactions are participatory, collaborative, and communicative, students sometimes feel that their less technologically-literate teachers are often unfamiliar with how to use technology efficiently in the literacy classroom (Alvermann, 2004; Kinzer, 2010). This disparity between student use of technology and teacher use of technology is causing what Levin (2002) terms a “digital disconnect.”

In a 2002 study, Levin and Arafeh found that most schools and teachers have not yet recognized or responded to the new ways their adolescent students communicate and access information via the Internet. Moreover, students reported a significant “disconnect” between how they used the Internet in and out of school. They believed this was the result of several factors: 1) Policy choices made by administrators, ranging from different levels of in-school access to requirements for student competency in technology skills; 2) A wide variation in individual teacher policies and attitudes about Internet use in class and in assignments produced for class.; 3) Students’ belief that the quality of their Internet-based assignments were poor and uninspiring. They wanted to be assigned more engaging Internet activities that were relevant to their lives.

Students in this study also identified several practical barriers to Internet use at school. The greatest barrier they cited was the quality of access to the Internet. Many schools restricted the use of the Internet to certain times of the day or to certain places, such as computer labs. Another major barrier they identified was the filtering software used by schools, which they felt blocked important information. In fact, because of the
difficulties they faced accessing educational materials in school; many students expressed
discouragement about using the Internet (Levin & Arafeh, 2002).

Kingdom and found similar results. The data in that study showed that the Internet
played a significant role in the personal lives of students. Even though these students
were coming to school “net-savvy”, however, there was a wide range of differences in
school-based uses of the Internet. Participants reported limited engagement with the
Internet in school, confined largely to subject-based research or retrieving texts and
images. By contrast, students reported extensive engagement with the Internet in their
lives outside of school, where they used the Internet for a wide-range of communicative
and collaborative purposes, including participation in chat rooms, messaging, online
gaming, and downloading movies and music (Selwyn, 2006).

As in Levin and Arafeh’s (2002) study, the theme of schools restricting students’
use of the Internet was prevalent in the Selwyn (2006) study. In general, students’ use of
the Internet appeared to be heavily related to their age and the subjects they were
studying. According to Selwyn (2006), the most prevalent concern cited in the study
was students’ frustration with restricted use of the Internet because of content filters,
firewalls, and other means of administrative control. This restricted use of the Internet
actually prompted some students to disengage from using it completely at school, while
other students found ways to “get around” these systems of control.

Kajder (2010) found similar concerns within her own middle school classroom.
She writes about one student, Molly, who commented: “I need school to be a place that is
different from what it is now” (p. 25). Molly went on to explain that teachers often assume students cannot employ technology for homework purposes and so students are not given a choice in the technology that is to be used in assignments. Molly adds that access to technology is a serious issue within her school. Her classroom has one computer tied to the teacher’s desk, lab time is scarce, and the school’s network is so restricted that the Web 2.0 sites (i.e. Flicker, Ning etc.) that she usually works with cannot be accessed at school (Kajder, 2010). Molly observes that, “I can do more with what I have on my phone than I can on a school computer. I am open about it and am happy to show what I’m doing. I’m not texting. I’m online. I’m composing. ” (p. 25).

Wilber (2010) writes: “It’s not that our students aren’t reading and writing, but that where and what they are reading and writing is off the school radar. We can build a bridge between the literate lives of our students outside of school and the literacies we want to teach them” (p.16). It is true that students today are reading and writing in ways that were unimaginable a generation ago. Results of the Writing, Teens, and Technology Survey (Lenhart, Arafeh, Smith, & Macgill, 2008) indicate that 93% of teens write for pleasure and 85% of adolescents ages 12-17 engage in some sort of digital communication. Moreover, parents believe that their children write more as teens than they did at that age (Lenhart et al., 2008). Adolescents frequently read online, using hypertext on their favorite websites to navigate from one site to another as they pursue topics of personal interest. Students are avid users of text messaging, sending and receiving thousands of text messages each month. They write in innovative formats, such as “blogs” and “fanfiction.” They create and post their own videos on YouTube. They
instant message, comment, chat, and publish on social networks sites such as Facebook, Twitter, and MySpace.

In fact, this next generation of technology tools, often defined as Web 2.0, is a natural part of many adolescents’ lives outside of school, but such tools are rarely used in English Language Arts classrooms, despite what may be their potential academic value. For example instead of writing the traditional “five paragraph” paper-and-pencil essay, students can write for an authentic, world-wide audience by identifying a pertinent blog and posting on it. Furthermore, students may “tweet” or “text” traditional lecture notes or news from the classroom. These tools offer students the immediacy of feedback from authentic audiences that students often find more motivating than traditional writing assignments. In addition, such assignments can still meet requisite English Language Arts academic content standards used by teachers to guide instruction (Dredger, Woods, Beach, & Sagstetter, 2010).

According to the 2010 Horizon Report, Web 2.0 technologies in teaching and learning environments have caught the attention of universities around the world. Some even argue that Web 2.0 trends in distance education, globalization, digital literacy skills, and collective intelligence are now driving the restructure of many academic programs (Johnson, Levin, & Smith, 2008). Yet although universities have begun to adapt academic programs to accommodate digital literacies, K-12 school districts have been slow to react to the extensive gap in proficiency between teaching staff and their technologically-savvy students: “Traditional classrooms neglect the opportunities that Web 2.0 offer to strengthen literacy programs and meet individual literacy needs in collaborative online settings through authentic content creation opportunities, shared
expertise, and dynamic multimodalities” (Fahser-Herro & Steinkuehler, 2009-2010). Instead computers in the classroom have been limited to use as “centers” for skill practice, informational retrieval, typing or word processing, and to finish work previously started in a lab setting.

**Statement of Problem**

Our traditional concept of what it means to be literate is quickly changing as new modes of literate expression evolve at an extremely rapid pace (Evans, 2005). Moreover, we know that children of the twenty-first century are fervent users of the new technologies these modes have generated. In fact, these technologies are influencing and changing the activities that adolescents engage with while simultaneously influencing and changing what it means to be literate. Unfortunately, schools are not effectively meeting the technological needs of today’s youth. As a result, today’s schools are not adequately preparing students for a life in the ever-changing world of digital literacy (Evans, 2005).

According to the Speak Up 2010 National Findings Report (Project Tomorrow, 2011), “Despite the increasing national call for more digital learning environments, today’s students continue to be frustrated by the way technology is used currently in their classrooms” (p. 11). The largest obstacle voiced by students is the school filters and firewalls, which block the Internet websites they say they need for their schoolwork. When asked, “Is your school doing a good job using technology to enhance learning and/or student achievement?” (Project Tomorrow, 2011; p. 15), 74 percent of high school teachers, 72 percent of high school principals, and 62 percent of parents agreed that it was. Yet only 47 percent of high school students agreed. Clearly, there is a “digital
disconnect” between the perceptions of students and adults on the value of their technology experiences in school (Project Tomorrow, 2011).

Moreover, there is little existing research on the effects of using instructional technology with students that have emotional and behavioral disorders (EBD). Children with EBD are often characterized as disobedient and difficult to teach; therefore, existing research contends that when instructing children with EBD the focus is often addressing their social skill deficits and not on academics. Among the academic problems shown by children with EBD, difficulty in the area of reading has received the most attention in the research literature (Wehby, Lane, & Falk, 2005). Instructional technology can be a viable means to engaging students with EBD with classroom academics especially reading and writing instruction.

**Purpose of the Study**

Current research has shown that the Internet and other Information Communication Technologies (ICT’s) are a regular part of the daily lives of today’s adolescent (Kinzer, 2010; Wilber, 2010). Perhaps not surprisingly, research has also shown that students wish their schools were more like the world in which they live outside of school (Spires, Lee, Turner, & Johnson, 2008). The persistent digital disconnect between the technology-intensive lives of students outside of school, and the paucity of meaningful technology experiences in school continues to be a major concern for today’s students (Project Tomorrow, 2011). The primary purpose of this study, then, is to investigate how adolescent students can use digital technology to make meaning
while engaged in reading and writing activities in the context of an alternative school program.

Today’s students also have a vision of what they want in terms of their education and how technology should be effectively used in learning (Project Tomorrow, 2011). Research has demonstrated that students are drawn to learning experiences which are socially-based, un-tethered (i.e. mobile), and digitally rich. Moreover, it appears that many students are not waiting for the schools to catch up. They are already very effectively implementing this vision on their own, in and out of school, with or without the assistance and support of their teachers and schools (Project Tomorrow, 2011). An ancillary purpose of this study then is to explore adolescent perceptions of how instructional technology is used and/or should be used in classroom environments.

**Research Questions**

Two research questions guide this study:

1. How do six adolescents use instructional technology to construct meaning while reading and writing in an alternative school setting?

2. What are these students’ perceptions of how instructional technology is used in an alternative school?

**Significance of Study**

According to Fasher-Herro and Steinkuehler (2009), traditional classrooms “neglect the opportunities that Web 2.0 offer to strengthen literacy programs and meet
individual literacy needs in collaborative online settings through authentic content creation opportunities, shared expertise, and dynamic multimodalities” (p.65). They further argue that without a solid body of research to support incorporating digital literacy practices into classroom instruction, a large-scale shift in practice seems unlikely. This study seeks to add to that body of knowledge. By doing so, results of this study may help educators bridge the current and glaring gap between adolescents’ in-school and out-of-school digital literacy practices.

Due to the lack of research on the effects instructional technology use with students who have emotional and behavioral disorders, this study seeks to begin to generate theory on how integrating instructional technology meaningfully into instruction may improve the academic achievements of students who have emotional and behavioral disorders.

**Assumptions**

This study is based on three assumptions. The first assumption is that students participating in this study have access to and use digital technology for reading and writing in out-of-school contexts. The second assumption is that these adolescents are familiar with and comfortable using the technologies that are utilized in this study. A third assumption in this study is that the students will be truthful and forthcoming in their responses.
Definition of Terms

Asynchronous discussion – Electronic discussion where postings/threads accumulate over time (Grisham & Wolsey, 2006).

Blog (Web log) – A website in which journal entries are posted on a regular basis; commonly consists of hypertext, digital images, and hyperlinks (Kajder & Bull, 2004).

Blended learning – An instructional format that combines online and face-to-face instruction (Graham, 2006).

Digital divide – This is a term describing the economic, cultural, linguistic and/or attitudinal differences that inadvertently limit the access and/or benefits of technology. These differences can refer to access, use of, or knowledge of information and communication technologies (McKenna, 2006). In this study, the term “digital divide” refers to the difference in access to technology.

Electronic books (e-books) - Chapter or picture books which can be viewed digitally on desktop computers, laptops, or handheld devices, and which may employ multimodal features including animation, sound, music, video, and hyperlinks (Weber & Cavanaugh, 2006).

Fanfiction – The writing or rewriting of popular stories which are then posted to online websites where “fans” can read each other’s work and provide extensive feedback (Wilber, 2010).
Hyperlink – Internet links, or connections, which allow the reader to move to another text; these texts can be sounds, images, video, as well as familiar printed texts (Bruce, 2003).

Information and communication technologies (ICTs) – Digital tools that provide possibilities for and access to communication and information: Web logs (blogs), word processors, video editors, World Wide Web browsers, Web editors, e-mail, spreadsheets, presentation software, instant messaging, plug-ins for Web resources, listservs, bulletin boards, virtual worlds, and many others (Leu, et al., 2004).

Mobile learning – Any type of learning that occurs when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by technologies such as laptop computers, tablets, ereaders, mp3 players, or cellular phones (Project Tomorrow, 2011).

Multimedia – Content that uses a different combination of forms including text, audio, still images, animation, video, or interactivity. This is in contrast to digital “text-only” display or traditional forms of printed or hand-produced material. An example would be digital stories. (Meskill & Swan, 1995).

Multi-modal – The integration of multiple ways of knowing and multiple modes of communication including text, images, art, music, drama, and technologies (National Council of Teachers of English, 2005).

New literacies – The new literacies of the Internet and 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 the world (Leu, et al., 2004).

**Online learning** – Computer or network-based transfer of knowledge or skills. Content is delivered via the Internet, audio or video tape, satellite television, and CD-ROM. It can be self-paced or instructor led and includes media in the form of text, image, animation, streaming audio and video (Project Tomorrow, 2011).

**Post** – The act of writing a digital message on the Internet; (Wolsey, 2004).

**Synchronous discussion** – Simultaneous electronic communication between individuals or groups where posts occur in “real time” because all parties are concurrently online (Grisham & Wolsey, 2006).

**Web 2.0** – Applications that facilitate participatory information sharing and collaboration on the Internet. Allows users to interact and collaborate with each other as creators of user-generated content in a virtual environment. Examples include social networking sites, blogs, wikis, and video sharing sites (Kajder, 2010).

**Wiki** – A readable/writeable website inviting readers to add to/change/revise content as an editor. Changes are trackable and mapped chronologically (Kajder, 2010).
Summary

Technology is changing the world in which we live. These rapid changes in the form and access of diverse communication tools have altered our understanding of what it means to be literate. Today, literacy has become a deictic term, with what it means to be literate changing with every new technology that emerges. A “new literacies” perspective therefore posits that these emerging technologies require a deeper understanding of how meaning can be made using a mounting variety of digital forms.

Today’s adolescents are avid users of technology in their personal lives and are now expecting that same digital freedom to prevail in their academic lives. Unfortunately, however, K-12 schools have been slow to adapt to the changing literacy landscape and many adolescents claim that traditional school does not work for them. Currently, there is a lack of research that explores how educators might bridge the gap between students’ use of technology in-school with their out-of-school digital technology practices as well as the effects of instructional technology integration on populations of students with emotional and behavioral disorders. This study, therefore, is designed to explore how adolescent students with emotional and behavioral disorders leverage digital technologies to create meaning while participating in reading and writing activities within the context of an alternative school. Furthermore, students’ perceptions of technology use in classroom settings will also be investigated.
CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The purpose of this chapter is to provide an extensive review of the literature as it relates to adolescents’ use of technology to support meaning-making while engaged in reading and writing activities. First, the theoretical foundations for the study are discussed, including cognitive, developmental and sociocultural perspectives of constructivist theory, reader response theory, and an emergent theory of the new literacies. Next an overview of the literature concerning the writing process, students with emotional and/or behavioral disorders, and alternative school settings is provided.

This study is designed to explore and identify how adolescents with emotional and behavioral disorders use instructional technology to construct meaning while engaged in reading and writing activities. Additionally, it seeks to explore adolescent perceptions of how technology is used in both their personal and academic lives. The theoretical foundations and review of the existing literature will provide a framework for understanding the methodology and data collection involved in the study, and ultimately, the analysis of findings obtained from the study.
Constructivist Theory

According to Yilmaz (2008), “Learning theories are indispensable for effective and pedagogically meaningful instructional practices” (p.161). A constructivist learning framework (Powell & Kalina, 2010; Richardson, 2003; Yilmaz, 2008) is the theoretical foundation for this study, because such a framework is compatible with the learning principles upon which the new literacies instructional perspectives are based (Collins, 1991).

Constructivism is based on the work of John Dewey (1916) and William James (1907) as well as the later work of Jean Piaget (1970) and Lev Vygotsky (1986). Constructivism assumes that knowledge is idiosyncratic, formed (“constructed”) by individuals based on their cumulative experiences. According to constructivist theory, there is no one absolute truth in the world; instead, there are multiple realities possible. Yilmaz (2008) states that “the constructivist perspective, therefore, posits that knowledge is not passively received from the world or from authoritative sources but constructed by individuals or groups making sense of their experiential worlds” (p. 162).

Although all constructivists believe in the primacy of individuals in the meaning-making process, two constructivist perspectives hold particular significance for classroom teachers: cognitive constructivism and social constructivism. Powell and Kalina (2010) write that “a teacher must understand and use methods of both cognitive and social constructivism, if he or she is to run an effective constructivist classroom” (p.249).

Cognitive constructivism grew from the work of Piaget (Piaget, 1916; Powell & Kalina, 2010; Yilmaz, 2008). His main focus was on the individual and how the
individual constructs knowledge. Piaget’s theory of cognitive development proposes that humans cannot be given information that they can automatically use. Instead, they must use information they are given to construct their own understandings (“knowledge”) by filtering it through their existing schemata. Piaget further claims that children build schemata through the assimilation and accommodation of new information as they progress through four different stages of development (Piaget, 1916; Powell & Kalina, 2010)

Similarly, social constructivism is based on the findings of Vygotsky. Phillips (2000) explains that, “this approach centers on the ways in which power, the economy, political, and social factors affect the ways in which groups people form understandings and formal knowledge about their world” (p. 6).

In school settings, social constructivism posits that knowledge results from the integration of a child’s social interactions in the classroom with his or her personal critical thinking process. Vygotsky (1986) strongly believed that social interaction and cultural influences are an integral part of learning. He developed several theories that are a part of social constructivism, including his widely cited instructional belief that a child’s learning occurs within his or her own “zone of proximal development” or (ZPD) (Yilmaz, 2008). ZPD assumes that learning occurs when an experienced adult provides appropriate support to a child who is attempting to understand a new concept by creating an experience or activity that will “scaffold” the child’s incipient understanding.

According to Collins (1991), a constructivist view holds that teachers should be “facilitators” of knowledge who help students construct their own understandings and
capabilities in carrying out challenging tasks. This view puts the emphasis on the activity of the student rather than that of the teacher.

The tenets of constructivism are particularly applicable to the use of technology in classroom instruction. Collins (1991) has observed, for example, that because computer use requires small student-to-computer ratios, there is an inevitable shift from whole-class to small-group instruction in classrooms which rely heavily on computers. As small-group instruction become prominent in these classrooms, the role of the teacher naturally shifts from lecturer to coach: “Much of the learning is meant to take place between the student and the computer, so the teacher becomes a guide who ensures that those interactions are beneficial for student learning (p. 2). Furthermore, Collins (1991) believes that the integration of instructional technology not only creates more engaged students but also enables teachers to focus more attention on weaker students. In addition, it enables performance/product based assessment over test performance, moves students from a competitive learning environment to one of collaboration and cooperation, integrates both visual and verbal thinking, and requires differentiated instructional strategies.

Reader Response Theory

“Reader response” is a shorthand term for a theory of literary interpretation, generally attributed to Louise Rosenblatt (1938/1995), which maintains that meaning results from the unique transaction between a reader and a text. According to proponents of reader response theory, until a reader actively engages with the text words are no more than marks on a page. Moreover, Rosenblatt (1938/1995) believes that an active reader
brings his/her beliefs, values, attitudes, experiences, abilities, and knowledge to interact with the text thereby creating meaning. She contends that, “There is no such thing as a generic reader or a generic literary work; there are in reality only the potential millions of readers of the potential millions of individual literary works” (pg. 32). Because every reader is a unique individual who brings his uniqueness to the reading experience, no two readings, even of the same text, are ever identical. As Martinez and Riser (1991) write, the term transactional describes “the relationship between reader and text, with the reader as constructor of the literary experience guided by the text, rather than seeking a precise interpretation of the text” (p. 644)

Rosenblatt (1978) further believes that readers respond to texts differently depending upon where their attention is focused; she refers to this difference as the reader’s “stance.” She describes the aesthetic stance as when “the reader’s attention is centered directly on what he is living through during his relationship with that particular text” (pg. 25). Moreover, she describes the efferent (nonaesthetic) stance as when “the reader's attention is focused primarily on what will remain as residue after the reading - the information to be acquired, the logical solution to a problem, the actions to be carried out” (p. 23). Furthermore, Galda (2010) adds that stances are rarely pure. Most reading is done somewhere in the middle of the efferent-aesthetic continuum as readers attention focuses on different aspects of the text.

Galda (2010) summarizes, “success depends entirely on a knowledgeable teacher creating situation in which young readers have time to read and the opportunity to engage in either primarily aesthetic or efferent experiences whichever is most appropriate” (p. 7).
The Role of Technology in Reader Response

Rosenblatt’s theory of reader response (1938/1995, 1978) generally refers to the transaction between the reader and printed texts. Patterson (2000) suggests that digital text, often referred to as hypertext, calls upon readers to approach meaning construction in a different way. She explains that books seem to fix on the notion of authorship; whereas, hypertext allows readers to insert themselves into the meaning construction process by making a choice to interrupt and augment the primary text by navigating to other sites. Consequently, digital text allows the reader to “write” (p. 76) or construct the meaning of a text in a way that is often substantively different from what the primary author intended by drawing upon other sources during the reading event (Patterson, 2000).

Moreover, Patterson asserts that a reader’s transaction with digital text is very similar to Rosenblatt’s transactional theory in that readers call texts into being each time they transact with them.

