

LEARNING WITH ONLINE RESOURCES IN A NINTH GRADE WORLD HISTORY
CLASS

by

Kimberly M. Kopfman
A Dissertation
Submitted to the
Graduate Faculty
of
George Mason University
in Partial Fulfillment of
The Requirements for the Degree
of
Doctor of Philosophy
Education

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Date: April 21, 2014

Spring Semester 2014
George Mason University
Fairfax, VA

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DEDICATION

This dissertation is dedicated to my mother,

Florence Estelle Bell,

For always believing in me.

And to my husband,

Joseph Kopfman,

For his love and support of me in my pursuit of learning.

ACKNOWLEDGEMENTS

Completing a dissertation is an undertaking that involves the help, support and understanding of many people. For that reason, I would like to express my sincerest gratitude to my committee, teachers, friends, and to my family, for understanding and supporting me so that I could realize my personal goals and dreams.

To begin with, I would like to thank my committee members, Drs. Betty Sturtevant, Joseph Maxwell, and Priscilla Norton. As my committee chair, advisor, mentor and friend, Dr. Sturtevant provided me with an immeasurable amount of support, and opportunity that only she, in all of her wisdom, could provide. Dr. Sturtevant's gentle nudges, probing questions and generous amounts of time spent with me are at the heart of this dissertation. It is with sincere appreciation and humility that I thank Dr. Sturtevant for all I have learned from her and for the privilege of working with her. I know I have been trained by the best.

I am also indebted to Dr. Joseph Maxwell who helped me to fully understand, as best one can, the very nature of qualitative research. His writings and lectures fascinated me from the onset of my coursework with him, and his continued support and feedback throughout my study have been instrumental to finding my own voice as a qualitative researcher in this dissertation. I am not sure there is anyone else who could have helped me to do this. Thank you, Dr. Maxwell.

In addition, I would like to thank Dr. Priscilla Norton for her honesty and tough love approach to my work, from my first doctoral class with her to the completion of this dissertation study. It is my hope that my study reflects the craft of artfully demonstrating science as I first learned from Dr. Norton. This dissertation is reflective of the ways in which she challenged my thinking and is all the better because of her honest feedback. For that, I will always be grateful.

I am also indebted to Drs. Ana Taboada and Gary Galluzzo who radically changed my perspective on motivation theory and issues of equity, respectively, through my doctoral coursework with them. And to Mr. George Bedrin, my fifth grade teacher, who was the most creative and innovative teacher I have ever known: It was in your classroom that I first became a researcher and teacher. Thank you.

I would also like to thank my dear friends, Dr. Brett and Judy Wright. Brett was the first to tell me, "it's all about relationships" when I received an opportunity to teach at

GMU. Those words not only helped to ease my angst with teaching my first class, but also informed this dissertation study. From editing my first college English paper over 25 years ago to recently helping me with my application materials for faculty positions, Brett has been my biggest academic cheerleader, with Judy by his side. Thank you both for everything.

I would also like to thank Grandma Bowser for her ongoing and infinite words of wisdom and guidance as it was she that first said to me, “if you can read, you can do anything” more than 25 years ago. And, to my family in Florida, especially my sister, Peg, for her no-nonsense, practical advice and letting me know when I was taking on more than I should. You were always right, on all accounts.

I would also like to thank my friends, Tim and Sandy Smith, who forced me to take much-needed vacations with them, despite the academic calendar. And, to my long time friends, Eileen Hickman and Kathy Phelps, who dug themselves into the trenches with me when I needed them the most. I am also thankful to my neighborhood girlfriends, Jane, Jen and Susan as well as all of my Zumba friends who made me exercise, dance, and laugh and offered a reprieve at times from all things academic. And to my dear colleagues and friends, Drs. Athene Bell and Kathleen Reilly: Thank you for always taking the time to help me think things through. Your friendship throughout this process made it doable. And, to my best friend of 35 years, Katherine Catalina, your words of encouragement continue to push me onward. I miss you every day.

And, to my three children, Josh, Jen and Joey: Thank you for understanding when I didn’t answer your “beeps and bops” right away, or when my neuroticism took over. Please know that you have taught me more about learning and life, than any book ever could. You are so grown-up, so very special, and I continue to be grateful and humbled that I was chosen to be your mom. And to Josh and Jen’s significant others, Brittany and Joe, thank you for adding so much joy and life to our expanding family. And to my precious grandson, Joshua Jr., you are an inspiration to us all.

And, to my husband, Joseph (aka “do it all, daddy”): Your tireless and steadfast support, love, humor, and understanding are what got me through this. Without you, none of it would have been possible. Thank you for always being there for me, throughout this process, and in every aspect of our lives together. I love you.

And, finally, to the teacher and students who participated in my study. Allowing me into your classroom and into your lives was a privilege for which I will always be grateful. Your gracious, kind act of working with me is sincerely appreciated.

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ABSTRACT

LEARNING WITH ONLINE RESOURCES IN A NINTH GRADE WORLD HISTORY CLASS

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Using digital technologies for academic learning has significant implications for students' comprehension and understanding in ways researchers have only recently begun to understand (Coiro, Knobel, Lankshear & Leu, 2008). Although it makes sense that exposing students to online resources and digital tools would facilitate student comprehension and understanding of academic content, we know little about how this occurs and/or the types of classroom contexts that facilitate this process, particularly at the high school level. Thus, this qualitative study sought to examine how ninth grade students worked through online lessons in their World History class and the factors that influenced how they worked through their lessons as well as the supports and barriers that were encountered. Data were collected from each of four students and their teacher through field observations, verbal protocols (Pressley & Hilden, 2004), and interviews over the duration of one six-week unit of instruction.

Situated within the social learning theory construct, Bandura's (1986) model of reciprocal interactions among personal, behavioral, and environmental factors served as the theoretical frame for the study. The study's findings indicate that personal characteristics such as Internet access at home, student motivation, and developmental needs of autonomy and choice were found to influence how students worked through their online lessons. Environmental factors such as the teacher's instructional practices, multiple digital resources and tools used within the class, and the teacher-student relationship were also found to influence students' behaviors as they worked through their lessons. The findings also indicate that environmental influences served as supports or barriers and were dependent upon the student's personal characteristics and competencies. Based on the findings of the study, recommendations for practice and policy are included in the final chapter of the study.

CHAPTER ONE: BACKGROUND OF PROBLEM

Using digital technologies for academic learning has significant implications for students' comprehension and understanding in ways researchers have only recently begun to understand (Coiro, Knobel, Lankshear & Leu, 2008). Although it makes sense that exposing students to online resources and digital tools would facilitate student comprehension and understanding of academic content, we know little about how this occurs and/or the types of classroom contexts that facilitate this process, particularly at the high school level.

Similarly, literacy scholars are concerned that students may not have the advanced literacy skills that will be required for full participation in a 21st century (Sturtevant & Linek, 2004) knowledge-based global economy. In fact, the need to guide students to advanced levels of literacy has also been brought to the forefront by several organizations, most notably, by the International Reading Association (2006) who emphasized the importance of: (a) having access to a wide variety of reading materials; (b) building skills and desire to read complex materials; (c) modeling and giving explicit instruction; and (d) developing an understanding of the complexities of individual adolescent readers.

In addition, the Alliance for Excellent Education (Biancarosa & Snow, 2004) has called for technological communications and information resources to be embedded in

effective adolescent literacy programs. Biancarosa and Snow state that “Effective adolescent literacy programs should use technology as both an instructional tool and an instructional topic” (2004, p. 19) for student learning. In addition, academic discussions, such as those that take place when students collaborate to answer questions, build understanding, and solve problems, are an important focus of the next generation of language arts, literacy, and content area standards.

Currently, there is emphasis on having states adopt a challenging set of standards known as the Common Core State Standards. The development of the standards was a state-led effort spearheaded by governors and the Council of Chief State School Officers (CCSSO) (2014) in partnership with Achieve, ACT, and the College Board. These standards define the knowledge and skills students should have to succeed in entry level, credit bearing academic college courses and in workforce training programs. One of the primary skills advocated by the Common Core State Standards is the ability to read complex texts. ACT researchers (2006) found that the “clearest difference in reading between students who are college ready and students who are not is the ability to read complex texts” (p. 16). Comprehending complex text requires vocabulary and background development, instruction in skills and the development of higher-level discussion and writing skills (Adams, 2010-2011).

Other researchers point out that a high number of students are not engaged or motivated by their school experience and that this reaches epidemic proportions by the time students enter high school (Biancarosa & Snow, 2004). As noted literacy scholar, Elizabeth Moje, explains, “It is crucial that the field better understand the unique aspects

of motivation for adolescent readers and writers so that we might reshape contexts and either rewrite or scaffold the texts of the content areas to better support adolescent engagement in reading and writing” (2006, p. 10).

At the same time, a number of studies are beginning to document students’ out-of-school literacy practices and how those practices may motivate and engage students (Moje, 2006). These studies highlight the complexity of literacy activities that students participate in outside of school, demonstrating that many young people are able to make meaning across a variety of symbol systems, including non-conventional print texts, such as those represented on the Internet (Chandler-Olcott & Mahar, 2003), or in video and computer games (Leander & Loworn, 2006; Mahiri, 1994). In fact, a 2005 survey (Pew Internet in American Life Project) of 1,100 teens between the ages of 12-17 reported the following:

- 87% had Internet access at home
- 89% of those with home computers used e-mail daily
- 75% did text messaging
- 38% used instant message (IM)
- 43% shopped online
- 76% kept up with news and current events online

Considering the types of technology activities in which students are engaged outside of school is vital to knowing how to engage students based on the competencies they bring to the classroom. In fact, Mark Prensky (2001), an internationally acclaimed thought leader, speaker, writer, consultant, and game designer in the critical areas of

education and learning, argues that today's students are no longer the people our educational system was designed to teach. He explains that today's students actually think differently and therefore need to be taught differently:

They have spent their entire lives surrounded by and using computers, videogames, digital music players, video cams, cell phones and all the other toys and tools of the digital age. Today's average college graduates have spent less than 5,000 hours of their lives reading, but over 10,000 hours playing video games and 20,000 hours watching T.V. Computer games, email, the Internet, cell phones and instant messaging are integral parts of their lives. (p. 1)

As a result, it is vital that teachers learn new ways of reaching students who may not be reading school-related text, yet are able to access and read across multiple online tools and resources to discern meaning while also listening to music and simultaneously texting/tweeting according to their interests and social groups. To address these issues, researchers have emphasized the importance of incorporating students' in-school and out-of-school knowledge into classrooms using multiple texts and multiple forms of representation (International Reading Association, 2006) including those represented on the Internet (Chandler-Olcott & Mahar, 2003). Researchers have also called for "greater attention to the impact of multiple texts on students' learning, interest, critical thinking, writing, and attitudes toward reading" (Bean, 2000, p. 641).

Yet, some researchers estimate that 75-90% of secondary classrooms continue to rely on a single textbook (Smith, 2003) for student learning, even though nearly all schools in the United States have access to the Internet (Williams, 2000) and, thus, access

to a wide variety of multiple texts and resources. Exposure to the new tools of the Internet as well as understanding and evaluating how these tools can be used effectively for student learning becomes critical especially as students move to the upper-grades. Although over the past two decades some studies have highlighted the complexity of students' out of school literacy skills with regard to digital technologies (Chandler-Olcott & Mahar, 2003; Leander & Loworn, 2006; Lewis & Fabos, 2005; Mahiri, 1994), other researchers (Mills, 2010) have called for a "digital turn" in studying adolescent literacy and technology. Mills refers to the digital turn, in part, as increased attention to literacy practices in digital environments across a variety of social contexts to include both recreational and educational settings.

In the United States, recent findings of the National Center for Education Statistics (2010) reported that more children and adolescents use computers and the Internet at school (81%) than at home (65%). Thus, "greater emphasis should be placed on expert scaffolding of these literacies in-school in order to extend students' repertoire of skills and genres" (Mills, 2010, p. 35). The reading comprehension and communication skills required on the Internet have been referred to as "New Literacies" by some researchers (Leu, Kinzer, Coiro, & Cammack, 2004). Leu et al., (2004) refer to New Literacies specifically as those "skills, strategies, and dispositions necessary to successfully use and adapt to the rapidly changing information and communication technologies and contexts that continuously emerge in our world and influence all areas of our personal and professional lives" (p. 1570). However, Hull and Schultz (2001) have argued, "Perhaps more than any other theoretical tradition, New Literacy Studies

has embraced out-of-school contexts almost to the exclusion of looking within schools...and...valued out-of-school literacy practices as distinct from those associated with school” (p. 589). Street (2003) agrees that the next stage of work is to apply the principles learned in local communities to mainstream educational contexts. Other research (Castek, 2008) has called for more attention to students’ online reading comprehension and navigation skills within school settings as well.

At the same time, some researchers have cautioned that labels such as “digital immigrants” and “digital natives” increasingly oversimplify and exaggerate generational and socioeconomic differences, and perpetuate the assumption that all youth have innate digital skills (Prensky, 2001). Similarly, in an ongoing, large-scale population study investigation of 9 to 19 year olds use of the Internet, Livingston & Bober (2005) found that young people had poor Internet navigation skills, rarely questioned the authority of websites, and were not critical or discerning digital media users. The authors also found that students lacked key skills in evaluating online content and only 33% had been taught how to judge the reliability of online information. Further, the participants used the Internet to communicate mostly with peers, but did not participate in civic, global or political activities online and very few had engaged in website design, perhaps because most lacked the requisite technical skills and knowledge (Livingston & Bober, 2005).

Lastly, school systems across the country are challenged with increased accountability and shrinking budgets. Textbooks provide value for many school systems in part because they provide support for the state and national standards and guidelines and meeting the state’s standards is the number one criterion for textbook adoption

(Jobrack, 2012). At the same time, textbook publishers are not incentivized to create new, innovative or even effective materials because school systems do not use “effectiveness as a criterion for evaluation and purchase” (Jobrack, 2012, p. 41). In addition, textbooks are efficient and useful for teachers, since they provide the scope and sequencing of content, teaching strategies, student activities and exercises, differentiation, and assessment (Jobrack, 2012). However, Christensen, Horn and Johnson (2008) note that textbooks support monolithic types of instruction in part because “textbook development and production, school district adoption decisions, the systems of instruction, and assessment are all monolithic because customization is prohibitively expensive” (p.134).

On the other hand, there is research, which suggests that the cost of educating students in a computer-based, student-centric environment could be one-third of today’s cost and that courses could be much better (Christensen et al., 2008). According to Christensen et al., the cost reduction would be largely due to teachers being able to oversee more students in these environments and increasingly function as one-on-one tutors, rather than teaching monolithically. For these reasons, examining classrooms in which electronic textbooks and other digital resources have been integrated into the content becomes important. In addition, knowing the influences on students as they complete their online lessons and the factors that might help or hinder students’ interaction with the lesson is of critical importance as online technologies become more prevalent within school settings and as more online courses are offered to an increasing

number of K-12 students. Taken together, there are important reasons for researchers to examine how students learn when online resources are integrated into the classroom.

Exploratory Work

Through contacts with a local school district, I conducted exploratory observations of classes as well as interviews with students, teachers, administrators and district coordinators during the summer and fall of 2011 to learn about the district's recent adoption of Social Studies electronic texts (e-texts), which affected nearly 65,000 students in grades 7-12. I also attended a Parent Teacher Association (PTA) meeting called for by parents in which the topic of conversation was the district's adoption and implementation of e-texts. This exploratory work helped me to gain insight into the adoption and implementation of the e-texts in the district, as well as how the e-text might be integrated with additional online resources and tools at the high school level.

First, in Dr. Wright's (pseudonym) ninth grade World History class, I observed a 90-minute lesson in which he integrated the e-text as well as other online resources and tools into his lesson for that day. The most striking aspect of this environment was how "on task" students seemed to be. Despite the large number of students (34) in the class and the technical hurdles surrounding access and navigation, I did not witness an instance of discipline or problem behaviors. Students seemed genuinely engaged and motivated to learn in this classroom. In my mind, exploring engagement in this environment and how to sustain that momentum was worthy of further study.

Secondly, I came to understand Dr. Wright as a skillful and thoughtful teacher, having a Ph.D. in Political Science, a high level of technical skill and 22 years of

teaching experience at the time of the study. Equally as important, his students seemed to genuinely like and respect him. In Dr. Wright's class, I noticed a high level of collaborative interaction with students helping each other as well as one-on-one interaction with the teacher.

It is important to note that Dr. Wright was the leader behind a sort of "grassroots movement" toward the district's adoption of e-texts for Social Studies. However, teachers, parents and students did not overwhelmingly accept the adoption of the e-texts. In fact, the adoption of e-texts has been a controversial topic within other content areas in the district as well. To gain insight into the controversy, I attended a PTA meeting at one of the high schools in the district, which had been called for by the school's parents due to their dissatisfaction with the recently adopted math and science e-textbooks, which were adopted for the 2012-2013 school year, the year following the Social Studies e-text adoption. The parent complaints centered around the functional and practical aspects of the new Math and Science e-texts, which included issues of "access within the home," and kids being "wired-in too close to bedtime." Although the Social Studies e-text did not seem to have the same flaws with functionality, as did the Math and Science e-texts, the more practical issues such as access within the home and being wired-in too close to bedtime would seem to occur for students using the Social Studies e-text as well.

As a result of my exploratory work, a middle school or high school classroom within this district became a plausible setting for exploration of my research topic in part because prior research has shown that when electronic books are adopted into a curriculum, it is more likely that teachers will use other technological resources as well

(Florida State University PALM Center, 2010). Thus, in order to study the issues related to integrating online resources in a high school setting, I was able to obtain access to Dr. Wright's classroom during the early fall of 2012 to collect data for one full unit that occurred over a six-week period in which the e-text was integrated with other online resources. As such, this qualitative study explored how ninth-grade students worked through online lessons in a ninth-grade World History class. Specifically, the study sought to examine how the average student worked through a unit of study that relied heavily on online resources and tools. The research questions that provided focus for the study were as follows:

1. How do ninth-grade students work through online lessons in a World History class?
2. What are the influences on students as they work through their online lessons?
3. What are the barriers and supports for students working through their online lessons?

These questions served to frame my study and have been refined based on the research literature as well as my exploratory work into the area. The following chapter provides the relevant literature as it pertains to my research topic.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

A review of the literature as related to the topic of the current study is examined in this chapter. The chapter outlines the basic tenets, or modules, from the research literature that have informed the current study, yet it is not so exhaustive that it does not leave room for alternate interpretations that may help to explain the study's findings. As such, the chapter provides an examination of the literature related to: (a) adolescent learners and the high school context; (b) academic and disciplinary literacy; (c) student motivation; and (d) the nature of learning with online resources. A brief overview of the involvement of intellectual tools used for learning, such as print and digital technologies as well as the concept of New Literacies serves to frame the discussion.

Intellectual Tools

Intellectual technologies refer to those tools that we, as human beings, use to “extend or support our mental powers – to find and classify information, to formulate and articulate ideas, to share knowledge, to take measurements and perform calculations, and to expand the capacity of our memory” (Carr, 2011, p. 44). As such, intellectual tools are the tools that have the greatest and most lasting power over what and how we think. They embody an intellectual ethic, or a set of assumptions about how the human mind works or should work (Carr, 2011). Thus, making wise choices about the use of technology depends on the ways in which it facilitates human beings' action. Just as

machines enable us to act on the environment, information tools enable us to act on our psychological and social worlds (Norton & Wiburg, 1998). Indeed, Norton and Wiburg (1998) highlight this notion in the following vignette:

...the invention of the printing press served as the impetus for radical transformations in the conditions of intellectual life in Western civilization. Its effects were sooner or later felt in every department of human activity and eventually changed a scribal culture into a print culture. Because of its increased ability to reproduce and disseminate information, the printing press increased the amount of information to which a person was exposed. People were provided a kind of prefabricated, often abstract, experience necessary for the creation of expertise, which allowed mental energies to be more efficiently used. Its general acceptance, however, was neither easy nor smooth. (p. 2)

During the middle of the twentieth century, however, there was a shift from print toward digital technologies, as entertainment media such as radio, cinema, phonograph, and television became cheaper and more prevalent. But these technologies were always limited by their inability to transmit the written word (Carr, 2011). According to Carr (2011), they could “displace but not replace the book. Culture’s mainstream still ran through the printing press” (p. 77). Since this time, as human beings, we have had to “negotiate our own transition from a written culture to one that is increasingly driven by visual images and massive streams of digital information” (Wolf, 2007, p. 19). Accordingly, literacy can no longer be defined through print technologies alone as it has been for the past 500 years.

However, design and delivery of instructional materials have become firmly rooted in print-oriented practices in many schools across the country. In fact, assessment practices such as those required by No Child Left Behind legislation (2000) have, in part, caused many schools to focus the complete attention of their instruction on print-based reading experiences, which may have come at the expense of instruction that fosters learning to read, write, and communicate online with multiple media and newer forms of technology (Schmar-Dobler, 2003).

According to researchers in the “New Literacies” field, literacy has come to mean a rapid and continuous process of change and new ways for how we read, write, view, listen, compose and communicate information (Coiro, et al., 2008). At the same time, Coiro, et al., (2008) explain that the ‘space’ of these New Literacies is highly contested:

Some authors conceive new literacies as new social practices and conceptions of reading and writing (Street, 1998) emerging with new technologies. Some see new literacies as important new strategies and dispositions required by the Internet (Leu, et al., 2004). Others see new literacies as new Discourses (Gee, 2003) or in terms of new semiotic contexts (Kress, 2003, Lemke, 2002) made possible by new technologies. Still others see literacy as differentiating into multiliteracies (The New London Group, 1996) or multimodal contexts (Hull & Schultz, 2002) and some see a construct that juxtaposes several of these orientations (Lankshear & Knobel, 2003, 2006). (Coiro et al., 2008, p. 10)

To understand how these newer digital forms for learning, as described above, might play out in a high school classroom, it is important to consider the research on

adolescent learners and the implications for learning in a high school context in which digital tools and resources are integrated.

Adolescent Learners

In order to examine how high school students go about completing their online lessons in the classroom, it is important to consider the developmental stage of adolescents in relation to the high school context. This involves examining the cognitive changes and changes in self and socialization that are thought to occur during adolescence. Several researchers (e.g., Alexander & Fox, 2011; McCarthy & Moje, 2002) have called for more research that begins with conceptualizing adolescence as a stage in lifelong reading development, and that considers the characteristics of particular learners engaged in academic tasks, rather than simply looking at subject-matter texts or content area pedagogies.

Much of the early adolescent literacy literature has been targeted on the reading demands in the secondary classroom (e.g., Alvermann & Moore, 1991; Hegarty, Carpenter, & Just, 1991; Weaver & Kintsch, 1991) rather than the characteristics of adolescent learners as they make their way through content area texts. Alexander and Fox (2011) formulated four particular dimensions of development based on the adolescent development literature that they saw as most pertinent to the “processing of written or oral texts and to related pedagogical practice” (p. 158). These four aspects include:

- a) biophysiological development including changes in brain structure and organization, as well as those changes associated with puberty; b)

cognitive development to include increased reasoning ability and comfort with abstract thought; c) changes in self/social relationships to include the development of identity and social relationships including greater autonomy and heightened orientation toward peers; and d) shifting school contexts and educational expectations. (Alexander & Fox, 2011, p. 158)

In light of Alexander and Fox's concept of the four aspects of adolescent development and literacy, the following section of this paper overviews research that examines adolescent development in terms of cognitive changes, the transition to high school, as well as the competencies that are thought to be necessary in order for adolescents to acquire academic literacies in a high school classroom setting.

Cognitive Theory and Changes in Adolescence

Jean Piaget is generally regarded as one of the most influential and prolific 20th century psychologists. Although he was trained to be a biologist, he became interested in epistemology in an effort to understand human knowledge. Based on his training and interests, he came to believe that the mind, similar to many living organisms, does not simply respond to stimuli – but that it grows, changes and adapts to the world (Craig, 1996). This was in contrast to behaviorist theorists (e.g., Pavlov, 1928; Thorndike, 1911; Skinner, 1968) who focused their research on overt, measureable, observable behavior rather than on internal mental processes, such as Piaget's work, which focused on the ways in which children manipulate the environment to exercise and develop their cognitive abilities (Piaget, 1952).

According to Piaget (1952), a hallmark of adolescent cognitive change is the development of formal operational thought. According to Piaget, the formal operational stage begins between the ages of 11 to approximately 15-20, and is demonstrated through the logical use of symbols related to abstract concepts. Formal operations is a type of thinking that is abstract and involves thinking about one's thoughts, as well as the ability to detect relationships between things, and no longer needs to be tied to actual physical objects or events for cognitive development to occur (Inhelder & Piaget, 1958) as in earlier stages of children's cognitive development.

Piaget's writings on formal operations are slim as compared to his writings on earlier stages of children's stages cognitive development (Kuhn, 2008). At the same time, Piaget's work on children's stages of cognitive development has been criticized by some research (Kuhn, 2008), for having been too distinct in his stages of development. Further, in referencing Piaget's work on children's cognitive development, Kuhn states that much of Piaget's work, "tended to be instructive, to the point of being dogmatic: this is what we can expect to see in the child's thinking at a given stage and this is the underlying structure that accounts for it" (p. 49).

