2017

Influence of Technology on English Language Learners' Vocabulary, Reading, and Comprehension

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This is to certify that the doctoral dissertation by

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2017

Abstract

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MS, Walden University, 2007

BA, Lesley University, 2006

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

General Education

Walden University

January 2017

Abstract

Researchers have shown that vocabulary development is a challenge for English Language Learners (ELLs) as they are less prepared to use contextual and linguistic clues to decode unfamiliar vocabulary. Beginning in the upper elementary grades, reading in content areas becomes lengthier and more complex. Technology-supported vocabulary instruction to teach social studies to ELLs is a relatively new concept in the 5th grade classroom. The purpose of this comparative study was to assess the vocabulary and reading comprehension outcomes of ELLs in the content area of 5th grade social studies when taught using technology-supported versus traditional textbook instruction. Mayer's cognitive theory of multimedia learning provided the theoretical foundation for the study. A quasi-experimental approach with a nonequivalent pretest and posttest comparison group design was used. All 99 5th grade ELL students at an elementary school in the southeastern United States served as the study sample. Pre-existing classroom groups were taught using technology-supported or traditional textbook instruction. Instructional groups' vocabulary test scores were compared using ANCOVA with pretest social studies vocabulary scores serving as the covariate. Results revealed that 5th grade ELL students in the technology-supported instruction group scored significantly higher on the social studies vocabulary posttest as compared to the traditional textbook instruction group. The findings of this study suggest that technology-supported instruction in social studies is an effective teaching approach for ELL students at the 5th grade level. This study could be used to guide future research in the areas of ELL language acquisition, content area learning and comprehension, and equitable instruction for all students.

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Dedication

To my wonderful husband, John, for his continuous love, support, patience, and belief in me.

Acknowledgments

I am most grateful to the members of my committee, Dr. Janet Strickland, Dr. Linda Crawford, Dr. Andrea Wilson, and Dr. Michelle Brown for their time, encouragement, and expertise throughout this journey. Their continuous support, attention to detail and demand for excellence has inspired me throughout this endeavor. Thank you to my friends and colleagues on the literacy team at school who understood, supported, and inspired me when I needed it the most. I hope to return the favor one day if they choose to pursue their own doctorates. Thank you to my school, both the administration for permitting me to conduct my research, and the 5th grade teachers for allowing me to study their ELL students throughout this investigation. Finally, I would like to thank my daughters, Ashley and Gillian, for their patience, understanding, and love as I pursued my dream. I wish Justin could be with us to join in this celebration.

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Chapter 1: Introduction to the Study

English Language Learners (ELLs) struggle in learning to read and comprehend content area material (Cisco & Padron, 2012). The knowledge gained in reading and understanding informational text is vital to growth in future learning (Hiebert & Pearson, 2012). If students are to be prepared for college, work, and citizenship they cannot settle for a minimal level of proficiency in reading and comprehension (Alberti, 2013; Heller & Greenleaf, 2007).

Background of the Study

The failure to comprehend academic texts has led to poor performance on high stakes tests (Heilig & Darling-Hammond, 2008; Menken, 2010). The latest results of the National Assessment of Educational Progress indicate that among fourth graders who scored below the 25th percentile (i.e., below a score of 200) 35% were Hispanic, and 24% were ELLs (National Center for Education Statistics [NCES], 2013b). Among fourth graders who scored above the 75th percentile (i.e., above a score of 246) in 2011, 11% were Hispanic, and 2% were ELLs. Nationally, reading scores increased for both ELLs and Caucasian native English speakers considerably, but the achievement gap between these groups did not change for fourth or eighth graders when comparing 1992-2009 (Hemphill & Vanneman, 2011).

Beginning in the upper elementary grades, reading in the content areas becomes lengthier, more complex, and contains a substantial increase in the amount of content. Content area reading also becomes more varied in vocabulary, purpose, text structure, and style (Heller & Greenleaf, 2007). Solid early literacy instruction does not immunize

students against struggle or failure in future years (Bornfreund, 2012). The inability to attain essential literacy skills in the early grades weakens the ability to succeed in school and throughout life as students move into the higher grades and struggle in their understanding in the content areas. Beyond Grade 3, adolescent learners must read more complex passages, understand information at a higher level, and learn to formulate autonomous conclusions based on evidence. They must also develop strategies and distinctive skills for reading texts in the content areas (Carnegie Council for Advancing Adolescent Literacy, 2010). The consequence of the deficiency in comprehension instruction has been that many students entering middle and high schools are effectual sight word or strategic word decipherers with poor comprehension skills (NCES, 2013b).