According to Coiro (2005), a growing body of research suggests that students require new comprehension skills and strategies to effectively read and learn from text on the Internet. She further contends that online reading is complex and requires knowledge of how search engines work and how information is organized on websites. Moreover, Internet texts also demand higher levels of inferential reasoning and comprehension monitoring strategies that help readers stay on task.
Ciro (2005) identified four challenges that children face when reading online. These challenges include: 1) how to strategically evaluate long list of search engine results to determine which links, if any, to pursue; 2) how to navigate within a website; 3) how to determine if information accessed is true and credible; 4) how to synthesize without plagiarizing. She further contends that with increased use of the Internet, students will face these four challenges and educators must become cognizant of readers struggling with online comprehension so to avoid fostering further inequities of online literacies.

Technology can be an integral component of the student’s meaning making process. Hancock (2008) suggests that in today’s classrooms, various forms of instructional technologies offer a “new vision and dimension for reader response research” (p. 108) as students encounter digital literacies in addition to the more traditional literacies of paper, pencils, and printed texts (Larson, 2009).

Meskill and Swan (1996) articulate five ways in which technology can facilitate reader response pedagogy. First, technology can encourage students to control the environment and information they access and comprehend, thus supporting independent learning and response to literature. Second, technology can support a cooperative learning environment, allowing students the availability of reading and responding to each other in a collaborative manner. Third, technology can support cognitive and constructivist learning, which aligns with the students’ independent construction of knowledge in the reader response process. Fourth, access to an enormous wealth of information and text can become available by accessing various technologies. This easy accessibility can
encourage students to respond in multiple, varied ways. Finally, technology can provide teachers with the opportunity to rethink their role as teacher/facilitator and their role as a learner by opening up new possibilities for nurturing reader response instruction.

Technology can share and support the process of reading, responding in writing, sharing responses, rereading, and rewriting. Larson (2009) explains that in traditional literacy classrooms, literature discussions are often led by the teacher who explicitly directs the conversation. In a technology-rich literacy classroom, asynchronous discussions via threaded message boards, blogs, or wikis, support socially (e.g., peer) constructed learning and gives students an opportunity to be heard without being “steered” or interrupted.

**New Literacies Perspective**

**The Changing Definition of Literacy**

The very nature and definition of the term *texts* has changed as a result of today’s technology (Moss & Lapp, 2010). Students are exposed to an ever-increasing variety of texts, including informational texts, electronic texts, graphic novels, and visual texts. Furthermore text functions such as text messaging, blogging, social networking websites, and listening to and reading information on ereaders (i.e. Kindles, Nooks, etc.) are changing the way ideas are communicated and represented in our society (Moss & Lapp, 2010). According to Leu, Kinzer, Coiro, and Cammack (2004),
New literacies include the skills, strategies, and dispositions necessary to successfully adapt to the changing technologies that influence all aspects of our personal and professional lives. These literacies allow us to use technology to identify questions, locate information, evaluate and synthesize that information, and communicate to others. (p. 1572)

Leu et al. (2004) identified three essential principles of the “new literacy” to explain the social forces at work today that frame the changes we are experiencing. These three social forces (Leu et al, 2004) include the following, each of which will be discussed more fully below:

- “Global economic competition with economies based on increasingly of the effective use of information and communication” (p. 1575)
- “The rapid emergence of the Internet as a powerful new technology for information and communication” (p. 1575).
- “Public policy initiatives by governments around the world to ensure higher levels of literacy achievement including the use of internet and other ICT’s” (p.1575).

**Global Economic Competition**

In the period following World War II, the dominant literacy was print-based texts and the workforce was organized in a hierarchical structure (Anstey & Bull, 2006; Leu, 2004). Moreover, the technologies used during this time were predominantly pen, paper, and typewriter. Due to this hierarchical structure, usually only people in higher positions (i.e. executives) would interact with clients outside of the immediate work environment.
Today, globalization and the increasing use of digital technologies have allowed workplaces to transform their organizational structure; the emphasis is now on teamwork, collaboration, problem-solving, multitasking, and being multiliterate. Workers today need not only be skilled readers and writers of print texts but also be able to communicate effectively, cooperate, navigate new technologies, and utilize higher order thinking skills (Anstey & Bull, 2006).

Furthermore, the workforce is undergoing monumental transformation due to the changing social context. The world is moving towards a global economy, making competition between organizations more intense. Workplaces must seek more efficient and productive ways of performing in order to maintain existence (Leu et al., 2004).

The Rapid Emergence of the Internet as a Powerful New Technology for Information and Communication.

Internet usage has not only increased in the workplace but also at home and in schools (Leu, 2004). In a 2009 survey conducted by the Pew Internet & American life project, 79% of adults 18 and over use the Internet. Moreover, 93% of teens age 12-17 report Internet use. This trend has been steadily rising since 2000 when only 50% of adults and 75% of teens reported using the Internet (Pew Internet & American Life Project, 2010).

The trend of Internet use in schools parallels that of Internet use in the workplace and at home. In a span of eight years (1994-2002), the percentage of classrooms with at least one computer with Internet access rose from 3% to 92% (Leu, 2004). In 2008, the National Center for Education Statistics reported that 100% of schools had one or more
computers with Internet access and ninety-seven percent of classrooms had the same access to the Internet (U.S. Department of Education, National Center for Education Statistics, 2010). Leu (2004) maintains that this adoption rate of the Internet “is unprecedented in schools for any previous technology including televisions, radios, center of this revolution are the new literacy skills and strategies demanded by the Internet and other ICT’s” (p.1578).

Public Policy Initiatives by Governments Around the World to Ensure Higher Levels of Literacy Achievement

As a result of globalization, governments around the world have begun to implement public policies to increase literacy achievement in an attempt to better prepare their children for the future. Additionally, they have provided ICT resources to schools in an effort to prepare students for the new literacies of their future (Leu, 2004).

In the United States, the 2002 No Child Left Behind Act included a provision for technology. According to Leu et. al (2004) its goal was to “assist student in crossing the digital divide by ensuring that every student is technologically literate by the time the student finished eighth grade regardless of the students’ race, ethnicity, gender, family income, geographic location, or disability” (Leu, et. al, 2004; p. 1582).

Leu et. al (2004) have argued of a need for new theoretical perspectives and frameworks to help researchers and educators understand the implications of the new literacies for instruction and to direct future research. They also suggested that because of the changing nature of new literacies, such theoretical perspectives must “emerge from
the new literacies engendered by the requirements and possibilities of new technologies” (p. 1572).

While it is acknowledged that a plethora of new literacies are rapidly emerging, Leu, et al. (2004) suggested that those centered around the Internet and other information and communication technologies (ICT’s) are the most essential for schools to consider as they seek to prepare their students for new literacies. Leu, et al. (2004) identified the following ten principles on which this emerging theory should be built. These principles form the framework of this study as they are especially informative in beginning to understand the developing changes in reading instruction and learning, as well as the broader concepts of literacy.

1. *The Internet and other ICT’s are central technologies for literacy within a global community in an information age.* Literacy theory, research and practice must begin to recognize that the social context and the central technologies of the information age are shifting from books and the printing press to that of the Internet and other ICT’s (Leu et al., 2004).

2. *The Internet and other ICT’s require new literacies to fully access their potential.* New literacies are encountered nearly every time we read, write and communicate with the Internet and other ICT’s (Leu et al., 2004). These new literacies include locating information using a search engine, communicating electronically (i.e. email, blogs, wikis, threaded discussions etc.), navigating hyperlinks, and effectively using productivity software (i.e. word processors, presentation software, spreadsheets, and databases).
3. **New literacies are deictic.** Literacy is deictic and is regularly changing over time. Today technology is changing at such a rapid pace that the changes to literacy are not limited by the technology but by the human ability to adapt to these changes (Leu, et al., 2004).

4. **The relationship between literacy and technology is transactional.** When technology is used in new ways, new literacies are created. Reinking (1998) argued that technology transforms the forms and functions of literacy, but literacy also transforms the forms and functions of technology. Consequently, this results in a transactional relationship between literacy and technology.

5. **New literacies are multiple in nature.** The New London Group (2000) defines multiliteracies as a set of open-ended and flexible multiple literacies required to function in diverse contexts or communities. The Internet and other ICT’s require a systematic understanding of new literacies that exist within these many different contexts.

6. **Critical literacies are central to the new literacies.** It is important that students learn how to effectively use critical thinking and analysis skills (Leu et al., 2004). Even though traditional literacies have included critical thinking skills and separating fact from fiction, the demands of the Internet and other ICT’s will require individuals to use more complex analysis skills.

7. **New forms of strategic knowledge are central to the new literacies.** Each form of technology contains different contexts and resources for constructing meanings and requires different strategies for doing so.
8. *Speed counts in important ways within new literacies.* With vast amounts of information available on the Internet, the rate in which one can acquire, evaluate, and use information will become central to new literacies.

9. *Learning often is socially constructed within the new literacies.* With new technologies and the accompanying new literacies emerging at such a rapid pace, it is impossible for one single person to know every ICT and be able to teach it directly to others.

10. *Teachers become more important, through their role changes, within new literacy classrooms.* Leu et al. (2004) contend that with the appearance of the Internet and other ICT’s in school classrooms that “teachers will increasingly need to orchestrate complex contexts for literacy and learning rather than simply dispense literacy skills, since they will no longer always be the most literate person in the classroom” (p. 1599).

**Trends and Barriers to Technology Use and Integration**

Project Tomorrow (2011) surveyed 294,399 K-12 students and 35,525 teachers, as well as administrators, librarians, parents, and technology coordinators representing 6,541 school districts across the United States. The Speak Up Survey included foundational questions about the use of technology for learning, 21st century skills for the future, and emerging technologies. In addition, teachers reported on the challenges they encounter while trying to integrate technology into their classrooms. This survey has identified three key trends in how “today’s students are leveraging emerging technologies for learning” that will be central to this study: 1. mobile learning; 2. online/blended
learning, and; 3. E-textbooks and digital content. (p. 3). Each of these trends from both the student and teacher perspective will be further discussed below.

**Mobile Learning**

Students view mobile devices (i.e. smartphones, tablets etc.) as an avenue for untethered learning. They envision themselves using these devices as opportunities to become more engaged in learning and to extend learning beyond the classroom walls. Moreover, teachers also recognize the power of mobile technologies to engage, empower, and enable student learning. However, in order to benefit fully from the implementation of these technologies, teachers need training and support as they begin to transition from their value statements to classroom use.

**Online and Blended Learning**

These types of learning environments enable students to personalize learning experiences and provide opportunities for collaboration among classmates and teachers. Students are interested in online and blended learning formats not only for the reasons mentioned above but also to expand course offerings and address scheduling conflicts. However, approximately 39% of the teachers across all years of experience indicated they had no desire to teach an online class.

**E-textbooks and Digital Content**

Ebooks and digital content provide a means for student engagement by providing a real-world context for the learning environment and allows learning to transcend beyond the school environment. Animations and simulations, links to real-time data,
quizzes and self-assessment, online tutors, communication and collaboration functions, and mobility were just some of the features of digital content that appeal to both middle school and high school students.

When teachers were asked how they integrate technology on any given day, only one-third reported creating digitally-rich learning environments using games, simulations, and videos. Furthermore, only 25% reported allowing students to create their own digital content using multimedia tools to present information or represent knowledge.

In examining the barriers teachers face when integrating technology, Brush and Hew (2006) conducted an extensive review of the literature and identified 123 barriers which they classified into the six following categories:

1. **Resources.** Lack of resources may refer to lack of technology, lack of access to available technology, time, and technical support.

2. **Knowledge and skills.** The lack of specific technology knowledge and skills, technology pedagogy, and technology related classroom management skills are one of the most common reasons given by teachers for not using technology.

3. **Institution.** Institutional barriers may include leadership, school scheduling structure, and school planning.

4. **Attitudes and beliefs.** The decision of whether and how to use technology for instruction ultimately depends on the teachers themselves and the beliefs they hold about technology.
5. **Assessment.** The pressures of high-stakes testing can leave teachers with little time to attempt new technology related instruction.

6. **Subject culture.** Subject culture refers to the “general set of institutionalized expectations which have grown up around a particular school subject, and shapes the definition of that subject as a distinct area of study” (p.231). Teachers may be reluctant to adopt a technology that seems incompatible with the norms of a subject culture.

Tierney, Bond, and Bresler (2006) state that many teachers have been unsure of what to do with the emerging literacies students today are growing up with. Some of the uncertainty can be attributed to the teachers own knowledge of technology and the fact that student knowledge may exceed their own. Moreover, uncertainty arises from a lack of knowledge as to how new literacies intersect with the traditional curriculum. Finally, uncertainty stems from hardware, software, and support systems that allow engagement with tools that teachers or their students may desire to access. Much of this uncertainty could be alleviated by professional development.

**Snapshots of New Literacy Classrooms**

Despite the many barriers and obstacles to technology integration, research has shown that teachers are beginning to create environments that encompass the new literacies and are starting to bridge the gap between students’ out-of-school and in-school digital lives.
In a longitudinal study, spanning almost 7 years, Kist (2005) explored several classrooms to determine how teachers in new literacies classrooms teacher and what were these teachers’ and students’ perspectives of their experiences in new literacies classrooms. As a result of his investigation, Kist (2005) discovered several common characteristics shared between the classrooms he explored. 1). Collaboration and motivation. Each of the classrooms studied assigned group projects and the emphasis of these projects were on collaboration and not the new literacies themselves. 2). Multiple forms of text. Even though students were permitted to use multiple forms of representation daily, there was still a strong reliance on print-based media. 3). A new space for teaching and learning. By incorporating new literacies teaching and learning daily the traditional roles of teacher-student relationships and the elements of a traditional classroom become blurred especially to the students who were freed from time constraints and reported a level of emotion in their learning.

Teng (2012) contends, “Technology has to be more than a gimmick; it must extend learning, not simply recreate a typical English class online” (pg. 35). Building on his students’ inherent use of social media, Teng (2012) launched a school-friendly social media site that served as a catalyst for developing young writers. Within this site, students were required to post at least one writing portfolio. Their writing covered a variety of topics ranging from origami to owls, original poetry, multigenre compilations of video, audio, images, animations, and text, diaries, and even a rewrite of Beowulf set in The Jersey Shore. By integrating social media as a means to writing, these students were writing for a real audience and with a real purpose. Furthermore, Teng (2012) believes that teachers need to consider social network postings as brainstorm, writing rehearsals,
and practice in constructive response. It is our job as teachers to take these authentic experiences and teach students to develop these ideas into narratives, essays, and persuasive arguments.

Writing

The Writing Process Pedagogy

For decades, research on writing focused on the written product. This line of research concentrated on teaching methodologies and the evaluation of completed compositions after students received specific types of instruction. These studies assumed writing was a linear process in which the writer determined what was to be said in advance, identified an organizational structure and generated a composition with few mechanical errors. The instructor’s role was to present the structure and evaluate the quality of the student’s ability to use it effectively. These studies sought, therefore, to prove the efficacy of one teaching method over another. Consequently, little attention was paid to the writing process itself (Zamel, 1982).

In her seminal study of twelfth graders’ composing processes, Emig (1971) discovered that the writing process did not follow a stage bound, linear process as her theory had inferred. What she found was that writers’ processes included pauses and revisions as they wrote. She used the term recursive to describe what she observed (Farnan & Dahl, 2003).

Perl (1980) later confirmed Emig’s (1971) observation that writing is recursive in nature but further concluded that the parts of writing that recur vary from writer to writer.
and from topic to topic. Moreover, she found that the most visible recurring feature was “rereading” the writing. Additionally, she believed that writers continually return to their topic throughout the process of writing and that writers develop what she terms a “felt sense” (p. 365) about the topic. She defines felt sense as what is evoked inside of a writer when he/she is given a topic. It is the internal criterion writers seem to use when they are planning, drafting, and revising.

From these groundbreaking studies we have learned that writing is a complex process and difficult to define. Writing is used for multiple purposes and is addressed to many different audiences. In addition to discovering that writing is a recursive process that cannot be taught as a single skill, we have also learned that it takes many forms, changes with the shifts in technology, and cannot be assessed effectively in a single sitting (NCTE, 2008).

According to Murray (1972), the writing process itself can be divided into three stages: prewriting, writing, rewriting. Prewriting is everything that takes place before writing. Furthermore, it is the stage in which the writer focuses on his/her subject, the form the writing will take, and chooses an audience. It consumes about 85% of the writer’s time and may include research, daydreaming, note-taking, title-writing, and lead-writing. Writing is the act of producing a first draft. It is the quickest part of the process sometimes taking as little as 1% of a writer’s time. Rewriting consists of reconsidering the subject, form, and audience. Moreover, he describes rewriting as “the demanding, satisfying process of making each word right” (p. 4).
Graves (1983) contends that a writing process pedagogy used within the classroom must be built upon the skills, strengths, and interests that students already possess. Furthermore, he maintains that students are writers when they enter the classroom and that the classroom should be a workshop environment in which children are encouraged through supportive response of teachers and peers to use writing as a way to figure out what they think and feel. Moreover, children should publish their work to be read and celebrated by the community of writers that they have become (Graves, 1983).

The National Council of Teachers of English (2008) has summarized that the act of writing is holistic, authentic, and varied. Writing is holistic because writing is viewed as “a multidirectional and multifaceted activity and attempts to teach and assess the many disparate aspects of writing in a connected fashion” (p.4-5). Writing conventions (i.e. grammar, punctuation, syntax, spelling, etc.) are therefore not taught in isolation but in the context of the writing itself. Authentic writing takes place in a real-world context and addresses real-world needs. A varied approach to writing recognizes many different contexts and purposes for writing. Students need to be able to write effectively in a wide-range of genres and for multiple purposes (NCTE, 2008).

Today’s digital technologies provide venues for writing that are compatible with this framework of writing as a recursive, varied, authentic and holistic process. In fact, digital technologies influence the processes, distribution, and evaluation of writing. Digital writing allows students to compose for an audience that stretches beyond the classroom. Because of the participatory nature of Web 2.0 tools and the Internet, students can distribute their writing and receive feedback in an instant. Furthermore, new
media classrooms focus attention on the act of composing text because they provide immediate, authentic and varied audiences for students. As a result, they result in collaborative writing processes that can offer an effective way for students to share and receive feedback on their work with others.

Technology and Writing Instruction

Wilber (2010) maintains that technology is a part of adolescents’ everyday lives. Studies have shown that students are using technology profusely outside of the classroom. Consequently, “Students are reading and writing. It’s how and where they are reading and writing that is off the school radar” (p. 6).

Robb (2010) administered a Ten Questions about Writing Survey to a small number of students to determine what kind of writing students did outside of school. She found that outside of school, all students blogged and wrote emails. Girls kept journals and loved to write “fan fiction,” (i.e., stories that students write independently or in small groups using characters from favorite books, television shows, and/or movies). All but two students reported text messaging their friends. Robb (2010) stated that students seemed compelled to write not because they are required to do for a school assignment but because they want to express themselves and make sense of their lives. Furthermore, she found that none of the students’ teachers knew about this writing (Robb, 2010).

In light of the findings from this preliminary study, Robb (2010) later administered a large scale survey to approximately 1,400 middle school students (grades 5-8) in 12 states. This writing survey addressed the following seven categories: 1) writing outside of school; 2) writing in journals; 3) blogging; 4) writing at school; 5)
teachers attitudes about writing; 6) writing on computers or by hand; and 7) writing about books.

Results from this study (Robb, 2010) showed that students were doing much more writing outside of school than their teacher knew. Half of the students surveyed wrote on blogs at home and/or in school. Moreover, there appeared to be a strong connection between how students feel about writing and the kinds of feedback they receive at school. The study found that students want to choose their own topics and purposes for writing. Additionally, blogging and texting are two forms of digital writing that appear to be on middle school students’ agendas.

Half of the students surveyed use a computer to write at home and prefer to write with a computer at school. Furthermore, only 8.7% of them reported that their teacher knew about their outside-of-school writing. Robb (2010) argues that teachers need to stop viewing these digital formats as non-school kinds of writing and instead bring their powerful social properties into classroom writing.