However, Piaget's (1972) article, "Intellectual Evolution from Adolescence to Adulthood" is historically significant because it gave rise to attention on cognitive development in adolescence and, more importantly, for the first time, Piaget was faced with evidence that "appeared to be at odds with his theoretical model" (Kuhn, 2008, p. 49) on formal operational thought. According to Kuhn, Piaget (1972) recognized that by the time children enter adolescence, "individual aptitudes and interests become more

important with the result that individual intellectual profiles become more differentiated...and this variability between individuals increases with time and experience” (Kuhn, 2008, p. 49).

Similarly, in term of adolescents’ cognitive development, Greene (1990) found that, in contrast to earlier stages of development, adolescents also show an increasing ability to plan and think ahead. In his study of 114 adolescents and young adults, Greene interviewed 10th graders, 12th graders, college sophomores and college seniors to describe what they thought might happen to them in the future and to say how old they thought they would be when these events occurred. The older subjects could look farther into the future than the younger ones could, and the narratives of the older subjects were more specific. Greene’s findings also indicate that the increased ability to plan and think ahead might be a result of the older college students having more life experiences. Other research has pointed to the fact that maturation may establish the basis for formal operational thought but a special environment is required for most adolescents to attain this stage (Kuhn, 2008).

Social learning theories. Still, other theorists believe that cognitive development is a continuous, incremental progression that recognizes children and adolescents as social beings, who in playing, working, and talking with others learn from this interaction (Bruner & Haste, 1987). Similarly, Russian scholar Lev Vygotsky (1978) believed not only in the development of the mind from an internal stance, but also that individuals make sense of the world around them through the shared meanings of others. Vygotsky defined two levels of cognitive development: The first is the child’s actual development

and the second is the child's potential development, which is determined by the kind of problem solving the child can do under adult guidance or in collaboration with a more capable peer. Vygotsky (1978) called the distance between these two points as the zone of proximal development (ZPD). Vygotsky emphasized that we need to know the actual and potential levels of cognitive development of learners in order to design instruction for them (Vygotsky, 1978). Similarly, Albert Bandura (1986), a social learning theorist, believed that people not only learn from interacting with others but, more specifically, they learn from watching other person's behaviors, and through imitation and modeling, gain a deeper understanding of the world around them. Bandura's notions of the interaction between learners' personal characteristic, their behavior and the environment as applied to adolescents learning in the high school context provides a useful framework for the current study and is detailed later in this chapter.

On this same note, studies have found that certain cognitive functions including self-regulatory functions such as selective attention, decision-making, impulse control and working memory (Blakemore & Choudhury, 2006; Luna et al., 2001; Yurgelun-Todd, 2007) occur during adolescence. This shift in cognitive functions is thought to influence adolescent reading comprehension and development as well. For example, Hacker (1997) used an error detection methodology to investigate text monitoring, an important component of reading comprehension. In his study of seventh, ninth and eleventh graders, he determined that comprehension monitoring on lexical, syntactic, and semantic levels were positively associated with age and reading ability. This study suggests that reading ability continues to develop throughout adolescence. However,

other researchers have pointed out that motivational factors may be more important than age with regards to reading ability (Gambrell, 2013).

Transition to high school. It has been well documented in the literature (Eccles et al., 1993; McPhail, Pierson, Freeman, Goodman & Ayappa, 2000) that motivation for learning generally tends to decline from elementary school to middle and high school. Some researchers have explained this as a result of a mismatch between the competencies and identity needs of adolescents and the conventions of high school settings, and that school curricula for this age group may not be aligned with students' interests and outside-of-school competencies (Brozo & Simpson, 2007). At the same time, Strickland and Alvermann (2004) argue that adolescents come to school having particular life experiences and knowing particular things about their worlds inside and outside of school. Their perspective recognizes that "school literacy, though important, is but one among multiple literacies that young people use daily" (p. 2). Other researchers (Wade & Moje, 2000) attribute adolescents' declining interest in subject matter reading to the transmission model of teaching, which supports teacher-centered instruction and passive learning instead of a more participatory model of instruction that actively engages students.

Moreover, as students move into adolescence, they move into middle and high schools that are typically larger and more impersonal in terms of interactions with both teachers and peers (Entwisle, 1990; Wigfield, 2004) than previously. Instruction in high schools in the United States is typically departmentally organized and based on content area standards for learning, and is often geared toward high-stakes assessments

(Wigfield, 2004). For instance, the content area standards set for learning in the current study were bound to Virginia's Standards of Learning (SOLs) as part of the World History I curriculum. The World History I content consists of examining World History and Geography up to the year 1500 C.E. and is based on the Virginia History and Social Science Standards of Learning (Virginia Department of Education, 2008). Students are assessed on their knowledge of World History content standards in the spring of the academic year.

Academic and Disciplinary Literacy

Academic literacy refers to the ways in which students engage and talk about texts that are valued in school (Harris & Hodges, 1995; Street, 2003). As applied to the high school curriculum, academic literacy refers to the discipline-specific attributes of secondary content area curricula that students need to master in order to build their knowledge and understanding (University of Sydney, Institute for Teaching and Learning, 2011). Similarly, Lee and Spratley (2010) call the more "advanced forms of literacy required of adolescent readers 'disciplinary literacy' since each academic discipline or content-area presupposes specific kinds of background knowledge about how to read texts in that area, and often also requires a particular type of reading" (p. 2). As such, in high school, adolescents often need more sophisticated and specific kinds of literacy support for reading in content areas, or academic disciplines (Lee & Spratley, 2010). Researchers who advocate for disciplinary literacy awareness suggest that we cannot simply assume that proficient literary thinking in English can automatically support students' achievement math, science, or social studies. Rather, we need to

acknowledge and prepare students for the different discourses that these content areas establish (Moje, Overb, Tysvae, & Morris 2008; Shanahan & Shanahan, 2008).

Further, Shanahan & Shanahan (2008) argue in their article, “Teaching Disciplinary Literacy to Adolescents: Rethinking Content-Area Literacy,” that different disciplines require different strategies to aid comprehension. Their article describes findings from a Carnegie-funded research project, which took place over two years and explored sophisticated, high school-appropriate literacy skills. The participants in the Shanahan and Shanahan study included three teams from each of three disciplines: chemistry, history and math. The teams included two “disciplinary experts” (university professors who were researchers in their discipline); two teacher educators who prepared teachers to teach that discipline in high school; and two high school teachers who taught disciplinary content to students at diverse schools in and around Chicago.

The researchers provided the teams with a literacy framework and then provided various documents/texts for the team to read. The teams were asked to identify the challenges in each dimension of the literacy framework that students might have with the texts. They also asked the experts to “read- and think- aloud” about a text they were currently reading. The researchers taped and transcribed the think-alouds and came up with a list of “reading facilitators” that the experts used when reading. Next, they asked the teams to come up with a list of proposed strategies based on the reading facilitators list that could help students learn from their texts.

Teachers were then asked to teach these strategies to their students. The researchers observed and videotaped these teachers as they engaged in this teaching, later

showing the videotapes to the team for their insights on how the strategies might be strengthened. From their analysis, Shanahan and Shanahan (2008) were able to specify how different the disciplines are. The authors noted, “Each of the disciplinary experts emphasized a different array of reading processes, suggesting the focused and highly specialized nature of literacy at these levels” (Shanahan & Shanahan, p. 49).

Additionally, they found that disciplinary experts approached reading in very different ways. Based on this finding, the authors noted that adolescents must be taught to approach the reading of text with different lenses. They cite the importance of teachers showing students how to write for different purposes (e.g., to describe, to persuade) and how to use different structures (e.g., research articles, lay explanations, lab notes) for scientific writing. In summary, the authors note that the differences among texts of different disciplines result in unique challenges for readers.

In the Social Studies discipline, researchers have emphasized the importance of teaching students to “think like historians” (Wineburg, 1991, 2007). For example, when examining primary source documents, historians ask themselves about what type document it is that they are reading, and how the document came into being. Historians examine word choice, what information is included and excluded and they seek corroboration across multiple sources. They assume texts reflect the authors’ points of view, as well as their access to the experiences about which they write, and how the text is organized according to the audience for which it is written. In contrast, schools do not typically teach students to think like historians, and instead, students are taught to see

history as a simple chronology of events and explanations offered in texts as the truth (Wineburg, 1991, 2007).

At the same time, despite the differences in high school curricula, students are expected to learn the skills and knowledge that are discipline specific and how to learn effectively with text (Alexander & Jetton, 2000, 2003; Biancarosa & Snow, 2004). For those students who lack these skills or who come to school with competencies and skills that are not in alignment with the high school curricula, learning is compromised. Further, as Moje discussed in her recent webinar on Adolescent Literacy (2013), students must learn how to “navigate high school.” This involves students being able to move across different spaces that require different cognitive and behavioral ways of thinking and behaving. In addition, students must be able to move across literacies in different content areas and understand the certain conventions and whims of each discipline. For these reasons, Alexander & Fox (2011) have argued that we need to expand our vision of what it means to be a competent and motivated reader during students’ secondary years. In fact, Strickland and Alvermann (2004) propose a definition of struggling reader that not only encompasses those adolescents with clinically diagnosed reading disabilities but also those who are “English learners, ‘at-risk,’ low-achieving, unmotivated, disenchanted, or generally unsuccessful in school-related reading” (p. 4).

However, despite the decline in motivation for some adolescents as they enter high school, the expectation is that they will come to school ready to participate in subject matter learning, despite the difficult and abstract concepts within a content area and instructional practices that are often disconnected from their lives. For this reason, it

is important to also further examine the research on student motivation and engagement for learning.

Motivation for Learning

Motivated students display interest in activities, work diligently, feel self-confident, stick with tasks, and perform well (Schunk, Pintrich, & Meece, 2008). Feelings of competency and self-efficacy are central to learning and connected to what we know about adolescent development in terms of identity construction, and greater self-awareness (Erikson, 1980). Further, students must develop a high level of self-regulation to work through difficult and often abstract concepts. Self-regulation is the process by which students activate and sustain cognitions, behaviors and affects that are systematically oriented toward attainment of their goals (Zimmerman, 1989, 2000). Given that motivation affects all aspects of schooling and contributes to students' success, improving students' motivation for academic learning is important (Schunk et al., 2008).

Schunk et al. (2008) offer a general definition of motivation. They state, "Motivation is the process whereby goal-directed activity is instigated and sustained" (p. 4). To this end, the following section of this paper describes motivation from a social cognitive framework which views motivational processes, in part, as the learning and performance of cognitive, social, and motor skills, strategies and behaviors within goal directed behavior (Bandura, 1986). The interaction among cognitive, behavioral and environmental factors is the major emphasis within the social cognitive construct (Bandura, 1986). In describing this construct, Bandura refers to the interaction among

cognitive, behavioral and environmental factors as a framework of triadic reciprocity, which he describes as follows: “In the social cognitive view people are neither driven by inner forces nor automatically shaped and controlled by external stimuli. Rather, human functioning is explained in terms of a model of triadic reciprocity in which behavior, cognitive and other personal factors, and environmental events all operate as interacting determinants of each other” (Bandura, 1986, p. 18).

Bandura’s model (1986) is shown in Figure 1:

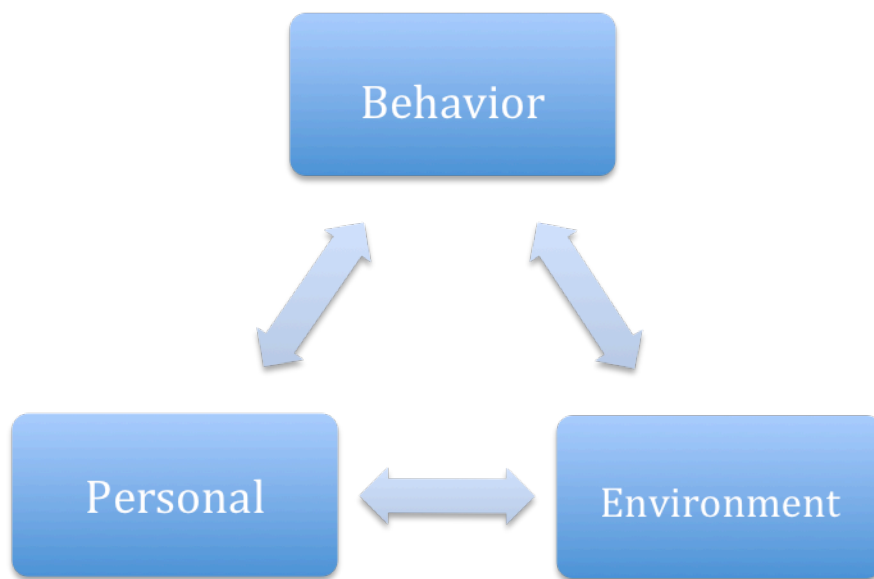


Figure 1. Model of Triadic Reciprocity. Adapted from Motivation in Education: Theory, Research, and Applications (p. 127) by D. Schunk, P. Pintrich, and J. Meece, 2008, Upper Saddle River, NJ: Pearson. Copyright (2008) by Pearson Education, Inc.

As illustrated in Figure 1, personal, behavioral and environmental factors typically interact in the classroom environment; however, the direction of influence is not always the same and typically, one or two factors dominate (Schunk, et al., 2008). For instance, in a highly structured classroom environment where there are many rules, environmental factors may have precedence.

One example of the interaction between behavioral and personal factors can be exemplified using the concept of self-efficacy. Research shows that self-efficacy (a personal factor) influences achievement behaviors such as choice of tasks, persistence, and effort (Schunk, 1989; Schunk & Pajares, 2002). In turn, students' behaviors modify self-efficacy. That is, when students see themselves accomplishing their learning goals, their self-efficacy for learning increases. Similarly, factors such as a teacher giving clear goals and providing feedback (environment) may lead to a student's increased self-efficacy (personal) and giving more attention to the academic task (behavior).

Although instructional practices (environment), such as integrating multiple media and newer forms of digital technologies, might increase student motivation (personal), and thus help students to stay engaged (behavior) with the lesson, we know little about the relationship between these factors or how the specific features of these factors might be supports or barriers within a classroom setting where digital tools and resources are integrated. For the purposes of this study, Bandura's (1986) model provides a useful framework from which to view the complexity of how students work through online lessons and is discussed in detail in the findings chapter of this study. The following section of this chapter details the nature of online learning as related to

students' motivational and literacy processes for learning academic content. A detailed explanation of the demands of learning with online resources serves to frame the discussion.

Learning with Online Resources

The terms *Internet* and *World Wide Web* are often used in everyday speech without much distinction. However, for the purposes of this study, it is important to note the difference between the Internet and the World Wide Web. The Internet is a hardware and software infrastructure that provides connectivity between computers. On the other hand, the Web is one of the services communicated via the Internet. The Web is a collection of interconnected documents, images, videos linked together to form hypertext or hypermedia environments (Comer, 2006) with the Internet providing the infrastructure. Consequently, due to the vast amount of resources such as up-to-date libraries, primary source documents, museum exhibits, and multimedia presentations about events, topics and processes on the Internet, exposing students to Web resources seems to make intuitive sense for optimal learning (McArthur & Lewis, 1998). Yet, as a learning medium, the Web poses additional demands on the learner due to: (a) the extensive amount of information available, (b) its nonlinear structure and (c) technological inconsistencies and limitations (Narciss, Proske, & Koerndle, 2007). Previous research indicates that students' ability to effectively use hypertext-organized information systems, such as the Web, is influenced by factors such as prior knowledge and self-regulation strategies (MacGregor, 1999). Although many adolescent students are savvy

enough to “surf” the Internet, they may lack the strategies necessary to efficiently and effectively negotiate the reams of information available (MacGregor & Lou, 2004/2005).

For example, in contrast to traditional textbook reading, Web-based learning and reading requires students to navigate through a complex system of links and resources. Consequently, various connections between materials from different sources of information need to be made. These various sources of information have to be located, examined and evaluated. Without appropriate supports or scaffolds, this process involves risks due to the non-linearity of web-based documents and the learner’s own knowledge limits with regard to content and strategy (Narciss et al., 2007)

Along the same line, the Web as a medium itself induces a more trial-and-error like behavior as opposed to traditional forms of learning. In fact, students may be able to “skip” between documents of a hypermedia system without recognizing semantic or logical relationships (Salomon & Almog, 1998) making learning and comprehension more difficult. As a result, learning may suffer due to misconceptions and/or misunderstanding of the content (Hannafin, Hannafin & Gabbitas, 2009). In addition, students participating in Web-based learning environments are confronted with the additional tasks of selecting relevant pictorial information and integrating it with the text. Avoiding potential distractions, such as irrelevant images and videos, adds to the demands of learning within Web-based learning environments.

Finally, while Web-based learning environments may increase access to multiple resources as well as multiple representations of information, it is often up to learners to determine which resources and which representations are most helpful, based on their

prior knowledge, goals, and strategic knowledge (Winters, Greene, & Costich, 2008).

Hence, the nature of many Web-based instructional tasks involves independent learning that requires students to be highly self-regulated.

Self-regulation and online learning. As described in the literature, self-regulation is the process whereby “students activate and sustain cognitions, behaviors, and affects that are systematically oriented toward attainment of their goals” (Schunk, et al., 2008, p. 154). Self-regulation is generally characterized as the effective management of one’s own learning process through monitoring and strategy use (Greene & Azevedo, 2007). Further, self-regulation requires not only content-related cognitive strategies but also metacognitive strategies for selecting and activating the appropriate learning and working strategy (Boekaerts, 1997).

Students participating in Web-based learning need to be able to critically evaluate both the credibility and relevance of a web resource for a given task (Case, 2003). As mentioned previously, they also have to be able to interpret and synthesize a variety of resources that may not be well organized or designed for the assigned task. For this reason, it is important to consider the types of scaffolds and strategies that might support cognitive and metacognitive activities of learners’ self-regulation within Web-based learning environments.

Self-regulation scaffolding supports. As mentioned previously, students’ ability to navigate Web-based learning environments is influenced by factors such as prior knowledge and self-regulation strategies (MacGregor, 1999). In support of self-regulation within Web-based learning environments, Hill and Hannafin (2001) suggested

four types of scaffolds that may be used to support cognitive and metacognitive activities:

(a) conceptual scaffolds in the form of outlines and concepts for determining what to consider or to prioritize; (b) metacognitive scaffolds as reminders to reflect on the goal or a problem-solving model, which help learners assess what they know and what to do as they learn; (c) procedural scaffolds to provide specific procedures, site navigation maps, textual charts and graphic representations that help the learner access and use resources while reducing the cognitive load; and (d) strategic scaffolds as suggestions for alternative approaches to engage with a task that help the learner develop alternative perspective or ways in solving a problem.

Other research supports the importance of embedding these types of supports within Web-based learning environments as well (Azevedo, Roger, & Hadwin, 2005). For instance, in their study of self-regulated learning and hypermedia with 40 undergraduate students, Moos and Azevedo (2008) found that conceptual scaffolds through the form of explicit directions, explicit guidance, and activities promoted deeper learning, particularly for students who had limited background knowledge in the domain. Further, Shapiro (2005) found that procedural scaffolds such as navigation site maps were helpful for students to overcome website disorientation due to cognitive overload and to facilitate decision-making. Kauffman, Ge, Xie, and Chen (2008) examined the effects of strategic scaffolding in the form of problem solving and self-reflection prompts on students' complex problem solving in a Web-based learning environment. They reported that reflection prompts positively influenced problem solving and writing.

Similarly, it is important to consider how prior knowledge influences how learners make use of embedded scaffolds in a Web-based learning environment. For instance, some researchers note that students with high prior knowledge tend to engage in greater instances of planning and monitoring using conceptual scaffolds versus low-prior knowledge students, who in turn tended to use more of the procedural scaffolds (MacGregor, 1999; Moos & Azevedo, 2008). At the same time, conceptual scaffolds have been found to help guide students' understanding of relationships between concepts where procedural scaffolds have been found to be more effective with fact recall (Hannafin et al., 2009). Collectively, research suggests that incorporating cognitive and metacognitive scaffolds to enhance self-regulation within Web-based learning may prove beneficial, and in some cases, necessary for learners to engage in these environments effectively (Hannafin et al., 2009). At the same time, it is important to understand the literacy processes that might be unique to learning academic content with online resources in a classroom setting.

Literacy and online resources. Some researchers have called for research that connects online reading strategy use to existing models of reading and thinking (Coiro, 2003). However, it also seems important to consider new ways of thinking about online text structures and their influence on comprehension and understanding that might be different from linear print-based text structures. Some studies in this area have demonstrated that there are important, new complexities to online reading that go beyond the skills required to comprehend traditional text (Coiro & Dobler, 2007).

Schmar-Dobler (2003) and Coiro and Dobler (2007) employed concurrent think-aloud protocols (Pressley & Afflerbach, 1995) and retrospective interviews with adolescent readers, which revealed similar and more complex strategies involving navigation, prior knowledge sources, inferential reasoning strategies and self-regulated reading processes. Similarly, Afflerbach and Cho (2008) synthesized results of 46 think-aloud protocol studies focused on reading strategy use during inter-textual, hypertext, and Internet reading. Their analysis revealed many overlaps with offline reading comprehension, but the authors also proposed an entirely new category of online reading processes, which they termed, *realizing and constructing potential texts to read* (Afflerbach & Cho, 2008). Realizing and constructing potential texts to read involves accessing and reducing goal-relevant information and selecting useful links and texts.

At the same time, in his case study of seven adolescent readers, Cho (2011) found that traditional reading processes overlapped with online reading processes. While he identified the continued importance of meaning construction strategies, metacognitive and self-regulative functions, and critical-analytical processes in relation to reading print-based or offline texts, he also found unique reading strategies specific to online reading. These reading strategies include generating digital queries, applying prior knowledge of search engines, and constructing individualized paths to accessing useful resources (Cho, 2011).

Further, in their study of adolescents reading online to solve problems, individually and collaboratively, Coiro, Castek, and Guzniczak (2011) found evidence that readers “frequently engaged in new dimensions of planning, searching, monitoring

and repairing” (p. 365) as they negotiated multiple online texts. These results provide tangible examples consistent with Afflerbach & Cho’s (2008) notion of processes of realizing and constructing potential texts to read and are interwoven with more traditionally conceived reading processes. Although the literature surrounding online reading is limited, the existing research as described above suggests that there are an expanded set of strategies is required when reading online particularly in terms of critical and analytic reading.

Integration of online resources within the classroom context. In addition to the research that examines offline and online reading from a cognitive stance, some researchers have explored online reading from a social interaction perspective (.Leu, et al., 2011). In her doctoral study, Castek (2008) sought to examine the classroom contexts under which students acquired New Literacies. In her study of a 4th/5th grade combination class, Castek collected quantitative and qualitative data across three instructional units and found that participation formats, learner interactions and instructional practices appeared to prompt the acquisition of New Literacies while also learning content. This study found that “students taught one another online reading comprehension skills as they collaborated to solve informational problems” (p. 192). Similarly, Coiro, et al. (2011) demonstrated how two adolescent readers engaged in meaning construction while reading online in-pairs and individually. The researchers developed online reading reflection prompts and online tasks for students to work on individually and collaboratively. The students completed these tasks outside-of-class, in the school library with researchers who collected the data through verbal protocols

(Pressley & Afflerbach, 1995). The authors' findings suggest that opportunities to work with a peer to co-construct meaning and respond to prompts that require students to read on the Internet "may foster more efficient and productive comprehension of online informational texts- even among readers who are skilled at comprehending online texts independently" (p. 366). These findings are consistent with those of Webb and Palincsar (1996) who demonstrated that peer interaction can help students to co-construct knowledge and thereby generate better solutions than individuals working alone.

Castek's (2008) study has yielded important insights about online reading from within a classroom setting at the upper-elementary level while Coiro et al. (2011) demonstrated that adolescent students may better comprehend online material while working in pairs; however, there remains a gap in the literature that considers how students work through their online lessons in a typical high school setting and the relationship between student behaviors, personal characteristics and environmental factors.

Chapter Summary

In summary, the research literature indicates that there are a variety of factors to consider for student learning in a high school content area that relies on online resources and tools for learning. The literature outlined in this chapter suggests that discipline-specific literacy strategies are necessary for learning in a content area. Moreover, the research literature also suggests that there are additional strategies necessary for learning with online resources in a content area that go beyond what is required for print-based learning. In addition to print-based reading strategies, Cho (2011) found that there are

additional reading strategies for reading online such as generating digital queries, applying prior knowledge of search engines, and constructing individualized paths to accessing useful resources. Further, there is some thought that participation formats, learner interactions, and instructional practices may facilitate online learning in terms of problem-solving, as indicated in the Castek study (2008).

The research also suggests that students' motivation for learning decreases as students move from elementary to middle to high school, which may be a result of instructional practices that are often mismatched with the personal characteristics of modern day adolescent students. Further, as mentioned, the implications of changes in social cognitive functions and the development of self-regulation for the adolescent are important to consider in high school classroom contexts that rely on multiple online tools and resources for learning. This is especially important considering the extensive amount of information available, the nonlinear structure and technological inconsistencies and limitations (Narciss et al., 2007) of Internet-based resources.

As mentioned, through his work on the stages of cognitive development, Piaget (1958) suggested that adolescents are capable of formal operations, or the ability to think abstractly, see relationships between items of interest and think about their own thinking. Piaget (1972) also recognized that formal operations might be dependent on the individual characteristics of the adolescent. The development of formal operations is also thought to differentiate between individuals and increase with time and experience (Kuhn, 2008). Other research (Vygotsky, 1978) points out that learning is acquired through the shared meanings of others, in addition to individual cognitive development.