In the past 30 years, the immigrant population of the United States has tripled, with more than 14 million added during the 1990s. This number is an increase of 16.2 million since 2000; 3.6 million since 2010; and 1.4 million since 2013 (Camarota & Ziegler, 2015). In 2014, 63.2 million U.S. residents spoke a language other than English at home (Camarota & Ziegler, 2015).

Changes in many industries, including farming, building, manufacturing, and meat processing have driven Latinos to new areas of the United States. Most Latino families have settled permanently in the South, Midwest, and Northeast (Hamann, Wortham, & Murillo, 2015). Nearly 49.9 million students were enrolled in U.S. public schools (pre-Kindergarten through 12th grade) in the 2007-2008 academic year. Of that amount, 5.3 million (10.7 %) were ELLs (Batalova & McHugh, 2011; Pandya, Batalova, & McHugh, 2011; Rong & Preissle, 2009). The percentage of U.S. public school students

identified as ELLs increased in the 2013-2014 school year to 9.3% (4.5 million students) compared to 2003–2004 with 8.8% (4.2 million students) (Batalova & McHugh, 2011). The percentage of ELL students in public schools increased between 2003-2004 and 2013-2014 in all but 14 states, with the largest increase taking place in Kansas, and the largest decrease taking place in Arizona. Between 2012-2013 and 2013-2014, the percentage of ELL students in public schools decreased in 20 states, with the largest decrease taking place in Idaho (Batalova & McHugh, 2011). In contrast, 30 states plus the District of Columbia had an increase in the percentage of ELL students. In 2013-2014, a larger percentage of public school students in lower grades were identified as ELL students than in upper grades (NCES, 2016a).

Almost 35% of the 40 million foreign born in the United States in 2010 entered the country in 2000 or later (Batalova & Fix, 2011; Zong & Batalova, 2015). ELL students are a diverse and multifaceted group with varying backgrounds in both formal education and a thorough knowledge of their first language (National Education Association, 2008). Between the years 2000-2012, the five states with the fastest-growing Hispanic populations were Tennessee at 163% growth, South Carolina at 161%, Alabama at 157%, Kentucky at 135%, and South Dakota at 132% (PEW Research Center, 2014). Of these students, 27 % were second generation, and 30 % were third generation American citizens. Ninety percent of Hispanic children under the age of 18 were born in the United States (Lopez, 2009; Passel, Cohn, & Gonzalez-Barrera, 2012). These data suggest that many ELL students who have been educated entirely in the United States

continue to remain insufficient in their English proficiency to be considered fluent English speakers and learners (Batalova & McHugh, 2011; Pandya et al., 2011).

Problem Statement

Researchers have not specifically examined the 5th grade ELL students' English vocabulary acquisition and comprehension in the content area of social studies. ELLs require solid instructional approaches to the teaching of fiction and nonfiction text due to the fact that English is not their native language. Exposure to academic vocabulary and language facilitates content-area knowledge bringing non-English speakers to the forefront of the problem (Callahan, 2005; National Education Association, 2008, Umansky & Reardon, 2014).

Content specific vocabulary has a greater phonological complexity and requires more complex linguistic structures. This requires substantially more time for students to learn and dialog about the new vocabulary, practice its use, and make it part of their knowledge base (Bolos, 2012). Students whose first language is not English, their teachers, and the schools in which they attend continue to be faced with a threefold challenge:

- The learners must be instructed in English while at the same time learning the English language at a proficiency level high enough to provide a solid understanding of the content-area texts.
- The learners must be instructed and comprehend content-area texts at a level equivalent to that of their native English proficient students.
- The learners must actively engage in their own learning. (Uriarte et al., 2011)

Previous researchers have focused on the teaching of morphological awareness (Chappell, 2008; Goodwin, Huggins, Carlo, August, & Calderon, 2013), vocabulary (Biemiller, 2012), reading fluency (Quirk & Beem, 2012), transference of first language to new language (Cisco & Padron, 2012), and syntactic awareness (Mokhtari & Niederhauser, 2012) in the elementary classroom. While a variety of approaches to the teaching of reading and reading comprehension have evolved throughout the years, utilizing technology to augment vocabulary instruction in the content area of social studies for speakers of other languages is a relatively new concept in the 5th grade elementary classroom.