*Writing Now*, a policy brief of the National Council for the Teachers of English Policy Brief (2008), states that today we “write differently – often digitally – and we write more than in the past” (p.1). Because advances in technology, changes in workforce environments, and shifts in cultural practice make writing more essential than ever, writing instruction must be designed so that students are able to successfully meet the demands of writing effectively for many purposes.
Emotional or Behavior Disorders in Students

The federal Individuals with Disabilities Education Act (IDEA) defines an emotional or behavior disorder (EBD) as having:

At least one defined characteristic exhibited over a period of time and to a marked degree that adversely affects a child's educational performance. The defined characteristics are: (a) an inability to learn that cannot be explained by intellectual, sensory, or health factors; (b) an inability to build or maintain satisfactory interpersonal relationships with peers and teachers; (c) inappropriate types of behavior or feelings under normal circumstances; (d) a general pervasive mood of unhappiness or depression; (e) a tendency to develop physical symptoms or fears associated with personal or school problems. (Solar, 2011 p. 41-42)

Students with EBD are often labeled as disruptive, insolent, disobedient and displaying frequent behaviors that impede learning and interfere with the educational process. Perhaps not surprisingly, these students often present complex challenges for schools, families, and society. Moreover, their interactions with others can be so disruptive that they can seriously strain relationships with peers, parents, and teachers. From a historical perspective, students with EBD have been the most difficult to teach, the most often segregated, and the most likely to fail in a school setting (Fitzpatrick & Knowlton, 2009).

Smith and Ryan (2011) write that due to such challenging behaviors, students with EBD are less likely to be educated in least restrictive environments. “Currently only slightly over a third (37.3%) of students with EBD spend more than 80% of their time inside the regular education classroom, as compared with over half (56.84%) of students with other disabilities” (p.185). Furthermore, Duchnowski and Kutash (2011) add that “the average academic achievement for these students was below the 25th percentile; they
had the highest dropout rate compared to all disability groups; and half of these students were involved with the justice system two years after separating from school” (p.323)

General education teachers are increasingly responsible for the education of students with a variety of special needs, including students with EBD (Drysdale, Williams, & Meany, 2007). Students with EBD often waste time, accomplish little, and require increased instructional attention and effort from teachers. These behavioral deficits can result in incomplete school work, lack of instructional gains, and frustrated educators. Teachers continually face increasing challenges in educating and managing students with EDB (Fitzpatrick & Knowlton, 2009).

Drysdale et al. (2007) maintain that when teaching students with EBD, teachers find themselves in one of three situations: 1) EBD students are usually educated in the regular classroom (“mainstreamed”), but may be pulled-out to attend special education classes; 2) EBD students are instructed exclusively in the regular classroom (“inclusive”) and teachers have access to additional resources (i.e. intervention specialists) to manage special needs or; 3) EBD and other special needs students are educated in the regular classroom (“integrated”), but the teacher is not provided with additional resources to manage special needs.

Drysdale et al (2007) assert that “…while the fully inclusive classroom may be an ideal situation, the reality for many teachers may well be a policy of integration” (p. 36). Furthermore they observe that, “Teachers’ attitudes toward integration are important not only because positive attitudes can provide the motivation for pursuing successful strategies, but also because teachers’ attitudes can affect students’ attitudes” (p. 37).
Regan (2009) believe that a positive student-teacher relationship can be developed, but only if teachers take a proactive role in shaping their own perceptions and attitudes towards students with EBD. To do this, they must look closely at the student - not the behavior - and use their knowledge of the student’s strengths to create a positive learning environment.

Appropriate selection of resources by the teacher is therefore crucial, because it can either enhance or negatively affect student learning (Regan, 2009). Children identified with EBD are often served by an individualized education plan (IEP); this documentation is the first step in identifying resources that will aid the child in the classroom. The IEP will identify any accommodations and/or modifications (i.e.; adapting tasks, using assistive technology, and/or permitting breaks) to support the student’s access to the general curriculum. Additionally, the IEP will indicate individuals who will be working with the student. Such individuals can also be considered resources for the child (Regan, 2009). Regan (2009) further adds:

Children with EBD are often resistant to paper pencil tasks and respond favorably to hands-on activities that involve active participation and experiential learning. Integrating a variety of methods tends to foster the internalization of new material for students with disabilities in contrast with more traditional modes of instruction. (p.65)

In 1988, the Technology Related Assistance for Individuals with Disabilities Act became law. This legal precedent established technology as an integral tool for students with disabilities, including those as identified as having an EBD. Yet despite this federal initiative, little research exists on the use of technology by students identified with an emotional or behavioral disorder (Fitzpatrick & Knowlton, 2009). Because of the relative
lack of technical applications for EBD students, particularly in contrast to other high-prevalence IDEA defined populations, Fitzpatrick and Knowlton (2009) offer four recommendations for practicing teachers who wish to integrate technology into their special needs classrooms. They suggest:

1. “It’s time to go native” (p.260). Teachers, both those who use technology and those who do not, must come to school not only prepared to use instructional technology but also be willing to learn new technologies as they appear in the instructional landscape.

2. “Tear down the firewalls” (p. 260). Having a computer and Internet connection in the classroom does not constitute access. Because of excessive protection policies that limit building connectivity because of firewalls and content filters, many teachers face struggles in accessing needed information and resources via the Internet. This lack of access limits students’ opportunities to use digital technologies effectively.

3. “Get (virtually) real” (p.261). Virtual environments allow learners to acquire important social skills (which many EBD students often lack) in a failure-tolerant environment. Pacing and repetition are easily manipulated in virtual environments. Furthermore, environmental stimuli in a virtual environment are sufficiently familiar to those stimuli in a real environment. Because of this, learners can act and react rather than merely observe. This opportunity enables the kind of generalizations that can result in real learning.

4. “Fly with captain video” (p.261). Video technology has a wide range of learning opportunities and has been shown to be useful in improving behaviors in
students with EBD: “Video-recordings are a powerful medium that captures the
dynamics of movement, bodily expression, and emotion and thus it can provide an
accurate and richly detailed depiction of a child’s abilities and development”

**Alternative Educational Settings**

The nature of alternative programs has changed greatly over the past 25 years
(Owens & Konkol, 2004). Prior to 1975, placement in alternative programs was usually
based on parents’ dissatisfaction with traditional school settings. With the passage of the
Education for All Handicapped Children Act in 1975, schools were mandated to provide
“a free and appropriate education in the least restrictive environment for all students with
disabilities” (Owens & Konkol, 2004 p. 173). However, because the alternative program
was considered a “restrictive environment,” it was only to be used as the last option for
students with disabilities (Owens & Konkol, 2004).

In 1997, the reauthorization of the Individuals with Disabilities Education Act
(IDEA) required school districts to provide alternative educational placements for
students with disabilities who had violated zero tolerance policies (e.g., committed drug
or weapon offenses) or had exhausted all placement options within the traditional school
setting. As these settings began to accept students with emotional and behavioral
disorders (EBD), the basic premise of alternative programs began to shift. They began to
develop a reputation as a “dumping ground” for undesirable students, including those
with EBD (Owens & Konkol, 2004).
The No Child Left Behind Act (NCLB) of 2001 drew attention to students at-risk for school failure and drop-out. According to NCLB, at-risk students include those who are ethnic minorities, have low socioeconomic status, speak English as Second Language, are considered EBD or who have experienced special circumstances (e.g., homelessness and adolescent pregnancy) (Lagana-Riordan, Aguilar, Franklin, Streeter, Kim, Tripodi, & Hopson, 2011).

Lagana-Riordan et. al. (2011) note that today many different types of alternative programs are available, ranging from programs that are chiefly disciplinary to those with specific academic agendas. Most students attending these programs are unsuccessful in traditional programs and usually exhibit poor grades, truancy, behavior problems, or other special circumstances that impede learning (Lagana-Riordan et al., 2011).

Alternative programs fall outside the categories of regular, special education, or vocational education (Cable et. al., 2009). They note that because no single federal agency is primarily responsible for alternative education, there is no universal definition of alternative programs.

The U.S. Department of Education describes alternative programs as educational settings that address the needs of students who cannot be well-served in a traditional educational setting. Such programs also serve as a support for conventional schools by providing nontraditional educational experiences for their students.


*Restructured schools* are those that employ progressive educational ideas. *Disciplinary programs* are for students who have committed violent acts or displayed disruptive...
behavior. These programs are designed to give students individual attention in order to curb negative behavior. *Problem-solving programs* are specifically designed for at-risk students (Raywid, 2004). Furthermore, Raywid (2004) found that educators who taught in problem-solving schools often viewed their students in an optimistic manner and provide emotional and social support.

Kist (2005) investigated one such alternative program in Canada named the “16 plus” program (pg. 93). This alternative cooperative education program served students aged 16-18, who were at risk of dropping out of school. These students have been unsuccessful in a traditional school setting and would have nowhere else to go without this program. Upon completion of the 2 year program, students receive a “certificate in life skills and work skills” (pg. 93)

While observing in this program, Kist (2005) noticed that the students were engaged in learning that promoted the new literacies. Students were learning to read and write using film and print versions of text, creating Flash animation, and editing raw video footage into a meaningful story. This program also operated the media center for the entire school district and was responsible for video production, graphic work, laminating, and keeping record of the educational videos that belonged to the district. Students responded favorably to the program and the learning community that this teacher was able to build.

This is just one study that shows how alternative programs are successful in meeting the educational needs of at-risk youth. However, Lagana-Riordan et al. (2011) remind us that there is limited research available on alternative programs.
Summary

This study builds on and extends the background provided by the literature review in this chapter. Constructivist theory, transactional theory of reader response, and writing process theory support the belief that meaning is constructed by the learner and is unique to the context and individual experiences. In this study, transactional theory of reader response and writing process theory helps explain transactions between adolescent readers and writers and instructional technology.

Leu et. al (2004) identified ten principles upon which a new literacies perspective is based. These principles emphasize the importance of socially constructed learning within the new literacies and the need for teachers to orchestrate learning environments in which students can work collaboratively while participating in complex context for the new literacies.

Because this study is being conducted in an alternative school program with a special population of learners, reviews of the literature on students with emotional and behavioral disorder and alternative school settings are included.
CHAPTER III
METHODOLOGY

Using a descriptive, multiple-case study design (Merriam, 2009), this qualitative research study sought to investigate how adolescent students construct meaning while using instructional technology tools. It examined the impact that using digital technology tools had on adolescent students’ reading and writing practices. This study also examined students’ perceptions of technology use within the context of the classroom. In this chapter, the researcher describes the methodology used in this study, as well as the population and setting. Additional sections describe the data collection and data analysis methods, as well as the limitations, reliability, and validity of the study.

Methodology: Design of Study

Using a qualitative, multiple-case study approach, this study sought to describe how adolescents use instructional technology to support reading and writing practices in a school setting. Merriam (2009) states: “Qualitative researchers are interested in understanding how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences” (p. 5). Moreover, Flick (2009) contends that qualitative research takes into account that perspectives and practices are different because of the different subjective views and social backgrounds of the participants involved.
Research methods are based in paradigms that make certain assumptions about the social world (Firestone, 1987). The qualitative research paradigm is based on the following assumptions as stated by Firestone (1987). First, qualitative research holds that reality is socially constructed through individual or collective definitions of the situation. Second, qualitative research is more concerned with understanding the social phenomenon from the participants’ perspectives, which is accomplished through the researcher’s observations and interactions in the lives of the participants. Third, the interest of the researcher in the qualitative paradigm is to become “immersed” in the phenomenon of interest (Firestone, 1987).

Merriam (2009) defines case study as “an in-depth description and analysis of a bounded system” (pg. 40). Gall, Gall, & Borg (2007) further clarify that a case study is conducted to “shed light on a phenomenon of interest, which is a process, event, person, or other item of interest to the researcher” (p. 445). The purpose of case study research is not to represent the world, but to represent the case, with a case understood as a particular instance of a phenomenon (Gall et al., 2007, Qi, 2009).

Furthermore, Merriam (2009) observes that “the overall purposes of qualitative research are to achieve an understanding of how people make sense out of their lives, delineate the process of meaning-making, and describe how people interpret what they experience” (p. 14). In addition, Merriam (2009) states several key characteristics of qualitative research. Most importantly is a tacit understanding that the phenomenon of interest is being represented from the participant’s perspective, not the researcher’s perspective. These two perspectives, the participant and the researcher, are sometimes referred to as the emic (insider) and etic (outsider) perspectives (Merriam, 2009). In all
forms of qualitative research, the researcher is the primary instrument for data collection and analysis. Moreover, researchers deliberately choose a qualitative research design, either because there is a lack of theory or an existing theory fails to explain the phenomenon of interest. Therefore, qualitative research is an inductive process in that the researcher gathers data to build concepts, hypotheses, or theories, rather than deductively testing existing theories as in quantitative research. Lastly, qualitative research is built upon rich, thick description. Rather than statistics and numbers, qualitative research uses words and pictures to convey what the researcher has learned about a phenomenon (p. 15-16).

According to Baxter and Jack (2008), case study designs are based on a constructivist paradigm of knowledge construction. Constructivists believe truth is “relative and that it’s dependent on one’s perspective” (p.545). Moreover, constructivism is built upon the premise that reality is socially constructed. It is through these stories that participants are able to describe their views of reality and this enables the researcher to better understand the participants’ actions (Baxter & Jack, 2008). One of the advantages of using a case study design is the close collaboration between the researcher and participant.

Merriam (2009) writes that case study designs may be further characterized as particularistic, descriptive, and heuristic. *Particularistic* means that the study focuses on a particular situation, event, program, or phenomenon. *Descriptive* means that the result of the case study is a rich, thick description of the case being studied. *Heuristic* means that case studies deepen the reader’s understanding of the phenomenon being studied.
Case studies can bring about new meaning, extend a reader’s experience, or confirm what is already known.

In this study, a case is defined as an adolescent student who uses instructional technology to support meaning-making in classroom reading and writing tasks. With its heavy emphasis on a natural setting (i.e., the classroom) and boundaries within which the research is conducted, this study lent itself to a qualitative case study design. The qualitative methods embedded in this design invited descriptive data collection, inductive data analysis, and a focus on process rather than product.

**Research Questions**

Two research questions guided this study:

1. How do six adolescents use instructional technology to construct meaning while reading and writing in an alternative setting?

2. What are these students’ perceptions of how instructional technology is used in an alternative setting?

**Research Setting**

This study was conducted in a small “alternative” program (Washburn-Moses, 2011) located in a large Midwestern state. The program is administered by the county’s Educational Service Center (ESC) and places a heavy emphasis on academics. An ESC provides support and services to local school districts. Local school districts can contract with the ESC for services that include, but aren’t limited to, consulting in
academic content areas, behavior management support, professional development for teachers, and alternative placements for students.

The vision of the program is to provide an “alternative” or more effective educational setting for nontraditional learners or for students who are not succeeding in traditional school settings. Placement in this program is initiated by the student’s home district, often after all of the interventions provided by the district have been unsuccessful and all other options are exhausted. The home districts also incur the financial responsibility for sending students to this program.

Before admission, collaborative meetings between the program faculty, home district representatives, student’s parents/guardians, and sometimes clinical staff are conducted to determine if the program is the right placement for the child. For many of these students, this program is the last resort before referral to behavioral management programs or placement in a juvenile detention center. Once admitted, regularly scheduled meetings are held between all parties involved to monitor and evaluate student progress.

At the time of the study, twenty-three students were enrolled in the program which served as the site for this study. Those students were in grades 4-12. Eighty-three percent of them were Caucasian, 8% were African-American, and 8% were Hispanic. Although not a requisite of the program, all but two students were served by an Individual Education Plan (IEP) that listed personalized academic goals. Almost all of the students in the program had been identified as having an emotional or behavioral disorder, so they had behavior IEP goals in addition to their academic goals.
The program is divided into three grade levels, intermediate (grades 4-5), middle (grades 6-8), and high school (grades 9-12). Each grade level is comprised of two teacher teams. One teacher teaches the language arts and social studies block and the other teacher is responsible for teaching the math and science block. Support staff for the program include one director, four classroom assistants (one of whom is a licensed teacher), as well as a behavior specialist, art therapist, and a speech/language pathologist. Of the six teachers, four are licensed general education teachers while two are licensed intervention specialists. The intervention specialists also have general education teaching responsibilities. Although the intervention specialists often served in a consulting role, all teaching staff shared responsibility for meeting IEP goals. The staff’s teaching experience ranged from three to 19 years.

The program adopted a project-based learning framework for instruction. According to the Buck Institute for Education (2011):

In Project Based Learning (PBL), students go through an extended process of inquiry in response to a complex question, problem, or challenge. While allowing for some degree of student "voice and choice," rigorous projects are carefully planned, managed, and assessed to help students learn key academic content, practice 21st Century Skills (such as collaboration, communication & critical thinking), and create high-quality, authentic products & presentations. (Buck Institute for Education, 2011)

The expectation of the program is for students to meet the state’s academic standards using a project-based approach to instruction. An example of one project completed by the high school students involved creating models of their dream home. The students used the Internet to research floor plans of their desired home and applied the mathematics they were studying in class to convert the floor plan specifications to scale.
size for their models. After a trip to a local home improvement store to purchase building supplies, the students actually constructed their dream homes. The projects were then presented at a family presentation night that the entire school participated in.

In order to meet the demands of the new Common Core Standards and 21st-century learning skills (http://www.p21.org), the program is rich in its access to instructional technology. The entire building, for example, has wireless Internet access. Four classrooms are equipped with interactive whiteboards with projection systems. Teachers are provided a full size laptop and each student receives their own netbook laptop to use during school. Multiple iPads, video cameras, digital still cameras and voice recorders are available for teacher and student use. Students were encouraged to use these technology tools to demonstrate their understanding of content. For instance, during the 2011 election, the intermediate grade students were very interested in a controversial state issue that was on the ballot. Building on the students’ interests, the teacher created a persuasive essay assignment in which students had to declare a stance on the issue and persuade “voters” (i.e. the other students in the program) to vote in their favor. The students were then invited to use the available technology to present their case. Several students created digital political posters using Glogster and several used digital video recorders to create campaign commercials presenting their stance on the issue. These documents were presented to the entire school population and a mock election was held.
Participant Selection

In order to answer the research questions, six adolescent students were chosen through a process of nonrandom purposeful sampling. Each participant served as one case in this multiple-case study. Gall, et al. (2007) state, “the purpose in selecting the case, or cases, is to develop a deeper understanding of the phenomena being studied” (p. 178). Moreover, Merriam (2009) defines a typical purposeful sample as “one that is selected because it reflects the average person, situation, or instance of a phenomenon of interest” (p. 78). Additionally, Merriam (2009) states that in order to find the best case to study, the researcher must first establish a criteria that will guide case selection and then select case(s) that meet the stated criteria. Even though the researcher primarily taught at the intermediate level, the small size and flexible nature of the program allowed for interaction with all of the students. Throughout the school year, the researcher conducted informal interest groups with all of the students in the areas of literacy and technology. For example, students would gather for an informal book club or to learn about a new form of technology. For this study, the researcher chose the participants based on her prior experiences with the students. The researcher considered students’ interest in reading and writing and their willingness to work with technology when it was used for instructional purposes. The researcher also had to consider the personal situation of each potential participant. Some of the students had irregular attendance and some students had been removed from the program for various reasons. The researcher was careful to choose students that she believed would be available for the entire duration of the study. Because some of the students at this site struggled with emotional and behavioral issues that could be exacerbated by their participation, it was important to select students who
would not be negatively affected by being part of this study. After careful consideration, six students (three from the intermediate grades, two from the middle grades and one from the high school level) were selected to participate in this study. Race, gender, and socioeconomic status were not a factor in participant selection.

Gall, et al. (2007) cite that in a multiple-case study design, the “unit of analysis” (p. 178) needs to be at least two or more individuals or cases, that are either similar or different from each other in some way that is of interest to the researchers. In this multiple-case study, six participants were selected from a pool of potential candidates who meet the initial criteria cited earlier. The final choices were based on what the researcher perceived as their “typical classroom performance.” The researcher considered “typical classroom performance” as students who were making adequate progress according to curriculum-based grade level expectations and IEP goals. Grade level expectations were derived from the state mandated Common Core Standards. The researcher looked at classroom grades, baseline data, and progress monitoring data in order to determine final participants.

Because the study sought to describe and understand human behavior, approval from the University’s Institutional Review Board for the protection of Human Subjects (IRB) was required (Appendix K). Participants indicated their willingness to join the study by signing a written consent form. Informed consent and assent forms were obtained before any data collection took place. Furthermore, participants and their guardians were told that they were free to withdraw their consent/assent at any time without fear of repercussion. All participants were also informed that they would be
protected through the use of pseudonyms. Copies of the informed consent and assent documents are included in Appendices A and B.

**Participant Profiles**

**April**

April was a fourth grade student in the program during this study. She likes to ride dirt bikes, her bicycle, play with friends and “annoy people” (Interview, May 18, 2012). She expressed that she did not like it when people made fun of her and would often act out when she perceived that others were making fun of her. Gym and math were her favorite school subjects and she said reading was boring. She likes to write and make up her own stories, songs, cheers, and play scripts that she could act out at school. She loves to use technology and reports using iPads, iPods, cell phones, computers, and television daily.