In light of the basic tenets of the research literature outlined in this chapter and in Chapter One, the goal of this qualitative research study is to describe how students work through their lessons and the influences that might help or hinder students' engagement within a high school World History content area that relies heavily on online resources and tools for learning. As mentioned, Bandura's model of triadic reciprocity (1986) provides a useful framework from which to examine the complex nature of the interactions in a high school classroom between students' behaviors, their personal characteristics and environmental or contextual influences. With this in mind, the research questions that provide focus for the study are restated below:

1. How do ninth-grade students work through online lessons in a World History class?
2. What are the influences on students as they work through their online lessons?
3. What are the barriers and supports for students working through their online lessons?

The following chapter details the methods used for examination of the research topic.

CHAPTER THREE: METHODS

Research Design

As mentioned previously, there is limited empirical research regarding how high school students use and learn with online resources in a classroom setting. Thus, qualitative case study is an appropriate approach for my study as it has been “widely used as a research design when there is no theory available to explain a particular phenomenon or when existing theory does not provide an adequate or appropriate explanation” (Merriam, 1988, p. 59). In addition, case study research is useful for answering questions that begin with “how” or “why” as well as for studies in which the investigator has little control over “actual behavioral events” (Yin, 1994, p. 8). Lastly, case study has a rich history in literacy research (e.g., Butler, 1975; Bissex, 1980; Calkins, 1983; Dyson, 1997; Heath, 1983; Purcell-Gates, 1995; Taylor & Dorsey-Gaines, 1988; White, 1956) and has been influential in the literacy community, particularly in terms of illustrating the importance of the social environment on a child’s early literacy development as well as highlighting the importance of connections between home and school literacy practices (Duke & Mallette, 2004). While some quantitative studies have shed light on the topic of online reading comprehension (Pearson, Ferdig, Blomeyer, & Moran, 2005; Slavin, Cheung, Groff, & Lake, 2008), more research is needed so that we might be able to understand what works, for whom, and in what contexts.

For these reasons, case study as a research design has particular relevance to my study as an exploration of how students work through online resources and tools in a high school setting. The following section of this paper describes case study research and its applicability to my study. The section concludes with a description of my participants and setting, data collection and analysis methods, issues related to validity as well as the limitations of the study.

Case Study Research

According to Merriam (1988), case study is defined as “an intensive, holistic description and analysis of a single entity, phenomenon, or social unit” (p. 16). Merriam describes case study research from the perspective of the qualitative or naturalistic research paradigm as noted below:

I chose this paradigm because I believe that research focused on discovery, insight, and understanding from the perspective of those being studied offers the greatest promise of making significant contributions to the knowledge base and practice of education. Naturalistic inquiry, which focuses on meaning in context, requires a data collection instrument sensitive to underlying meaning when gathering and interpreting data. Humans are best suited for this task-and best when using methods that make use of human sensibilities such as interviewing, observing, and analyzing. (p. 3)

Merriam (1988) also used the terms fieldwork and field study to refer to two different activities: observation and interviews. For my study, informal interviews and conversations were interwoven with my observations of the individual student and what

was going on in the class at the time. Through my fieldwork, I was able to observe student behaviors and the real-time interactions of students as they worked through their online lessons and I was able to revisit these interactions through the video data I collected. Through my interviews with students, I would also begin to understand their perspective on what influenced these interactions.

Similarly, Willis (2007) states that, “Humans are also influenced by their subjective perception of their environment – their subjective realities” (p. 6). Along this same line, I took an interpretivist stance as part of the qualitative research paradigm (Patton, 1990) as I was interested in my participants’ perceptions of what influenced their interactions as they worked through their online lessons. In this way, my goal was to interpret the student participants’ subjective realities as best I could using multiple methods for data collection in order to glean a detailed, rich narrative for each student in relation to what was going on in the class as a whole. As Willis (2007) remarks, “for interpretivists, what the world means to the person or group being studied is critically important to good research in the social sciences” (p. 6).

Similar to Merriam, Yin (1994) and Stake (1995) discuss case study as a viable design for qualitative inquiry. Yin (1994) refers to case study as having a “distinct advantage over other approaches when a “how” or “why” question is being asked about a contemporary set of events over which the investigator has little or no control” (p. 9). Consequently, as a participant observer in my setting, I sat in a corner desk of the classroom and tried to remain as unobtrusive as possible during my observations.

In keeping within the qualitative research design as Merriam describes, I attempted to approach my study as a naturalistic inquirer, taking care not to disrupt the instructional routines of the teacher or student. Yet, I also found myself relying on my former experiences with and knowledge of adolescent literacy and technology in order to discern emerging categories as I began the data collection and analysis process. As a result, it became necessary to refine and adapt my research questions as I worked through the data collection and analysis process. As Merriam explains, within the qualitative research paradigm, “formulating tentative hypothesis and refining the hypothesis as data are collected and analyzed” (p. 145) is an important part of the analytic process.

Stake (1995) describes three types of case study research. The purpose of the case varies within each type. Within an intrinsic case study, the researcher seeks a better understanding of something. The researcher is exploring the case because it is interesting, not because it might contribute to theory building. However, other researchers have argued that contributing to theory is one of the goals of qualitative research (Maxwell & Miller, 2008; Merriam, 1988). In fact, Maxwell and Miller state that the “simplest form of theory consists of two concepts joined by a proposed relationship” (p. 42). Merriam explains that “when categories and their properties are reduced and refined and then linked together by tentative hypothesis, the analysis is moving toward the development of a theory to explain the data’s meaning” (p. 146).

Stake (1995) refers to a second type of case study as instrumental. An instrumental case study is that which the researcher is looking for an insight into an issue. Stake refers to a third type of case study as a collective case study, also known as a

multiple case study, wherein the researcher investigates numerous cases to study a phenomenon, group, condition or event. Stake emphasizes that collective case study is a type of refinement of instrumental case study; the only difference is that the researcher is studying multiple cases.

Although Wolcott (1994) criticized collective case study because it is focused on comparison, rather than meticulous description, other researchers (Miles & Huberman, 1994) have argued that the results of multiple case studies are more compelling than single cases because they can lend themselves to replication. One critical characteristic of case study research, according to Stake (1995) is that it is a bounded system. Boundedness is important because it describes what is included in a case and what is not included.

One of the goals for the current study was to gain the students' perspectives and insights and to observe their behavior as they worked through their online lessons via ethnographic methods and then to examine these perspectives and behaviors across cases. Thus, my approach for gaining insight into my research questions was in the form of a collective case study. In accordance with Stake's description of a collective case study, each case in my study was the individual student, with a focus on what he or she was influenced by and the interactions he or she had while working through the online lessons. Thus, the student is the particular case, or the unit of analysis (Patton, 1990).

My research questions were designed so that I could explore my topic from an inductive stance and yet still have a structure for what I was attempting to understand. This design approach was also helpful for facilitating analysis across cases. In fact, Stake

(1995) explains that, “In collective case study, an early commitment to common topics facilitates later cross-site analysis” (p. 25). However, Stake also cautions against too much commitment to questions in advance as case study fieldwork can take the researcher in unexpected directions. For this reason, he suggests that case study researchers: “Make a flexible list of questions, progressively redefine the issues and seize opportunities to learn the unexpected” (1995, p. 29). Consequently, I chose research questions that were open ended, yet descriptive enough to help to guide my study and to facilitate analysis.

Although using less structured approaches to data collection and analysis (e.g., working with and refining tentative hypothesis) might make some quantitative researchers uncomfortable, this approach has been particularly useful in revealing the processes that lead to specific outcomes. (Maxwell, 2004). And, in fact, Becker (1991) argues that with case study research, “you can develop generalizations by seeing how each case, potentially represents different values of some generic variables or processes” (p. 240). Through my background knowledge and experience with the topic, as described in the next section, I understood the generic variables associated with the topic and I was able to make some inferences and generalizations early on as I began data collection and analysis. However, I learned that these inferences and generalizations needed to be refined and rethought as my data collection and analysis evolved.

Exploratory Work. As mentioned previously, I conducted preliminary exploratory work into my research topic, which served to refine my original research questions, and led to the development of my research sub-questions. My initial

exploratory work into this research study and setting included several interviews and classroom observations as noted in Table 1 (all names are pseudonyms):

Table 1

Exploratory Work

Who?	What?	How long?
Mr. Otten (high school Social Studies teacher)	Interview-his use of the Social Studies electronic textbooks; his class was one pilot setting for the e-text the year before it was implemented	2 hours
Lauren – 7 th grader from my neighborhood	Interview regarding her use of electronic Social Studies textbook	1 hour
Ms. Pipper’s class (7 th grade Social Studies)	Observation – integration of Social Studies electronic textbooks	1.5 hours
School district’s Coordinator, Social Studies, PreK-12, Instructional Services	Interview about the decision-making process to adopt the electronic Social Studies textbooks	1.5 hour
School district’s Special Projects Administrator	Interview on her involvement with pilot of and implementation of electronic Social Studies textbooks.	1.5 hours
Mr. Wright’s (high school Social Studies class-and setting for my study)	Observation – integration of Social Studies textbook	3 hours
Mr. Wright (high school Social Studies teacher)	Informal Correspondence-email and telephone calls discussing the details of the study	29 emails 3 phone calls

Participants and Setting

Teacher and students. For the purposes of this study, I purposefully selected (Patton, 1990) two sections of a ninth-grade, general education World History class located in a suburban public high school within the Washington, D.C. metropolitan area. Each section was taught by the same teacher and consisted of approximately 34 students. Students were selected from a pool of students who were marked as academically average by their previous year's eighth-grade Social Studies teachers. The following sections provide the detail of the selection process of the teacher and the student-participants.

Dr. Wright . Dr. Wright (a pseudonym), the teacher of the two sections of World History, holds National Board Certification as well as a Ph.D. In Political Science and is the department chair of the Social Studies department in the school. In addition, he conducts numerous professional development sessions in technology integration for other teachers in his district. He also spends his summers teaching online for the same district and spends one week in June grading Advanced Placement (AP) Government exams.

I came to know Dr. Wright through the Social Studies coordinator for the district whom I had interviewed during my exploratory work. When I contacted Dr. Wright, he was enthusiastic about me coming into his class to observe. He mentioned that he was used to having visitors to his classroom and that he previously had newspaper and radio journalists come in to observe his use of different technologies for learning. And in fact, during the time of my formal observations, a local news program featured a tweeting

lesson Dr. Wright had assigned for his AP government students on the night of the 2012 Presidential election.

Dr. Wright had 22 years of teaching experience, at the time of the study, and had been integrating digital technologies into his content area on a daily basis for several years. In addition, Dr. Wright was the force behind his school district's movement toward the adoption of electronic Social Studies books, which took effect in the 2011-2012 school year. Stake (1995) recommends that "the researcher should have a connoisseur's appetite for the best persons, places and occasions. 'Best' usually means those that best help us understand the case, whether typical or not" (p. 56). Dr. Wright's class appeared to fit within Stake's description in terms of my research topic.

Students. As mentioned, student-participants for this study were purposefully selected (Patton, 1990) from each of Dr. Wright's ninth grade, general education World History classes. Dr. Wright obtained a list of average students from his students' 8th grade teachers. He asked the 8th grade teachers to mark the students who had a final grade of a low B/high C for the previous year. Since World History I in this district is considered a ninth-grade general education core requirement and is necessary for graduation, most students are required take this course. For this reason, I chose students with average academic grades since I felt that these students' responses and perceptions would be the most typical of the general education student population.

After the eighth grade teachers returned their lists of those students whose final grades were average, consent forms were sent home to the parents of the students whose names were on the list. The first two students to return their signed consent forms from

each class were selected. The small number of students was a result of my attempt to keep the project manageable, yet allow for a holistic and rich perspective of an average student's experiences as he or she works through his or her online lessons. The school setting and issues concerned with my influence in this classroom and my own biases about the topic of study are described in the following section.

Demographics of Seagate Secondary school (SS). Seagate SS (a pseudonym) is a secondary school and consists of approximately 3,000 students enrolled in grades 7-12. Seagate SS is located within the Washington, D.C. metropolitan area. Seagate SS was opened in the late 1960s and in a recent phone interview, was described as follows:

The new school was shiny and modern. The principal, Floyd Hartle (a pseudonym), insisted that the faculty be young and beautiful as well. The student body was overwhelming Anglo-Saxon. The years have changed the physical structure of the building and the composition of the student body, but the dedication of the faculty; the support of the surrounding community, and the determination of the students to succeed in life have not. This is Seagate's lasting legacy. (D. Fennig, personal communication, February, 2013)

When the school opened, its population was integrated and African Americans comprised roughly 30% of the population while Caucasian students represented the other 70%. Today, the students in the school are racially, culturally and linguistically diverse. During the 2010-2011 school year, Seagate High School's population was as follows: 14% Asian, 27% Black, 18% Hispanic, 35% White (Not Of Hispanic Origin), 6% Other (multiracial, or did not indicate race). In the 2010-2011 school year, of those students

who graduated, over half earned an advanced diploma with an 88% graduation rate overall according to Federal Graduation Indicator. In 2011, 26% of students who attended Seagate SS qualified for free or reduced price lunches and 11% of students were identified as limited English proficient.

Each year in the spring, World History I students at Seagate SS are administered a World History standardized test that assesses achievement on the Virginia Standards of Learning (SOLs) for World History. Of those tested in 2010, 87% scored proficient or above and 13% scored at the basic level or below.

Teacher and researcher relationship. I observed Dr. Wright's class several times and had multiple conversations with him via email and phone calls before I began collecting data. During my exploratory work and throughout my study, Dr. Wright and I had a mutually respectful working relationship, exchanging professional resources and tools as well as ideas about adolescents and learning. We also shared beliefs about the capacity of digital technologies to transform student learning and that students need to become proficient users of digital technologies in order to be productive 21st century citizens.

At the beginning of my study, Dr. Wright introduced me to the class and explained to them what my purpose was for being there. Throughout my study, he included me in class discussions when there was an opportunity to connect my study to something the students were learning. For instance, during one lesson on how to write a comparative essay, Dr. Wright asked me about the hypothesis for my study. I said, "I don't have a hypothesis; I have research questions" which led to a conversation about the

differences between quantitative and qualitative research as well as primary and secondary sources which Dr. Wright had discussed through a previous lesson. I came to recognize Dr. Wright as the type of teacher who often seized those “teachable moments” with students. Similarly, I often heard Dr. Wright say, “This is called teaching on the fly, guys” when technical issues cropped up. In this way, I also believed that Dr. Wright and I held similar teaching philosophies as far as knowing that technical glitches are a natural part of learning and teaching with digital technologies, and that using technical glitches is an important means for modeling how to problem-solve with students.

Data Collection

Student observations. I directly observed two individual students in each of two sections (total of four students) of a World History class over a five-week period. The high school uses block scheduling, which means classes met every other day (A day/B day) for 90-minute periods. I observed the students, two from second period and two from eighth period, for thirty minutes each as they worked through a unit on Egypt and Mesopotamia, using online resources and tools.

I videotaped each student during my observations using a small Flip camera, which was placed on my desk, in a stand, facing the student participant and his or her computer screen. At the same time, I wrote field notes based on my observations and the interactions of each student. I also observed the class holistically to provide context for each student’s interaction with the online lessons. I recorded the dates and times as well as the duration of various activities that occurred in the classroom.

I observed students as they worked through their online lessons, taking notes of the types of things they did as they worked through their online lessons as well as their interactions with other students and the teacher. According to Emerson, Fretz and Shaw (1995), field researchers need to “value close, detailed reports of interaction” (p. 14). My observations included verbal reports (described below) that students gave as they worked through the lessons. Videotaping provided an additional means of capturing what might have been missed through real-time observation and also served to document the collaborative interactions students had with their lesson, teacher and peers. Importantly, Glesne (2006) speaks to the advantage of videotaping in that the nature of the “record is permanent, in that it is possible to return to the observation repeatedly” (p. 63). However, some researchers argue that even though video can seemingly preserve almost everything occurring within an interaction, it is still only a “slice of ongoing social life” (Emerson et al., 1995, p. 9). That said, videotaping supported my goal of providing a rich and detailed account of how these four particular students worked through specific World History online lessons, individually and in relation to what was going on in the class as a whole. Thus, this goal would not have been attainable without the use of videotape.

Further, Walker (1986) states that “talk in social settings is a ‘multi-channeled event,’ writing is linear in nature, and can only handle one channel at a time, so we must pick and choose among the cues available for representation” (p. 211). Consequently, I chose to focus my camera on the student and his or her computer screen but I also collected data of what was going on in the class, as a whole, at that time. The video recorder was placed on my desk facing the student’s screen, which allowed me to have

the ability to view what the student was doing in relation to what was going on in the class as a whole. Because I could review my video data multiple times from different vantage points repeatedly, I was able to capture how the student was interacting with the lesson and/or the teacher and peers, as well as what was going on in the classroom as a whole. In reviewing my videotapes of the students, I was able to discern discussions taking place in the class as a whole, as well as, particular interactions taking place between the teacher and students, and between students.

Student semi-structured interviews. At the conclusion of the study, the four students were interviewed to gain an understanding of their technology proficiency, Internet usage, and their perceptions of learning with online resources in their World History class through a semi-structured interview approach (Appendix A). Semi-structured interviews are “guided by a list of questions to be explored but the exact wording or order of questions allows the researcher to respond to the situation at hand and to the emerging worldview of the respondent, and to new ideas on the topic” (Merriam, 1988, p. 74).

Student verbal reports. Recent studies (e.g., Afflerbach & Cho, 2008, 2009; Coiro, Castek & Guzniczak, 2011; Coiro & Dobler, 2007; Schmar-Dobler, 2003) employing verbal reports have emerged to inform work on the topic of online learning and provide the basis for my study. In an attempt to understand the students’ perspectives as they were engaged in the online lesson, I employed concurrent and retrospective verbal protocols (Pressley & Hilden, 2004). Concurrent verbal protocols are those in which the student reports what he or she is thinking as he or she completes a

task, such as a reading assignment. Students can be trained to report their thinking or they can be prompted using verbal prompts during the reading assignment.

Retrospective verbal protocols are those in which the student is asked to report his thinking at the conclusion of the task, or at specified intervals. According to Pressley and Hilden, neither of these protocols is superior to the other.

For my study, I originally planned to use a concurrent verbal protocol approach and give students' initial training as to how to report their thinking. This idea was based on my assumption that I would be observing each student individually outside the classroom in the hallway. But when I began my formal observations, I learned that Dr. Wright felt that this approach would be too disruptive to the student's learning. Instead, I sat inside the classroom beside each student as the lesson was taking place. This last minute change meant that students would not be able to report their thinking to me concurrently as often as I had planned; however, this change also gave me the opportunity to observe the student more authentically in terms of not only how the student worked through his or her individual online lessons but also how the student worked through the online lessons in terms of what was going on in the classroom as a whole. Consequently, there were a few times when I was able to ask the student questions in real-time as he or she worked through their lessons. Other times, I would jot down my questions and ask students those questions at some point during each of the 30-minute period observations when I felt I was not disrupting instruction. In all, I had to be selective and brief with my questions during class time. During my after-school interviews with students, however, I was able to ask them retrospectively in detail about

particular interactions, either showing them a clip of my video data or an excerpt from my field notes. While it was not possible for students to report their thinking during class time as often as I would have liked, the retrospective verbal reports helped me to understand in detail the kinds of thinking students were doing despite the constraints of the classroom context, which was foremost, remaining sensitive to the instructional needs of the students.

Teacher semi-structured interviews and informal conversations. At the beginning of the unit, the teacher was interviewed using a semi-structured interview protocol (Appendix B) to ascertain his goals for the unit and any background information that might be pertinent to the study. In addition, throughout my observational period, I had many informal conversations with the teacher. I normally jotted down a few questions during my observations and the teacher and I would discuss these questions briefly after the school day ended. However, often times, other teachers and students came into Dr. Wright's classroom at the end of the day, seeking his advice or academic help. During those times, I would email the questions to the teacher after the school day ended.

Data Analysis

As mentioned, four students were observed over one unit of instruction, which took place over approximately five weeks. The duration of those observations are noted in Table 2:

Table 2

Student and Classroom Observations

Date	Observations
09/25/12	Whole-class observation-2 nd period (90 minutes); 8 th period (90 minutes)
10/01/12	Whole-class observation-2 nd period (90 minutes); 8 th period (90 minutes)
10/03/12	2 nd period – Yared (30 minutes); Brandon (30 minutes) 8 th period – Thomas (60 minutes)
10/05/12	Whole class observation 2 nd period – Yared (30 minutes); Brandon (30 minutes) 8 th period – Thomas (30 minutes); Marisa (30 minutes)
10/10/12	Whole class observation 2 nd period – Yared (30 minutes); Brandon (30 minutes) 8 th period – Thomas (30 minutes); Marisa (30 minutes)
10/16/12	Whole class observation 2 nd period – Yared (30 minutes); Brandon (30 minutes) 8 th period – Thomas (30 minutes); Marisa (30 minutes)
10/18/12	Whole class observation 2 nd period – Yared (30 minutes); Brandon (30 minutes) 8 th period – Thomas (30 minutes); Marisa (30 minutes)
10/22/12	Whole class observation 2 nd period – Yared (30 minutes); Brandon (30 minutes) 8 th period – Thomas (30 minutes); Marisa (30 minutes) Whole class observation

During this time, I observed each of four students individually over eight class periods totaling 660 minutes. As mentioned, I handwrote field notes based on what

students were doing in relation to the lesson as well as what was happening in the class as a whole in addition to videotaping each observational period. I also interviewed each of the four students at the conclusion of my observational period, which I audio recorded. At the conclusion of my study, I had approximately 16 hours of videotape data, to include each of my individual student observations and the classroom observations as a whole, including the teacher giving lessons. I also had 30 minutes of audio recorded interview data for each of two students whom I interviewed separately; however, due to the students' time constraints, it became necessary to interview the other two students at the same time. The audio recording of these two students' interview combined was 45 minutes. Thus, I had 105 minutes of audio recorded interview data collectively from all four of the student participants. I also had email correspondence and informal conversations with the teacher in which he would answer my questions based on what I had observed on a particular day, which helped to refine subsequent observations and analysis.

I handwrote my field notes during each class period, recording the date and the amount of time spent on various activities. I also noted what was happening in the classroom, the interactions between students with each other as well as their teacher, and how students responded to and interacted with the lessons. I sat next to the student-participant during each observational period, and asked them specific questions about what they were doing, as best I could, without disrupting them or the teacher's lesson.

At the conclusion of my observational period, I had acquired data through various sources such as handwritten observational field notes, verbal reports, interviews, and

video and audio recordings. Although the steps I followed for analyzing my data were iterative, the basic process I followed for data analysis is outlined below:

- a) I listened to the audio recording of the interviews to get a sense of each student's overall perspective. I then transcribed each of the interviews. I noted some items of interest, as well as similarities and differences among the interviews.
- b) I read through all of my field notes and typed them into a Microsoft Word document, noting items of interest and any similarities or differences. Emerson et al. (1995), explain, "field researchers must describe situations and events of interest in detail" (p. 14).
- c) I viewed all of my video data, labeling each one with the date and student name. I imported my video data into the software program *NVivo* in which I was able to transcribe what was happening in the class at the time and how the students were working through their lessons, noting particular items of interest while also recording my own comments about items of interest or what was happening the classroom as a whole.
- d) Once all the video data were transcribed, I matched the dates of my field note data with the dates of the video data. I inserted the video data transcription and my observer comments into my previous typed-up handwritten field notes for each coordinating observational period. This allowed me to capture my initial observations of what I noted in my field

notes in addition to a more detailed and rich description from the video data.

- e) I open-coded all of my field note and video data and interview transcriptions based on similarities and differences among the data as well as items of interest that I was noticing. Importantly, Charmaz (2006) states that, “the goal of initial coding is to remain open to all possible theoretical directions indicated by your readings of the data” (p. 46). At this point, I began to recognize that my interview data were more indicative of influences on students whereas my observational data were indicative of students’ behaviors as they worked through their lessons. From this analysis, I was able to write a narrative of how the students worked through their online lessons. I then went back to the video data and viewed each of the tapes from the perspective of what was happening in the class as a whole in relation to each student’s personal narrative. I then revised each student’s personal narrative to include what was happening in the class as a whole. At this point, I was able to detect potential relationships between students’ personal characteristics, and behaviors as well as contextual influences.

Analyzing videotape through multiple lenses is an approach that has been used by other researchers who have studied individual student behaviors and the classroom context as a whole (Hung & Scipio, 2012). And, in fact, having the videotape for my study was critical for situating the student and his or her interactions within the classroom

context. I'm not certain this level of detail would have been possible, had I only relied on my field observation notes.

As part of the data analysis process outlined above, I also developed matrices that allowed me to begin to explore the connections and relationships among my data. Anfara, Brown & Mangione (2002) discuss the importance of making data analysis public in the in qualitative research in order to provide a chain of evidence and an audit trail. Not only did constructing matrices make my data analysis transparent, but also allowed me to see the relationships between and among my data.

First, due to the amount of video data I had collected, I initially created a chart so that I could check off for the different types of activities and interactions that were taking place within the class as well as the duration (Appendix C) of those activities. However, after analyzing a week's worth of video data using my check sheet, I realized that the same types of interactions and activities were taking place over and over in the class. Based on this finding, the category of "type of interaction" emerged and provided a basis for further analysis. My data analysis further revealed that individual students exhibited the same patterns of behavior consistently throughout the unit. Based on these data, I created a matrix based on the categories that were emerging and from which I would base my connecting analysis and begin to draft personal narratives for each student (Appendix D).

At this point, I revisited the video data to double-check for evidence that supported or negated my preliminary findings. For instance, Yared's comment of, "I sometimes don't know where I'm supposed to be" during my interview was corroborated

by my observations of Yared simply staring at the computer screen for long stretches of time and his numerous requests for help. At this stage of analysis, I was able to reduce my initial findings into sub-categories for which I had multiple incidents of evidence of for each student. This analysis was the basis for which I would use Maxwell and Miller's (2008) categorizing and connecting analysis.

Connecting analysis is "generally done by identifying key relationships that tie the data together into a narrative or sequence and eliminating information that is not germane to these relationships" (Maxwell & Miller, 2008, p. 467). Maxwell and Miller (2008) emphasize that the influence of one thing on another, or seeing actual connections between things, rather than similarities and differences, as the basis of connecting strategies. Using this strategy, I was able to write rich and detailed personal narratives describing how each student worked through their lessons within the context of the classroom based on my analysis.

To conduct the cross-case analysis, I created a matrix (Appendix E) for each student noting how certain types of influences (e.g., technology proficiency, access, etc.) were related to different types of interactions (e.g., student and teacher interactions) that students engaged in while working through their online lessons, and whether these influences and interactions created supports or barriers for students as they described to me. This approach allowed me to reduce the data further into particular findings and themes that occurred across cases and eliminate any items that were not germane to these relationships in support of my research questions.

Validity

One of the assumptions underlying qualitative research is that “reality is holistic, multidimensional, and ever-changing” (Merriam, 1988, p. 167). Ratcliffe (1983) references all words within qualitative study as, “abstract, symbolic representations of reality, but not reality itself” (p. 150). My goal for my research study was to interpret my participant’s meanings through naturalistic inquiry, remaining as unobtrusive as possible, yet obtaining the student’s reality based on what they conveyed to me through my interview and through my observation data.

Converging evidence. According to Yin (1994), the researcher can discover a “converging line of inquiry” (p. 92) through using multiple sources of evidence to build a compelling case for his or her results, which is also known as triangulation.

Triangulation refers to using multiple investigators, multiple sources of data, or multiple methods to confirm emerging findings (Denzin, 1970) and is one approach to ensuring validity. The evidence for my findings was based on using multiple data sources, in the form of observations, verbal reports, interviews, video and audio recordings.

In addition to triangulation as one approach for ensuring validity, respondent validation (Maxwell, 2005) allows researchers to check in with their participant-members to confirm or deny their participants’ meanings. This was an important concern for me with my study as I was not able to ask my student-participants the number of questions I had originally planned for as they worked through their lessons. This was due to my ultimate goal of not disrupting the teacher’s lesson or interrupting how each student

worked through their lessons; however, I addressed this issue through my video data collection and analysis.

Since I videotaped each of my observation sessions, I was able to replay the video for students during my interview and ask them specifically about their actions during my interview with them. In addition, because of the iterative process of my data collection and analysis, I was also able to refine my questions and observations for subsequent field observations after watching my videotapes. In addition, I was able to follow-up with the teacher after school with any questions I had. However, I had to be sensitive to the teacher's time as he often had students and other teachers arriving to his classroom, seeking instructional advice and help. On the occasions when I did not have direct access to the teacher after school, I would email him with my questions or issues needing further clarification as mentioned previously.

Another strategy that is helpful to the overall quality and validity of a qualitative research study is to sustain a long-term presence in the setting, "to gather more different kinds of data, but also data that are more direct and less dependent on inference" (Maxwell, 2005, p. 110). One way of addressing my lack of long-term involvement in the setting was to collect various forms of data in multiple ways. In this way, I could rule out any spurious associations between the data in my study. In addition, observing an entire unit of instruction allowed me to document the process of how students' worked through their lessons on a daily basis from the beginning of the unit to the end of the unit. Thus, I found students' behavior to be consistent from the beginning to the end of the unit. Lastly, my goal as a qualitative researcher was to capture and describe how these

particular students worked through these particular lessons, at a particular time. If I had remained in my setting for a longer period of time, I would have had to be sensitive to changes over which I would have no control such as contextual changes or student maturation issues.

Researcher influence. Before I began my study, I considered how my presence might influence the students' behaviors and interactions as they worked through their online lessons and the possible ways I could minimize this effect, thereby reducing what some researchers have called "reactivity" or "reflexivity" (Maxwell, 2005). However, as Maxwell (2005) states "the goal in a qualitative study is not to eliminate this influence, but to understand it and to use it productively" (p. 108). While I can never know for certain how my presence influenced the student-participants in my study, they did not seem to mind that I sat next to them and recorded their actions. In fact, I noticed that they exhibited the same behaviors during class time, regardless if it was their time to be directly observed by me or not. Dr. Wright concurred, saying that he didn't think my presence affected the students' behavior.

In addition, I was familiar with the high school setting through my work as a previous high school computer science and reading teacher, and through volunteering for many years in my own three children's high schools. Further, I visited Dr. Wright's classes several times before I started my formal observations. For these reasons, I was comfortable in the setting. At the same time, students seemed comfortable and happy to sit next to me, and were quick to answer my questions and speak with me, almost as if it were a privilege to work with a researcher, as Dr. Wright had explained my role to them.

On one occasion, I overheard a student remark to my student-participant, “Why do you get to sit there?” As mentioned, I was careful to speak very little and simply observe, hand writing my notes and videotaping. This type of research design was important for this type of setting because it was not threatening or in conflict with the needs of the students. Other researchers in adolescent settings with more rigorous and intervention types of designs have found students to be made uncomfortable and like they were under surveillance – “like they were being ‘watched,’ ‘stalked,’ and ‘judged” (Skerrett et al., 2013). I was careful to remain as unobtrusive as possible, which was in accordance with my overall research design.

Researcher bias. The subjectivity of the researcher can lead to what some researchers have termed researcher bias (Maxwell, 2005). Rather than trying to eliminate researcher bias, as is the case with quantitative research design methods, Maxwell suggests that, instead, qualitative researchers explain how their values and expectations influence the conduct and conclusions of the study, as it is impossible to eliminate a person’s subjectivity entirely. As such, as part of my research design method, it was important for me to examine my own subjectivity and to try to minimize any potential for bias. Maxwell suggests that researchers use a “researcher identity memo” to examine their “goals, experiences, assumptions, feelings and values as related to the research” (p. 27).

As I worked through the personal researcher identity memo process for this study, I realized that I had certain assumptions about my research topic. First, I believe that digital technologies have the potential to transform current traditional high school

instructional practices into more engaging types of learning environments that are student-centric and based on what a student needs in terms of developmental and individual learning needs. Second, through my background as a teacher at the high school level, and as a teacher of pre-service and in-service elementary and secondary teachers at the university level, I believe that the same types of strategies and techniques that are used at the elementary-level could be adapted and designed to be more engaging for students participating in secondary contexts. For instance, providing students with multiple levels and different types of texts, and designing engaging activities in support of a topic through a rotational, centers-based approach is as important in the high school curriculum as in the elementary curriculum, in my view. Yet, I know of few high school classrooms, in which this approach is used. I also believe high school classrooms should be print-rich environments to include word and vocabulary walls and include many language-based activities such as role-play and debate; discussion, investigation, and participation in real-world societal and political issues.

Similarly, I believe that current traditional public high school programs and practices do not facilitate adolescent students' developmental needs of identity construction, or their need for autonomy and socialization within current secondary school curricula. Further, I believe that it is important for high school students to interact in a physical environment with a teacher and peers for optimal learning. I believe the physical interaction between a high school student and teacher and/or peers is important to the student's developmental task of having close, personal relationships, as they grow from adolescence into adulthood. This view is shaped in part by my experiences as a

teacher in secondary settings and as a mother of three grown children, and by my undergraduate work in adolescent psychology and personality development. First, as a high school computer science teacher, I found that students were far more engaged and learned more when I set up several “stations” which students rotated through in support of a technical topic. These learning stations included computer software simulations, hands-on lab activities and reading complex technical texts with me in support of a topic. Secondly, I found that my children earned higher grades and enjoyed their coursework more when they were made to feel valued in the classroom and were able to develop friendships in the classroom. Similarly, in his psychosocial theory of personality development, Erik Erikson (1963) describes *isolation versus intimacy* as a central conflict that adolescents must resolve to grow into happy and healthy adults. This includes the ability to develop deep and meaning relationships with others and is dependent on one’s ability to make and keep commitments to others.

With these biases in mind, knowing what my assumptions were made me aware of how my own values and beliefs might influence how I framed my questions and verbal prompts to students. For these reasons, I limited my verbal prompts according to the behavior I was witnessing. I also kept my interview questions open-ended enough so that students could describe their perspectives in detail.

In addition, I attempted to remain open to all the data I was collecting, but due to my familiarity with the research topic, I naturally picked up on certain cues or items of interest because of my background knowledge, which meant that it was also possible to leave out other items of interest or concern. To deal with this threat to validity, I asked a

colleague who is a literacy scholar, but who does not have the same familiarity with my topic, to code and categorize a portion of my observational and interview data. We were in agreement with the initial coding structure and subsequent interpretations of the data.

Chapter Summary

The approach for studying the research topic was in the form of a collective case study (Stake, 1995). Field observations, verbal reports, interview and video and audio recording data were collected and analyzed across cases through a categorizing and connecting analysis (Maxwell & Miller, 2008). Narrative reports were written for each student as well as for the classroom context. The cross-case analysis revealed particular themes across the cases.

In addition, this section detailed my relationships with the teacher and students as well as the threats to the validity of the study. Similarly, I examined my own biases as is necessary in conducting a qualitative research study. Chapter 4 provides the results of my analysis of each student and my analysis across cases.

CHAPTER FOUR: RESULTS

This chapter presents the findings of the study. The findings are reported as individual narratives for each student and the teacher. Through cross-case analysis, initial findings for each student were compared and contrasted in order to identify particular themes across cases. In addition, the influences on students' particular behaviors and interactions were also examined across cases. From this analysis, it was found that certain influences, behaviors and interactions served as barriers for some students while certain influences, behaviors and interactions served as supports for other students working through their online lessons. These findings are in support of my overall research questions, which are restated below:

1. How do students work through online lessons in a ninth-grade World History class?
2. What are the influences on students as they work through their online lessons?
3. What are the barriers and supports for students working through their online lessons?

In response to the first research question, the following section of this paper provides individual narratives of the teacher and each individual student as they worked through their online lessons. Next, the findings related to the second and third research

questions are reported as a cross-case analysis of the influences on students and the supports or barriers that affected how students worked through their lessons. An overall description of the setting is provided to set the context for the study's findings.

Setting

This study was conducted in two ninth grade World History I classes taught by the same teacher located within a large suburban school district in the Washington, D.C. metropolitan area. In some ways, the school itself is similar to many small college campuses as far as the size and scale of the buildings, fields and parking lots. And, in fact, the school has the largest footprint of any school in its district. In the mornings, large groups of students can be seen crossing busy suburban cross-streets to get to school and many more enter school from a long line of cars and bus arrivals. Each morning, as I walked into the building, students seemed chatty and often smiled or said hello. Once I arrived in the building, I would sign in at the front office where my picture was taken and a badge was printed out, which included my name and picture, where I was going, and the date and time. The hallways were often crowded during this time, as students made their way to their lockers and first period classes. In the afternoons, small and large groups of students could be seen inside and outside the school, many of whom were gearing up to participate in after-school activities. In addition to the core subjects and electives offered at the school, the school houses several special district programs such as Advanced Placement (AP), English for Speakers of Other Languages (ESOL), and the Junior Reserve Officers Training Corp (JROTC).

Classroom Observations

At the time of the study, school had been in session approximately four weeks and the teacher was still getting to know the students' names. In addition to teaching two sections of World History I, the teacher also taught two sections of Advanced Placement (AP) Government, which means he was responsible for teaching approximately 120 students.

Each section, or class, met for 90 minutes every other day due to block scheduling. Classes in this school met on either "A" days or "B" days. Both classes in this study met on "A" days. The first class (2nd period) met from 7:20-8:48 and the second class (8th period) met from 12:39-2:05. Each class was made up of 34 students. Both classes met in the same classroom and were taught by the same teacher.

Students' desks were aligned three-deep around the perimeter of the room, which left a large unoccupied space in the middle of the room so that the teacher could set up his computer and projector and teach his lessons. To the left of the teacher's desk, which was located in the front corner of the room, there were two large windows with blinds. The windows allowed in just enough light for students to see the projection screen and to see their individual computer screens. Usually, the lights were off as the teacher projected his lesson and/or while the students worked individually on their notebook computers. I noticed that there were times when students would ask the teacher to turn off the lights, if he had forgotten. There was also plenty of room for the teacher and the students to move about the room as illustrated in Figure 2.



Figure 2. Classroom Observations

There was no assigned seating until toward the end of the study, when the teacher moved several students to assigned seats during 8th period, due to discipline issues. Although the pacing of the content was similar for each class period, the 2nd period students seemed quieter and slower-to-move than 8th period students who arrived directly from lunch and were much more lively and chatty.

During my observational period, students completed a unit on Egypt and the Mesopotamia which took place over five weeks and was mostly comprised of a series of online assignments which included e-sheets (electronic worksheet with embedded web-links), one print-based map labeling activity, one group-based e-graphic organizer used as a pre-writing exercise, and a comparative essay. (A unit test was given after observational period.) Specifically, the lessons observed are noted in Table 3.

Table 3

Lessons Observed

Date	Type of Lesson
09/25/12	Online Study Guide
10/01/12	Test Corrections
10/03/12	Print-based Ancient River Map Labeling
10/05/12	Mummies and Pyramids e-sheet (Appendix F)
10/10/12	Western River Valley e-sheet (Appendix G)
	Quiz
10/16/12	Mesopotamia-Egypt
	Comparison activity (Appendix H)
10/18/12	Group graphic e-organizer
	Essay Pre-writing (Appendix H)
10/22/12	Essay due

A Typical Day

On a typical day for each World History I class, the teacher handed out notebook computers from a computer cart to students as they entered the classroom. The notebook computers were stored in a cart that was wheeled into the class each period by the teacher. These carts were shared by various teachers and were stored in the teachers' lounge and hooked up to power when not in use.

After handing out the computers, the teacher would take roll as students accessed their instructional materials through the school's learning management software (Blackboard) and through the school's Google Drive account from the notebook computers. In second period, the teacher often took roll over the morning announcements as students logged into their individual accounts.

For each class, most lessons were divided evenly between the teacher giving whole-group mini lessons and individual work. For the purposes of this study, a mini lesson is defined as a short whole class lesson in which students are taught something the teacher thinks is important and students are given the opportunity to work further on what has been taught either individually, in small groups, or through whole-class lessons.

Students in the class used Google Drive to store and share their Google documents. Because of the share feature of Google Drive, students had the ability to collaborate simultaneously on the same document. Students also turned their assignments into the teacher via the share feature of Google Drive. In addition, students were also able to access their electronic textbook (e-text), which was often included as a direct link from within the e-sheet, and which they had access to through their Google Drive account.

A Typical Lesson

A typical lesson began with the teacher projecting the assignment on a projection screen, giving mini lessons on the content using PowerPoint, and working through the online activity with students. The teacher would show students how to find the first few answers of an e-sheet or how to complete an activity within the e-sheet, explaining the content but also teaching the navigational and technical skills students would need to complete the assignment. Students were expected to pay attention and/or follow along and then complete the activity on their own afterward. Then the teacher went around the room and helped students individually. In my best estimate, the teacher spent half the class period teaching the class as a whole while the other half was spent working

individually with students. Sometimes, the teacher would work through an e-sheet with the class from the onset and other times he would go over the completed e-sheet with the class.

Each class was fast-paced, and after giving a set of directions, I would often hear the teacher say, “Now, go.” Even when the focus was not on the lesson, there seemed to be a “sense of urgency” tone to the class. For instance, early in the study, the teacher had asked a student for a form that was supposed to have been turned in. Later in the same class period, I noted the following exchange between the teacher and the student:

Teacher: Morgan, get off the phone...

Morgan: But I’m texting my mom to bring the form...

Teacher: Oh, Okay, then go. Hurry.

The teacher seemed flexible with students using their phones if they were using them as a resource. In fact, just before the end of each class period, the teacher would say, “Get out your phones or your planner and write down the following for homework...” The teacher also allowed students to listen to music albeit with restrictions. As he explained to the class during one lesson: “You know why I allow you to listen to music? Because it helps you work. But if you can’t hear me when I am talking, then I need to take the music away.” On another occasion, I heard him say, “Got the music or me, guys?”

I also noticed that the teacher taught traditional literacy skills, such as outlining and note taking, as well as navigation and technical skills in most of his lessons. For instance, during one lesson, the teacher modeled how to split the screen between a blank

Google document and his PowerPoint presentation. The students followed along on their notebook computers. He then taught the students how to make an outline and take notes in their Google document from his PowerPoint presentation as he led a class discussion on the content. He explained as follows:

Dr. Wright: On the first line, type “A. Old Kingdom.” Who were the people of the Old Kingdom? Yes, the Sumerians. Now hit <Return>, <tab> and type a small “a.” and then type “Sumerians.” If you forget something, see how we can jump back and forth between the PowerPoint and the outline to create more space to take notes. This is not something you can do on paper.

In addition, students were encouraged to use the Google search engine, almost as if it were an index, to find answers that they could not find in the book and/or to also obtain the correct spelling and pronunciations of words. They were also taught to make folders/subfolders within Google Drive as illustrated below:

Dr. Wright: “Guys, look at my screen up here.”

[He then models how to create a folder.]

Dr. Wright: “I’m calling this folder Western what? River Valleys. And then I’m doing a subfolder called what? What unit are we on guys?

Western River Valley is where in the world, guys? Mesopotamia. The subfolder should be called Mesopotamia. This is where you will save your e-sheet. When we do India and China, we’ll create a “Eastern River Valley” folder since they are East.”

[After the students have accessed the assignment, the teacher does the first few problems with the class. Then they begin to work on their own.]

Teacher: Go to the book first. If you get stuck, all you have to do is Google it. What do you do if you don't know how to spell a word? [A few students yell, 'right-click.'] The teacher continues, "Yes, if you're not sure how to spell a word, get it 'wrong.' Then right-click it and you will have the correct spelling."

While I did not hear the teacher talk much about the state's end of the year standardized test for World History, I did note that he included activities and questions that might be similar to test items on the state's Standard of Learning exam (SOLs). In fact, during one observation, the teacher told the class, "You know why I include figures and tables on your assignments? Because that is what will be on the SOLs."

The e-sheet assignments, such as the "Mummies and Pyramids" (Appendix F) and "Western River Valley" (Appendix G) e-sheets were similar to traditional reading-guides, although they included mostly literal-level questions (Herber, 1978) that students were able to find by visiting the link included in the e-sheet, or through a Google search, or through their e-text. And, in fact, the page numbers of the e-textbook were included as a link within the e-sheet if the answers were to be found in the e-textbook.

Conversely, it appeared that higher-order questions or questions that caused students to think beyond the assignment were often a part of the teacher-led mini lessons. For example, as the students began their new unit, the teacher asked the students, "Why

do we study history?” And then he would call on students who had their hands raised and sometimes, those who did not if it appeared they were off task. The teacher would also use metaphor and modern day analogies to spark student interest and create background knowledge for the students such as in the following excerpt:

Teacher: “How many of you used a wheel today?”

[Most students raise their hands.]

Teacher: “Well, you can thank the Sumerians for that. Also, see that clock up on the wall? You can thank the Sumerians for that as well.”

[Later in the period]

The teacher asks, “How many of you have heard the expression “an eye for an eye?”

[He then continues with the lesson relating these ideas to the content.]

In addition, as the teacher moved about the room helping students, there were multiple instances where the teacher would extemporaneously interject conceptual content knowledge and technical knowledge to the class as a whole as depicted in the following description taken from my field notes:

[Students are working individually on their map labeling activity and the teacher is roaming the room, helping students individually.]

Teacher: “Listen up, guys. When you go to Google Images, if you type in ‘Northern Africa + Egypt,’ it will give you more examples than if you just type in ‘Egypt.’ Also, look for the words that are in the Word Bank on the

sheet when you get your search results back. Those are what you have to label.”

Similarly, most directions for assignments were given orally, even for larger projects such as the essay they were to write at the conclusion of the unit. The following is one example of the directions given for completing the Mesopotamia-Egypt

Comparative Essay assignment (Appendix H):

Teacher: Go into Blackboard. Go to the Mesopotamia-Egypt Comparison Activity. In groups of four, you are to complete this activity. Two of you will complete Egypt and two of you will complete Mesopotamia. Boxes will get bigger as you type. You need to have a lead person for each group. One person will share the document with the other three.

Leaders, please ask the rest of your group members for their Gmail addresses and for each box, put a person’s name in that box so when you get home and look at it, you’ll know what your homework is. Next class, we will work on writing your essay from those boxes so get as much done as you can before then so I can help you. You are going to share this with me. I’m coming around to help you.

[Students get themselves in groups and pass the computers back and forth adding their email addresses to the leader’s computer so that they can share the document.]

During the next class period, the teacher explicitly taught how to write a 5-paragraph comparative essay based on the Mesopotamia-Egypt Comparison e-organizer

(Appendix H) from the earlier class period. The teacher told the students to complete their essay by using the e-organizer previously completed and then to write their complete essay by Saturday night. They were told to create their documents in Google documents and then share their essay with a classmate and get at least three comments from each other by Sunday night, at which point they were to share their individual essays with the teacher. (These directions were not provided in any print or online text that I was aware of.)

Overall, the students seem engaged with this style of teaching as evidenced by their participation in the classroom discussions as well as my observations of their engagement with the online resources. For the purposes of this study, engagement refers to the overt behaviors that I witnessed as students, individually or collaboratively, attended to their online lessons (Ryan, 2000). As mentioned, each class was fast-paced with the teacher orally embedding content, navigation and literacy into his daily lessons. And, in fact, the teacher explained to me that he felt that teaching technical skills to his students was more important to their future than learning World History content. Yet, as I observed each student individually, I realized they had diverse ways of working through their online lessons in response to the study's first research question, which is restated below:

Research Question #1: How do ninth-grade students work through their online lessons in a World History class?"

The following section of this paper describes this how each student worked through his or her online lesson based on analysis of my observation and interview data.

How Students Worked through their Lessons

Yared. Yared (a pseudonym) is a 14 year-old male who is generally quiet in class. He has two older brothers, one enrolled in the local community college and the other a senior in the same high school. He also has a younger sister who is 10. Yared is from Eritrea, a country in East Africa, but has been in the current school district since elementary school. His native language is Tigrinya but he says he cannot speak or write it fluently. According to Yared, he was exited out of English for Speakers of other Languages (ESOL) services in elementary school. Yared plays soccer for a local community team and hopes to try out for the high-school team.

I observed Yared during second period as he was working through his online lessons as part of the World History unit on Egypt/Mesopotamia. The online lessons consisted of e-sheets (electronic worksheets with embedded web-links), teacher-led mini lessons, class discussion, quizzes, pre-writing exercises, and small group work. I also interviewed Yared toward the conclusion of the unit.

During my interview with Yared, he explained that his favorite online lesson was reading from the e-text and answering questions based on the reading from the e-text. That way, he explained, “If you miss something, you can ask friends and they are in the same place.” Although Yared did seem engaged with the lesson he mentions, I noted there were other times when Yared often relied on peers for help, either passing his notebook computer to them or pointing to his screen for help as he worked through the lessons.

Yared told me that he was comfortable learning online in World History but that he had limited Internet access at home. For this reason, Dr. Wright had given him a hard copy of the textbook to take home. He explained to me that the “textbook is so heavy and that’s the worst part. With the computer you have easier access.” Yared also mentioned that when using a computer “It is easier to find the answer. If you’re home with just the textbook, you can’t get your questions answered.” He said all the “different resources have helped me learn better.”

Yared explained that the most difficult aspect of the unit was the essay. He told me that he “hates writing.” He said, “I’m not good at it.” Yared also explained that navigating to where he was supposed to be within the online lessons was difficult for him. He told me that he sometimes did not know where he was supposed to be and this is why he relied on the students around him. He confirmed that this was why I often saw him handing his computer back and forth among the students around him. Yared also explained that with other difficulties, he might use Google or ask a friend. He likes to go to Google to find the spelling and definition of a word because “it gives you examples” and so then he can put it in his own words.

Yared explained to me that Dr. Wright helps him to learn by “going around and making sure we’re all okay.” If anyone has problems, he says that Dr. Wright helps them. He contrasted this with his math and history classes, saying, “If I have a question [in math], I have to write it down and wait for the teacher to answer. In this class [history], you just have to raise your hand.”

When asked about possible distractions when working with his online lessons, Yared explained that he gets distracted from his work “if I have been looking at it too long” at which point he explained that he would go to different retail websites and look up things like tennis shoes, etc., which I had witnessed during an earlier observation. He says at home his older brother keeps him on track with his schoolwork. He said that his brother reminds him to do his work if he sees him off-task at home.