**Dana**

Dana is 11 years-old and a 5th grade student at the time of this study. In her free time, she enjoys playing soccer, playing with her friends, and swimming at the park. She is a voracious reader and enjoys “getting into books” (Interview, May 18, 2012). Her least favorite subject is science because she feels it is hard. She enjoys using technology and especially learning new technology applications and programs. She uses technology a lot in school but is not allowed to use the computer at home.

**Greg**

Greg is 14 years old and in the 8th grade. He is a very quiet boy and keeps to himself. He has been diagnosed with Asperger’s Syndrome and is attending the program
because he was being bullied at his other school. His favorite subject is gym and least favorite is math because he feels it is hard for him. He does not read or write much unless it is assigned by a teacher. He reports that he likes using technology especially iPads and most of the technology he uses is during school. He does not have much access to the Internet at home but does enjoy playing Xbox in his free time.

**Heather**

Heather is 14 years old and is in 9th grade. She likes sports, being outside, and going on picnics with her family. Her favorite subjects are math and science because she likes problem-solving. Her least favorite subject is English. She finds learning grammar very confusing. She is also a voracious reader and spends her free time reading ebooks on her Kindle Fire. Her favorite genres are mystery and fantasy. At the time of her initial interview, she was reading the third book of *The Hunger Games* trilogy. She finds technology frustrating especially when Internet connections are slow. She is limited by her parents to thirty minutes per day to use her Kindle Fire and watch television at home.

**Jenna**

Jenna is also 14 years old and is an 8th grade student in the program. She describes herself as artistic and is interested in a career in the fashion industry. She likes reading but emphasizes that it must be enjoyable for her. Romance and drama are her favorite two genres. She keeps a personal journal in which she mostly writes quotes and inspirational sayings. She likes using technology and says that her most prized possession is her cell phone. She claims to be on it “24/7!” (Interview, April 13, 2012).
Marie

Marie is 10 years old and is in 4th grade. She is passionate about animals and admits that she dislikes “some people” (Interview, May 18, 2012). She enjoys science especially likes doing experiments. Her least favorite subject is math because it is hard for her. She likes to read and named Jerry Spinelli and Carl Hiaasen as two of her favorite authors. She views writing as a way to “get your feelings out” (Interview, May 18, 2012). She is an avid user of technology both in school and at home and reports playing lots of computer games in her free time.

Researcher Profile

The researcher has been an educator for 19 years. At the time of this study, she is the only intermediate-level integrated language arts teacher at the study site. Her philosophy of teaching is deeply rooted in the theory of constructivism (Baxter & Jack, 2008). In addition to her conviction that knowledge is ultimately an individual construction involving complex sociocultural influences, the researcher strongly believes that all children can learn. Furthermore, she believes that children learn most effectively when provided opportunities to be actively-engaged as meaning-makers in their own learning. The researcher also has a deep commitment to the use of instructional technology in the classroom, primarily because of its potential as a tool to support and enhance the meaning-making process. She believes that incorporating digital technologies students are already using in their everyday lives into classroom instruction can have a positive and significant impact on students’ academic engagement and consequently their motivation to learn. Internet technologies have fostered innovative techniques for students to socially interact with others about texts. Online discussions
(i.e. email, blogs, wikis, threaded discussions, chat rooms etc.) encourage communication and learner engagement. These technologies have great potential for fostering literacy skills, strengthening communication, and building a sense of community within and beyond the classroom.

**Data Collection**

As stated by Gall et al. (2007), the primary purpose of qualitative research is “to study phenomenon in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them” (p. 31). In this study, then, three data collection procedures were used: 1) observations; 2) document analysis, and; 3) interviews. Following is a rationale for the data was collected.

**Observations**

Through observations, researchers are able to record behavior as it is happening. Merriam (2009) notes that observation enables the researcher to see things firsthand and then use his or her own knowledge and expertise to interpret what has been observed. Observations further allow the researcher to confirm his or her interpretation with the participants’ understanding of what occurred (Gall et al., 2007). To answer the first research question, “How do six adolescents use instructional technology to construct meaning while reading and writing in an alternative school program,” the researcher conducted a series of three observations for each participant. Each of the observations was purposefully designed to gain insight into how the participants utilized instructional technology to make meaning while participating in reading and writing experiences. The specific assignments for these experiences will be based on a reader response theoretical
framework (Rosenblatt 1938/1995) which posits that a reader’s understanding of text is the result of the complex transaction of a reader with a text in a sociocultural context, one that includes the influence of situation and purpose. According to Rosenblatt (1978), there are two broad purposes for reading: 1) aesthetic and; 2) efferential. The purpose of an aesthetic reading is “the reader’s attention is centered directly on what he is living through during his relationship with that particular text” (pg. 25); the purpose of an efferential reading is “the reader’s attention is focused primarily on what will remain as residue after the reading - the information to be acquired, the logical solution to a problem, the actions to be carried out” (p. 23).

The three activities that align with this reader response theoretical framework represent a range of literary experiences: 1) a digital response to poetry (Curwood & Cowell, 2011; Stuart, 2010); 2) an efferential reading to research a topic (Coiro & Dobler, 2007; Rosenblatt, 1978), and; 3) an aesthetic reading of an electronic text followed by a written response posted in an online wiki (Larson, 2009; Rosenblatt, 1978).

**Response to poetry.** In the first series of observations, students read several selections of poetry and self-selected one poem for a digital reader response using Windows Movie Maker. Stuart (2010) believes that, “Cin(E)-Poetry (Cinematic Electronic Poetry)” is an engaging integration of poetry, reader response, and technology. Cin(E)-Poetry is one way to bridge the study of and response to poetry through the media of the 21st-century student” (p. 30).

In this task, students selected a poem and then created a digital movie reflecting their personal response to the poem. They created storyboards that mapped out their
responses and how they wanted to represent their responses. After locating digital still images and music that represented their response, they loaded the images, music, and text into *Movie Maker*. Finally, students completed their digital poetry movies by adding transitions, effects, title, and credit slides.

**Use of the Internet for information-gathering.** Coiro & Dobler (2007) argue that the Internet has become an important tool in teaching and learning, with information gathering its most widely used application. Despite the increase in the use of information and communication technologies at school and home, little is known about how students construct meaning with nonlinear texts (Coiro & Dobler, 2007). Furthermore, Kist (2010) writes, “with more texts now being screen-based and embedded with hyperlinks, this distinction between nonlinear and linear reading is more appropriate for discussion than ever” (p. 19).

In the second observation, participants were observed using the Internet to conduct research for a school related assignment. The researcher gave the students choices of topics related to water because water was a relevant theme in the novel *Tuck Everlasting*. Once a topic was selected, participants were observed in how they construct meaning while navigating nonlinear texts on the Internet.

**Response to electronic or e-books.** Larson (2010) states that there is an urgent need to address the discrepancy between the traditional (i.e. pencil, paper, and printed texts) literary experiences that students encounter in school and the digital literacy they practice in their daily lives outside of school. She further adds, “One way to bridge such
incongruity is to expand the types of texts students are exposed to and engaged with at school by turning attention to electronic books, or e-books” (p. 255).

In the third series of observations, therefore, students read an electronic text and responded to it via an online wiki. The text chosen for this task, *Tuck Everlasting*, is a fictional novel by Natalie Babbitt. This text was chosen for the following reasons: 1) it is available in electronic format; 2) it is not a required text for the participants; 3) the theme of this text (i.e., immortality) naturally lends itself to the adoption of the aesthetic stance which is the primary interest of the researcher for this particular task (Rosenblatt, 1978).

Participants read the ebook using the iBook app on the iPad 2. The researcher chose this particular electronic device because of its availability at the research site. The iBook app allowed participants to interact with the book by highlighting and creating annotations while reading. Furthermore, the researcher was able to print a hard copy of these annotations that were analyzed for any emerging patterns or themes.

Participants shared their e-book responses before, during, and after reading on a group wiki. A wiki is a “Web site that allows users to add and update site content by using their own Web browser…Wikis end up being created mainly by a collaborative effort of the site visitors” (TechTerms.com, 2012). Wilber (2010) notes that a wiki is not characterized by a single author who is writing over time, such as a blog. Instead, it involves a group of people who are each contributing to a single source of knowledge. Because wikis are web-based and can be easily accessed from any Internet connection, participants were not only able to respond during observation sessions but were also able
to continue the literature discussion outside of the research setting. Wiki’s are a way to move the traditional literature circle to an online format (Kist, 2010).

During each observation, the researcher’s role was that of a participant-observer (Merriam, 2009). As a participant-observer, the researcher’s presence and purpose as an observer is made known to the group. The researcher’s participation in the group is secondary to his or her role as information gatherer (Merriam, 2009).

During the observations, the researcher took descriptive field notes which were expanded upon as soon after the observation as possible, ideally within 24 hours. Merriam (2009) asserts that field notes should be highly descriptive and include information about the setting, activities and/or behaviors of the participants as well as about what the observer does. Merriam (2009) further maintains that field notes must be reflective. This reflective component includes the researcher’s commentary which records his/her “feelings, reactions, hunches, initial interpretations, speculations, and working hypothesis” (p. 131). Furthermore, observations were audio and/or video recorded for the purpose of verifying the field notes recorded by the researcher.

**Documents**

While observations only allow us to see overt behavior, documents can reveal the inner meaning of everyday events. They can further provide descriptions of unusual or distinctive human behavior (Merriam, 2009). Moreover, Merriam (2009) believes personal documents are “a reliable source of data concerning a person’s attitudes, beliefs, and view of the world” (p. 143). She further believes it is essential to emphasize that documents are not representative -- or necessarily reliable -- accounts of an incident;
however, documents do reflect the participant’s perspective, which is what most qualitative research is seeking.

In order to assist the researcher in answering both questions, she collected a variety of documents created during the study time frame. The following is a description of the documents that were collected for each assignment.

**Digital poetry assignment.** For the first assignment, students created digital poetry and their completed documents were examined for emerging patterns and themes. Specifically, the researcher searched for emerging patterns in how students portrayed their interpretation of the poem using multimedia (i.e.; audio/music, images, transitions, effects, etc.). For example, does the multimedia selected match the mood of the poem? Do the participants interpret the poem literally or figuratively and which evidence suggests these choices? How did the participants use digital transitions and effects to further convey their interpretation?

**Ebook assignment.** In the second assignment, the researcher printed copies of the ebook annotations the students created when reading *Tuck Everlasting*. The researcher also printed and analyzed transcripts of the online literature discussions that evolved around this book. Using the annotation feature in the iBook app, the researcher looked for patterns in the frequency participants were using notations as well as the content of the annotations. Are they using the annotation features? If so, how often? Are they using the notes features to document personal responses? Are they discussing their highlighted sections in the wiki?
**Internet Research.** The researcher did not generate any documents in connection with this task.

**Interviews**

According to Merriam (2009), interviewing is utilized when the researcher cannot directly observe behavior, feelings, or how people perceive the world around them. Such elusive information can sometime be explicitly gained or inferred from interviews. For this reason, data collection for this study included semi-structured interviews with each participant. Cousin (2008) defines semi-structured interviews as “an interview structured around a set of themes which serve as a guide to facilitate interview talk” (p.72). During a semi-structured interview, the researcher is expected to adapt, modify, and add to the prepared questions if the nature of the interview suggests it (Cousin, 2008).

This study used semi-structured interviews to elicit participant perceptions of the use of instructional technology tools to support reading and writing practices as the students experienced them during the data collection process. Participants were interviewed twice. The first interview (Appendix D) was conducted at the beginning of the data collection phase. It was designed to obtain demographic and background information about the participant. Furthermore, the researcher asked questions about the students’ use of technology, such as “Have you ever used an ereader? If so, how often?” These questions are intended to determine the student’s comfort level and experience using various technologies. Furthermore, questions were also asked to define participant comfort levels with reading and writing.
The second interview (Appendix E) was conducted after all of the tasks had been completed. Participants were invited to discuss their feelings about the technology tasks they were asked to complete. They were also asked to compare those tasks to the technology they use in their regular classrooms. Students were also asked to discuss whether or not they perceived a difference in the way they use technology use out of school from the way they are using it in school (Selwyn, 2006).

During the course of the data collection process, the researcher and participants engaged in informal conversations about the specific reading and writing tasks they were assigned. The purpose of these conversations was to gather insight into what the participants thought about the tasks themselves. These conversations also yielded additional information about student interactions that were observed by the researcher as students engaged in the prescribed activities.

**Data Analysis**

As Merriam (2009) explains, “A qualitative design is emergent…the process of data collection and analysis is recursive and dynamic” (p. 169). Moreover, qualitative research is an inductive process in which the researcher gathers data to build concepts, hypothesis, or theories rather than testing existing hypothesis. Furthermore, data collection and analysis should be done sequentially, with preliminary data informing future data collection (Merriam, 2009). The approach taken for gathering and analyzing data in this study was inductive, with the goal of identifying preliminary themes that were necessarily adapted as the study proceeded. Continual refinement of emergent themes resulted in the development of categories which shed light on the research questions.
Gall et al. (2007) define interpretational analysis as “the process of examining case study data closely in order to find constructs, themes, and patterns that can be used to describe and explain the phenomenon being studied” (pg. 466). Merriam (2009) writes, “The overall process of data analysis begins by identifying segments in your data that are responsive to your research questions” (p. 176).

Text documents such as field notes and interview transcripts were organized and analyzed using Weft QDA (Fenton, 2012). First, the researcher transcribed all interviews and imported those, as well as the expanded field notes, into the software program. After the raw data had been entered, the researcher began the process of open coding (Merriam, 2009). During this open coding phase, notations (codes) were made next to the data that was relevant in answering the research questions (Merriam, 2009).

After each data set has been coded in this manner, the researcher sorted the open codes into groups thereby constructing categories. This process is referred to as analytical coding (Merriam, 2009). Merriam (2009) defines categories as “conceptual elements that ‘cover’ or span many individual examples (or bit or units of the data you previously identified) of the category” (p. 181). Weft QDA assisted in the management of data by allowing the researcher to assign codes during open coding. It also included features such as “text search” and “coding review” which allowed efficient manipulation of the data during analytical coding (http://www.pressure.to/qda/).

Video and audio recordings were analyzed, first by using open coding to assign codes to the raw data and later through analytical coding that enabled the researcher to begin to build categories (Merriam, 2009).
Content analysis (Gall et. al., 2007) was used to analyze documents, such as the digital poems and ereader annotation transcripts. Gall, Gall, and Borg (2007) write, “The essence of a content analysis is the coding of the document’s message into categories” (p. 289). In this study, the researcher examined digital poems and ereader annotation transcripts looking for patterns or themes that emerge (Gall et al., 2007).

Although the researcher analyzed each participant data set independently, all data sources were analyzed by using the constant comparative method of data analysis (Glaser & Strauss, 1967). The researcher analyzed each participant’s data in each of the three tasks looking for emergent patterns and themes to develop into categories. Once these categories were established the researcher compared across all participant data sets. Comparisons were continually made within and between categories. With each comparison, the researcher clarified the meaning of each category, created distinctions between categories, and decided which categories were most important to the study (Gall et al., 2007; Merriam, 2009). These continual comparisons generated a set of patterns or themes that were developed into tentative categories that addressed the research questions.

Since this design is a multiple-case study, two stages of analysis were utilized. Merriam (2009) identifies these two stages as within-case analysis and cross-case analysis. For the within-case analysis, each case was analyzed comprehensively and separately from the other cases. For this study, a “case” is defined as an adolescent that uses technology for construction of meaning while reading and writing. As noted, each case was analyzed separately according to each of the three tasks. Subsequently, a cross-case analysis was conducted between and among cases so that the researcher could
construct a generalization that fits the individual cases (Merriam, 2009). Analysis continued until saturation is reached and the data is no longer producing any new insights.

**Validity and Reliability**

In order to give credence to the results of this study, the following methods will be utilized:

Internal validity (credibility) is concerned with how research findings match reality (Merriam, 2009). Triangulation was utilized in order to achieve internal validity. Triangulation is defined by Merriam (2009), as “the use of multiple methods, multiple sources of data, multiple investigators, or multiple theories to confirm emerging findings” (p. 215). This study used multiple data sources, including researcher field notes, document analysis, and interviews. Moreover, audio and videotapes were used to allow the researcher to reflect back on the actual observation and/or interview to ensure that the incident was represented correctly.

Additionally, “member checks” (Merriam, 2009) were conducted periodically throughout the data analysis period. Member checks is the process of having the study participants “check” the accuracy and completeness of the interpretations that have been made by the researcher (Gall et. al., 2007). Using member checks ensures that the emic perspective is correctly represented in the findings, because it ensures that participants recognize their own experience in the researcher’s interpretation. Moreover, it gives the participants a chance to suggest fine-tuning that better captures their perspectives. In
addition, member checks enable the researcher to correct any factual errors that are identified by the participants (Gall et al., 2007; Merriam, 2009).

In order to further achieve internal validity, the researcher remained engaged with data collection until the data or emergent findings seemed saturated. The researcher continually compared across data sets for emerging themes, creating and combining themes and subthemes until new categories were no longer evident. The researcher further provided a statement of reflexivity in which she accounts for any biases, dispositions, and assumptions she is aware of regarding her perspective on the research study (Merriam, 2009).

According to Merriam (2009), “reliability” refers to the “extent to which research findings can be replicated” (p. 220). In addition to the methods identified above, the researcher maintained reliability by keeping an “audit trail” during the study. An audit trail is the process of documenting the materials and procedures used in each phase of the study (Gall et. al., 2007). The researcher kept a journal documenting how data was collected, how categories were derived, and how decisions were made throughout the study. She also enlisted peer reviews in which colleagues were asked to scan the data and assess whether the categories and findings appeared to be consistent with evidence gathered from the data (Merriam, 2009).

External validity is the extent to which findings of a study can be generalized to other similar cases (Gall et al., 2007). The purpose of this qualitative research study is not to make it generalizable to the larger public, but to simply provide a rich, thick, holistic description of four students’ use of instructional technology to construct meaning while
engaged in reading and writing practices. While it is hoped that this research might find some individual or reader transferability, establishing external validity was not an issue for this study.

**Limitations of the Study**

Because this was a multiple-case study of the experience of six participants in one specific program, any findings or conclusions were not generalizable to other locations. If the same study were conducted in another program, the findings may have been different. The reader will need to decide what, if any aspects of this case study can apply to any other situations (Merriam, 2009).

Furthermore, it must be noted that the researcher is an employee of the program. Although the researcher does not directly work with all of the participants on a daily basis, she acknowledges that she has established relationships with them. This may have some unintended effect on the phenomenon and the participants in this study. Since the data collected was interpreted by the investigator, it is understood that personal bias might influence the findings. To reduce the influence of unintended bias, peer reviews, member checks and triangulation was used to establish reliability.

Another limitation may stem from the fact that not all students in the program participated in the study. Although participation was voluntary, the selection of subjects was determined solely by the researcher based on purposeful sampling criteria. Without including all potential participants, it is possible that data sets may not be entirely representative of the actual student population. Interpretation of the data may therefore be skewed and/or incomplete.
Summary

Chapter 3 presented the rationale for using a qualitative, multiple-case study design for the investigation of adolescents’ use of instructional technology to construct meaning while reading and writing. The design of the study, description of the site, and data collection methods were described in detail. Furthermore, the data collection and analysis process indicated that data would be collected from observations, documents and interviews. The data was analyzed inductively through the constant comparison method (Merriam, 2009). The goal of data analysis was to identify themes and develop categories that provided insights into the research questions (Merriam, 2009). Finally, this chapter further described the means that were used to insure reliability and validity and it described possible limitations of the study.
CHAPTER IV
RESULTS OF THE STUDY

As instructional technologies become readily available in today’s classrooms, literacy and literacy instruction are changing in profound ways. Professional organizations now emphasize the importance of integrating instructional technologies into current language arts instructions (IRA, 2009; NCTE, 2007), and language arts teachers increasingly find themselves searching for effective ways to utilize the potentials of new literacies.

This case study was conducted in a small alternative education program of a public school district located in a Midwestern city. The study sought to determine how six middle and high school students with emotional and behavioral disorders use instructional technology to make meaning while engaged in reading and writing activities. The study also probed how these students perceived the use of instructional technology in the classroom setting. Throughout the study students used technology to compose digital poems, read an e-book, participate in an online literature discussion, respond to teacher-constructed prompts in an electronic literature response journal, and create wiki pages based on Internet research they had conducted using the Internet.

A multiple case study design was used, with each of the three writing tasks presented as a separate case. This enabled the researcher to determine participants’ use
of instructional technology by identifying patterns both within and across tasks (Merriam, 2009). Through repetitive, ongoing review of multiple sources of information (including digital poems, e-books annotations, literature discussion board posts, electronic response journals, Internet research, wiki page creation, interviews, and observations) the researcher sought to identify themes and develop categories to answer the following research questions:

1. How do six adolescents use instructional technology to construct meaning while reading and writing in an alternative school setting?