In my observational and video data, I noticed that there were times when Yared seemed to not fully follow the teacher’s directions or keep up with the teacher directions. Whereas other students in the class were alternating between looking at their screens, and writing their answers on their worksheets, there were stretches of time (sometimes 10 minutes or more) where Yared just stared at the computer screen and/or the teacher in front of the room without following along or completing the lesson. During most of my observations of Yared, I noticed that he was often either watching the teacher but not fully following his navigation or he was staring at the computer screen and not completing the lesson. Most of the other students seemed more focused on completion of assigned tasks than Yared. According to my observations and video data, Yared waited until the teacher was done with the mini-lesson, and then he would ask the teacher or his peers for help.

During one lesson, students were working on labeling a print-based Western River Valley map worksheet. (There were technical issues that particular morning, and students were not able to access the River Valley map on their Google Drive accounts so the teacher had given them a print-based copy.) Students were instructed to go to Google

Images to label their map. Yared spent the majority of this time comparing maps on Google Images by trying different links based on the results of his search terms. He chose different maps based on his search term results. In order to find the web-link to the correct map, he said he tried the links that “had other words that he recognized from the lesson.” Although he spent the majority of the lesson selecting a map, rather than finding and labeling the map as many of his classmates had done, he finally chose one that looked “most like the blank map on the worksheet.” As with most of the daily assignments, Dr. Wright assigned unfinished classwork as homework. Since Yared was not finished with the map worksheet, he was to complete it for homework. In my interview with Yared, he mentioned that his home country, Eritrea, had been on some of the maps he was looking at on Google Images.

During the following class period, I noticed that Yared was completing the map labeling worksheet from the class period before (he had not finished it at home) as the teacher was demonstrating a new technical skill on the projector in front of the class. Yared did not follow along with the new lesson or ask questions as many of his classmates did. The teacher helped Yared with the new skill later in the period. The teacher also helped him individually with writing his name from within a hieroglyphics website, which was part of that day’s e-sheet on mummies and pyramids, and which Yared was behind on as well. Although the teacher had demonstrated the skill to the class earlier in the period, he helped Yared individually as noted in the following excerpt from my observational data:

Teacher: Capture it. Click up here again and drag down.

[The teacher points to the capture icon in the upper-left hand corner]

Teacher: Click on it. Left. On the left side.

[Yared clicks on an icon on the right-side]

Teacher: No, that's the right side. Try again. Click on the cursor. Now all you have to do is right-click. Minimize this.

[Yared just stares so the teacher points to the 'minimize' button.]

Teacher: "Go to your worksheet and hit enter a couple times and then insert."

[Yared seems confused and the teacher repeats the procedure. The teacher takes the keyboard.]

Teacher: Here watch me. I'm clicking on the left side, with my finger down, and I'm dragging with my other hand. Now right-click.

[The hieroglyphic image is now in Yared's e-sheet.]

In addition, I noticed that Yared was handwriting his outline in his spiral notebook during the previous lesson on creating a study outline and notes in Google documents from the teacher's PowerPoint. When I asked him why he was handwriting his outline instead of creating his outline using Google documents as most of the other students had done, he explained that he would not have access to Google Drive or his outline from home.

At the end of the unit, students were to complete an electronic organizer (e-organizer) in groups of four. They were to make their individual contributions to the e-organizer by filling out one of four particular sections (e.g., agriculture, military, etc.) for

Egypt and Mesopotamia. They were to collaborate on this document and use it as a pre-writing support for writing their individual essays, which were due the following weekend. Yared did not have a Gmail (Google mail) account, only a school email account, which meant he had to find someone with a school email account in order to share his graphic organizer. As I understand it, there were different ways of accessing Google Drive, depending on whether the student had a Gmail account or a school email account. With the help of the teacher, Yared was able to find classmates who had school email addresses and with whom he could share his e-organizer.

I noticed that as Yared joined his group, another student had taken on leadership of the group. The leader's responsibility was to add the group members email addresses to the document so they could share the document collaboratively. Yared handed his computer to the leader and the leader added his name to his shared document. The leader then navigated Yared's computer to the location of the shared document, and gave the computer back to Yared.

The class period after the essay was due, Yared mentioned to me that he did not use his classmates' e-graphic organizer for writing his essay that weekend. It is unclear if there was an access issue or if Yared simply neglected to look at his collaborative work over the weekend as the teacher had assigned.

Overall, Yared seemed to want to engage with the online lessons as evidenced by him seeking help from peers and the teacher after-the-fact, but it appeared that he had difficulty navigating throughout most of the online lessons in real-time, according to my observations of him and my discussions and interview with him. It appears that his lack

of access from home and his lack of technical skill influenced his ability to work through the online lessons, especially those that required basic technical and navigation proficiencies. Instructional online activities that were highly structured, such as answering worksheets based on a section of e-text, seemed easier for Yared. However, the most important supports for Yared appeared to be the teacher and his peers. And, while it appeared that Yared wanted to complete his work, it is unclear if lack of access to the Internet prevented Yared from accessing his classmate's group work to use as a writing support over the weekend as suggested by the teacher, or if he just simply did not want to write the essay.

Brandon. Brandon is a 14 year-old white male who seems happy and confident. He has 7 brothers and sisters and plays as a lineman on the freshman football team for the school. I observed Brandon during second period, working through his online lessons as part of the World History unit on Egypt/Mesopotamia. The online lessons consisted of e-sheets (electronic worksheets with embedded web-links), teacher-led mini-lectures, class discussion, quizzes, pre-writing exercises, and small group work. I also interviewed Brandon toward the conclusion of the unit.

I quickly realized through my observations of and interviews with Brandon that he was a serious student, and often deeply engaged with his lessons, working intently to complete an online lesson, even during the classroom discussions of the lesson content. He mentioned that he had used an e-text for history the previous school year, in 8th grade. He said that they used the e-text off and on, "depending on the chapter."

During my interview with Brandon, I learned that he enjoyed learning with online resources in World History. He says, “It’s a lot faster. You can look up things quicker and you can do multiple things at once.” When completing his online lessons in World History, Brandon told me that he goes to the text first because he thinks that is the “answer that the teacher is probably looking for.” And if he cannot find the answer in the text, he will type it in as a search term in Google.

During one lesson, I asked him how he decided which search term results to choose from for the answers for the e-sheet. He responded by saying, “All of the websites have the same information, so you know you can just pick a random one. I always pick a random website. They all have the same thing.” Brandon also explained to me that the e-sheets were helpful because you see the “same thing in different ways, and it kind of gets stuck in your head.”

As I observed Brandon work through his online lessons, I realized that he had a sophisticated level of technical skill. He was quick to navigate between multiple windows, often splitting the screen between his lesson and other online resources at once in order to complete his lessons. Brandon explained, “I can also work faster in this class because I can do two things at once. I can do the split-screen and read the text and answer the questions on the e-sheet.”

During a few of the teacher-led mini lessons and whole class discussions, I noticed Brandon played with the formatting features within Google documents, such as changing the font color, resizing text boxes, etc. of the assignment as the teacher and other students participated in the lesson discussion. Brandon told me that this sort of

digital doodling is what he normally does when the teacher is talking. He said, “When the teacher is just talking about topics, I play around with the fonts and stuff.” When Brandon worked on his own through a lesson, I noticed that he would switch back and forth between the e-sheet and the e-text, often re-reading and correcting answers that he had previously written. In all of my observations of Brandon, he seemed to always be engaged with the lesson.

At the end of one lesson, as the teacher instructed students how to copy their work into their folders, Brandon seemed to know exactly what to do. During another lesson, the teacher was giving a quiz by asking students to type the quiz questions into the document they had created within Google Drive. The teacher read the questions aloud and typed them, one by one, onto his own document, which he projected onto the screen in the front of the class. I noticed Brandon had his screen split between the screen where he was typing the questions in that the teacher projected, and another online resource document. He was in fact answering the questions as quickly as he was typing them. Brandon seemed to always be a step ahead, even with the directions. During another observation, as the teacher was explaining how to complete the Egypt/Mesopotamia Comparison e-organizer, Brandon was the first to ask, “How many facts do you want for each box?” It seemed to me that Brandon simply wanted to get through the lesson as quickly as possible, often asking for a quick clarification and working intently.

I did not witness Brandon chat much with his classmates, as he was often working intently on his own on the computer. Other times, he would play around on the computer during class discussions, and not contribute to the discussion; however, I did notice that

he made substantial contributions to the class conversation during the lesson where Dr. Wright used football as a metaphor for teaching how to write the Egypt/Mesopotamia comparative essay.

[The teacher wrote the following on the board: “Football is the best sport at Seagate Secondary” and “Cross Country is the best sport at Seagate Secondary.”]

Teacher: Someone give me some evidence of which is better.

[Brandon immediately raises his hand.]

Brandon comments: More people come to football so it makes more money.

[As the lesson continues, Brandon continues to make several more contributions.]

When I asked Brandon if he enjoyed working in small groups such as when they worked on the pre-writing e-organizer, he said, “It depends who I am grouped with. If I get stuck with someone who doesn’t do his or her work, I’d rather work on my own. The group e-organizer could be helpful if everyone did their part because then you would have different views.” Brandon also mentioned that listening to music made the time go by faster when he’s working. “I think I get my work done faster when I listen to music,” he said.

In addition, Brandon told me that he had little difficulty staying on-task when working on his own with an online lesson especially “If I only have a couple problems left, I’ll just try to get them done and then do what I want.” At home, he said he is

distracted more often by “just stuff around the house, like when my brothers are blaring their music.”

Brandon explained that when he ran into challenges with his online lessons, he would look it up on the Internet or “If it’s a small question like I might ask someone where they found the answer.” He also mentioned that he liked that his teacher gave them step-by-step directions for how to write the essay. He said, “I’m glad he taught it to us now instead of my Junior or Senior year.”

In summary, Brandon appeared to be a serious student who contributed to class discussions when it was of interest to him. It also appeared as if Brandon had acquired a high level of navigation/technical skills as indicated by my observations of him working through his lessons. Seemingly, exposure to the e-text in 8th grade and having Internet access at home might have influenced Brandon’s technical skill. However, Brandon also mentioned, “not listening when the teacher is talking.” Instead, he often played with the formatting features within the assignment while the teacher was talking. It is not clear to what degree this influenced his learning of the content of the lesson.

Marisa. Marisa is a 14 year-old girl who smiles often and seems mature for her age. She has a small group of friends in class that she often talks quietly with. Marisa is bilingual, fluent in both English and Spanish. Her parents are from Central America but she was born in the United States. She has been in this district’s school system since kindergarten. Marisa participates in the school’s JROTC program. She attends those sessions on Mondays and Wednesday afternoons. Marisa is responsible for getting her younger brother off the bus and watching him a few afternoons per week as well.

I observed Marisa during eighth period, working through her online lessons as part of the World History unit on Egypt/Mesopotamia. The online lessons consisted of e-sheets (electronic worksheets with embedded web-links), teacher-led mini-lectures, class discussion, quizzes, pre-writing exercises, and small group work. I also interviewed Marisa toward the conclusion of the unit.

During my interview with Marisa, she told me that Dr. Wright and her JROTC teachers were her favorite teachers. She also said that she has an interest in history. She says, “It’s just interesting to learn.” When asked about what she liked the best about online learning, Marisa explained, “You have everything at your reach. If you don’t know something that is in the textbook, you have other ways of finding the answers.”

Throughout my talks and interviews with Marisa, she often spoke of transitioning to 9th grade and how different it was from 7th and 8th grades where “the teachers give you a step-by-step of how to do something.” She said in 8th grade, “the teachers are just concerned about you turning everything in on time, and they give you a step by step how to do that, and in 9th grade, you are expected to do it by yourself.” Marisa says in ninth grade you have to be a lot more responsible. She says in the beginning of the year, she was a little bit lazy but now she realizes how serious it is, so she is doing better and trying to be more organized. In fact, during our interview, she talked about how the flexibility of turning assignments in online in World History was helpful to her organization. She said, “I like how Dr. Wright gives us some freedom for turning things in. We don’t have to print things out and turn them in every night. We just have to share it. Like for Biology, my teacher’s like ‘OK. I’m collecting homework’ and she gives you like a

minute to get it out and turn it in fast. And then you go to turn it in, and it's in your hand, and she's like 'it's too late.'" Marisa mentioned she had a hard time getting to Biology after lunch on "B" days because "the halls are crowded and you see everyone, you know?" I also noticed that there was one occasion when Marisa had misplaced her homework and another occasion in which Dr. Wright called her up to his desk to ask about a different missing assignment.

During one observation period, Dr. Wright had instructed students to work in small groups to complete an e-graphic organizer to use as a pre-writing exercise for their upcoming essay. One student was to share the e-organizer through Google Documents with the other group members. Each student was then to write his or her individual essay based on the organizer. The requirement was to share a draft of the essay with classmates and to obtain at least three comments. The final was due to Dr. Wright by midnight on the Sunday of the following weekend. The next time the class met, Marisa explained to me that she did not complete the assignment over the weekend due to her lack of Internet access. She says she feels bad for her group because she was not able to provide comments over the weekend on her friend's essay as the teacher assigned.

Marisa has no Internet access at home and uses her friend's house or the county library to obtain Internet access when necessary. She explained this to Dr. Wright and he gave her the option of hand writing her essay. During the next class, Marisa hand-wrote her essay after looking at her group's online e-organizer. She did this as the class moved onto the next lesson. When I asked Marisa about this during the interview, she said that she was able to type up her essay on a computer earlier in the day, during her third period

class, but that she hadn't saved her document on Google Drive and, therefore, had to hand write it during the current 8th period World History class. She mentioned that she wanted to type it because it gave her practice and because she knew it would "look better."

Marisa explained to me that she was always "playing catch-up." She explained that this was because she did not have the Internet at home. So, while "other kids are getting to practice on the computer at home," she says she isn't able to do this. She says by the time she learns something, the rest of the class is onto something new. In fact, throughout my observations of Marisa, I noticed that she was often working individually to catch up, which also seemed to preclude her from participating in class discussions. Similarly, I noticed during one class observation that as the teacher and students were talking about their weekends and other current events at the beginning of the period, Marisa was accessing and getting started early on the online assignment for the day and did not participate in the overall classroom conversation.

In summary, it appears that Marisa was interested in World History as evidenced by her comment that "it is just interesting to learn;" however, it seemed that she was not always able to fully engage in the lesson as it was occurring nor did she participate in class discussions due to playing "catch-up" or attempting to get a jump start on the lesson. Her lack of access also prevented her from getting teacher feedback outside of class. She mentioned, "I can't turn things in and share from home, all the time. So, I don't know if something is right or wrong. I just turn it in as best I can." In addition, she did not have access to daily homework assignments, which meant if she did not write

down her assignment in her planner, she waited until the next class period to ask the teacher, unlike other students with Internet access to their homework assignments. At the same time, the flexible deadlines seemed to help her with her organizational skills, as she mentioned.

Thomas. Thomas is a 14 year-old white male, smaller in stature as compared to many of his classmates, and appearing, at times, quite “boyish” to me. The teacher described Thomas as “bright” but said that his grades did not reflect his ability. I observed Thomas during eighth period as he worked through his online lessons as part of the Egypt/Mesopotamia unit. The online lessons consisted of e-sheets (electronic worksheets with embedded web-links) teacher-led mini-lectures, class discussion, quizzes, pre-writing exercises and small group work. I also interviewed Thomas at the conclusion of the unit.

During my interview with Thomas, I learned that he was a member of JROTC and that he enjoyed his JROTC sessions, which he attended after school on Tuesdays and Wednesdays. He mentioned that he enjoyed running and lifting weights as part of those sessions. He also told me that he wanted to go into the military. His brother was a captain in the army and his father recently retired after 27 years in the Army. Toward the end of my study, Thomas told me that he was leaving the following week to go to Florida to live with his father. He told me that his new school did not have JROTC, which he was not happy about.

During my interview with Thomas, he also explained that he enjoyed anything technology-related. He explained that the best thing about his World History class is that

his teacher was “not mean,” and that he “never gets bored.” He explained that he had a connection with his teacher. He said, “Dr. Wright and I just think alike. Dr. Wright knows I’m good with technology so he gives me extra things to do with technology.” In my observations of Thomas, I noticed that he would often act as a technology assistant to the teacher. There were several times when the teacher relied on Thomas to help him with the nuances of the technology during his teacher-led mini lessons such as in the following interaction:

Thomas: Go to the bottom-right to make the screen bigger.

Teacher: Ok. Why am I not getting sound?

Thomas: Do you have the mute on?

On another occasion, I noted the following observation:

Teacher: “I noticed we’re having some pronunciation problems with

‘Sumerian.’ Where do I go to hear the correct pronunciation?”

[The teacher begins to type his search terms ‘sumerians + dictionary’] in front of the class]

Thomas calls out: “Why don’t you go to Translate, Google Translate?”

[Google Translate is translation software for mobile devices]

In addition, I observed that Thomas often appeared to be further ahead in his lessons than other students, and thus, was relied upon to help his classmates with their technology needs. I noticed Dr. Wright relying on Thomas numerous times for help with his own technology needs and for seeing to the needs of his peers. In fact, during one observation, a student was having problems with his computer and teacher simply picked

up the computer from the student and handed it to Thomas to fix and handed that student a different computer from the cart, all the while continuing with the lesson. Thomas proceeded to reboot the computer and perform a disk-check, and then used the computer simultaneously with his own class notebook computer for the rest of the period.

During my interview with Thomas, he explained that he used multiple devices simultaneously at home and school. At home, he works simultaneously between his iTouch, iPad and phone. He explained that he uses different devices for different purposes. He also says that he can load things faster, using multiple devices. As he explained, “Everything is like three-clicks away.” He says he often will look something up on one device as he is loading something else on a different device or he’ll “take a break as something is loading” and load music on his phone. He uses his phone mostly for listening to music through Safari. He says, “Music helps me to focus.” At home, he has Google Chrome loaded on his iPad, which is necessary for accessing his World History e-text although he sometimes will need to go to his Personal Computer (PC), if he cannot access a particular feature of the e-text on his iPad. All of his devices are synchronized, including his phone. In addition, he showed me how his wristwatch was calibrated to his tennis shoes, which together functioned as a pedometer and a timer for his runs.

Throughout all of my observations of Thomas, I noted that his attention seemed to be divided across multiple devices and resources, yet he was still able to contribute to the classroom conversation as illustrated below:

[The students and teacher are working through the e-sheet that the teacher has projected in the front of the room.]

The teacher asks the students: “What are the two functions of a ziggurat?”

The teacher waits a few seconds, and then says, “OK. Where do you pay your taxes to?” One student says, “the government.” Thomas is working intently on his e-sheet but also interjects, “It is also a place of worship.”

This is correct and the teacher then explains that the next step in the e-sheet is to find a ziggurat online:

Teacher: “Go. Insert image. You have learned how to do this. Go to Image->Insert Picture. You have to minimize and return a couple spaces.

Now go.” Thomas is ahead and asks the teacher where to insert the image.

The teacher responds to the entire class by saying to go back to the e-sheet and hit return a couple times and insert the image, which Thomas does.

I noticed that while Thomas did seem to pay attention during whole-class instruction of content, as noted by his contributions to the class discussion, it also seemed he did not have much tolerance for instruction of details within the lesson as these are the times when he was multitasking between devices, and not paying attention. And, in fact, I noticed during one observation that the teacher realized Thomas was not following directions because he had headphones on. The teacher approached Thomas and simply took the headphones off of Thomas’s head, carried them back to his desk, and continued with the lesson. According to my video observational data, Thomas then raises his hand eight times during the next ten minutes of the lesson after the headphones were removed.

Thomas also mentioned to me that chewing gum helped him to stay focused. He told me that he had been diagnosed with ADHD. And, in fact, during one observation, I noted the following:

The teacher asks the class, “What is the advantage of bronze? What can you do with it?” [Several students raise their hands.]

[Thomas seems fidgety and does not offer an answer, which is unusual.

He stands up and adjusts himself several times. He taps the space bar repeatedly. He taps his desk. He taps the student in front of him, finally giving him a sizeable whack on the back of the shoulder. The student next to him smirks. The student whom he has hit turns his head back with a look that says, “stop it, or else...” The lesson continues.]

Thomas mentioned to me that he is never bored in his World History class because he says that you are “always doing something. I mean, like in the beginning of the year, I learned to do everything before everybody. But I still always had something to do.” He says that if Dr. Wright did not use technology, he would be bored. He says he would get on his phone, or “think about something else or fall asleep.” He mentions that in one of his classes earlier in the day, he was “reading and thinking of something else.” He said he realized that his “eyes were just going across the page” when he realized he wasn’t reading. He says he didn’t re-read, but rather just dropped it. Thomas says he “hates to read.” He says that for a book report in English, he just took the back of a book, added descriptive detail to it and got a 35 out of 40 on it, without ever reading the book. He said he would never read a book online.

Thomas explained that he does not study; he told me that he should have studied more during the unit. He said he usually just pays attention but doesn't need to study. He also explained that what he likes least about learning online is how it makes his eyes hurt. He said that he could not read for a long time on the Internet. He says he gets headaches.

Along this same note, during one observation I noticed that Thomas did not go to the e-text link to get detailed information within an assignment, as the teacher had instructed the students to do. The teacher said, "Keep going and go to page 33 of the e-text and it will give you the answers for numbers 10-13 and then you'll go to slide 8 of the PowerPoint for the rest of it." Thomas never went to the e-text but instead stayed on the PowerPoint presentation. Afterward, when he realized he did not have the correct answers, he turned to his classmate who gave him the answers. And, in fact, during another observation, I noted that Thomas was playing with his phone, and had gotten behind as the class was going over a completed e-sheet. Far into the lesson, Thomas raises his hand and asks, "What was number 2?"

When Thomas is challenged with a computer issue, he says he can usually figure it out on his own. If it is a content challenge, he will ask the teacher. When I observed Thomas asking students around him questions, I noted that they were usually regarding where the student got a particular answer. Based on my observations, this may have been due to the fact that Thomas was multitasking between and within devices and not paying attention as the teacher gave directions. During my interview, Thomas told me that he

did not pay attention when the teacher gave technical or navigational directions, which was evidenced by my observational data.

In previous years, Thomas explained that he has had difficulty with teachers and last year he spent the year arguing with his teacher in Civics because “she was so bad.” He explained to me that he works harder if he likes the teacher. He said, “In fifth grade, I had the best teacher and I had straight A’s and maybe a B and then he moved and we got a new teacher and that’s when things started going down.”

Thomas told me that he enjoyed working in small groups but he says there should be a certain expectation for each member of the group. He says students in this class could go off-task and unless the teacher catches them red-handed, it is hard to know that they are off-task. Similarly, Thomas has figured out how teachers and administrators know after the fact where students have gone online. He told me, “I saw how they do it. I was in the library getting my computer fixed and a teacher came in and gave the guy in the library, the ID of the computer and he looked it up. But you have to have the computer ID.” Interestingly, Dr. Wright moves about the classroom so often that it seemed to me that he knew instinctively who was on/off task. He explained, “I can tell how their fingers move as I approach them. If their fingers start moving fast, I know they are somewhere they are not supposed to be.” When I asked Thomas his strategies for staying on-task, he said, “You just have to get your work done so you can do what you want to do.”

Toward the conclusion of the unit, students were given instructions for forming groups in order to complete the Mesopotamia/Egypt comparative e-organizer activity.

Thomas remained in his desk and instructed students to come to him, which took a while. When I later asked Thomas about this, he told me “They just didn’t want to come to me because they are going on sites they are not supposed to go to.” But once their group was formed, Thomas quickly took over as the leader, adding each of their emails to the Google document and sharing it with them. But, as Thomas and his three male classmates worked through the e-organizer activity, I noticed some contention as noted below:

The students in Thomas’s group are collaborating on the group e-organizer Google document. Thomas directs the group and tells each member what their individual category/box assignment is. He says, “Now do what you’re supposed to do.” The teacher says, “Guys, for the Military box, you’re looking at Battles – Invasions in the Old Kingdom. Look at the Sumerians. And, remember if you ever screw-up, just hit the back arrow key and everything will come back.” One of the students in Thomas’s group highlights all the text with a black background. Thomas asks him, “Why did you do that? That is so annoying.” They begin to argue about what goes in what boxes. One student asks the group if the Battle of Mesopotamia is right. Thomas says, “I’m not telling you, you should have paid attention.” The student says “Shut up.” Thomas responds, “Well, you didn’t know that and you had to ask.”

For his particular category/box, Thomas was attempting to copy and paste directly from the e-text to his graphic organizer. He tried multiple times before he realized it

wasn't going to work. He said, "What the heck? Even Ctrl-C doesn't work?" He eventually asks the teacher how they are supposed to get all the information if they can't get it from the PowerPoint. The teacher reminds them, "You are supposed to go to the book first and then to the PowerPoint for additional ideas."

On my final observation day, I overheard the teacher say to Thomas, "Thomas, I don't have your essay." The essays were due the Sunday before by 12:00 am. Thomas later told me that he turned his essay in a day late and that he did not use the group comparative essay e-organizer to write his essay. He later mentioned that he nearly failed the writing section of the Standard of Learnings (SOLs) exam at the end of his previous 8th grade year.

Although access was not an issue for Thomas, he would at times not fully engage with his classwork due to his attention being spread across multiple tools and resources, as noted by my observations and conversations with him. However, as he mentioned, he got his classwork done so then he could "do what I want to do." According to my interview with Thomas and my observations of him, it became apparent that he needed some sort of stimuli beyond simply interacting with the lesson. In this case, the stimuli were either Thomas's phone, iPad, another notebook computer, or a peer. As he said, he was "never bored in this class." As the teacher noted, Thomas was "bright" and certainly capable of learning the World History content. Thus, in my view, it becomes important to speculate on how Thomas's learning would be influenced if he were challenged with a more authentic, problem-based approach that helped to develop his critical thinking and higher order thinking. Along this same note, Dr. Wright told me that although Thomas's

grades were average, he should have been placed in a World History Honors section, but Thomas's mother made a request to the school for Thomas to be placed in Dr. Wright's class.

Dr. Wright. From the onset of my exploratory work to the end of my formal observational period, I found Dr. Wright to be an energetic and caring teacher who had an eclectic and diverse set of skills. Consequently, I found that students in Dr. Wright's class seemed comfortable asking questions of him and interacting with their peers as well as contributing to classroom conversations. Moreover, each student spoke of the ways in which Dr. Wright helped them to learn, often telling me he was their "favorite teacher" or that World History was their "favorite class." In my view, this was due to Dr. Wright creating a safe and caring environment for learning, using a tool that students were motivated to learn with.

For instance, Dr. Wright often started class with asking students about their weekends, or their time away from his class, as he returned papers and as students got organized for class. During these conversations, Dr. Wright would often mention his family outings with his wife and three young children, or his personal recreation habits such as his eight-mile run or his mile swim that he often did in the mornings before school. These conversations might go on for ten minutes or more depending on students' contributions. However, Dr. Wright also seemed to be keenly aware of his use of instructional time.

As mentioned, both sections of his World History I classroom were fast-paced with the expectation that students were there to learn and that Dr. Wright's job was to

help them learn. For instance, when students were too noisy, I would hear Dr. Wright say, “This is your opportunity to learn” or “We are wasting time for learning and I hate that.” On one occasion, he told students, “I figured out one time that if I were a babysitter and charged your parents \$10 an hour, I would make more money being your babysitter. But, I don’t want to be your babysitter, I like being your teacher.”

Consequently, during one observation, Dr. Wright had apparently hit his limit with students complaining about writing their essay. At this point, he stopped the class and lectured for ten minutes on the privilege of learning. This event is described, in part, below:

[The teacher has brought up Milala, the young Pakistani girl who was shot in the face in the fall of 2012 for attending school and speaking out about the importance of girls’ education.]

Teacher: Can you imagine that? Getting shot in the face for wanting to go to school? But what’s the best way to control someone? Yes, to deny them an education. And you can’t imagine the poverty in these countries. This is why some people ship their work to [this region of the world]. The countries are poor and labor is cheap. People will work for pennies to feed their families. So, guess what? If you don’t want to learn how to write your essay, I can guarantee there’s a kid in Pakistan who will write it for you. Not to scare you, but this is the world you live in.

As mentioned previously, Dr. Wright was flexible with students using their phones as a resource and with students listening to music while they worked on their

online lessons. At the same time, all of the student-participants seem to recognize these items as privileges. There were only a few instances during my study when I noticed Dr. Wright removing headphones, or taking a student into the hall for using his or her phone inappropriately. As Dr. Wright mentioned, “I am always moving around the room looking at their eyes [to know if they are somewhere they shouldn’t be.]” And, as mentioned previously, he could also tell by how fast their fingers moved if they were someplace they shouldn’t be while working through their lessons.

Dr. Wright also mentioned to me that he felt teaching navigation and technical skills were more important to his students’ futures than learning World History content, despite holding a PhD in History and authoring several blog sites dedicated to History educators. However, when I asked Dr. Wright about the lack of Internet access for certain students and its implications for learning, he explained, “Actually, I have a homeless kid who is rarely playing catch-up. I have learned that it is less a feature of having the Internet at home than the student's desire to be successful.”

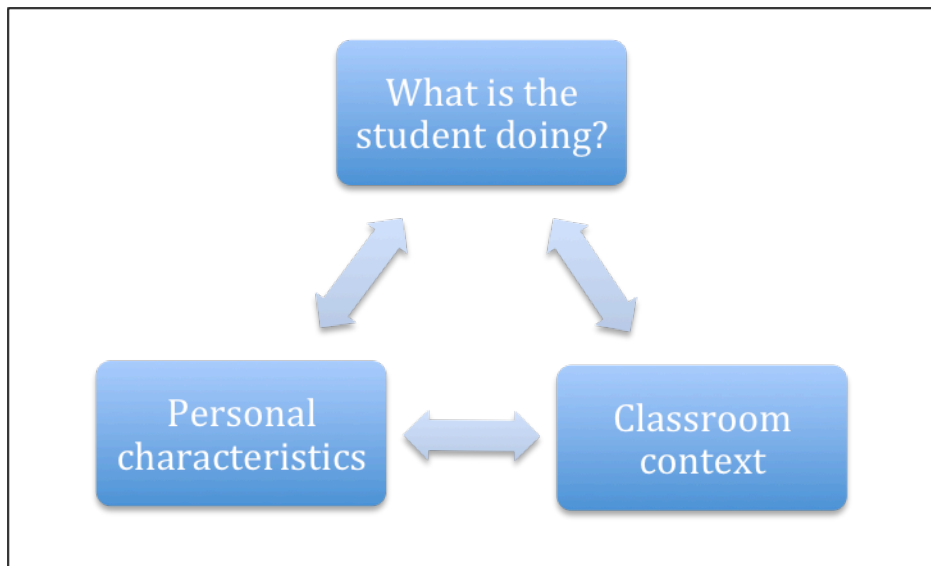
In summary, Dr. Wright was a high-energy and caring teacher, who had an extensive background in teaching with technology in his World History classes. In addition to being a subject matter expert and his various leadership roles within the school, Dr. Wright was dedicated to his profession as well. When I asked him if there were background influences on his high level of motivation, he was not able to mention any one influence, other than his parent’s expectations. As he mentioned, he viewed the notebook computers as the most important tool for keeping students engaged with the

content, and to this end, he was dedicated to helping students learn technical and navigational skills while also acquiring content knowledge.

Cross-Case Analysis

The previous section provided individual narratives of how each student worked through their online lessons. The analysis was based on my observations of the student's behavior as he or she worked through their lessons, in addition to my interview data in which students described what influenced them as they completed their lessons and what was helpful and not so helpful. The following section of Chapter four provides a cross-case analysis of the students' personal characteristics such as (a) Internet access at home and prior technology experience, (b) developmental needs of autonomy and choice, and (c) student motivation along with contextual influences such as (d) instructional practices, (e) multiple digital resources and tools within the class, and (f) the teacher-student relationship. It was found that certain contextual influences served as supports and barriers to students, depending on students' personal characteristics and competencies.

As mentioned previously, Bandura's notion of triadic reciprocity (1986) provides a useful frame from which to view the personal characteristics, behavior and environment as interacting determinants in my study. This concept is illustrated in Figure 3 and Table 4.



*Figure 3. Reciprocal Interactions in the Classroom. Adapted from *Motivation in Education: Theory, Research, and Applications* (p. 127) by D. Schunk, P. Pintrich, and J. Meece, 2008, Upper Saddle River, NJ: Pearson. Copyright (2008) by Pearson Education, Inc.*

Table 4

Personal, Behavioral and Environmental Factors

Personal- What are these learners' characteristics?	Behavioral- What did I see these learners doing?	Environment-What contextual factors influenced how these learners worked?
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Developmental factors – autonomy needs, choice, formal operational thought	Asking for technical help Asking for clarification	Instructional Practices – explicit teaching; modeling; differentiation and pacing
Motivational factors – goals, self-regulation	Multitasking - “digitally doodling,” listening to music, visiting websites not related to the lesson.	Multiple Tools - ancillary digital devices
Level of Internet access and technology proficiency	Attending to task (following along or not) Talking with classmates Working individually with teacher Working individually with peer(s)	Multiple Resources - alternate search engines and websites for finding answers Peer relationships-small group work Teacher-Student Relationship (e.g., respect for teacher; caring and helpful teacher)
		Instructional environment - flexible with restrictions

Note: Developmental and motivational factors within the Personal construct are theoretical categories derived from the research on adolescent development and motivation theory. Level of Internet access and technology proficiency as well as factors within the Behavioral and Environmental constructs represent more substantive categories (Maxwell, 2005), in that they were derived from an analysis of the data, based on what I observed and what students told me.

The factors listed in Table 4 derived as organizational and substantive categories (Maxwell, 2005) were analyzed concurrently. As mentioned, my findings were based on categorizing and connecting analysis (Maxwell & Miller, 2008) and analysis across cases. The cross-case analysis of students’ personal characteristics and contextual influences on how they worked through their lessons is provided below. In addition, the

supports or barriers that students encountered, in relation to their individual competencies are detailed as well.

Relationship with teacher. Having a connection with and respect for the teacher was a support for all of the student participants according to my interview and observation data. Students appreciated that the teacher worked individually with them and answered questions in real-time. The remainder of this section provides the detail for how this relationship served as an overall support for how students work through their online lessons.

During my interview with Marisa, she mentioned that she respected that the teacher allowed students privileges of listening to music and using multiple devices, such as their phones. She said she would never abuse the privileges. She mentioned, “We want to do good in this class because he gives us privileges.” Thomas mentioned that the teacher and him just “think alike.” He mentioned that, other than his 5th grade teacher, Dr. Wright was his all-time favorite teacher. Yared said, “I like that he goes around and helps us.”

As mentioned previously, I interviewed Thomas and Marisa at the same time. When Thomas began talking about his previous year’s Civics teacher who “was so bad,” Marisa chimed in, “I had her too. She was just straight up mean. You were considered trash if you weren’t white. I didn’t want to switch out since it was the end of 8th grade, so I just stayed quiet.” When I asked Thomas about his experience with the teacher, he said, “I just argued with her.” “She was just miserable with herself,” Marisa said. Then she went on to explain Dr. Wright’s class: “Everything he (Dr. Wright) asks us to do, he does

it with us. It's not like we're not sure what we are doing but he's right there on the board showing us how to do it and doing it with us and giving us examples. I think his participation is good." Thomas goes on to say, "It's how he treats us. He's just a good teacher."

At the same time, Yared also seemed comfortable asking the teacher questions and would often raise his hand, and the teacher would come to his desk to help him. As he said during our interview, "I can raise my hand and get my question answered." Marisa mentioned that "It is fun coming to this class and it's not stressful."

In summary, having a connection with and respect for the teacher was a support for all of the student participants. In fact, research has shown that students have higher achievement in classes where they have a positive relationship with the teacher. However, developing relationships requires the teacher to have certain skills such as listening, empathizing, caring, and having positive regard for others (Hattie, 2009).

Access and prior experience. Varying levels of access and technology proficiency influenced students' behavior and their individual interactions with the lesson as well as their interactions with peers and the teacher as well as with whole class discussions. As mentioned, Brandon and Thomas had full access to the Internet at home and both had a high level of technology proficiency. Brandon was the only student to have used the electronic Social Studies text the year before, in 8th grade. On the other hand, Marisa and Yared had limited Internet access at home and limited technology proficiency. The ways in which these interactions were a support or barrier for students working through their online lessons is detailed in the following section.

Individual interactions with lesson. As mentioned, students were expected to follow along as Dr. Wright gave technical directions and demonstrated how to navigate through the lesson. Students were then expected to complete the lesson on their own. Dr. Wright often assigned uncompleted classwork as homework. Brandon and Thomas completed their individual in class assignments during the class period. Yared had difficulty keeping up with the online lessons and did not finish his lessons during class time. In Marisa's case, limited access meant she could not complete her assignments at home, which put her behind for the next class. And, although Yared and Marisa were given the option of handwriting their assignments, this meant that they were not able to practice the technical skills that were learned in class, at home. As Marisa mentioned, "Other kids get to practice on the computer at home but once I learn how to do something, they are already onto something new."

In summary, Internet access outside of school and the level of technology proficiency influenced how students worked through their individual lessons. My analysis revealed that lack of Internet access at home and limited technology proficiency were barriers for students as they worked through their online individual online lessons.

Interactions with teacher and peer(s). Yared had little prior experience with the online tools used in the class, and, as a result, he often sought the help of the teacher or peers in order to navigate through his lesson. In this case, Yared's limited technology proficiency led to multiple daily interactions with the teacher and his peers. Marisa also required one-on-one help from the teacher with technical issues. In both cases, the teacher was an important support for these students. Meanwhile, those students with full

Internet access and higher levels of technology proficiency did not require the same type of or amount of interactions with the teacher or peers.

Small-group interaction. Brandon and Thomas mentioned that they enjoyed working in small groups as long as there was a certain expectation for each student. As Brandon mentioned, “it depends on who I am grouped with” when I asked if he liked small group work. Thomas said, “But if they don’t want to work, it should be their grade.”

Brandon’s and Thomas’s sophisticated use of the online resources and tools as they worked through their online lessons and their leadership roles in the small group e-organizer activity may have been an indicator of their experience with technology and having full Internet access at home. At the same time, I noticed that Yared simply handed his computer over to his group’s leader to navigate him to where he needed to be, after he joined his group. Through the small group work, however, Yared was able to complete the e-organizer activity during class. Working with peers who were more skilled at navigating the online lessons was an important support for Yared.

At the same time, Marisa mentioned that she liked small group work but that it was difficult to get her work done if she was grouped with friends. As mentioned, Marisa said she felt bad for her group with the comparative essay e-organzier and not being able to comment on her peers’ essays since she was not able to access the Internet from home to contribute to the group’s work. However, I did notice that Marisa was not fully engaged with working on the small group e-organizer activity in-class, but rather appeared to be talking quietly with the girls sitting around her. It is unclear if she could

have finished the e-organizer activity during the class period as the other student-participants had done.

Further, while limited access may have prevented Marisa and Yared from adding comments on their classmates' essays through Google Drive as was assigned to do over one particular weekend, Thomas and Brandon did not provide comments to their classmates' essays over the weekend either despite having full access and high levels of technical proficiency. It seemed that not contributing comments over the weekend had more to do with extracurricular activities outside of school as well as a certain level of apathy toward homework, as Thomas mentioned. During our interview, Thomas mentioned that his least favorite activity was having "homework over the weekend." He went onto explain that he had a JROTC competition that particular weekend, which is why he did not finish his essay over the weekend.

Whole-class interactions. Lack of access and lack of technology proficiency were barriers to Yared and Marisa participating in class discussions. Often times, during class discussions, Marisa was playing "catch-up" or trying to get ahead on an assignment. Similarly, Yared was usually trying to figure out where he was supposed to be within the lesson. As a result, I never observed Yared or Marisa participating in the higher level questioning that was part of the teacher-led, classroom discourse. In fact, I never witnessed Marisa or Yared raise their hands to ask questions related to the whole-class discussion of content either. However, they did individually seek the help of the teacher for their technical questions during whole-class, content related discussion, as did some

of their classmates. (Dr. Wright often walked around the room and fixed students' technical issues as he conducted his lessons.)

Yared did not interact in whole-group class interactions because he was often busy trying to figure out how to navigate to where he was supposed to be within the lesson. In my view, the pacing demands influenced Yared's lack of contributions during whole-group class interactions since he always behind during my observations of him, and which he confirmed in my interview with him.

Meanwhile, access was not an issue for Thomas or Brandon. Brandon was the only one of the four who had used the e-text the previous year in 8th grade. Brandon participated in whole-class discussions throughout my observational period. He often asked for clarification, and he contributed to the classroom conversation when it pertained to his interests. When it was time to work individually, Brandon worked intently on completing his lesson.

Similarly, Thomas participated in whole-class discussions, even while multitasking between various digital tools and working individually on his lesson. However, according to my observational and video data, Thomas participated in the class discussions more often when the conversation concerned content or personal interests, as did Brandon. By Thomas's own admission, he did not appear to pay attention when the teacher was providing technical details, nor did he contribute to classroom conversations when he was listening to music through his headphones.

In summary, varying levels of access and technology proficiency influenced the level of participation in individual interaction with the lesson, interactions with the

teacher and peers as well as with whole-class discussion. Students with limited access and low levels of technology proficiency were often not able to keep up with the teacher-led lesson. However, limited access and technology proficiency also resulted in increased one-on-one interaction with the teacher and peers. In Marisa's case, it is not crystal clear to what degree limited Internet access influenced how she worked through her lessons, as related to her socializing in class and in the hallways after lunch and before Biology as she mentioned. As mentioned previously, Marisa was social in nature and once mentioned to me that if she had access to the social media website, Facebook, at home, she would be "addicted to it."

However, my analysis did reveal that both students who had full Internet access and higher levels of technology proficiency participated more fully in whole-class discussions, and took on leadership roles within small group activities. They also seemed to be more involved with the culture of the classroom discourse as far as outside-of-school interests and with the discussions of content. Further, these students did not require as much individual help with technical directions and each of them were able to complete their online lessons during class, despite their multitasking behaviors.

Instructional practices. Instructional practices influenced the ways in which students worked through their lessons. As mentioned, each World History class was fast paced with explicit directions for how to work through the lessons either given orally and/or through teacher and student models. In addition, the teacher differentiated the process for how students were to work through their online lessons based on their individual needs by providing various ways for them to find answers, and by providing

individual help and alternate assignments. The following sections of this chapter provide the detail for how this occurred in this classroom.

Pacing and differentiation of instruction. The teacher differentiated the process for how students worked through their online lessons based on their individual needs, by providing various ways for them to find answers and by providing individual help and alternate assignments. The following section describes how this occurred in this classroom.

Pacing of instruction. As mentioned, each World History class was fast-paced with most directions for completing an assignment given orally. Thomas and Brandon appeared to have no trouble following along. Brandon was usually on-task and ahead, in which case he would “play around” with the formatting or editing features of the e-sheet within Google documents. Thomas was either ahead or behind, depending on whether he chose to pay attention or not, but he was usually able to complete his daily work. However, the demands of such fast-paced instruction might have been a barrier for Yared and Marisa. The shifts in thinking that had to occur between the instructional modes of content, navigation and technical aspects for learning in this classroom appeared to be a barrier for those students with limited Internet access outside of class and limited technical proficiency.

Due to Yared’s and Marisa’s limited technical proficiency, the cognitive shifts that had to occur quickly between content, navigation, and technical in the context of this classroom appeared to be a barrier. In addition to always “playing catch-up,” it seems that the pacing demands may have caused Marisa to get further behind while the pacing

demands caused Yared to be disoriented. Unless Yared was working through a highly structured lesson, such as reading the e-text and answering questions based on the e-text, he was often lost as far as following along with the teacher's directions. I was able to observe this particular behavior numerous times and when I asked Yared about this during our interview, he commented that he sometimes didn't "know where I am supposed to be." Similarly, Powell (2000) describes fluency in the use of online technologies as a key competency for online learning. To bridge this gap for Yared and Marisa, the teacher provided support and scaffolding by working individually with each of them and tolerating small talk between students, which was especially helpful to Yared who routinely relied on his peers for help.

Differentiation based on students' needs. In addition, the teacher's flexibility with due dates, allowing assignments to be handwritten, and providing print-based texts to Marisa and Yared were important supports as they worked through their online lessons as evidenced by my observational and interview data. Similarly, providing Thomas with additional technical tasks seemed to facilitate his engagement with his online lessons. I observed Thomas's engagement with the online lesson and classroom discussions, noticing his ability to simultaneously contribute to class discussions and multitask between devices. As he mentioned, he is "never bored in this class."

In Brandon's case, there seemed to be little need for variation from the teacher's intended assignment in terms of time, additional resources, or process. Brandon explained to me that he had football practice, Monday through Thursday until 6:00 pm, with games on Friday nights. He told me that his daily routine was attending school,

participating in football practice, eating dinner, finishing homework and going to bed. Thus, the flexibility with due dates did not appear to be a support for Thomas or Brandon since they appeared to finish their daily work during class. At the same time, having homework outside of school might have been a barrier to Thomas and Brandon due to their extracurricular activities and a general negative attitude toward homework. This may have been true for Yared and Marisa as well; however, they both mentioned that having limited access to their online assignments from home was more of a barrier, than outside of school activities. In fact, Marisa mentioned that she did not have any extracurricular activities the weekend the essay was due, but that it was “just the whole thing with not having the Internet.”

And while the teacher provided hard copies of the texts to the students who did not have Internet access and allowed them to handwrite their assignments, there were occasions when the lack of access had other consequences beyond the teacher’s control. These consequences include not receiving feedback from the teacher outside of school on drafts of work as Marisa mentioned with “I just turn it in the best I can” comment and using other class periods to complete unfinished work on the computer. In addition, with limited Internet access and only a print-based copy of the textbook, completing online assignments that required other online resources beyond the text became a barrier to completing online assignments outside-of-school. In addition, Marisa’s comment about typing up her essay in her other class periods, may mean that her lack of Internet access at home has implications for her full participation in her other classes, as well.

In all, the teacher differentiated the process for how students worked through their online lessons based on their individual needs, by providing various ways for them to find answers and by providing individual help and alternate assignments, which served as an important support for those students with limited access; however, students with full access did not require the teacher to significantly differentiate the lesson for them. At the same time, extracurricular activities and lack of access may have been a barrier for all of the students in the assignment to corroborate with their classmates outside of school on their essay, as assigned.

Explicit instruction and modeling. Explicit instruction and modeling were important supports for students. Other than Thomas, each student mentioned that they liked how the teacher explicitly taught them by modeling and working through the assignment with them. Thomas seemed to not pay attention to instructions detailing how to complete an assignment. Marisa and Brandon explained that they benefitted from the teacher's step-by-step explicit instructions. For instance, Marisa said, "I like that he tells us exactly what to do." Similarly, Brandon explained that he appreciated that the teacher explicitly taught them how to write a 5-paragraph essay during their freshman year, instead of our "junior or senior year."

Modeling: Who wants to drive? During the whole class lessons, the teacher would often ask, "Who wants to drive?" He would then ask a student-volunteer to share their work with him, which he could then use as a student-model to project in front of the class. The teacher would give directions to the student as he or she worked through the lesson as a model for the other students. The other students would shout out directions to

the “student-driver” for what to do. Overall, the students seemed engaged with this type of peer-modeling, as evidenced by the number of comments and directions they gave. In addition, the teacher often modeled the first few steps of how to complete the online lesson. While Thomas did appear to be engaged with the student-model of working through the lesson, he seemed to not pay attention when the teacher was giving directions and modeling the process for students.

In summary, it appears that students benefitted from the teacher’s explicit instruction as well as from the teacher- and peer-models, with the exception of Thomas. Thomas seemed more intent on completing the lesson in his own way. In addition, the fast pacing and the quick shifts of cognitive modes from content to navigation to technical may have caused disorientation for Yared and Marisa. However, as mentioned, the teacher differentiated his instruction by helping these students individually, and allowing them more time for completion and alternate ways of completing the assignments.

Multiple digital resources and tools. Multiple digital resources and tools were an important support for all four students as they liked having multiple ways of finding the answers and they appreciated the privilege of listening to music; however, Thomas’s attention was often divided across multiple tools during a lesson whereas Marisa and Yared were simply trying to keep up or catch-up. The following section of this paper describes how these tools served as a support to students’ working through their online lessons and how they might have also served as a barrier.

Multiple ways of finding the answers. Dr. Wright provided students with multiple ways for finding answers to questions within the lesson and was flexible with students using other digital resources as long as they did not interfere with the lesson. During my first observation, the teacher told the class: “There are lots of ways to find answers for the online study guide: 1) Google, 2) friend, 3) teacher, and 4) previous work.” And, in fact, students were often encouraged to use Google to find answers that were not readily apparent in the e-text.

Each student mentioned that they benefitted from having multiple resources and tools. As Yared explained, “If you are at home with the textbook, you can’t get your questions answered.” He further explained that he liked going to an online dictionary during class because “it gives you examples” and then you can put it in your own words. Marisa mentioned, “Everything is at your fingertips.” Thomas mentioned if he did not have access to his technology resources that he would be bored in the class. Brandon mentioned that having multiple ways of looking at his classwork, made the answers get “stuck in his head.”

Listening to music. The teacher and two of the students mentioned that music helped them to work through their lessons. Brandon mentioned that, “Listening to music makes the time go by faster when I’m working on something.” I noticed that students in this class often shared the same set of ear buds with a student who was sitting close by. This allowed the pair of students to listen to music with one ear, leaving the other ear to hear what was going on in the class. However, students said that music helped them learn better, I noticed that having headphones on kept Thomas from fully participating in

class discussions, As mentioned previously, I noticed that Thomas raised his hand eight times after Dr. Wright removed his headphones during one particular lesson.

Having access to multiple tools and resources may have been a barrier to reading the e-text for Thomas. Reading a small section of the e-text was a required component of most of the online lessons. Instead, Thomas used the supplemental resources, such as the teacher's PowerPoint presentation, or the Google search option as first choices for finding answers. During one lesson in which Thomas did consult the e-text as a last resort, he skimmed and attempted to cut and paste the section from the e-text where he believed the answer to be rather than summarizing what he had read. Instead of reading the e-text in the traditional sense, Thomas appeared to apply more of his online behaviors of skimming, pasting and copying to complete the required assignments.