2. What are these participants’ perceptions of how instructional technology is used in school?

In this chapter, each research question will be addressed separately. For each question, common patterns that emerged across cases will be presented and illustrated by pertinent examples drawn from the data. Data analysis pertaining to the first question, “How do adolescents use instructional technology to construct meaning while reading and writing in an alternative setting?,” identified four broad themes which emerged as significant factors in the students’ use of technology: 1) elements of process writing (Murray, 1972); 2) evidence of reader response theory (Rosenblatt, 1938/1995, 1978); 3) source of assignment prompts (i.e., student-generated vs. teacher-generated; 4) specific features of accessible technologies (i.e., ereader, Wiki) used to construct meaning.

Data analysis relating to the second question, “What are these participants’ perceptions of how instructional technology is used in school?,” resulted in the emergence of four themes that dominated their perceptions: 1) the study’s tasks; 2) their
school experience with technology use in school; 3). their frustrations with technology use at school; and; 4). the use of their own digital devices at school. These will be followed by a summary analysis of the findings. Ultimately, a cross-case analysis of results for both research questions will be shared.

**Using Instructional Technology to Construct Meaning**

To answer the first research question, “How do adolescents use instructional technology to construct meaning while reading and writing in an alternative school setting?,” data analysis of the participants’ interaction with three tasks will be presented: 1). creating digital poetry; 2). reading and responding to e-books and; 3). conducting and reporting Internet research. Emerging themes have been organized into categories that explain how participants constructed meaning while using instructional technology tools to complete these tasks. To preserve the unique voices and authentic language of these participants, their written responses have not been edited. Any changes or clarifications are shown within brackets [ ].

**Use of Instructional Technology to Support Elements of the Writing Process**

To determine how participants constructed meaning used technology to compose text, the researcher analyzed student work samples, field notes, and interview transcripts. One dominant theme emerged within and across these data sources. As writers all the participants constructed meaning by moving through what research has described as the first three stages of the writing (composing) process (Murray, 1972): 1). prewriting; 2). composing/drafting; 3). revision. In this section, rich description is used to report data related to these findings (Merriam, 2009).
Elements of process writing using Windows Moviemaker Live

In the first task, participants were asked to create a digital interpretation of a self-selected poem using Windows Moviemaker Live. The first step in creating the digital poems was to select the poem itself. Participants were given a variety of poetry books and unlimited time in which to browse and ultimately select their poem. Four participants chose their poems based on an interest in the topic or an attraction to the content. Jenna said she liked the “mood” of it. Marie thought the poem “sounds like something my Grandpa would say” (Interview, May 24, 2012). Greg and Heather chose their poems based on practical features of the text itself. Greg said it was easy for him to understand and Heather said it was the shortest poem she could find. She reported, “I didn’t feel like doing a long one” (Interview, April 11, 2012). Once participants had selected a poem from the variety of poetry resources offered provided, they were given a storyboard sheet to create a plan for their interpretation and how it would be represented (Appendix C). When participants were ready, they could begin to create their digital poems by inserting images, digital effects, transitions, and music using Moviemaker. As this process unfolded, all the participants passed through the first three stages of the writing process: 1) prewriting; 2) composing/drafting; 3) revision. Following is a detailed description of how participants engaged in these stages.

Prewriting. Before beginning to compose their digital poems, participants were asked to complete a storyboard. The storyboard papers contained six boxes, so participants could plan how they wanted each screen of their digital poem to look. Moreover, they were permitted to use as many pages as they needed to complete their
prewriting. All but one student reported being familiar with storyboarding prior to this task.

Despite the use of divergent methods, all six participants completed a storyboard organizer. Five of the six participants used their storyboards to plan the text and images that would appear on each screen of their digital poem. In each of the boxes that represented a screen in their digital poem, those five participants wrote the poem text that would appear on that screen. They also identified a keyword to use when they searched for images to add during actual composition of the poem. For example, Heather added the text “what the truth wraps up” in the first box of her organizer and then added “wrapping paper” as the keyword for her image search (Document, March 26, 2012). By contrast, Greg only used his organizer to plan what text from the poem would appear on each screen. He did not include any keywords or plans for searching images later in the process. None of the participants included plans for the digital effects, transitions, or music that they would add to their poems.

**Composing.** Participants were expected to create an electronic interpretation of their poems by adding digital images, effects, transitions, and music using *Windows Moviemaker Live*. They were encouraged to create their digital representations anyway they liked. The only requirement was that they needed to include a title screen at the beginning and a final screen to credit all of their sources. Five participants included a title screen with the poem’s title and the poet’s name; however, April only included the poem title and omitted the poet’s name. Only two of the participants correctly added a screen that credited their poem, images, and music that they used. Dana did include a credits screen, but she did not cite any of the sources she used. Instead, she credited
herself and included information about where the “movie” was made. Three participants, Greg, Marie, and April, did not include a credits slide in their final poems.

Observational fieldnotes indicate that during the composing process the participants were very deliberate about the mood they wanted to create. They used digital images, effects, transitions, and music to convey the mood of the poem to their audience.

Jenna stated that when reading her chosen poem she felt it was about not saying mean things: “When I read it, it kinda [sic] felt like a girl all depressed, feeling like she did something wrong and it caused people to be really mad at her and she felt like all alone” (Interview, April 13, 2012). Referring to her storyboard often, Jenna searched Google Images and Bing Images to download metaphors for use in her poem. She intentionally chose only black and white pictures stating that, “The reason why I picked black and white is… it’s about the mood and it’s depressing” (Interview, April 13, 2012). Fieldnotes indicate that if she could not locate the specific image she had planned to use in her storyboard, and had to make an alternative choice, Jenna then made that correction in her storyboard.

Like Jenna, the other five participants also used search engines (i.e. Bing and Google) to find images. The images they chose reflected the poem text they were representing. For example, Dana explained her selection of the image on her first screen: “I picked the cat because the poem said ‘The cat, the cat!’” (Interview, May, 18, 2012). A content analysis of all of the digital poems revealed that with the exception of Greg, participants correlated each line of the poem text to an image. Moreover, all lines of the poems were visually represented. Only Greg chose not to represent his entire poem,
choosing instead to represent certain parts. During an interview (April 16, 2012) Greg explained his decision:

    Researcher: You did not do the whole poem.

    Greg: No

    Researcher: How did you decide what to pick and what not to pick?

    Greg: Maybe what I couldn’t get pictures for or words I didn’t understand, maybe.

Greg did not account for any of the changes he made while composing on his storyboard.

Data analysis indicated that all of the participants included digital effects and transitions in their poems. Participants reported various rationales for the effects and transitions they chose to use. Dana first added a bubble effect to all of her screens that made each image zoom forward when it appeared on the screen, and then had each screen fade out into the next one. She explained that she chose the bubble effect because, “I thought it was cool and I thought it would look good” (Interview, May 24, 2012). Like Dana, Jenna also added the bubble effect to all of her slides; however, she reported doing this because she wanted a subtle effect that did not distract from the images or text of her poem.

Heather added a different effect to each one of the four screens of her poem. On the third slide she chose a photo of a pair of hands and added an effect that changed the colors of the hands. When asked why she made it change colors, she responded, “Because its moody… it makes it moodier. I don’t even know if moodier is a word” (Interview, April 11, 2012).
Data analysis further revealed that in addition to adding effects and transitions to images, participants also applied effects to the text of their poem. All participants reported changing the color of their text to make it more visible to the reader. April indicated the beginning and the end of her poem by having the words spin on the first screen and spin off on the final screen. Some participants also changed the duration of time that text appeared on the screen. Greg had a large amount of text that he wanted to include on one screen, so he lengthened the time duration of that screen so that the reader would have a chance to read all of the text, without being rushed, before the next one appeared. Dana altered the time duration of her text so the words appeared to “pop” on the screen a few moments after the image appeared. When asked how she knew to do this, replied:

Researcher: *Your picture comes up and then your words come up. How did you do that?*

Dana: *When I put the words in I made sure that the words [on the timeline] were before the picture on the slide. You can move your words if you click on them in the timeline.*

Researcher: *How did you know you could do that?*

Dana: *Found by accident last time using movie maker.* (Interview, May 24, 2012)

Once participants had finished adding images and effects to their poems, they had the option of adding music. Participants were instructed by the researcher to search websites that offered downloads of free, legal music (e.g., LastFM.com). The researcher also recommended participants use instrumental music. A content analysis revealed that all six participants added music to their poems, and all of the music was chosen because
it represented the theme or mood of the poem. April, Heather, Dana, and Marie all chose instrumental arrangements to include in their poems. All but Marie used the LastFM.com website. Marie reported that she did not like any of the music on that website and chose instead to look in the standard sample music folder that came with her netbook:

I chose the music because its calm, the poem is kind of like soothing and calm and the music - I just looked in my sample music - I didn’t really like the other music because it didn’t have that soothing sound and when I looked on my samples I saw the “Sweep Away” and I thought it would go good with my poem. (Interview, May 18, 2012)

Greg and Jenna both chose music with lyrics. Greg’s poem was about a tiger. He explained that he wanted to use “Eye of the Tiger” by Survivor because he, “tried to base it [music] on tigers and that is the only one that came to mind” (Interview, April 16, 2012). Jenna did not search for instrumental music. She chose “Glitter,” by Pink, for her poem, explaining that she had come across Pink while searching music and really likes her. She noted that she had some of Pink’s other songs downloaded on her phone:

I actually really like Pink she has like a lot of songs and she goes through a lot of stuff in her life and she writes songs about it and the words of that song - it’s about- you can like throw glitter in the air and you can be like mad and create something beautiful out of it and not doing anything destructive just letting your anger out. (Interview, April 13, 2012)

Revision. Field notes indicate that after completing their digital poems, two of the three participants engaged in revision. Revisions included editing music, changing text colors, adding, deleting, or changing effects and transitions, and timing.
Jenna began her revisions by cross-checking her storyboard with her poem. She made changes to her images and text placement on the screen. For example, on her “bird image” screen, Jenna changed the timing of the text appearance because, “the words came on too late” (Interview, April 13, 2012). Jenna was also observed changing the digital transitions between her screens and the text color on some of the screens. Each time she made a change, Jenna replayed her entire poem “movie” before she finalized the change. Her final revision was to adjust the timing on the music so that it faded out when the poem ended.

Greg also engaged in the revision process. Fieldnotes indicated that he went back to his digital poem and experimented with different effects and transitions. Like Jenna, each time Greg made a change he also went back and viewed his entire poem again before finalizing the change. Greg also made a significant revision in the music. For example, he was unhappy about a long instrumental introduction at the beginning of the song he had chosen so he asked, “Can we get rid of some of this [instrumental music] at the beginning?” (Fieldnotes, April 12, 2012). The researcher showed Greg how to use the music editing program Audacity to cut the music and use the sections that he wanted.

April, Dana, Heather, and Marie did not engage in the revision process at all. Furthermore, when Marie was having difficulty with the timing of one of her screens the researcher suggested changing the time duration on the image. Marie responded, “Or we can just get rid of it” (Fieldnotes, May 22, 2012). She then deleted it.

The revisions observed during all of the participants’ compositions were digital in nature. April, Marie, and Dana left multiple errors in spelling and capitalization in their final poems. Jenna also left one spelling error in her poem. In this task, participants
demonstrated elements of the first three stages of the writing process; prewriting, composing, and revising. However, they did not engage in the editing process and were content to leave their poems with spelling and grammatical errors. Due to the lack of editing in their writing, the participants were unable to publish a finished, polished digital poem.

**Elements of the Writing Process using Digital Writing Tools**

In the second task, reading the ebook *Tuck Everlasting*, participants were given two opportunities to engage with digital writing tools. After each reading session, participants were asked to answer teacher-constructed prompts in an electronic literature response journal. The electronic literature response journal contained five researcher-generated prompts in a *Microsoft Word* document. After each reading session, participants were asked to respond to the appropriate prompt. They were also invited to write comments about the novel using an online wiki discussion board.

Observations, field notes, and document analysis revealed that the participants did not engage in any elements of the writing process as they had done while creating their digital poems. Participants composed their responses in “first draft” form and did not engage in the prewriting, revision or editing stages of the writing process.

*Microsoft Word* contains a spell check and grammar check feature that automatically notifies writers when they have composing errors that need to be corrected. Analysis of the participant’s journals revealed that the middle and high school participants’ responses were submitted with correct writing conventions and grammar,
while the intermediate-level participants’ ignored the prompts from spell check and grammar check and submitted writing that contained many errors.

Although it does not have the spell check and grammar check features of *Microsoft Word*, the wiki is an editable document. Moreover, any revisions or edits made on a wiki are archived and able to be tracked. Data analysis of all discussion posts show no evidence that any of the participants had revised or edited their posts. Furthermore, examination of the participants’ actual posts identified many errors in grammar and writing conventions. For example, Dana’s post, “the end was good they went back to there [sic] home and found that winne [sic] had died and had children. how sweat[sic] jesse is going to be sad”, revealed uncorrected errors in capitalization, punctuation, and grammar (i.e. *there for their*).

In the final task, participants were asked to research and create individual online wiki pages on self-selected topics related to water. Through data analysis of observations and field notes, the researcher determined that none of the six participants had engaged in any prewriting activities for this task. Similarly, the participants did not engage in the composing stage of the writing process. All of the participants either copied and pasted their information or typed the information verbatim directly from the Internet websites on their wiki pages. Furthermore, the participants did not revise or edit their writing. All of the participants’ wiki pages had at least one error in spelling, capitalization, punctuation, or grammar. Table 4.1 illustrates the participants’ errors in writing on their wiki pages.
Table 4.1

Uncorrected Writing Errors on Participants’ Wiki Pages

<table>
<thead>
<tr>
<th>Name</th>
<th>Errors in capitalization</th>
<th>Errors in spelling</th>
<th>Errors in punctuation</th>
<th>Errors in grammar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greg</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Jenna</td>
<td>0</td>
<td>6</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Heather*</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>April *</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Dana</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Marie</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

*copied and/or pasted text directly from Internet website

Cross-task analysis revealed that the participants’ engaged in elements of the writing process more often in the first task than in the other two. Prewriting occurred only with storyboard prewriting for the digital poems assigned by the researcher. When the participants were not directly instructed to engage in prewriting, they chose not to. All three tasks required the participants to engage in composing; however, the digital poems required them to compose with digital technology (i.e. images, audio clips, transitions, and effects) instead of restricting themselves to words. The participants only used revision to create their digital poems, and all of the revising they did was with their digital compositions. The participants did not engage in the editing process at all, with the exception of the three middle and high school participants who did edit their electronic response journals.
Use of Instructional Technology to Support Reader Response Theory

Digital Poetry

Rosenblatt (1978) posits that readers typically adopt one of two broad stances, aesthetic or efferential, during a reading event. An aesthetic response elicits personal feelings and emotions from the reader; an efferent response focuses on the information that is to be retained after the reading. These stances are closely aligned with a reader’s purpose for engaging with a particular text. According to Rosenblatt, when reading literature, readers generally adopt an aesthetic response because their purpose is vicarious participation in a human experience. When reading nonfiction or informational text, readers generally adopt an efferential response because their purpose is to gain information.

Building on Rosenblatt’s work with sixth-grade students, Hancock (2004) found that their understanding of literary text could be influenced by four kinds of responses: 1) experiential; 2) aesthetic; 3) interpretive and; 4) cognitive. Experiential responses reflect the personal experience and prior knowledge that the reader brings to the reading experience. Aesthetic responses promote emotional interactions with the text while eliciting feelings, empathy, and character identification from the reader. Interpretive responses demonstrate a higher level of reasoning by the reader. These responses reflect the reader’s personal consideration of morals or values, meaning or message, and judgment of plot and characters. Cognitive responses occur when readers make predictions, solve problems, and make inferences regarding the plot and characters.
Using the constant comparative method (Merriam, 2009), early data analysis of meaning construction during reading events in this study indicated the strong presence of Hancock’s categories. Consequently, the researcher deliberately looked for evidence of experiential, aesthetic, interpretive, and cognitive response as well as any other meaning-making behaviors which might emerge from the data. Data analysis determined that all six of the participants adopted a primarily aesthetic stance as they interpreted the poems. Furthermore, this stance was evident as they drew on technology to construct meaning by creating a visual image that presented their interpretations’, each of the participants selected images or effects to generate visual metaphors.

In April’s poem, for example, the text read “All the colors of the world.” To highlight that phrase, she chose an image of different colored crayons making the shape of a heart. On screen 2 of Greg’s poem, the text talks about a tiger not being very stylish. To represent his interpretation, Greg chose an effect that changed the color of the tiger. He did this because he wanted to show “they [poet] are talking about how they [the tigers] aren’t stylish enough so I made them different colors so that they have a sense of style” (Interview, April 16, 2012). Heather interpreted the second line of her poem “Mistrust unties” with a photo of a ribbon tied in a bow and adds a pixilating effect that simulates the bow being untied.

**Digital Response to Aesthetic eReading**

For this assignment, participants were asked to read and respond to the novel *Tuck Everlasting* by Natalie Babbit, using the iBook app available on the iPad. Participants were encouraged to use the annotation features of iBook to keep track of their thinking as
they were reading. The annotation features included the ability to highlight or underline passages and type notes. Before the reading sessions began, students received a brief mini-lesson about these features. Because Greg had difficulty completing the reading for each session, he received an audio version of the novel so that he could listen to the text as he followed along on the iPad. After each reading session, the researcher captured a digital image of the annotations made by each participant and printed a hard copy to use in data analysis.

The first part of this assignment asked participants to respond to an electronic literature response journal after each reading session. The journal contained six teacher-constructed prompts, in a Microsoft Word document, that each participant had in his or her own folder on their netbook desktops. The prompts asked participants to respond to literary themes that they encountered in their reading and then use these responses as an impetus for their online discussion with the other participants. The electronic response journals were kept private between the participants; they were, however, free to share responses if they chose. These response journals were collected and analyzed by the researcher. After they had completed the assignment of responding in their electronic literature response journals, the participants were asked to respond to what they had read on an online wiki hosted at www.wikispaces.com.

**Reader Response: Teacher-Constructed Responses**

The researcher created five open-ended prompts (Appendix C) to engage participants’ in thinking about the text in a critical manner. Data analysis of participants’ written responses to this assignment generated evidence of Hancock’s (2004) classifications (i.e., experiential, aesthetic, cognitive, and interpretive) as well as two
additional categories: partial responses and incomplete responses. Partial responses occurred when the participant only answered part of the prompt and incomplete responses arose when the participant did not attempt to answer any part of the prompt. Table 4.2 illustrates the number of responses for each participant in each category.

Table 4.2

*Types of Responses to Teacher Constructed Prompts*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Greg</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Jenna</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Heather</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>April</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Dana</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Marie</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>13</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>4</td>
</tr>
</tbody>
</table>

Overall, the quality of participants’ responses to the teacher-constructed prompts tended to be superficial. For example, when asked “Why do the Tucks regard eternal life as both a blessing and a curse?” April replied, “Because they will live forever and they will never die.” In this response, April only restated the already established theme of the text – immortality. She did not address why immortality would be a blessing and a curse. Similarly, replying to the same question, Marie wrote, “He wants the curse to go away.”
This was a reference to a character’s feelings in the story and did not answer the prompt. It is also significant that almost half of the responses were never completed.

**Reader Response: Student Constructed Prompts**

During the seven reading sessions of the novel, class time was allotted for participants to respond to the discussion board. For this assignment, participants were asked to discuss the text with their peers in the online discussion board. Additionally, participants were asked to post at least one comment after each reading session and were encouraged to read and respond to posts from the other participants. After participants finished reading, they logged on to the discussion board and were able to begin a new thread for discussion or respond to a previously posted message. All discussion board posts were made in school during the scheduled reading time, even though the participants had access to the discussion board and were encouraged to post at other times.

Participants posted on the discussion board a total of 94 times. Using the same classifications that were used to analyze the digital poems (Hancock, 2004), the following four categories emerged: experiential, aesthetic, cognitive, and interpretive. A fifth category, clarification, identified originally by Larson (2007) also emerged. Data analysis further identified a sixth category, off-task responses. Table 4.3 shows the types of student-constructed prompts that made up the 94 posts to the online discussion board throughout the ereading sessions.
Table 4.3

Types of Student Constructed Responses

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Greg</td>
<td>13</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Jenna</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Heather</td>
<td>15</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>April</td>
<td>25</td>
<td>11</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Dana</td>
<td>19</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Marie</td>
<td>15</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>94</td>
<td>26</td>
<td>15</td>
<td>19</td>
<td>7</td>
<td>6</td>
<td>16</td>
</tr>
</tbody>
</table>

Following is a discussion of the six categories of participant responses. Authentic examples from the online discussion boards are used to exemplify trends and patterns.