On the other hand, the other three student participants seemed to fully engage in reading from the e-text and answering the questions from the e-sheet. I observed Brandon concentrating deeply on the e-text, and noticed that he often went over his completed work by going back and re-reading the e-text and making any corrections. In fact, Brandon mentioned to me that he always went to the e-text before using other online resources, since the e-text had the "answer the teacher is probably looking for." Marisa took her time with reading, often staying on the same page of the e-text for five minutes or more as she completed an e-sheet, according to my observations. She explained to me that her approach to reading from the e-text was to read the entire section first and then go back to the individual questions. Yared mentioned that reading from the textbook and

answering questions was his favorite activity, which was corroborated by my observations of his engagement with this type of lesson.

In summary, students seemed to benefit from having multiple digital resources and tools. Having more than one way of finding the answer and seeing the same information in different ways was a support for students, as was the privilege of listening to music. In addition, with the exception of Thomas, students engaged in reading the e-text first for finding the answers to an e-sheet. Thomas relied more on his background with technology and, consequently, applied more of his online behaviors (skimming, cutting and pasting) to his reading during my observations of him.

Student Motivation

Self-regulation. As described in Chapter Two, self-regulation is a motivational process by which students activate and sustain cognitions, behaviors and affects that are systematically oriented toward attainment of their goals (Zimmerman, 1989, 2000). With regard to my study, students spoke of how they worked through their assignments in similar and different ways. For instance, when I asked Thomas how he kept from getting distracted while working on his online lessons, he said, “I just like to get everything done and then I can do what I want. So, like if I’m done, and he’s just talking I can do whatever I want.” When I asked Brandon how he kept from getting distracted when working through his online lessons, he said that, “usually if I have been sitting doing work for a long time and if there’s just a few problems left, I’ll go ahead and get them done.” Marisa said, “I stick with it because I want to know about it.”

On the other hand, Thomas mentioned that he did not pay attention when the teacher was talking about the details of the lesson. Similarly, Brandon mentioned that he liked to play around with the formatting features if the teacher was “just talking about topics and stuff.” But, although neither Thomas nor Brandon followed the teacher’s directions step-by-step, they managed to complete what was expected of them during their online in-class lessons. Meanwhile, Yared and Marisa were not able to keep up with pacing of the instruction and seemed to benefit more from explicit directions within a bounded lesson (reading from the e-text and answering questions) and one-on-one help from the teacher for completing their lessons. Thomas and Brandon seemed to be able to work more independently through the online lessons. However, all students seemed to be engaged with the lesson in various ways throughout the class period, despite their level of technical proficiency and Internet access. Although Yared and Marisa did not always follow-along with the teacher in real-time, their motivation for completing the lesson and their work was evidenced by the fact that both often asked for help and started assignments using pen and paper for those they knew that they would not be able to complete at home. Each student spoke of the importance of getting good grades or “not getting a bad grade.”

When asked about solving problems that were encountered while working online, each of the students discussed how the nature of the problem determined where they turned to for help. For instance, they spoke of asking a peer for help with a problem specific to the lesson, such as “What did you get for #13?” All students mentioned that they went to the teacher for questions that were related to content. With technical issues,

Brandon and Thomas both said they could usually figure it out on their own while Yared relied on his peers or the teacher for navigation or technical issues. In short, students had differing motivational processes for completing their online lessons, depending on their individual goals and prior experiences with technology.

Autonomy and choice

Each of the students indicated to me that they enjoyed coming to their World History class. Marisa mentioned that she appreciated that Dr. Wright was “flexible with restrictions” as far as listening to music and using multiple devices, such as their phones, as resources. Marisa also mentioned that she liked the flexibility of due dates, rather than having to turn in an assignment within a few minutes of class starting. She mentioned, “Who wants to get a bad grade [just because you turned something in after the beginning of class]? After Dr. Wright conducted his mini-lesson, students were given latitude in how they obtained the answers to the e-sheet and they were able to work quietly with their peers, often sitting close to one another and sharing ear buds while working on their assignments.

Although the lessons that I observed students work through were straightforward, and much like traditional worksheets, it seems that the digital emphasis allowed them more choice of activities such as reading to find answers from various online resources, doodling in their spare time, searching for items of personal interest, and multitasking with other tools.

Out-of-School activities. Three of the four students had afterschool responsibilities. Brandon explained to me that he got home from football practice at 6:00

pm Monday-Thursday, ate dinner, did homework and then “collapsed in bed.” Marisa mentioned the responsibility for getting her younger sibling off the bus a couple of days per week as well as her JROTC commitments after school twice per week. Thomas mentioned his JROTC commitments during the week and weekends with JROTC commitments. Yared did not mention after school responsibilities.

Chapter Summary

In summary, it appears that certain contextual influences served as supports and barriers for some students but not for other students. Contextual influences such as differentiation of instruction and individual interactions with the teacher were found to be important supports for those students with limited Internet access. Students with high levels of technical proficiency and full Internet access did not require interactions with the teacher and peers as often as those students with lower levels of technical proficiency and limited access. For those students with full Internet access, the ability to multitask, listen to music, and complete the lesson at their own pace were important supports, as evidenced by my data. These students also contributed to the classroom discussion more often than those students with limited access.

All students were engaged in their lessons although they worked through them in different ways. Similarly, all of the students mentioned that they liked coming to their World History class and they seemed to appreciate that the teacher allowed some freedom in how they worked through their lessons, by allowing music, flexible deadlines, and being available for them. An environment that was “flexible with restrictions” seemed to work for these students. Students were also encouraged to use online resources

and tools beyond the electronic textbook. All of the students mentioned that they liked being able to find the answer in multiple ways. And, all of the students also seemed to genuinely like their teacher.

A common barrier to all students was the small group work outside of school. They each mentioned different reasons for not completing the small group online activity outside of school, whether it was extracurricular activities or lack of Internet access. At the same time, the pacing demands of a classroom where shifts had to be made quickly between modes of thinking might have been a barrier for those students with limited technical proficiency. The following chapter discusses these findings in relation to the research literature on the topic.

CHAPTER 5: DISCUSSION

As detailed in the previous chapter, the students in this study had diverse ways of working through their online lessons. The cross-case analysis revealed that students' personal characteristics and contextual factors within the classroom influenced how students worked through their online lessons. The findings enumerated in Chapter 4 illustrated that Internet access at home was the heaviest influence on how students worked through their online lessons in this classroom setting. Other personal characteristics such as students' developmental needs of autonomy and choice, and motivation also influenced how students worked through their online lessons. Meanwhile, contextual factors such as instructional practices, access to multiple digital resources and tools within the class, and the teacher-student relationship were also found to influence students' behaviors and created supports or barriers for them as they worked through their lessons.

This chapter discusses the findings in relation to the research literature, and in support of the research questions, which are restated below:

1. How do ninth-grade students work through online lessons in a World History class?
2. What are the influences on students as they work through their online lessons?

3. What are the barriers and supports for students working through their online lessons?

This chapter's discussion is organized thematically around the study's key findings and also discusses the implications for future research, policy and practice.

Internet Access and the Digital Divide

The lack of Internet access at home and its influence on how students worked through their online lessons during class was a key finding that I had not anticipated at the onset of my research study; and, hence, any literature pertaining to lack of access was not considered in Chapter Two. Yet, as I collected and analyzed my data, I began to understand how heavily the issue of Internet access at home weighed on the students' behavior as they worked through their lessons in their World History class.

In reference to the study's first research question, I found that the clearest difference between how these seemingly academically average students worked through their lessons was their level of Internet access at home and their level of technical proficiency. The students in the study who had full Internet access at home demonstrated higher levels of technical proficiency than those students with no or limited home access. Students with full access were better able to work independently through their lessons with little or no help from the teacher or peers, and contributed more often to classroom discussions as compared to the students with limited or no Internet access at home. In short, those students with full access were able to participate more fully as members of the learning community.

This key finding may reflect what the National Telecommunications and Information Administration (NTIA) referred to as the “digital divide” in their benchmark study, “Falling through the Net: Defining the Digital Divide” (1999). The digital divide is a term that refers to the fact that households with incomes over \$75,000 are 20 times more likely to have access to the Internet than those at lower income levels, and are nine times more likely to have a computer at home (Puma, Chaplin & Pape, 2000). In reference to the digital divide, the NTIA report (1999) wisely noted that, “society should not be separated into information haves and information have-nots” (p. xiii). The NTIA report raises concern for students who have limited or no access to the Internet, such as those participating in my study.

Similarly, in a survey of 2,462 Advanced Placement (AP) and National Writing Project (NWP) teachers, it was revealed that more than half (54%) of all teachers said all or almost all of their students had sufficient access to digital tools at school, but only a fifth (18%) said that all or almost all of their students had access to the digital tools they needed at home to complete assignments (Pew Internet in American Life Project, 2005). Since the publication of these studies, however, the cost of digital technologies has fallen, which would seem to have the effect of narrowing gaps as far as access to the Internet and digital tools. Yet, gaps in home access remain substantial and the inequalities in technology usage and outcomes continue to exist (Warschauer & Matuchniak, 2010). My study revealed similar results in that students with limited or no Internet access at home had difficulty keeping up with the teacher’s lessons, and they did not contribute to

classroom discussions, as evidenced by my observations and interview data. These students also required more individual help from their teacher and peers.

To address this issue, Cathleen Norris, a Regents Professor in the department of Learning Technologies at the University of North Texas and former middle and high school teacher, suggests that administrators re-think their policies on cellular phone usage. According to Norris, cell phone usage can help to narrow the digital divide. She states, that “cell phones are small, affordable, mobile, and can operate with a [discounted] data plan, such as E-rate, and this makes them perfect for educational” (as cited in Pascopella, 2009, para 2). E-Rate, is a discounted data plan offered to schools and libraries by telecommunications providers as part of the Telecommunications Act of 1996, and includes Internet connectivity for students. While the E-Rate program has been criticized by the Federal Communications Commission’s (FCC) Office of Inspector General (OIG) (Feaster, 2002/2003) for lack of oversight, less than adequate bidding measures, and having no penalties for schools or institutions that have a history of fraudulent practices, over 100,000 schools have participated in this program, and requests for E-Rate funding have nearly tripled the FCC's \$2.25 billion limit each year (Gilroy, 2003). At the same time, the FCC recently announced a series of steps that officials said would not only put more funding into the program over the next two years, but also redirect the funding to pay for the most in-demand technologies. In 2013, President Barack Obama called for more money to go to the E-Rate program and to refocus it on relevant technologies. The proposed changes include increased funding of \$2 billion

dollars over the next two years, which might produce significant benefits for schools and a new focus on supporting the use of new technologies (Education Week, 2013).

Along this same note, Norris (as cited in Pascopella, 2009) argues that teachers could develop lessons for cellular phones, and in this way, ensure that each child leaves school with the same access to a technology that they are comfortable and familiar with. However, not everyone agrees with Norris' premise of cellular devices leveling the digital playing field (Schachter, 2009). While the affordability and portability of handheld devices may hold promise for narrowing digital gaps due to their affordability and increasing capabilities, the lack of enough software programs for cellular phones and the limitation of the small screen size begets skepticism. Although more and more software programs are being developed for handheld devices, the quality of most programs currently available are not intellectually challenging or truly transformative and the cost still needs to come down considerably for them to be used universally (Schachter, 2009).

All four student-participants in this study owned cell phones that they used for various purposes such as texting friends and family, and listening to music but they did not use them for learning course content, according to my observations. The teacher in this study did not develop lessons for cellular phones although he did encourage their use for noting assignment due dates, looking up quick answers on the Internet, communicating with family members with issues that needed to be immediately addressed, and for listening to music.

A Newer Digital Divide

At the same time, Warschauer and Matuchniak (2010) argue that the digital divide is largely resolved in the United States as nearly all youth have access to computers and the Internet in places other than their homes. Instead, they explain that a new digital divide exists and “resides in the ability to use digital technologies to critically evaluate information, analyze, and interpret data, attack complex problems, and collaborate with others in knowledge production, and communicate effectively to diverse audiences” (p. 213). Along this same note, they argue that the most important technology discrepancies in U.S. schools are not whether computers and the Internet are used, but for what purpose (Warschauer & Matuchniak, 2010).

Similarly, there is evidence to support the existence of a new digital divide at the K-12 level based on how educators use technology for instruction (Reinhart, Thomas, & Toriskie, 2011). For instance, in his survey of 4,000 teachers across the United States, Becker (2000) found that computer use in low-SES schools involved traditional practices and beliefs about student learning whereas computer use in high-SES schools often reflected more constructivist and innovative teaching strategies. Despite this study being over a decade old, current research points to the study’s relevance in terms of technology integration and student outcomes (Miles, 2013).

While Becker’s (2000) findings might be generally accepted, my study provides evidence against such a broad generalization between low-SES schools and high-SES schools’ use of digital technologies. For instance, the school in this study was not a low-SES school, yet I did not observe lessons that were innovative or based on constructivist

principles in this setting. Constructivist principles generally refer to those instructional strategies that are learner-centered, and those in which students have some control over their learning. Despite having ample access to digital resources and tools through lessons that were created by a teacher who appeared to be an expert in digital technologies as well as a subject-matter expert in World History, the instruction I observed was based on traditional, teacher-centered lessons that mostly involved students' completion of electronic worksheets, or e-sheets as the teacher referred to them. Some researchers (Norton, 2005) caution against the use of electronic worksheets in classrooms where online technologies are integrated, and instead suggest classroom teachers take advantage of the particular affordances online environments can provide for innovative and critical thinking, and co-constructing knowledge.

Student Motivation

Personal characteristics as reported to me such as self-regulation and goals were consistent across all four student-participants. Each student placed emphasis on “not getting bad grades” as a personal goal for completing their assignments or getting their work done so they could do “what they wanted to.” However, additional motivational factors influenced how students in this study worked through their online lessons.

Schunk et al., (2008) conceptualize motivation to include “inner forces, enduring traits, behavioral responses to stimuli and sets of beliefs and affects” (p. 4). Thus, motivation is seen as a complex set of interactions that include behaviorist and cognitive components. Cognitive actions such as planning, organizing, monitoring, making decisions, and solving problems and assessing progress contribute to learning (Schunk et

al., 2008). Consequently, the topic of self-regulation is linked with motivation. Self-regulation is the process whereby students activate and sustain cognitions, behaviors, and affects that are systematically oriented toward attainment of their goals (Zimmerman, 1989, 1990). Self-regulation also involves the ability to know where to go to find assistance when learning problems are encountered. In the case of this study, all students mentioned how they solved their problems based on the type of problem they were encountering. If the problem was related to where to find a single answer, students relied on their peers. Two of the students mentioned that they often solved technical problems on their own. All of the students mentioned they went to the teacher with content-related questions.

Modeling is also an important dimension within the literature on motivation. The students in this study seemed to appreciate the teacher-models and peer-models for how to work through their online lessons. Three of the four students paid full attention when the teacher was modeling a technical or navigation skill. In the case of Thomas, who seemed to not pay attention during the teacher models of technical or navigation skills, this may have been due to the fact that he believed this type of modeling provided no or little value to him. According to Schunk et al. (2008), “Motivation affects observer attention through the perceived functional value of modeled acts. Actions judged by observers as important and likely to lead to valued outcomes command greater attention” (p. 130).

Scaffolding supports. As noted previously, learners using online resources and tools need particular types of supports depending on background knowledge, prior

experience, and the ability to self-regulate. While the teacher in this study mitigated some of the barriers that students had by differentiating his instruction, additional scaffolds within the lesson might have helped all of the learners, especially since most of the directions were given orally. Scaffolding involves supporting novice learners by limiting the complexities of the context and gradually removing these limits as learners gain the knowledge, skills and confidence to copy with the full complexity of the context (Young, 1993). As discussed in Chapter Two, Vygotsky (1978) emphasized that it is important to know the actual and potential levels of cognitive development of learners in order to design instruction for them (1978). In this study, embedding into lessons more scaffolds or supports that considered the individual student's background knowledge, prior experience, and the ability to self-regulate may have been helpful to the students.

As mentioned in Chapter 2, Hill and Hannafin (2001) suggested four types of scaffolds that may be used to support cognitive and metacognitive growth. Those scaffolds included conceptual scaffolds in the form of outlines and concepts for determining what to consider or to prioritize; metacognitive scaffolds as reminders to reflect on the goal or a problem-solving model, which help learners assess what they know and what to do as they learn; procedural scaffolds to provide specific procedures, site navigation maps, textual charts and graphic representations that help the learner access and use resources while reducing the cognitive load; and strategic scaffolds as suggestions for alternative approaches to engage with a task that help the learner develop alternative perspective or ways in solving a problem.

In this study, providing cognitive and metacognitive supports within the lesson might have helped to reduce website disorientation for those students with limited Internet access at home. Embedding navigation site maps might have been an important scaffold for obviating website disorientation and cognitive overload for those students with limited technical proficiency with digital tools. Conceptual scaffolds with explicit directions and explicit guidance for those students might have also been helpful. For those students with higher levels of technical proficiency, embedding reflection prompts for problem-solving and writing might have made better use of instructional time and perhaps increased the self-efficacy of those students who said they “hated writing” or “hated reading;” however, as the teacher mentioned, his goal was for students to learn technical skills first, and content second. Perhaps allowing students to freely multitask with digital resources and tools as they completed their lessons helped students to develop those technical skills in ways that were not observable to me.

Similarly, in their study of examining learner use of printed online materials, Chang and Ley (2006) conducted a study of one hundred thirty-two graduate students and found strong evidence that using printed online materials decreased cognitive load in online learning and made learning more efficient for lower-achieving students. The authors concluded that the learners who preferred printing their online materials might not have yet discovered effective online learning strategies. Chang and Ley’s (2006) findings may support the fact that students in my study used paper and pencil more often than online resources due to their limited access and limited technical proficiency, which was an important alternative for them.

Other researchers have begun to document the importance of scaffolding when integrating online resources and tools into the classroom. For instance, Ikpeze and Boyd (2007) noted the importance of scaffolding in their study of implementing a WebQuest in a fifth grade classroom. A WebQuest is a teacher-designed web page that includes various learning tasks and activities for students to complete using Internet resources (Dodge, 1998; Vacca, Vacca, & Mraz, 2014). Ikpeze & Boyd (2007) note that the use of scaffolds, which provide explicit instruction, elaborative questioning, modeling, and individualized instruction as important for helping students to focus on essential information and make internal and external connections. They also noted that embedding these scaffolds within the WebQuest allowed students to articulate their knowledge and recognize ineffective strategies and misconceptions. In addition, they explain that cognitive barriers that arose from reading on the Internet like navigational disorientation and information overload could be reduced through careful chunking of text and teaching students how to skim and scan information. These findings are consistent with research on reading comprehension on the Internet (Coiro, 2003) and design principles in computer-based instruction (Clark & Mayer, 2011). Similarly, in terms of the chunking of text, three of the four students in my study seemed more engaged in learning content when they were assigned questions based on a particular portion of text that they had to read.

Further, Ikpeze and Boyd (2007) suggested that adequate time should be invested in planning, organizing and supervising learning with online activities and they point to the importance of ascertaining students' comfort level and proficiency with the use of the

Internet prior to implementation. They further note that Internet and computer literacy instruction could be incorporated as part of the students' learning process. These findings also support recommendations mentioned in Chapter Two put forth by Biancarosa and Snow (2004) who state "effective adolescent literacy programs should use technology as both an instructional tool and an instructional topic" (p. 19) for student learning.

Multitasking and Identity Construction

As mentioned, students in this study who had full Internet access at home and high levels of technical proficiency often multitasked as they worked through their lessons. While students were able to listen to music and multitask with other devices as they completed their lessons, some research has described the downside of always being "wired-in" and becoming immersed in digital media environments with regard to adolescent development. For instance, multitasking might not only affect a student's ability to learn but it also might give rise to a personal sense of fragmentation. This sense of fragmentation is concerning, because adolescence and emerging adulthood represent critical periods of identity development (Arnett, 2004; Erikson, 1968).

Similarly, Sherry Turkle (2008), a MIT Social Studies and Technology Professor and clinical psychologist, argues that texting is causing anxiety and sleep and relationship problems in teenagers. In her book, *Alone Together*, Turkle (2011) cautions that important developmental tasks of adolescence, such as the achievement of autonomy, intimacy, and a sense of identity might be undermined by adolescent's digital media use. Turkle suggests that maintaining a constant connection to others poses a challenge to achieving a sense of personal autonomy, and that genuine intimacy may be difficult to

attain without the risks involved in interacting with others face to face. She mentions that talking and conversing with others face-to-face brings vulnerability with it, compared to composing texts or emails. Similarly, other researchers have argued that it is through intimate face-to-face exchanges with friends, that young people learn about who they are in relation to others (Elliott & Feldman, 1990; Sullivan, 1953). With respect to identity development, Turkle (2008) recalled Erikson's (1968) observation that youth require stillness for self-reflection. She noted that the "always on" nature of digital media makes finding such stillness extremely difficult.

Multitasking and Learning

Although multitasking behaviors seem to be the norm for many adolescents, there is also concern that learning is compromised when young people's attention is divided between so many resources and tools. In his book, "The Shallows," Nicholas Carr (2008) closely examines "attention economics...in relation to digital technologies, new social practices, and the new forms of literacy associated with them" (p.109). Carr identifies attention as being a scarce resource in the information economy. This thinking about attention addresses the dichotomy between students' high level of engagement with digital activities in their free-time hours and their lack of engagement and motivation for school-related activities, as discussed in chapters one and two of this study.

Similarly, Jordan Grafman, Chief of Cognitive Neuroscience at the National Institute of Neurological Disorders and Stroke in Bethesda, Maryland, argues that students who multitask ultimately do not fare as well as their non-multitasking counterparts. He explains that when students are multitasking, they are not actually

performing tasks simultaneously but making decisions about what to turn their attention to next, then executing that decision. According to Grafman, this “evaluate, choose, and move” process consumes time and energy and encourages the pursuit of more instantly pleasurable inputs (as cited in Wallis, 2006).

While the research is scant on whether or not, or to what degree multitasking impacts learning, some research with younger children has shown no effect at all. For instance, a study conducted by researchers of the television series, *Sesame Street*, investigated how younger children learn while multitasking. In their study, Lorch and Anderson (1983) showed two groups of five-year-olds an episode of *Sesame Street*. The children in one group were put in a room with lots of very attractive toys on the floor. The second group had no toys. The kids in the room without the toys watched 87% of the time, while the kids with the toys watched 47% of the time. But when they tested the two groups to see how much of the show the children remembered and understood, the scores were nearly identical. The researchers found that kids were much more sophisticated in the way they watched TV than they imagined. They concluded that five-year-olds in the toy group were attending quite strategically, distributing their attention between toy play and viewing. It turns out that what they paid attention to were the most informative parts of the program. This strategy was so effective that the children could gain no more from increased attention (Lorch & Anderson, 1983).

Similarly, it is possible that students in this study who multitasked during their online World History lessons could gain no more learning than students who did not multitask. This idea might be in support of the literature on “flow” as a motivational

process. Flow refers to “the holistic sensation that people feel when they act with total involvement” (Csikszentmihalyi, 1985, p. 36). Schunk et al., (2008) define flow as when “challenges and skills are present and equal to one another” (p. 256). Although flow is often linked to activities that allow for free expression and creativity such as games, play and art, in which a person may lose awareness of time and space (Schunk et al., 2008), it also refers to a type of effortless performance, in which the underlying skills and knowledge are so practiced and automatized that it makes it easy for individuals to experience flow (Schunk et al., 2008).

In his study on flow, Csikszentmihalyi (1982) asked high school students to rate their favorite school subjects and activities in terms of challenges and skills. He found that “flow” occurred in the subjects and activities in which challenges equaled skills. For instance, watching TV and listening to music both require a low level of challenge and a low level of skill, which freed up other cognitive resources for learning. However, his findings also demonstrated that the skills that were judged to exceed challenges resulted in boredom, and challenges that were rated as exceeding skills resulted in anxiety. Thus, in the case of the participants in my study who had high levels of technical proficiency, it is possible that their skills exceeded the technical and navigation challenges of their online lessons. Yet, rather than experiencing boredom, having access to additional digital resources and tools kept them engaged in learning.

In another study of young children watching Sesame Street, Lorch and Anderson (1983) mixed up the scenes from an episode of *Sesame Street* so that they were out of order. When they did this, the children quit paying attention. The children watched

when they understood and looked away when they were confused. Similar to the preschoolers who looked away when they were confused, there exists a risk for students, such as Yared, who have limited technical proficiency to become confused or disoriented in online learning environments, so much so that they cannot attend to the lesson itself. Instead of looking away, they might just disengage.

Teacher and Student Relationship

As mentioned, all the students in this study reported that their relationship with the teacher was an important scaffold. This finding is consistent with that of Cornelius-White (2007) who conducted a meta-analysis that included 119 studies conducted from 1948 to 2004, with 1,450 findings involving approximately 355,325 students, 14,851 teachers, and 2,439 schools, in which the following question was investigated: What is the degree of association between positive teacher-student relationships and positive student outcomes? The study found that positive relationships, empathy, warmth, and encouraging thinking and learning are the specific teacher variables that are above average with respect to positive student outcomes. In addition, teachers' honoring of students' voices, adapting to individual and cultural differences, encouraging learning, thinking, and having learner-centered beliefs contributed to positive student outcomes.