**Aesthetic Responses.** Among participant responses, 28% were aesthetic in nature. Aesthetic responses generally reflected a reader’s feelings about story details (i.e. characters, events, setting) and his or her overall feelings about the book:

Jenna: *I think it was odd knowing that you are still the same after 80 years. I'm happy knowing that if i was Mae my family would not leave me. Id hate to see friends die and leave. It would be very hard for me*

Heather: *No I would not want to stay alive forever because you would see all the changes and I have trouble handling change*
Dana: *I love there little house it sounds like it is so cool. I cant what till we watch the movie so I can see the house. I wonder if it will show if they built it in the movie.*

Some of the responses ended in a heated discussion among participants. On those occasions, participants used “netiquette” (i.e. writing in all capital letters equals shouting) for emphasis. The following is an example of one such discussion between Marie and April:

Dana: *the end was good they went back to there home and found that winne had died and had children. how sweat [sweet] jesse is going to be sad*

April: *THAT IS NOT SWEET THAT IS SAD* (Discussion board post, May 18, 2012).

**Cognitive Responses.** Data analysis showed that 16% of the total posts were cognitive responses. Content analysis revealed that many of the participants focused on the same character, posting comments about “the man in the yellow suit.” They also made predictions about this “mysterious character” and his role in the story.

Dana: *the man in the yellow suit is going to die. what do you think? do you think he is going to die?[sic]*

April: *I think that the man in the yellow suit is going to break into Winifred house that would be sad if he did.*
Although most of the questions posted by participants posted were unanswered, following is a conversation between Heather and Greg as they discussed what they thought about the man in the yellow suit:

Heather: *What did you guys think of the man in the yellow suite? His life is over and so is Mae's (not completely though!)*

Greg: *He has a nice suit then is he rich [sic]*

Heather: *Umm... What are you talking about? He could be a hobo and could have stolen a suit.*

Greg: *He is a ltttttttttle creeeeeeeepy*  (Discussion posting, April 24, 2012)

**Interpretive responses.** Interpretive responses comprised 20% of the total responses posted by the participants. As the examples below illustrate, participants made judgments about the kidnapping of Winnie and whether that was a morally acceptable decision on behalf of the Tucks. Participants also responded to the character, “the man in the yellow suit,” by making judgments as to his character.

Dana: *Tuck is keeping Winnie for 1 or 2 day's that is kidnapping that is not good ;)*

Marie: *He got smack now he is on the ground and he seems nice but he feels like a stranger I hope that he doesn't die*

Heather: *Personally thought these people are crazy for taking a little girl. Aren't her parents going to look for her?*
**Experiential responses.** Only 7% of the participants’ responses indicated they were constructing meaning based on their personal schema. In this particular reading, the participants’ experiential responses demonstrated their connections to the characters and their actions.

Marie: *When I was reading chapter 3 this word pop up and the word was Winifred so here is a story that I would like to share with my friends. Did you know the Winifred sounds like an Irsh [Irish] name to me of course because I think when i wasn't born yet my grandfather was in the war and he had gotten hurt and he was also blind so in the war when he was hurt and blind at the same time he and [had] to get an animal to help him see and walk and i think my grandfather told because he is still alive he told me that he remembered that he named his dog Winifred but i know that this did not have to do with the boo [book] but this is my thoughts.*

April: *I don’t like the fact that the [they] eta [eat] with there finges I know if I did that in my house i would get in trubal [trouble].*

**Clarification responses.** Larson (2007) explains clarification responses as those that indicate confusion or lack of understanding on the part of the reader. Clarification responses only comprised 6% of the total responses. The participants posted clarification responses mostly when they did not understand events in the story.

Greg: *i did not get the first 2 chapters then i got it*

Greg: *i dont get why winnie knows mae tucks name cause mae tuck says that no one remembers her.*
Heather: *What do you mean you don’t understand that was a confusing answer? I didn’t know Winnie knew Mae’s name.*

As illustrated in these examples, Greg was struggling with comprehension of the text, and his misunderstanding confused another reader. These posts were made during the third reading session. At that point Greg was approximately eight chapters behind the other participants in his reading. Because of this, Greg was offered an audiobook of the text not only to support his comprehension but also to help him keep up with his peers so that he could participate in the online discussions. Data analysis revealed that once Greg began to use the audiobook, he made no more clarification posts.

**Off-task responses.** Off-task responses were posts that did not relate in any way to the ereading task. Data analysis revealed that 17% of the posts were determined to be off-task. The three participants who posted in this category had never used an online discussion board before. The following is an example of some of the playful dialogue they engaged in during the first ereading session.

Heather: *People say I look like Dora I hate that!*

Greg: *Jess looks like icarly*

Heather: *Haha I would rather look like Dora!*

Jenna: *Da da da Dora! Dora the explorer! Swiped no swiping!*

The participants also used this discussion board to talk about a project for another class.

Greg: *Heather we need to work on da Spanish project*

Heather: *Who is going to write the first paragraph.*
Furthermore, all of the off-task posts occurred during the first ereading session for which the researcher had provided an initial prompt about the novel to help initiate the discussion. Participants appeared to use their off-task conversations as a way to explore the new technology. All three participants eventually did answer the initial prompt after which there were no more off-task responses for the remainder of the ereading sessions.

**Reader Response to Efferent Reading on the Internet**

Rosenblatt (1978) describes the efferent (nonaesthetic) stance as when “the reader's attention is focused primarily on what will remain as residue after the reading - the information to be acquired, the logical solution to a problem, the actions to be carried out” (p. 23).

For this task, participants were asked to use the Internet to gather information and then create a wiki page on a self-selected topic related to water. Observations and interviews were used to gather data on how the participants used the Internet to read for these informational purposes. Below is a summary of the process each participant used when reading for information on the Internet.

**Heather.** During her interview Heather explained that, “I read for information and then take out what I need and sum it up. I place it in a Word document then reword it” (Interview, May 21, 2012). However, observational notes indicate that Heather did not once reword any information she had gathered. Instead, she copied and pasted directly from the website to her wikipage.

**Jenna.** Jenna explained that in her search for results she clicks on all of the websites until she finds one that explains about her topic. Jenna only used one website to
gather information on water pollution. She moved back and forth between the website and her wikipage, copying the information verbatim. In her interview, Jenna said that she likes to use images in her research “so they like can see what I am talking about” (Interview, May 21, 2012). She did not include any images in this research presentation.

**Greg.** Greg did not use a search engine to look for information. Instead he went directly to Wikipedia to gather information. He reported that this is typically the process he follows. He did use Bing! to locate an image for his wikipage. Data analysis indicated that he also copied information verbatim from the Wikipedia entry to his wikipage.

**April.** April was the only student who took notes during the research task. Through a Google search April identified a website that contained the information she was looking for. She took a sheet of paper and began copying the information word for word. She then took those notes and typed them exactly into her wikipage. She did not attempt to summarize or reword her notes. When asked how she knew which websites contained truthful information, April explained that she looks for websites that have .edu or .org in their domain name.

**Dana.** Dana used her prior knowledge to select which website she would use to gather information. For this task, she typed “what is the water cycle” into the search engine. From the website descriptions in the search results, she identified keywords (i.e. evaporation, precipitation, and condensation) about the water cycle with which she was already familiar. Dana decided she would only gather information from that site, so she moved back and forth between the site and her wiki page typing the information. She did put some of the information into her own words.
Marie. Marie did not appear to have a systematic approach to conducting online research. She initiated four separate searches on her topic, often not even clicking on the links which opened the site. In addition, Jenna typed information word-for-word from the site descriptions in the search results to her wikipage. When asked how she knew that the websites she used were truthful replied, “By using [sites] like the Wikipedia cause that is all true on there and not using the aol.com and answers.com sites” (Interview, May 21, 2012).

Source of Task Prompts

For this study, the researcher created tasks that were both student-centered and teacher-centered. In the first task, digital poetry, the participants were given complete control over the assignment. They chose their own poems and were encouraged to use Windows Moviemaker Live anyway they desired to create a visual representation of their poem. In the second task, ereading with digital written response, participants completed both student-centered and teacher-centered assignments. The student-center assignments included using the annotation features of an ereader and the online literature discussion wiki. The electronic literature response journal was a teacher-created assignment in which the participants had no topic choice. The third task, Internet research and wiki page creation, was mainly teacher-directed, although the participants did have some choice about how they chose to present their research on the wiki page.

Analysis of the data according to the source of task prompts revealed that participants demonstrated a greater level of engagement and produced a more complete final product when the task prompt was student-directed. In creating their digital poems, for example, participants worked over several days to locate what they felt were the best
images and audio to transform the words of the poem into digital “movies.” Furthermore, during this process they spent a significant amount of time adjusting and revising the digital effects and transitions in order to create their visual metaphors.

Participants also demonstrated substantive levels of engagement while reading and responding to the ebook *Tuck Everlasting*. They used the features of the iBook app to create a total of 211 annotations during the ereading sessions. Table 4.4 illustrates the number of highlights, underlining, and notes created by the participants.

Table 4.4

*Student Use of iBook Annotations and Notes Features*

<table>
<thead>
<tr>
<th>Name</th>
<th>Total Annotations</th>
<th>Number of Highlights</th>
<th>Number of Underlines</th>
<th>Number of Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greg</td>
<td>16</td>
<td>15</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Jenna</td>
<td>19</td>
<td>19</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Heather</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>April</td>
<td>49</td>
<td>49</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>Dana</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Marie</td>
<td>31</td>
<td>30</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>211</td>
<td>129</td>
<td>2</td>
<td>80</td>
</tr>
</tbody>
</table>

Moreover, high levels of engagement were observed when the participants posted on the *Tuck Everlasting* discussion wiki. The discussion wiki provided a place for the participants to informally discuss the story. All six of the participants posted after each reading session, resulting in a total of 94 posts. Of these 94 posts, only 16 were off-task
and contained content that was unrelated to the story. Participants used the wiki to present their feelings and reactions to the text as well as to seek the feelings and reactions of the other readers. In addition, they occasionally used the discussion wiki to help clarify their understanding of the novel.

By contrast, when the assignments were teacher-directed participants displayed lower levels of engagement and produced documents of lesser quality. In the first teacher-centered task, for example, all of the participants wrote some partial or responses to the prompts (Table 4.2).

All participants reported that they liked the third task, Internet research and wiki page creation, the least. Perhaps not surprisingly, data analysis found that they spent the least amount of time working at this task, with each participant completing the research and wiki page within thirty minutes. By contrast, each participant had spent several days completing the digital poem.

Once their research was completed, participants were asked to present the information on their wiki page. Although participants were instructed to post on the main wiki website, they were free to present their content however way they wished. Completed pages were analyzed for content synthesis, length, inclusion of titles, mechanics (i.e. capitalization, spelling, punctuation), visual features (i.e. images and text features), and citation of sources. Table 4.5 provides a summary of the content analysis of the participants’ individual wiki pages.
Table 4.5

*Content Analysis of the Participants’ Individual Wiki Pages*

<table>
<thead>
<tr>
<th>Name</th>
<th>Synthesizes info.</th>
<th>Length</th>
<th>Visuals</th>
<th>Enhanced text</th>
<th>Title</th>
<th>Uses correct mechanics</th>
<th>Sources cited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greg</td>
<td>No</td>
<td>3</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>1 error in title</td>
<td>No</td>
</tr>
<tr>
<td>Jenna</td>
<td>No</td>
<td>11</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1 error in title</td>
<td>No</td>
</tr>
<tr>
<td>Heather</td>
<td>No</td>
<td>10</td>
<td>Yes</td>
<td>No</td>
<td>Yes and subtitles</td>
<td>2 errors in punctuation</td>
<td>No</td>
</tr>
<tr>
<td>April</td>
<td>No</td>
<td>2</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>3 errors in title</td>
<td>No</td>
</tr>
<tr>
<td>Dana</td>
<td>Yes</td>
<td>3</td>
<td>Yes with caption</td>
<td>No</td>
<td>Yes</td>
<td>Missing punctuation</td>
<td>No</td>
</tr>
<tr>
<td>Marie</td>
<td>No</td>
<td>5</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>4 errors in title</td>
<td>No</td>
</tr>
</tbody>
</table>

Overall, the wiki pages provided minimal information; all but one student had copied the content directly from the Internet. Two participants chose to add images to their page. Jenna, who reported in her interview that she liked to include visuals in her presentations, did not include one on her page. She was, however, the only student to enhance the text on her page, changing the font color to pink and highlighting it in black on a white background. Among all the participants, Heather was the only one to spend a significant amount of time developing the layout of her page. She attended to image and text placement, and she also included a subheading on her page. Heather occasionally became by limitations of the wiki page features i.e., she only had three choices for image
placement – left side, center, or right side and she had difficulty placing the cursor where she wanted to type text. Even though all of the participants used Internet resources in their research, none of them cited resources on their wiki pages.

**Specific Features of Accessible Technologies Used to Construct Meaning**

Each of the three tasks provided opportunities for the participants to use various forms of technology to help them construct meaning. In the first task, participants used *Windows Movie Maker Live* to turn the printed poems into visual metaphors. They took advantage of the technology by adding digital images and audio to convey their personal responses to the poems. Moreover, they used the transitions and effects features of the software to further personalize their poems. In her final interview, Jenna said she believed that by adding the visual images and audio she was able to portray her interpretation of the poem to her audience more accurately.

Reading a novel in an electronic format afforded the participants opportunities to construct meaning that would have been unavailable with a conventional print book. The iBook app that the participants used to read *Tuck Everlasting* contained an annotation feature that allowed them to highlight, underline, and type notes to record their thinking. The participants recorded 211 annotations throughout the ereading sessions. These note-taking behaviors are not typical in traditional classrooms because school texts generally cannot be marked in. Consequently, the technology enabled students to quickly and conveniently record their thinking. Additionally, iBook features an online dictionary where students can click on a word and instantly see the definition. This feature aids comprehension of text as many readers do not take the time to stop when reading a printed book to look up an unknown word; they often just skip over them and continue.
reading. Greg was the only participant to use this feature looking up the word “melancholy”.

The online discussion board provided a setting for students to discuss the text they were reading without direction or comment from the researcher. Students used the board to post their reactions and personal connections to the text; occasionally they posed a question about the text to the other readers, seeking their confirmations, thoughts, or opinions. Participants expressed enthusiasm for the online discussion board as a safe environment for them to discuss the text. They said they were able to think about their responses without the tension or awkwardness that sometimes happens during “live” class discussions. Furthermore, they liked having the discussion posts archived on the board so that they could go back and refer to them. It helped them to remember the discussions.

In the third task, participants were instructed to use the Internet to research a topic and then present their findings on a wiki. Through observations, interviews, and document analysis, the researcher determined that the participants did not utilize these technologies to their fullest potential. When researching on the Internet, students demonstrated that they were able to search and locate the information needed for their topics. Yet they often took the information from the first websites they found. Moreover, students appeared to lack the skills needed to evaluate information from the Internet for trustworthiness and credibility. Furthermore, since they did not gather information from multiple websites, participants were unable to synthesize the information. Instead they simply copied and pasted a few sentences and images onto
their wiki pages. In this sense, the Internet appeared to hinder their ability to read and respond to text when assuming the efferent stance.

In this task, it appeared that students adopted an efferent stance but the depth of the meaning they constructed was not enhanced by the technology. When they created their digital poems, participants enthusiastically used the technology as a way to present their interpretations more creatively. Although the wiki had features that would allow similar creativity, (i.e., graphics, video, audio, and hyperlinks to other websites) students typically did not use them. In fact, only one of the students, Jenna, used some of these wiki features when presenting her research.

**Student Perceptions of Technology Use in the Classroom**

Data analysis of the second research question, “What are these students’ perceptions of how instructional technology is used in school?” was based chiefly on interviews with the six participants (Appendix I). The purpose of this question was to understand the students’ perception of the three literacy tasks completed for this study as well as their perspective on how technology is used in most of their classes. Two patterns emerged that addressed this research question as students shared their views about 1). the specific technologies used in these tasks; and 2). the generic role of technology in school.

**Technology Use in the Three Tasks for This Study**

After the students had completed the three tasks, individual audio taped interviews were conducted with each participant. The first question the researcher asked was, “What are your feelings about the technology we used for this study?” All six
participants answered favorably about the technology they had used in each of the three tasks. Even though use of these technologies was new for some of the students, they still enjoyed being able to use them:

*Greg:* It was fun. I learned how to use technology in different ways, some that I didn’t know about.

*Heather:* I thought it was fun. I thought it was a neat idea. Kinda [sic] challenging for me because I’m bad (laughs) at technology.

*April:* I like working with technology I guess and learn about it and so if like a teacher sits me down and says here’s a bunch of books to start reading I don’t like that.

After this initial question, the researcher then asked the participants to comment on each individual technology task, explaining which was their most favorite and which was their least technology. Each technology and the students’ responses will be discussed individually.

**Windows Live Moviemaker.** All of the participants reported that they really enjoyed using Moviemaker to create their digital poems. Three of the students had never used Moviemaker before and welcomed the challenge of learning a new technology. Greg reported, “It was hard at the beginning but as soon as we got into it a couple days I got used to it- how to use it. I mean I needed help along the way but it went easy” (Interview, May 21, 2012). Furthermore, they felt that Moviemaker was similar to PowerPoint, although they preferred the effects and transitions that Moviemaker offered. Heather said, “Being able to put music in is easier than PowerPoint and how it would like
change different colors with the features on the slide. I thought that was pretty cool” (Interview, May 21, 2012). Marie excitedly summarizes her experience using Moviemaker:

Moviemaker was really fun because there was animation and there was all these different kinds. I loved putting on the pictures and words because you never know what color you have to pick for the pictures and the words to go on the picture and there’s a lot of animations and it was just really fun. (Interview, May 21, 2012)

**Ereading with iBook App and Online Discussion Board.** The participants reported mixed feelings about using an ereader. Three of the six students (April, Marie, and Dana) had previously used ereaders in their regular language arts class and responded positively about its use in this study. Heather owns her own ereader and also recalled earlier experiences reading digital text. They all commented that they especially liked the annotations and notes features. Heather referred to these features saying, “I thought that was cool. With the highlighting and writing the notes with the little sticky note on the side – you could just tap on it and I thought that was pretty cool” (Interview, May 21, 2012). April observed that the annotation features allowed her to keep track of her notes in one place and not risk losing them. Organizational skills was one of the goals on April’s Individual Education Plan, this feature supported her efforts to meet that goal.

April also liked the convenience of an ereader. She explained:

iBook is pretty neat because there are some books in the world that cost a lot of money to get and some people don’t get out that much to go out and get a book so like if you have it right there on your iPad you can download it. (Interview, May 21, 2012)

Greg and Jenna had not had any previous experience reading using an ereader.

Greg also liked the annotation feature, because it helped him “keep track of stuff”
Jenna did not like using an ereader. She found the iPad distracting, because it tempted her to engage with other apps or music etc. She explains, “The books I like more, like being able to turn the pages by myself I really didn’t like it on the iPad but…it was kind of more distracting on the iPad” (Interview, May 21, 2012).

Jenna and Marie were the only two participants to comment about the online discussion board. Both had enjoyed participating in an online literature conversation. Jenna reported that she liked being able to picture the entire conversation visually and, because it was archived she could go back to previous discussions if she forgot something. Marie was very enthusiastic about the online discussions, stating that they were her favorite out of the three tasks. When asked why she exclaimed, “Because you got to let out all your feelings about *Tuck Everlasting*!” (Interview, May 21, 2012).

**Internet Research and Wiki Page.** Of all the three tasks completed for this study, the participants liked the Internet research the least. When asked how they felt about Internet research, each of them described the process they used to conduct the research but not how they felt about it. Only two students, Greg and Marie, verbalized their actual feelings about this task. Greg did say it was “a little boring” (Interview, May 21, 2012). Marie expressed her disinterest in the task because she did not like the topic choices.

In summary, the majority of the students favored the first task, creating digital poems, the most. They were attracted to the creativity options that the technology offered them. For the most part, students responded favorably to using the ereader and participating in an online discussion. The least favorite task was the Internet research. Through observation, it was evident that the students did not invest as much time in this
third task as they had with the prior two. Furthermore, their wiki pages were mostly copied and pasted from the Internet sites that they located.

**Technology Use for School Purposes**

The curriculum at this alternative public school heavily emphasizes the integration of technology into classroom instruction. The school provided a netbook with wireless Internet access for each student to use during school hours. Furthermore, the students had access to iPads, digital cameras, interactive whiteboards, audio recorders, and video recorders.

Participants were asked how technology was used in their other classes. A significant difference emerged between the intermediate level students and the middle/high school students in their perceptions of the classroom technology they were using. The intermediate level participants reported using a variety of technology applications in their everyday classroom instruction. These applications included *Word*, *PowerPoint*, *Glogster*, *Prezi*, *Photostory*, *Zunal*, *Timetoast*, and *Moviemaker* as well as the Internet. They further indicated that they also used technology to play educational games, listen to music, and practice skills such as spelling and math. The participants at the intermediate level stated that they use instructional technology daily in all of their core academic classes (i.e. language arts, math, social studies, and science).

The middle and high school participants, however, reported a limited use of technology in their core academic classes. Their primary use of technology was for Internet research or word processing through *Microsoft Word* and *PowerPoint*. Heather, a high school student, indicated that she was currently working with *Prezi* and *Publisher*.
for the first time. When asked if they used the iPads for academic work, Greg replied, “Not really. We mostly use them to play games and listen to music” (Interview, May 21, 2012). He also noted that at the time of this study, they had not had access to the iPads for almost a month.

In summary, the participants’ perception of technology use in school depended on several factors that include teachers’ perception of technology use, the nature of the task, and the technology available for use. The participants’ reported stark differences in the amount and type of technology that they were using in their classrooms. The intermediate level participants reported a greater variety of technology being used in their classrooms. Moreover, they reported that the technology was being used in all of their subject areas, whereas, the middle/high school participants reported limited technology use for academic purposes and reported using the technology for entertainment purposes (i.e. games and listening to music) more than their intermediate level counterparts.

The nature of the task also determined how the participants perceived the technology being used. For example, the digital poem assignment favored student creativity and they took advantage of many of the features of Moviemaker Live to present their interpretations. However when presenting their Internet research on the wiki, even though the participants had opportunities to use features (i.e. hyperlinks, adding video/audio or images, and use of color and font styles) of the technology to make their presentations inviting for their audience. They did not take advantage of these tools and opted to present their research in a plain, unappealing manner.
Summary

This study used a multiple case study design (Merriam, 2009) to investigate how adolescents in an alternative education program used instructional technology to construct meaning while reading and writing. Using non-random purposeful sampling, the researcher identified six students from the program to serve as participants. Interview, observations, and documents served as sources of data for this study and data collection spanned approximately eight weeks. A constant comparative method of data analysis was used to analyze the data and identify patterns and themes. In order to increase validity, the researcher utilized triangulation, member checks, and peer examination. The results and conclusions have been reported in a descriptive, narrative format to provide the reader with a rich description of the phenomena.
CHAPTER V
CONCLUSIONS AND IMPLICATIONS

This chapter is composed of four major sections. First, a summary of the study includes the purpose of the study, research questions, and the research methods used. Second, findings related to the research questions are reported and then followed by the study’s major conclusions. Third, implications of this study are discussed with recommendations for further research.

Conclusions

Technology continues to have a rapid and global presence. Today’s students will need the ability to use new technologies effectively, both within and beyond the classroom. Leu et. al (2005) maintains that the rapid infiltration of new information and communication technologies is not only a technology issue but also an essential literacy issue. The International Reading Association (2009) concurs: “Literacy educators have a responsibility to integrate these new literacies into the curriculum to prepare students for successful civic participation in a global environment” (pg. 5). Consequently, today’s literacy educators must understand how to integrate these new literacies of information and communication technologies into the language arts curriculum.

To deepen our understanding of how technology impacts instruction, this study sought to investigate how adolescent students use technology to construct meaning while
engaged in reading and writing activities. It also probed the students’ perceptions of technology use in the classroom. The following research questions guided this study:

1. How do six adolescents use instructional technology to construct meaning while reading and writing in an alternative school setting?

2. What are these students’ perceptions of how instructional technology is used in an alternative school setting?

The research was conducted in an alternative education program located in large Midwestern state. Using nonrandom sampling procedures, six students (three from the intermediate class and three from the middle and high school classes) were selected to participate (Merriam, 2009). Data collected to answer the research questions included 1). individual interviews with all participants; 2). observational fieldnotes; 3). documents from three different literacy tasks and; 4). miscellaneous pertinent documents. Triangulation of data occurred through the use of multiple data sources to establish validity. In addition, member checks and peer examinations were conducted.

The constant comparative method (Merriam, 2009) was used to analyze the data. The analytic goal was to establish patterns within the data that addressed the research questions. As new data was collected it was compared to existing data. Through this process, patterns began to emerge that resulted in identification of categories which ultimately led to credible theories based on the research questions. Following is a discussion of the findings for each of the research questions.

Question 1. How do six adolescents use instructional technology to construct meaning while reading and writing in an alternative school setting?
The use of technology for meaning-making while reading. Rosenblatt’s (1978, 1938/1995) transactional theory of reader response asserts that meaning is constructed via a transaction between the reader and the text. Moreover, she believes that readers respond to texts differently, depending upon both the nature of the text and where they choose to focus their attention. She refers to the confluence of text and purpose as the reader’s “stance.” Literary text, for example, typically generates an affective response, while expository text generates a more impersonal and neutral response.

The results of this study support Rosenblatt’s (1978, 1938/1995) seminal theory of how readers construct meaning through their unique transactions with the text. The technology that was used during the study’s reading and writing events enhanced these responses by providing support for the participants which allowed them to engage with texts in new or deeper ways. As they read poetry and fiction, for example, students favored affective responses. Digital poetry enabled the participants to forge unique interpretations of the text by choosing from a wide range of visual and audio effects; Jenna chose images that where black and white to convey the somber mood of her poem. Like Jenna, all the participants used features of the technology to enhance their personal reaction to the poem.

In addition, Rosenblatt (1978) believed that nonlinguistic factors could have a great influence on the reading experience. Stuart (2010) maintains that students are naturally visual learners and therefore “can interpret and represent ideas through visual mode” (pg. 29). As Kist (2005) observes: “…through moving pictures, still photography, dance, theatre, music, and visual art a person can ‘speak’ just as directly and individually as through the medium of text” (p.1). In this study, then, technology facilitated and
deepened students’ meaning-making by providing easy access to a range of expressive modes that took both linguistic and non-linguistic forms.

Similarly, participants also used interactive features of ereader technology to support and enhance their meaning-making with fictional text. The six participants recorded a total of 211 annotations (i.e. highlighting and/or underlining) and typed a total of 80 notes as they responded to the story. Larson (2010) points out that by examining students’ notes and annotations, educators can gain valuable insights to students’ reading behaviors and comprehension skills. Data analysis of these students’ annotations and notes revealed that they used the technology to record aesthetic, cognitive, interpretive, experiential, and clarification reactions to their reading (Hancock, 2008). Perhaps because the technology did not permit nonlinguistic response, students’ used ereaders to write in conventional linguistic forms. Still, the technology provided an efficient way for them to write spontaneous responses that were largely affective in nature and consistent with Rosenblatt’s transaction process.

While the technology appeared to enhance or deepen their meaning-making with poetry and fiction, participants enlisted few of its resources when engaging with expository text. Students were asked to research a topic of choice related to water (e.g., the water cycle, how ground water is formed, or water pollution). In addition to using Internet resources to read on the topic, students were asked to share what they had learned by creating a Wiki page.

Wilber (2010) defines a wiki as “a group of people who are contributing to some source of knowledge” (pg. 70). Wikis offer endless possibilities for communicating information, including links to websites, embedded videos, photographs, and static, typed
information. Wikispaces also allows users to change font style, size, color, and has bold, underlining and highlighting features. Yet all of the participants appeared to ignore these meaning-making options. Instead, each of them simply copied and pasted his or her information directly onto a wiki page. They did not utilize any of the enhancement features the technology offered, except that one student did highlight her two lines of text.

Eagleton and Dobler (2007) developed a model for Internet inquiry that involves five stages: 1) asking a question; 2) understanding and choosing resources; 3) evaluating resources and information; 4) synthesizing the relevant ideas and concepts from the resources and; 4) transforming ideas in a new and insightful way. Results of this study found no evidence that students drew on this model as they engaged in Internet research, even though all of them used Internet search engines to locate information. They did not, however, demonstrate an ability or interest in gathering and synthesizing information from multiple resources, either with or without the support of technology.

The technology did enable them, however, to copy and paste large passages of text directly from the Internet to their wikis. In fact, students met the task’s requirement without any evidence that they had actually either read or constructed meaning from the passages they copied. While it is unclear whether this was because students were indifferent to the topic or the assignment, it is clear that the technology enabled them to cut-and-paste information with minimal attention to meaning-making.

One conclusion of this study, then, is that these students used technology to enhance, deepen and/or facilitate their meaning-making process. The technology itself
did not, however, drive the meaning-making process. Students drew on both linguistic and nonlinguistic features of the technology to serve their own purposes. When interpreting literary text, for example, the students used audio, visual and interactive resources. When researching a nonfiction topic, they chose to ignore those features by locating, copying and directly pasting a text from the Internet.

For decades, scholarly research has confirmed that in their transactions with text, readers drive the meaning-making process (Galda, 2010; Rosenblatt, 1978, 1938/1995; Martinez & Riser, 1991). Results of this study add to this body of research by confirming readers’ primacy in the meaning-making process, even when access to the new literacies available to them through technology.

The use of technology for making meaning while writing. Perl (1980) found that writing is a recursive process in which writers move fluidly between different stages. Dornan, Rosan, and Wilson (2003) identify three distinct stages in the writing process: 1) prewriting, in which writers actively plan by thinking and talking about their potential composition with the goal of gathering ideas; 2) writing, in which writers compose drafts, obtain feedback from others, and then revise and; 3) postwriting, in which writers edit, proofread and sometimes publish their composition. The results of this study indicate that the technology that was used during the study’s writing events provided support for the participants as they moved recursively through stages of prewriting, drafting and revision. While composing their digital poems, for example, all the participants referred to the storyboards to guide their drafts. Jenna, for example, planned all of the images she wanted to include in her poem on her storyboard. As she composed each screen, she referred to her prewriting for the correct planned image. If she changed
her mind about the image she wanted to use, Jenna indicated that change on her storyboard also. During the writing process, many of the participants engaged in multiple revisions of their digital poems. Interestingly, those revisions related chiefly to digital aspects of the poem (i.e. transition timing, effects, audio timing etc.) and not to the text itself. For instance, Greg changed the duration of the timing between screens so his readers would have enough time to read the large amount of text he had placed on that screen.

Since writers do not seem to know beforehand exactly what message they will communicate, writing is a process through which meaning is created (Zamel, 1982). Perl (1980) and Sommers (1980) both suggest that inexperienced writers pay so much undue attention to form and conventions of writing that the ongoing process of discovery is constantly interrupted. The findings of this study did not support this research. Even those these were largely inexperienced writers, participants used the technology to create meaning in new ways by adding digital features to their compositions, but paid little attention to the conventions of writing (e.g., spelling and punctuation). They were not focused on constructing a technologically appealing or conventionally edited product. Rather, in a manner that paralleled the way they constructed meaning while reading, participants deliberately chose to use features of technology that supported the message they were communicating.

**Influence of the task on technology use.** One interesting and unexpected finding of this study was that nature of the task itself appeared to have a significant influence on the level of response by the participants. Although students used technology to facilitate their completion of each task, the impact of technology on the meaning-
making process varied between assignments. Data analysis revealed that in the two assignments which afforded students choice and opportunity for creativity (i.e. digital poetry and online literature discussions), students’ use of technology enhanced their meaning-making process. In each of these assignments, participants drew on pertinent features of the particular technology to help them construct meaning. The other two tasks (i.e. literature response journals and Internet inquiry/wiki page) provided fewer opportunities for choice and creativity. While students used the technology to facilitate completion of their assignments, they did not use it to deepen or enhance their meaning-making process.

Question 2: What are these students’ perceptions of how instructional technology is used in school?

In 2001, Prensky coined the term “digital native” to describe today’s youth believing that they are “accustomed to the twitch-speed, multitasking, random-access, graphics first, active, connected, fun, fantasy, quick-payoff world of their video games, MTV, and Internet” (pg. 11). Prensky argued that the traditional educational experience was one casualty of their new status, because these students are “bored by most of today’s education, well-meaning as it may be… The cognitive differences of the Digital Natives cry out for new approaches to education with a better “fit.”” (pg.11).

Results of this study do not, however, support Prensky’s research. In two of the four assignments, for example, access to cutting-edge technology neither motivated nor improved the participants’ performance. Instead, Jenna indicated that she often preferred traditional paperback books to reading in digital format, because all of the options available on a computer or an iPad were distracting when she is trying to read.
Moreover, in their final interviews, several students indicated they were not always comfortable using available technology, especially when it was new to them. For instance, Greg explains using *Moviemaker Live*: “It was hard at the beginning but as soon as we got into it a couple days I got used to it - how to use it. I mean I needed help along the way but it went easy” (Interview, May 21, 2012).

Prensky (2001) further claims that digital tools are integral to the lives of today’s K-12 students, because they have always been surrounded by computers, video games, mp3 players, and cell phones. Yet most of the participants indicated that they themselves did not always have unlimited access to these devices. For example, some of the participants reported that they were not allowed to use the family computer. One reported that his cell phone service is often turned off, so he is sometimes unable to use his phone. So despite living in a culture where the availability of technology is rapidly growing, the population in this study was not immersed in these technologies outside the classroom. Consequently, one conclusion of this study is that at this juncture, educators should not assume their students are “digital natives.” To determine a suitable role for technological innovation in curriculum and instruction, then, more evidence is needed about typical student access to and immersion in technology outside the classroom.

While issues of access and immersion outside of school are unresolved, results of this study do suggest that the number of digital tools students regularly used in the classroom did affect their confidence and ability to use technology. Even though the same technology was able in every classroom at the study site, instructors used the resources very differently. The intermediate grade-level participants in the technology-rich classrooms were able to use the technology more easily and to a greater extent than the students from the middle and high school classrooms.
This may be because participants from the intermediate class reported daily and extensive use of technology in their regular classrooms. At the time of this study, these students had already been exposed to many different technologies, including presentation tools (i.e., Moviemaker, Photostory, Prezi and Glogster), educational applications (i.e., iPad apps and computer games), and entertainment applications (i.e., digital music websites and non-educational games). In addition, these students had participated in Internet webquests, read ebooks, and engaged in online literature discussions.

By contrast, students in the middle and high school classroom reported limited experience with these same technologies. These participants reported that most of their interactions with technology had consisted of creating PowerPoint presentations, generating Word documents, and conducting Internet research. Furthermore, at the study’s inception, these participants had no prior experience using Moviemaker Live, reading ebooks or participating in an online literature discussion; they had not had access to the iPads for over a month.

Stark differences in their earlier exposure to the technologies used in this study were clearly evident in how participants completed some of the tasks. When using Moviemaker, for example, participants in the middle and high school classes had to watch a tutorial first. They also required continual support from the researcher as they created their digital poems. These students also needed a minilesson on how to use the ereader. Moreover, before they could fully participate in the online discussion board, these students engaged in playful, off-topic conversation as though they were in a chat room. They had to spend time exploring how the new technology worked before they could participate in the discussion assignment.
Because they were already familiar with these technologies, however, the intermediate level students engaged with them quickly, requiring little initial instruction or continual support from the researcher. Unlike their middle and high school counterparts, these participants reported no frustration in using the technologies.

The findings of this study revealed that these students did not perceive themselves as technologically savvy or reliant on technology, as Prensky (2001) suggests. In fact, they reported that they did not always have access to technology outside of school, or if they did have access it was on a limited basis. While all of them believed that they used technology regularly in their classrooms, their perception of their ability to use technology depended largely on how often and in what ways their teachers used it. For instance, the middle and high school participants watched video tutorials about how to use Moviemaker Live and periodically asked for assistance while creating their digital poems. The researcher also provided mini-lessons on how to use iBook and the wiki. However, the participants did not require extra assistance when using the Internet. This was most likely because they conducted Internet research regularly in their classes and were already comfortable using this technology.

The findings in this study demonstrated that although these students did not perceive themselves as technologically savvy outside of school, in school they viewed themselves as confident users of technology when given multiple opportunities to use technology in sophisticated ways that moved beyond the basics of using computers and the Internet.
Implications

This study generated new insight about how technology can support and enhance the meaning-making process for middle and high school students, especially those diagnosed with emotional and behavioral disorders. Because of this, conclusions drawn from this study have implications for educators at all levels, particularly those who are involved with issues of technology integration on curriculum design or who work in alternative settings with unique student populations. In addition, results of this study also hold implications for teacher educators and future research.

Technology and students with EBD. Research has shown that teachers continually face challenges in educating and managing students with emotional and behavior disorders (EBD) (Fitzpatrick & Knowlton, 2009). Moreover, students with EBD are often labeled by others as disruptive, insolent and disobedient, displaying behaviors that frequently impede learning and interfere with the educational process. Furthermore, students with EBD often waste time, accomplish little, and require increased instructional attention and effort from teachers. These behavioral deficits can result in incomplete school work, lack of instructional gains, and frustrated educators. (Fitzpatrick & Knowlton, 2009). Participants in this study, however, demonstrated none of these behaviors. In fact, they not only were consistently engaged by most of the activities, but also consistently used features of the available technology to support their meaning-making efforts.

One conclusion of this study, then, is that effectively using technology in classroom activities may be a viable way to engage and support the academic growth of students with EBD. The participants in this study readily completed all of the task
assignments with no resistance. Although it appears that the nature of the task and the
students’ interest influenced their level of engagement with the technology, all of the
participants used the technology offered without any resistance. Moreover, they were
motivated to complete the work on their own and required little assistance from the
researcher. In addition, they generally stayed on task and willingly offered each other
support. To date, there is little research on the impact of technology use among this
population of students. Results of this study suggest the potential value of technology as
a meaning-making tool for students with EBD. More research is urgently needed in this
area.

Curriculum design in today’s classrooms. Results of this study suggest that the
requirements of an assignment impact how technology is used to construct meaning.
Participants were drawn to tasks that afforded them opportunities to create knowledge
independently and in new ways, not just to “do school” through traditional “pencil-and-
paper” tasks. Alvermann (2008) argues that despite the complex digital world
surrounding many of today’s students, schools still favor traditional, print-based methods
of instruction. She further observes that even though digital images, audio, and video are
changing the way we read certain kinds of texts, “online and offline literacies are not
polar opposites” (pg. 16).

Results of this study corroborate Alvermann’s (2008) assertion. The reading and
writing tasks students engaged in allowed them to use technology in ways that were not
limited to conventional instructional frameworks. Students chose to use those
technologies in both conventional and unconventional ways, supporting Alvermann’s
assertion that there is not always a dichotomy between on- and off-line literacies. In fact,
as they made meaning students chose technologies that suited their meaning-making through a reader response (Rosenblatt, 1978, 1938/1995) or writing process (Graves, 1983; Murray, 1972) lens.

For most of their assignments, students in this study used the technologies to deepen or expand their understanding of a text (e.g., poetry, fiction). Through their digital poetry, students’ responses depicted interpretive insights that could not be expressed in conventional formats. Similarly, the ereader annotated notes and discussions captured insights spontaneously that might have been forgotten. One implication of this study then is that teachers deliberately tap into adolescents’ natural engagement with digital content and consider a wider range of learning competencies that currently go unnoticed. An estimated 64% of children ages 12-17, for example, are already using the Internet to create their own content (Lenhart et. al, 2007). Perhaps when students have regular opportunities to show themselves competent learners in a medium they already enjoy, they will find schoolwork more relevant and worthwhile. To that end, teachers should also ask students for their suggestions on how digital literacies might become a part of the regular curriculum (Alvermann, 2008).

Kist (2000) identifies the following five features of new literacy classrooms that teachers should consider as they design technology integrated curriculum (pg.8):

- Daily work should include multiple forms of representation.

- Teachers should explicitly teach and discuss symbol systems and how they are used in various situations.
- Teachers need to conduct think-alouds and model working through problems when using technology.
- A variety of individual and collaborative activities are provided for students.
- The new literacies environment should promote student engagement and encourage students to achieve a “flow” state.

Findings in this study support each of these recommendations. Throughout the course of this study, the participants used technology daily and were provided opportunities for multiple forms of representation when constructing meaning. The participants engaged in both individual and collaborative activities. For example, when responding to the ebook, participants answered response questions in an individual electronic response journal and also participated in a collaborative discussion wiki. In using the discussion wiki, the researcher explicitly discussed using specific symbol systems (i.e. standard language vs. “texting” language) and modeled how to work through problems encountered when using technology. Most importantly, the students were in a “flow” state when completing the assignments. They were focused and engaged in their tasks and often complained when the allotted time was over.