Similarly, Rogers and Freiberg (1994) asked adolescents what motivated them to learn in school. Students consistently reported that they wanted to be trusted and respected, wanted teachers to care and help them succeed and wanted choice. Similarly, students in this study felt that the teacher cared about them and their learning needs, which was also evident to me based on my observations. As Carol Gilligan (1982) wrote

in her book, *In a Different Voice*, “The ideal of care is an activity of relationship, of seeing and responding to need, taking care of the world by sustaining the web of connection so that no one is left alone” (p. 62).

Other research suggests that a sense of community for both teacher and students is undermined by the size, structure, and culture of most high schools (Bryk & Thum, 1989). These notions were reverberated by students in my study who explained that they appreciated that the teacher met their individual needs and created an atmosphere conducive to collaboration and that he was “flexible with restrictions.” Along this same note, Elizabeth Moje (1996) illustrated that the caring of the teacher was a prerequisite to students learning literacy skills in a high school science classroom.

Small Group and Peer Work

At the same time, computers in the classroom seem to encourage more social interaction than pencil and paper based learning environments. A research team at the Bank Street College of Education (Hawkins, 1983) consistently found more peer interactions around computer work than on other classroom tasks. This study showed that there was more collaboration among students and more solicitation of help from other students than with paper-based learning activities. The authors concluded that computer work and the sharing of screens might be more communal in a way that paper on a desk is not.

Similarly, as mentioned in Chapter 2, Coiro, et al. (2011) also demonstrated how two adolescent readers engaged in meaning construction and concluded that opportunities to work with a peer to co-construct meaning and respond to prompts that require students

to read on the Internet “may foster more efficient and productive comprehension of online informational texts- even among readers who are skilled at comprehending online texts independently” (p. 366). And in her doctoral study, Castek (2008) also found that found that “students taught one another online reading comprehension skills as they collaborated to solve informational problems” (p. 192). These findings are consistent with those of Webb and Palincsar (1996) who demonstrated that peer interaction can help students to co-construct knowledge and thereby generate better solutions than individuals working alone.

In the case of the current study, students interacted with one another during class time, as I often observed them passing their notebook computers back and forth, sharing ear buds as they listened to music, and talking with one another. However, it seemed that students were not as engaged with the learning task during the teacher-directed small group work compared to when they were completing their work individually. Marisa appeared to be socializing during the small group activity, and Thomas’s group spent the time mostly bickering. And, as mentioned, none of the students collaborated online outside of school on their joint project, as was required.

IMPLICATIONS

Teaching adolescents is not an easy task. Not only are they undergoing great physical changes, but they are also faced with ongoing cognitive, emotional and social challenges. Amid these complex changes, adolescents are faced with making decisions that might have serious consequences on their futures and that in many ways establish their life trajectories (Carnegie Council on Adolescent Development, 2010). At the same time, as mentioned in Chapter Two, adolescents are often involved with and demonstrate multiple complex literacy activities outside of school, yet these literacy activities are often not aligned with or considered within the high school curricula.

Recently, scholars as well as professional organizations, e.g., International Reading Association (2006), have pointed out the need to guide adolescents to advanced levels of literacy. As mentioned in Chapter Two, research has found that it is crucial to understand “the unique aspects of motivation for adolescent readers and writers so that we might reshape contexts and either rewrite or scaffold the texts of the content areas to better support adolescent engagement in reading and writing” (Moje, 2006, p. 10). Similarly, the Partnership for 21st Century Skills also advocates for learning environments that include learning practices, human support and physical environments that will support 21st century skill outcomes (Casner-Lotto & Barrington, 2006). Further, the National Council for the Social Studies (NCSS) in cooperation with six other

organizations representing 250,000 content-area teachers, administrators, educational technology specialists state that the “primary purpose of social studies is to help young people develop the ability to make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world” (NCSS, 2004, n.p.).

However, despite the numerous calls from these various researchers and organizations, the teaching of these skills is not obvious in many of today’s high school classrooms. While the teacher of this study was making large strides as far as helping his students to acquire New Literacies as defined by Leu et al. (2004), I did not observe teaching practices in this setting that focused on critical thinking, or the critical evaluation and analysis of digital information. Moreover, I did not observe any activities that included the use of multiple and diverse sets of complex texts for understanding content, or the critical evaluation of websites as suggested by the research previously outlined. Although the students were given some leeway as to how they obtained the answers to the lessons, three of the four students turned to the e-text first for finding answers, and then did cursory searches for answers through the search option within Google. As one student remarked, “I go to the e-text first because this is the answer the teacher is probably looking for...[if that doesn’t work] then I pick a random web site since they all have the same thing.” Further, I did not observe the use of collaborative digital tools that might help students to co-construct knowledge as suggested by previous research (Webb & Palincsar, 1996; Coiro et al., 2011) or students’ participation in civic

or global matters (Ito, 2013), which would seem to mesh with the World History curriculum.

However, it is important to reiterate that the teacher of the class was bound by a standards-based, high-stakes assessment curriculum that was primarily based on factual information, and chronological events. At the same time, the teacher seemed to push the parameters of his teaching of the World History curriculum, using a tool that adolescent students are often drawn to. And, as Nell Noddings (2013) cautions in her book on ethics and moral education, care should be taken to not push teachers to adopt particular philosophical or pedagogical positions, but instead we should try to understand and appreciate their practices, even if they differ from our own.

At the same time, there is growing evidence in the literature that even the simplest forms of technology integration positively influences student achievement (Cantrell, Liu, Leverington & Taylor, 2007; Davies, 2011). In terms of factual and conceptual knowledge, researchers have posited that student achievement increases as the level of technology interactivity increases (Cantrell, et al., 2007). One early study conducted by Kulik (1994), in which the findings of more than 500 individual studies of computer-based instruction were aggregated, found that students usually learn more in less time when they receive computer-based instruction. Kulik also concluded that students like their classes more and develop more positive attitudes toward computers when their classes include computer-based instruction. However, other research (Russell, 1999) states that there is nothing inherent in the technology that makes students learn more or better. The difference is in the design or the way the technology is used. To this end, the

remaining section of this document provides suggestions for practice, districts and research for implementing and integrating digital resources and tools at the high school level.

Suggestions for Practice

As mentioned in Chapter Four, the findings of this study suggest that students with higher levels of technical proficiency may find ways around thoughtful and meaningful reading of content area e-texts, through online behaviors of skimming, copying and pasting, and cursory approaches to finding the right answers. In my view, this finding suggests that instead of giving students free reign for finding answers on the Internet, it may be more beneficial to design learner-centered, Internet-based lessons that include loosely constructed learning paths with the appropriate scaffolds in place. In addition, designing online lessons that give students some degree of choice and autonomy but also that require them to read particular portions within and across online texts and to synthesize and analyze information would serve to facilitate the development of critical thought in a content area.

While it is important to teach students to skim due to the nature and structure of online material, it is equally important to provide students the opportunity to read content matter deeply if they are to understand the academic concepts in a meaningful way. Maryanne Wolf, a reading scholar from MIT, describes this as teaching students to become “bi-literate.” Wolf explains that we need to be simultaneously helping students to learn the slower mode of print, and at the same time steadily increase their immersion into the technological, digital age (as cited in Rosenwald, 2014). Perhaps one of my

students said it best: “If teachers keep abreast of the new research, they can warn students that reading screens and reading *Pride & Prejudice* are two different brain routes, and they need to become capable with both sorts of text” (P. Kyger, personal communication, April 12, 2014)

And, as mentioned in Chapter Two, it is important for teachers to scaffold students understanding of online complex texts in order to prepare them for post-secondary success. Secondary teachers can help students interact with diverse, rich and multiple texts by designing scaffolding activities that help students understand increasingly abstract concepts and vocabulary within secondary online texts and resources. Determining the most salient concepts of a learning unit, choosing the vocabulary that best represents those concepts, and then designing activities that provide students with multiple exposures and interactions to those concepts would benefit students’ understanding and engagement with the technical and often abstract concepts of content area learning. As Brandon mentioned, seeing the concepts in multiple ways makes the “answer get stuck in your head.”

At the same time, teachers can facilitate students’ development of critical thinking by designing online lessons that expose students to multiple online resources that not only “all have the same thing” (as Brandon mentioned), but that also expose students to websites that offer differences of opinions on similar topics, using a diverse set of criteria to judge and critically evaluate those resources. Similarly, we need to teach students to think beyond domain types such as “.com” or “.edu” for website evaluation and instead teach them to pay special attention to the credibility of a web resource (e.g., author’s

reputation, author's purpose), website genre (newspaper or scholarly resource) in addition to the site URL, references listed and contact information (Cho, 2011), which are the skills that are typically taught in evaluating and judging the reliability of an online resource. Moreover, helping students to build an intertextual understanding between information sources by helping them to make sense of the hyperlinks they encounter when learning online is equally important. In discussing this notion, Cho notes that the skills of locating and evaluating online information for understanding may be analogous to decoding and fluency in print based learning (2011).

In addition, it is equally important for practitioners to understand the levels of Internet access that adolescents have at home and their level of technical proficiency at the onset of the school year. This could be accomplished by simply providing a short survey that assesses students' digital access and use at the beginning of the school year. This is important if teachers are to provide the necessary scaffolds for students who have a range of background knowledge, prior experience with technology, and self-regulation strategies. Further, teachers might consider encouraging volunteers and other knowledgeable adults to come into the classroom to work with students who have limited technical skills. The district in which this study was undertaken was located within the Washington D.C. metropolitan area and, consequently, there are a large number of educated and knowledgeable adults that could mentor students as far as technical and content related skills.

With regard to small group work, teachers need to consider the possibility that collaboration skills may not be a naturally occurring development among all students. In

order to maximize learning that stems from the integration of challenging activities, students may require guidance in working collaboratively. Guidance may come in the form of providing adequate structure (Gillies, 2004), building in opportunities to self-assess group progress (Hogarth, Bennett, Campbell, Lubben, & Robinson, 2005), and planning for frequent progress-checks (Engle & Conant, 2002). Integrating these techniques may support more effective group work.

Suggestions for Districts

This study clearly showed potential implications of a lack of Internet access at home on how students worked through their lessons and illustrated how one teacher differentiated his instruction based on students' individual needs. As many districts across the United States face budget shortfalls, applying to the FCC e-Rate program and securing funds might help districts provide all students with the same digital tools and resources at home. If this is not possible, providing professional development that helps teachers understand how they might "level the playing field" and differentiate instruction for all students, regardless of access would be beneficial to student learning. In addition, district decision makers might provide avenues for professional development that view the integration of digital tools and resources from a critical thinking stance that includes standards-based content but goes beyond simply digitizing traditional monolithic types of instruction.

The teacher in this study was bound to the standardized based assessments for World History; however, he was able to keep his students engaged and motivated to learn despite covering a vast and broad curriculum on which his students would be assessed.

While it is important to assess content knowledge, the research, as outlined in previous sections of this report, clearly indicates that the traditional high school paradigm is not, for the most part, effectively preparing students for post-secondary success. Part of the problem is that societal demands for high levels of literacy have increased dramatically yet the skills learned in most U.S. high schools have not (Cuban, 2001; Murnane & Levy, 1996). In fact, a recent report from the Carnegie Council on Advancing Adolescent Literacy (2010) states, “At a time when high school graduates must be prepared to participate in an accelerated knowledge economy, schools are stuck in the 20th century using outmoded approaches to prepare students for a world that no longer exists” (p. 14). While a myriad of factors contributes to this issue, one contributing factor is the high-stakes movement in the U.S., which in many states has focused on a fact-based curriculum in social studies. Perhaps, if assessments were developed that considered the unique affordances of online learning that facilitate higher order thinking and abstract thought, content area teachers might be more willing and motivated to teach these skills. In addition, developing assessments that are more diagnostic might provide detailed and accurate descriptions of what students need to know in order to be successful in these environments, so that we are able to build a more comprehensive understanding of how students learn online.

Lastly, while the teacher who participated in this study was an expert in digital technologies and was able to seamlessly integrate the e-text with other online resources, it would be beneficial for districts to require e-text publishers to make their products easily modifiable for teachers that are less savvy with digital resources for learning and to

provide professional development to help teachers become adept at using these resources in creative and meaningful ways for student learning.

Recommendations for Future Research

Future research should look at student-centered environments in which technology is used in meaningful ways that promote critical thinking within a standards-based curriculum. In addition, it is important for future research to examine how the distribution of knowledge in a classroom is spread throughout a community of high school learners when using online resources and tools. Students in my study often helped one another but it is unclear as to how the nature of these “asides” might play out in classrooms for students with varying backgrounds. While neither SES nor English-language proficiency were explored in this study, future research might consider SES and English-language proficiency in terms of student outcomes when online resources and tools are integrated into a high school content area. While not a focus of this study, it is of note that the two students found to have less Internet access were both English language learners who had been exited from English as a Second Language classes earlier in their school careers.

In addition, future research should explore the types of activities that facilitate learning in brick and mortar environments as compared to online learning environments. Although Daniels (2009) compared practical and conceptual differences between classroom based learning and virtual environments at the high school level in her recent doctoral study, she did not examine how the developmental needs of adolescents could be better met in virtual environments in the way that is possible in classroom based

environments that use online resources and tools for learning. As related to the literature and concern about students becoming completely immersed in virtual worlds and “wired in,” this issue seems of critical importance.

Further, future research should consider the types of, or if it is necessary for students to have a certain level of online and technical proficiencies prior to engaging in secondary contexts that rely heavily on online resources and tools for learning. As discussed previously, this study took place during the beginning of the school year. Perhaps students with lower levels of technical proficiencies caught up to their peers during the school year; and, thus, were better able to participate in the community of learners within the classroom. In that case, researchers might study if “sink or swim” approaches to using digital technologies at the high school level work, or if perhaps students should participate in summer camps or afterschool programs to learn these skills. However, in my view, any requirement of this nature that stems from a deficit model would seem to further exacerbate the gaps between the “haves and have nots” as previously mentioned in terms of digital divides. Future research should also include more longitudinal studies to investigate the types of scaffolds and barriers that help students to learn in a classroom that uses online resources for learning and how this affects student learning as students progress through their secondary years, as well as the ways in which the skills for locating and evaluating online information might be best assessed.

At the same time, the teacher-participant in this study was an experienced and caring teacher, with a lot of energy and a diverse set of skills. Future research might

build on existing literature on the types of teacher dispositions that lead to higher student learning outcomes in classrooms that use digital tools and resources for learning.

Future research should also consider the nature of video data as an important medium for collecting data in secondary classrooms to more fully understand the complexity of what goes on in high school environments. As mentioned, the use of video data in addition to my real-time field observations was of critical importance for understanding what was going on in this classroom environment from an individual and holistic perspective. However, there exists little research on how to use video data systematically and rigorously in qualitative research.

Conclusion

This qualitative study sought to examine the ways in which average ninth grade students worked through online lessons in a World History class. The study's findings revealed that students had diverse ways of working through their lessons depending on their personal characteristics such as level of Internet access at home, motivation and developmental needs of autonomy and choice. The study's findings also revealed that contextual factors such as the student-teacher relationship, access to multiple digital tools and resources within the class, and instructional practices influenced how students worked through their lessons and how these contextual factors served as supports or barriers for students.

As mentioned in the beginning chapter of the study, little empirical research exists on how high school students work through online lessons in a secondary content area classroom. Thus, this study has served to shed light on a topic that is in critical need of

further study due to the rapid growth of emerging digital tools and their prevalence in secondary schools.

APPENDIX A

Student Interview

1. Overall, what do you think of learning with online texts in the way that you do in your World History I class?
2. How is learning in History this year different than learning in your History/Social Studies classes in previous years?
3. Are you comfortable learning with online texts? Do you prefer learning this way over learning through print-based texts?
4. What do you like best about learning with online texts? What do you like least? What changes would you make that would help you learn?
5. Do you think learning online affects the quality of what you hand-in as far as your projects or assignments?
6. Do you think learning with online texts this year helped you with your History SOL? If so, how? If not, why not?
7. What types of things do you use the computer or the Internet at home for? Homework? Music? Social media?
8. What is your first memory of using the computer in school?
9. What do you use the computer for in your other classes at school?
10. What do you hear other students say about learning with online texts? What do your parents say? Other teachers?
11. What kinds of things does your teacher do to help you learn with online texts?
12. Have you helped other students learn with online texts? Have other students helped you? What types of things have you done with other students that help you learn with online texts?

APPENDIX B

Teacher Interview

1. How long have you been teaching?
2. What is your background with technology? How did you learn to use technology in your teaching? Teacher education program? Self-taught? Professional Development?
3. What has been your experience with using the e-textbooks? Is it an improvement over the traditional text?
4. What types of things have you noticed from students? How have the e-textbooks affected student learning?
5. What would you change or what do you think could be improved?
6. What kind of learning curve was involved for you? For your students?
7. What do the students say about the e-textbooks? What do parents say? Other teachers?
8. What types of supports have you received within your school, district or state agencies for adopting and implementing e-textbooks?

APPENDIX C

Video Data Check Sheet

to stop them @ 1:15

Date: 10/05/12 9:53 8:38

Video(s): 8th period (trimmed) X-2 X-3 X-4 X-5 X-6 X-7 X-8 X-9

Assignment: MAP - Ancient Egypt

Teaches contextual issues through google searches

add "northern Africa to get a sense to make sure you're in the right place."

SUMMARY of observation:

① Teacher led. ~~Teacher~~ has phone & is using phone along w/ notebook. He is chewing gum. Teacher gives 30 mins to complete & goes around & helps. ② Students work individually to complete. After you're done w/ the map, you need to share it w/ a partner.

What?	Mostly	Almost-Mostly	Minimally	Not at all
Teacher-Led Discussion	✓			
Teaching content		Assignment		
Teaching navigation	go into BB - West River Egypt - click on MAP			
Peer interaction	✓	connect to google search & that gives you pictures.		
Teacher interaction	✓			
Teaching Literacy skills	Or a different way is to do what Giselle said: the simplest way is to go to google & type in Ancient Egypt & go to image. Should take 15-20 min.			

lots of mess talk overall not indro

quality is having issues

Technical issues

Cognitive - Go to first map; if you don't find everything there go to 2nd map on images.

Affective - on task Andrew completing sheet Andrew multitasks - on phone doing assignment

APPENDIX D

Connecting Analysis Matrix

Student	Technology proficiency	In-class	Out-of-class
Yousef – "relying on others" Plays community soccer on weekends.	Limited technical proficiency; First exposure to online textbook.	Asks for help often; not usually following along; usually behind; relies on peers and teacher for individual help; asks group leader for help during small group work. Relies on group leader for help during small group work.	Limited Internet access; Takes textbook home. Does not use group's e-organizer to complete essay as assigned for homework.
Andrew – "Many tools" After school responsibilities two days per week	Lots of experience with technology. First exposure to online textbook.	Sometimes ahead/sometimes behind due to multi-tasking. Participates in class discussions regarding content; doesn't always follow along with teacher directions; takes over as leader of group.	Access to various and multiple digital tools and resources; Does not use group's e-organizer to complete essay as assigned for homework.
Alison – "Catching-up" After-school responsibilities most days of the week	Moderate technical proficiency. First exposure to online textbook.	Always playing "catch-up," Doesn't participate in class discussions; does not participate in small group work;	No Internet access at home <i>"He's not stressed learning it is you know what"</i>
London – "Following along" After-school responsibilities every day of week (football practice, Monday-Thursday and gets home at 6:00 every evening).	Lots of experience with technology; Used online textbook the previous year, in 8 th grade.	Usually follows along but "plays" with formatting features during teacher-led minil lessons; stays ahead of teacher's directions	Access did not seem to be an issue <i>We always re-teacher but he treats us as if we're not</i>

Barry
Didn't like
having Hwy
and the
weekend.
So wrote it his book.
over us
that sense
the hope of
the
who wants
to get best
gloria to
and the
H.S. the way
we want to
clay. Bic
to go
not to go
to 5th

Didn't call
around
the
week end.
It's just the
at about
of having
the inter-
I have &
not
raising
have
check
it so

I don't know if it's right or wrong, so
I just learned it as the best I could. "

I thought I
... ..

APPENDIX E

Cross-case Analysis Matrix

*influences are what they told me
distractions can not be overcome the
day.*

*S - scattered
B - barrier*

INFLUENCES	INTERACTIONS				
	St-Lesson	St-Teacher	St-Peer	St-Whole Group Part.	
Access (limited)	B (the biggest thing is not having the internet at home and he can't check it so I don't know if it is right or wrong)	S (teacher help)	B (groupwork)	B	
Prior experience	B (lack of motivation)	S (teacher help)	B (other kids get to practice)	B	
Relationship with teacher	S (is comfortable to discuss the issue and alternatives)	S (we respect him)	n/a	n/a	
Instructional Practices	S (he gives us privileges, why would.)	S (he shows us explicitly how to do something)	B (groupwork) not helpful	B (always playing catch up)	
Multiple Resources during in-class lessons	S (everything is at your fingertips)	S	B	B	
Efficacy and Responsibility (small group work; deadlines)	S	S (He's not stressing over us turning it in that second)	B (I feel bad for my group)	n/a	
Physical Barriers (sitting for long periods of time, eyes hurting, weekend work)	S (says she would be addicted to FB if she had access)	n/a	n/a	n/a	

the teacher helps to bridge the gap between students by offering

APPENDIX F

NAME_____

DATE_____

Ancient Egyptian Mummies

[First read these few steps](#) on the mummification process and then read the short article below.

Ancient Egyptians believed that there was a life after death called the 'afterlife.' They also believed that a body had to be preserved after death so that a person could safely reach the afterlife.

And so, they Egyptians made mummies to preserve the dead bodies of kings, queens and nobles. Mummification was a long, expensive process that took about 70 days to complete. Egyptians used the chemical *natron* to dry out the body and prevent it from rotting away.

First, the organs such as the stomach, intestines, lungs, and liver were removed from the body and preserved with *natron*. The organs were then put in jars called 'canopic jars' to be placed next to the body. The brain was then pulled out of the head through the nose using a long hook.

Then the body was covered with *natron* and dried for about 40 days. After that, the inside of the body was stuffed so that it would keep its shape. Then the body was wrapped in bandages. Finally, a religious ceremony was held to help the dead reach the afterlife. Also read [this](#) on King Tut's mummy to help you answer the questions.



Sarcophagus with canopic jars

- 1 Why did Egyptians preserve the bodies of dead people?
- 2 Who usually got made into mummies?
- 3 How long did it take to make a mummy?
- 4 Why did Egyptians use the chemical natron?
- 5 What organs does the article mention?
- 6 What happened to the organs?
- 7 Where were the canopic jars placed?
- 8 What happened to the brain?
- 9 How long was the body dried?
- 10 Why was the body stuffed?
- 11 What was the body wrapped in?

Go to [this video](#) and watch the first few minutes of what was found in the tomb

- 12 Next watch [this video](#) of Tut's tomb?
 - a What is on the walls?

- b What is one striking item about the tomb - remembering that it turned up the most riches of any tomb ever in Egypt?

APPENDIX G

NAME _____ River Valley Civilization

Use the [e-book to answer these questions pages 29-34](#) unless otherwise noted.

1. Look at the map on p. 27. What are the four river valley civilizations?
2. What is the “fertile crescent?” What is its other name?
3. What rivers is the fertile crescent between?
4. What is the name of the people in Mesopotamia?
5. What country is in the area today (p. 30)?
6. Who were the leaders of the Sumerians?
7. What were the two functions of the Ziggurat?
8. How many gods did the Sumerians follow? What is the belief in many gods called?
9. What were the levels of society in Sumerian society? ([slide 8](#))
10. What were six “inventions” of the Sumerians?
11. What was the language of the Sumerians? Insert a picture of the writing (find on Internet)
12. Under what leader did the Sumerians reach their peak? What was his empire called?
13. Who created the world’s first empire? What were his people called? (slide two) Go the [“student premium”](#) at the top of the e-book to answer the following.
14. Who created the world’s first empire? What were his people called? (slide two)
15. What is Hammurabi’s Code? What parts of Sumerian culture did it govern (at least three examples)? (slides five and six)

[This in an image of Hammurabi’s Code](#). If it is an original artifact, what is it called? Insert a picture of it (find on Internet)

APPENDIX H

Mesopotamia vs. Egypt Directions: With your team, review all information from Unit 2 to complete the chart below comparing Mesopotamia & Egypt. Place a checkmark in the box of the civilization that you think is better based on that specific category. If you believe it is a tie, place a checkmark in both civilizations' boxes

Category	Mesopotamia (pp. 31-33)	Egypt (pp. 37-41)	Commonalities
Government Society Economy Art			
Religion Military Advancements			

Final Score (count up the check marks): Mesopotamia: _____ vs. Egypt: _____

Briefly explain why you believe that one civilization is better than the other below:

[Here is the rubric](#) that I will be using to grade you (top part of explanations and the nine point scale).

COMPARE ESSAY PREWRITING

Essay Prompt: Compare the early River Valley Civilizations of Egypt and Mesopotamia. Topics to compare could include (1)government, military, & economy, (2)religion & society, (3)advancements & art. Be sure to include both similarities and differences.		
1st Category of Comparison	2nd Category of Comparison	3rd Category of Comparison
Thesis Statement:		
Category 1:	Category 2:	Category 3:
Topic Sentence (complete)	Topic Sentence	Topic Sentence
Supporting Facts (bullets)	Supporting Facts	Supporting Facts

Clincher Sentence	Clincher Sentence	Clincher Sentence
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