**Barriers to Technology Integration.** Hew and Brush (2006) has identified two broad barriers to technology integration in the classroom: 1) teachers’ lack of knowledge and skills about the technology itself and; 2) their attitudes towards and beliefs about technology. In this study a third factor emerged as significant: the striking differences in the frequency and mode of technology use among classroom teachers at this alternative school. The two intermediate level teachers, for example, transformed
their classrooms into technology-rich environments where each day electronic resources were used purposefully. By contrast, the four middle and high school teachers did not employ technology regularly or purposefully. Inconsistent technology use among classroom teachers can be a potential deterrent to student learning. When these intermediate level students move on to middle school, for example, innovative assignments and digital tools that have enhanced their growth may no longer be accessible to them. Conversely, if students gain little expertise with digital resources in elementary or intermediate classrooms, their capacity for learning from assignments developed by middle and high school teachers with technologically savvy may be inhibited.

Buckenmeyer (2008) suggests that once access to technology is no longer a barrier, teachers must be given relevant, timely, and continuous professional development. Similarly, time must be allocated so that teachers can learn new technologies and how best to integrate them meaningfully into their classrooms. Liu, et. al. (2004) found that when teachers were not given adequate time to learn and use a new technology, they resorted back to what they already knew. Since teacher attitude toward technology is a strong predictor of acceptance, adoption, and use of technology, one implication of this study is that teachers do need regular professional development, with opportunities to observe successful implementation and become active members of professional learning communities focused on technology integration.

**Critical Evaluation of Websites and Plagiarism.** The Internet has quickly become one of the most widely-used information sources in people’s daily lives. One common use of the Internet among students is the search for information for school
projects, such as content area research reports. While an enormous amount of valuable and timely information can be found on the Internet, there is also an abundance of untrustworthy and outdated information. In addition, students may be tempted to grab any content they find to complete a report or other school assignment. In this study, for example, students investigated the topic of water simply by locating, cutting and pasting articles into a wikipage without evaluating them or editing the content.

One ancillary finding of this study then is the urgent need for students to learn how to evaluate internet websites critically, so that they increase the likelihood that they will extrapolate high-quality information (Zhang, et. al., 2011). An implication of this finding is that teachers need to help students develop effective strategies for determining the trustworthiness of the information they gather on the Internet.

Furthermore, because information can instantly be copied and pasted into documents, the rise of digital resources has made it easy for students to plagiarize. Frey, Fisher, and Gonzalez (2010) recognize that student plagiarism often occurs because students have not learned when and how to cite information properly. Educators on all levels must therefore take the time for explicit instruction about plagiarism.

**Technology Integration for Teacher Educators.** The lack of consistent high-quality technology integration among the teachers in this study suggests that these teachers had received little preparation or professional development in this area. In fact, research has shown that while most teacher education programs have embraced the goal of developing technology-using educators, most of the courses implemented to meet this goal have focused on operating the technology and not on how to integrate the
technology meaningfully into instruction (Vannatta & Beyerbach, 2000). One implication of this study is the urgent need for education methods courses to provide multiple and ongoing opportunities for students to experience and develop lessons that integrate technology in authentic and meaningful contexts.

Kist (2010) observes a major impediment educators currently face is that they are “trapped between these new developments in media and the countervailing emphasis on standardizing and even franchising teaching and learning” (p. 9). He argues that it is essential to begin technology integration instruction early in the preparation of preservice teachers, because many beginning teachers report limited or no experience with technology instruction while student teaching or in the first few years of their careers. One implication of this study for teacher educators, therefore, is the urgent need to re-evaluate the presence and effectiveness of technology instruction and curricular integration in their courses of study.

**Recommendations for Future Research**

Results of this study revealed ways in which adolescent students with emotional and behavioral disorders use technology to enhance their construction of meaning during reading and writing events. While much research has probed the act of meaning-making as a literacy experience (Probst, 2004; Rosenblatt, 1995/1938, 1978; Langer, 1994; Squire, 1994; Vacca & Newton, 1994; Graves, 1984; Perl, 1980; Murray, 1972), to date there is much less research on the role of technology in this process (Larson, 2007; Hancock, 2004). Furthermore, there is little research on the meaning-making process of students with SBD, particularly as they use technology. Results of this study therefore
provide direction for much-needed future research on the potential role of technology to support the reading and writing process for students living in the 21st century.

This study employed a convenience sample that included six student participants who were from the same demographic area and were all identified with emotional and behavioral disorders. Research is needed that includes additional student populations, including those from economically and culturally diverse backgrounds, who attend public and private schools in disparate settings. Furthermore this study demonstrated the potential effectiveness of technology on the learning experience of adolescents, and particularly of students with a range of special needs (i.e. autism spectrum disorder and cognitive disabilities). Future studies need to examine students in elementary as well as middle and secondary classrooms. In addition, those studies need to focus not only on the unique transactions of individual students, but also on the instructional contexts (e.g., teacher efficacy with technology) in which those transactions occur.

One of the most interesting findings of this study was that students used the technology in service of their meaning-making efforts, not as a generative force. In this study, the amount of engagement with technology varied based on the nature of the assignment. In fact, it was the nature of the literacy task and how students understood or engaged with that task that appeared to have the greatest influence on how students chose to use the technology. Future research is needed to determine whether this phenomenon is typical or whether additional factors not present in this study (e.g., novelty of a new technology) might drive, rather than enhance, meaning-making. Since technology will increasingly become a significant presence in American classrooms, it is critical that teachers learn how to integrate technology into instruction that provides authentic,
meaningful learning opportunities for students. Moreover, this study was limited to the use to a few forms of technology. As new technologies are emerging daily, further research is needed to explore the effects of these new technologies on literacy instruction.

**Summary**

This study found that adolescent readers who have been identified with EBD use technology in ways that are personally significant to support the meaning-making process. Although the technology itself did not alter the way students create meaning (Rosenblatt, 1978, 1938/1995; Graves, 1984; Murray, 1972), it did provide opportunities for participants to deepen their meaning-making process by providing access to a variety of expressive approaches that were both linguistic and nonlinguistic in nature. Moreover, it was found that the nature of the assignments appeared to determine the extent to which participants engaged with the available technology.

Furthermore, this study found that adolescents are not inherently technologically literate just because they have grown up in the digital age (Prensky, 2001). In fact, the participants in this study did not perceive themselves as technology dependent outside of school. However, when given opportunities to use sophisticated technologies in school, these adolescents displayed high levels of confidence and engagement in using technology.

Current research is challenging educators to find meaningful ways to engage and motivate students with EBD in academic instruction. This study shows that technology can be a viable means to engaging and motivating students that have difficulty in academic settings. Educators and policymakers need to learn from this and other studies
that show the demonstrated benefits of integrating technology into classroom instruction. Further research can provide additional insights that may result in the expanded presence and effectiveness of technology in academic settings.
BIBLIOGRAPHY


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APPENDICES
APPENDIX A

PARENT INFORMED CONSENT FORM

April 9, 2012

Title of Study: Adolescent Use of Instructional Technology to Construct Meaning During the Reading and Writing Process: A Multiple-Case Study

Dear Parent/Guardian,

Introduction
I am Kristin Webber, a doctoral student of Dr. Evangeline Newton, from the Department of Curricular and Instructional Studies at the University of Akron. Your child is invited to participate in a research study as part of my dissertation requirement for the degree of Doctor of Philosophy in Education.

Purpose:
The purpose of this study is to investigate how adolescents use instructional technology to support reading and writing practices in school.

Procedures:
Your child will participate in two interviews and a series of three observations that will span across a six week period. The interviews will be conducted before and after the study and will last approximately one hour. The purpose of the initial interview will be to gather preliminary information about your child’s experiences using technology for instructional purposes. The final interview will be designed to gather insight on your child’s feelings about the study and the use of instructional technology in the classroom context. Additionally, your child will keep a reflective journal documenting his experiences during the study.

During the study, your child will participate in observations of three separate literacy and technology related tasks.
1. construction of digital poems through the use of Windows Movie Maker
2. reading an electronic text (Tuck Everlasting by Natalie Babbitt) and participating in an online literature discussion of the book.
3. researching a school assigned topic using the Internet
As we proceed through the tasks, I will collect pertinent documents such as completed poems, transcripts of the literature discussions and notes from reading. Also, I will collect the reflective journals.

These tasks are in addition to their regular class work. Choosing not to participate or the evaluation of their participation in the tasks will have no effect on their class grade. I will videotape and/or audiotape all observations and interviews in order to document interactions as accurately as possible. After the study is complete, the tapes will be completely erased.

**Risks or Discomforts:**
I do not anticipate any risks or discomfort to your child at any time. However, it is possible that participants may experience minimal frustration with using unfamiliar technologies. In such cases, I will guide and support the participants so that any risks will be minimized or reversed.

**Benefits:**
Your child will receive no direct benefit from participation in this study, but his/her participation may help me better understand how to integrate technology into classroom instruction and make learning more relevant and meaningful for students.

**Payments for Participants:**
For participating in this study, your child will receive a $5.00 gift card to Subway. Participants will receive the gift cards at the conclusion of the study.

**Right to Refuse or Withdraw:**
Following your consent, participation of your child in this study remains voluntary. Your child will also be asked to provide assent to participate and may refuse even if you do consent. Your child can also refuse to answer any questions and may withdraw from the study at anytime without penalty.

**Anonymous and Confidential Data Collection**
No identifying information will be included in the data your child provides. Your signed consent form, and their assent form, will be kept separate from the data and nobody will be able to link their responses to them.

**Confidentiality of Records:**
The researcher will assign pseudonyms to each of the participants that will be used throughout the data collection process. The data (audiotapes, videotapes, transcripts, documents, code match list) will be kept in a secured, locked file cabinet and will be physically destroyed at the completion of the study. The researcher, Kristin Webber, will have sole access to the data.

**Who to contact with questions:**
If you have any questions about this study, you may call Kristin Webber at 330-926-3925 or Dr. Evangeline Newton at 330-972-6916. This project has been reviewed and
approved by The University of Akron Institutional Review Board, if you have any questions about your rights as a research participant, you may call the IRB at 330-972-7666.

**Acceptance and Signature**
I have read the information provided above and all of my questions have been answered. I voluntarily agree to the participation of my child in this study. I will receive a copy of this consent form for my information.

____________________  ______________________
Parent/Legal Guardian Signature  Parent/Legal Guardian Signature

Name of Child____________________________________________________

_______________________________
APPENDIX B

CHILD ASSENT FORM

April 11, 2012

Title of Study: Adolescent Use of Instructional Technology to Construct Meaning During the Reading and Writing Process: A Multiple-Case Study

1. My name is Kristin Webber. I am a doctoral student in the Department of Curricular and Instructional Studies at The University of Akron.

2. I am asking you to take part in a research study because I am trying to learn more about how middle school and high school students use technology to support reading and writing.

3. If you agree to be in this study you will be observed using technology to create a digital poem, reading an ebook and participating in an online literature discussion, conducting Internet research. You will also be asked to keep a reflective journal and participate in two interviews.

4. These activities are in addition to your regular schoolwork. Choosing to participate or not will have no effect on your class grade.

5. I do not anticipate any risks to you as a result of participating in this study.

6. You may benefit from this study by learning how to use new technologies to support you when reading and writing.

7. Please talk this over with your parents before you decide whether or not to participate. I will also ask your parents to give their permission for you to take part in this study. But even if your parents say “yes” you can decide not to do this.

8. If you don’t want to be in this study, you don’t have to participate. Remember, being in this study is up to you and no one will be upset if you don’t want to participate or even if you change your mind later and want to stop.

9. To show my appreciation for your participation you will receive a $5.00 Subway gift card.
10. You can ask any questions that you have about the study. If you have a question later that you didn’t think of now, you can talk to me at school.

11. Signing your name at the bottom means that you agree to be in this study. You will be given a copy of this form to keep.

__________________________________________  ___________________
Name of Subject  Age

__________________________________________  ___________________
Signature  Date
APPENDIX C

EXAMPLE STORYBOARDS

[Storyboard image with handwritten text]

1. Crayons: A rainbow poem: January
2. Blue sky
   - This bar contains the wash of blue sky
3. Green grass
   - Sticks of green spring
4. Sun
   - A circle of yellow sun
5. Nature pine: lime on a brown branch
   - II was the line nature pine inching on a brown branch
6. Hold something pink
   - I hold my pink
Wrapping paper
1. What truth wraps up

Present - in a pack of lies

Untied bow/bow - mistrust unites

Hands - you can't hold friends
Title: "My People"
Author: Langston Hughes

Picture of the book cover

The night is beautiful as the faces on my people.

People with stars as eyes

The stories are as beautiful as the eyes on my people.

Beautiful, also, is the sun.

People as beautiful as the sun

are the souls of my people.
APPENDIX D

LINK TO DIGITAL POEMS

Link to website that contains the digital poems created in this study.

www.kristinwebber.com
For Mae Tuck, and her husband, and Miles and Jesse, too, had all looked exactly the same for eighty-seven years.

Yesterday

Oh, yes,” said Winnie. “We’ve lived here forever.” “Forever,” the man echoed thoughtfully.

Yesterday

Tuck Everlasting

I’m looking for someone. A family.

Why a family? A specific one?

Yesterday

Then he turned and disappeared down the shadowy road, and as he went he whistled very softly, the tinkling little melody from the wood.

Why whistle but not suspicious?

Yesterday

All right. I’m one hundred and four years old,” he told her solemnly.

Today

is blue hat, which still enveloped her head. "Well, then," Tuck repeated, "seeing you know, I’ll go on and say this is the finest thing that’s happened in—oh—at least eig...
His yellow suit seemed to surprise her, and she squinted suspiciously. "We haven't met, that I can recall. Who are you? Who are you looking for?" The man...

Like our teens jordy the yellow suit

Tuesday, May 8, 2012

Winnie woke early next morning.

Ya

Wednesday, May 9, 2012

Winnie woke early next morning.

Winnie the pooh

Wednesday, May 9, 2012

The cottage was full of silence. But she realized that sometime during the night she had made up her mind.

The cottage three little barre

Wednesday, May 9, 2012

Would not run away today. Where would I go, anyway?" she asked herself.

"There's nowhere else I really want!"

Just like manni ak mute

Wednesday, May 9, 2012

There was even, she saw with satisfaction, the toads.

If my mom would be reading this book she would probably sereen because of the word toad after I put a frog in her bed that was funny i love love love love love love love love love love love love love love love love love love love love love

Wednesday, May 9, 2012
Winnie had often been haunted by visions of what it would be like to be kidnapped. But none of her visions had been like this, with her kidnappers just...

That sounds wire haunted by visions

Wednesday, May 9, 2012

It was a good supper, flapjacks, bacon, bread, and applesauce, but they ate sitting about in the parlor instead of around a table.

Sounds good to me

Friday, May 11, 2012

And how pleasant to have neighbors like yourselves!

I hope they are nice like them

Monday, May 14, 2012

And so there were flapjacks again for breakfast, but no one seemed to mind.

I've never had flapjacks before

Tuesday, May 15, 2012

The first week of August was long over.

Today

...and kneeling, she poured the precious water, very slowly and carefully, over the toad.

O poor little toad

Today
APPENDIX F

DISCUSSION BOARD POSTS
APPENDIX G

ELECTRONIC RESPONSE JOURNAL QUESTIONS

Chapters 1-3

1. What parts of Mae and Tucks’ discussion seem odd to you? Explain why.

Chapters 4-7

2. The Tucks will live forever. How do you think they feel about it? What are the good things and bad things about their situation?

Chapters 8-10

3. Why do the Tucks regard eternal life as both a blessing and a curse?

Chapters 14-16

4. Mae, Miles, and Jesse Tuck each come to check on Winnie during the night she spends at their house. Why do you think the Tucks care so much about Winnie?

Chapters 20-22

5. How do you think the story might end?
APPENDIX H

INTERNET RESEARCH WIKI PAGES
Pollution Dangers

There are four major steps in the pollution process: sources, transportation, transformation, and effects. Each step has its own characteristics and consequences. The following diagram shows a simplified overview of the process, emphasizing the major steps and their interactions.

The Water Cycle

The water cycle is a continuous process by which water moves between the Earth and its atmosphere. It consists of several steps, including evaporation, condensation, precipitation, and collection.

There are four major steps in the water cycle:
1. Evaporation: the change from liquid to vapor form.
2. Condensation: the technique or process of removing water.
3. Precipitation: rain, snow, sleet, or hail that falls to the ground.
4. Collection: the regular removal of rainwater for disposal or reuse.

The Water Cycle Works

1. When the sun heats the surface of water, it evaporates and rises up in the atmosphere as water vapor.
2. It cools and rises, becoming clouds, which eventually condense into water droplets.
3. The water droplets then fall as rain, snow, sleet, or hail.
4. Some of the precipitation is captured by trees and evaporates again into the atmosphere.
5. Water that falls to the ground and stays in the soil can be absorbed and return to the atmosphere.
The Water Cycle By D

The water cycle is a continuous cycle where water evaporates and goes up into the air and then it precipitates then comes down like rain. The cycle goes on and on and it repeats again and again and it changes into solids, gas, and liquid. That is the water cycle.

Water cycle GS

The water cycle is the cycle of containing water. Water can change states of liquid, vapor, and ice; water can also change phases such as liquid, solid, and gas. Water can move from place to place like river to ocean by a physical process like evaporation, condensation, precipitation, infiltration, run off, and subsurface flow.
what is an aquifier

An aquifer is a body of unconsolidated rock through which water can easily move. Aquifers must be both permeable and porous and included such rock types as sandstone, fractured limestone, and consolidated sand and gravel.
APPENDIX I

INITIAL INTERVIEW QUESTIONS

1. Tell me about yourself. How old are you? What are your likes and dislikes? What do you do in your free time?

2. What are your favorite school subjects? Least favorite? Why?

3. Tell me about your feelings towards reading.

4. What are your favorite genres to read? What are your favorite authors?

5. Tell me about your feelings towards writing.

6. What types of things do you write?

7. How do you feel about using technology?

8. What types of technology do you use?

9. How often do you spend using each type?

10. In what ways do you use technology to read and write?
APPENDIX J

FINAL INTERVIEW QUESTIONS

1. How did you feel about the digital technology tasks that you did for this study?

2. What did you like best? Why?

3. What did you like least? Why?

4. Tell me about reading on an ereader.

5. Tell me about using moviemaker.

6. How are you currently using digital technologies tools for schoolwork purposes in your other classes?

7. About how often do you use digital technologies for academic work at school?

8. What are some of the frustrations you feel with using technology in school?

9. How are you using digital technology tools outside of school?

10. What types of electronic devices do you have access to for your own use outside of school?

11. Should students be able to use their own devices in school? Why or Why not?

12. How would a mobile device help you with school work?

13. How often do you use the Internet at home?

14. What reasons do you use the Internet for?

15. How often do you use the Internet at school?

16. What reasons do you use the Internet for?
APPENDIX K

IRB APPROVAL LETTER

Office of Research Services and Sponsored Programs
Akron, OH 44325-2102
(330) 972-7666 Office

NOTICE OF APPROVAL

April 6, 2012

Kristin Webber
6224 State Route 88
Kinsman, Ohio 44428

Re: IRB Number 20120338 “Adolescent use of Instructional Technology to Construct Meaning during the Reading and Writing Process: A Multiple-Case Study”

Thank you for submitting an IRB Application for Review of Research Involving Human Subjects for the referenced project. Your protocol represents minimal risk to subjects and has been approved under Expedited Category #7.

Approval Date: April 6, 2012
Expiration Date: April 6, 2013
Continuation Application Due: March 25, 2013

In addition, the following is/are approved:

☐ Waiver of documentation of consent
☐ Waiver or alteration of consent
☒ Research involving children
☐ Research involving prisoners

Please adhere to the following IRB policies:

• IRB approval is given for not more than 12 months. If your project will be active for longer than one year, it is your responsibility to submit a continuation application prior to the expiration date. We request submission two weeks prior to expiration to insure sufficient time for review.
• A copy of the approved consent form must be submitted with any continuation application.
• If you plan to make any changes to the approved protocol you must submit a continuation application for change and it must be approved by the IRB before being implemented.
• Any adverse reactions/incidents must be reported immediately to the IRB.
• If this research is being conducted for a master’s thesis or doctoral dissertation, you must file a copy of this letter with the thesis or dissertation.
• When your project terminates you must submit a Final Report Form in order to close your IRB file.

Additional information and all IRB forms can be accessed on the IRB web site at:
http://www.uakron.edu/research/orssp/compliance/IRBHome.php

Cc: Evangeline Newton – Advisor
Cc: Stephanie Woods – IRB Chair
☒ Approved consent form/s enclosed

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