Multimedia learning is defined as an environment in which material is presented in more than one format (Mayer, 2009). Mayer (2009) argued that for meaningful learning to occur the learner must engage in the presentation of spoken words, printed words, and pictures to formulate mental models through the integration of verbal and visual representations. The multimedia principle recognizes that "people learn more deeply from words and pictures than from words alone" (Mayer, 2009, p. 47); nevertheless, exclusively adding visual representation to words will not effectively accomplish multimedia learning. The aim of instructional media is to focus on the functions of the human mind and how it works. This is the foundation of Mayer's cognitive theory of multimedia learning. The theory propositions three central assumptions to teaching and learning through the use of multimedia:

- Information is processed through two separate channels: auditory and visual.
- The auditory and visual channels each hold a limited capacity for information.

- The act of learning is a dynamic process of selecting, refining, classifying, and integrating new information based on the students' prior knowledge.

Greater access to technology and computer aided instruction could effectively improve ELLs' motivation and serve as a powerful tool for reading and writing instruction (Linik, 2012). Technology is recognized as a beneficial device that has been preferred by teachers in aiding ELL students with challenges (Keengwe & Hussein, 2014; Li, 2013; White & Gillard, 2011). Many technology-based methods have been produced to support ELLs with reading support in the content areas and technical pronunciation (Cai & Lee, 2012). The implementation of educational technology to augment vocabulary instruction and support in the elementary classroom may be a solution to generate English language knowledge and understanding. Empowering ELL students to assume responsibility of their learning, manage the rate of their learning, and develop their identity as speakers of English can prepare ELL students to become more easily integrated into the academic and social life of their schools (Liu, Navarrete, & Wivagg, 2014). In this study I will address the gap in the existing literature.

Purpose of the Study

The purpose of this quantitative comparative study was to explore the issue of reading comprehension when taught through presentation software, online historical photographs and data, and graphic representations including movie clips to ELLs in the 5th grade in the content area of social studies. The study examined the use of technology-supported instruction compared to traditional textbook instruction to augment vocabulary instruction as an influence on the reading comprehension performance of 5th grade ELLs.

In the study, technology-supported instruction was defined as the use of iPads to provide visuals, sounds, movies, displays, demonstrations, and techniques to support the instruction provided by the classroom teacher in an effort to supplement vocabulary instruction for the ELLs.

Research Question and Hypotheses

The current study investigated the implementation of technology-supported instruction to supplement the vocabulary knowledge for ELLs, The research question and hypotheses for this study were as follows:

Research Question: Is there a statistically significant difference in social studies vocabulary knowledge as measured by posttest social studies vocabulary testing between 5th grade ELL students who are taught with technology-supported instruction compared to those taught with traditional textbook instruction?

Null Hypothesis: There is not a statistically significant difference in social studies vocabulary knowledge between 5th grade students who are taught social studies vocabulary with technology-supported instruction compared to those who are taught with traditional textbook instruction.

Alternative Hypothesis: There is a statistically significant difference in social studies vocabulary knowledge between 5th grade students who are taught social studies vocabulary with technology-supported instruction compared to those who are taught with traditional textbook instruction.

The independent variable for this research question was the method by which the social studies vocabulary instruction was presented to the students—either through

traditional textbook instruction or technology-supported delivery. The dependent variable was the posttest vocabulary assessment in the content area of social studies between 5th grade students who were taught through technology-supported delivery compared to those who were taught in more traditional classrooms where instruction is taught through the use of textbooks. The covariate was the pretest.

Theoretical Foundation

The cognitive theory of multimedia learning (Clark & Mayer, 2011; Mayer, 2001) provided the theoretical framework of the study. Mayer (2001) suggested that humans process a restricted quantity of information in a channel of the brain at a time and that they understand incoming information by generating mental representations. Mayer proposed that all human brains contain three memory stores: sensory (receiving stimuli and storing it for a short time), working (processing information and creating mental concepts or schema), and long-term (storage of all information acquired). Mayer's cognitive theory of multimedia learning introduces the concept that the brain struggles to understand a multimedia presentation of words, pictures, and auditory information in a mutually exclusive method; the components are carefully chosen and ordered to yield logical mental constructs. Mayer emphasized the importance of learning and understanding when new information is incorporated with prior knowledge.

The cognitive aspects of learning with media provide a framework for integrating media and methods in educational technology based on empirical research evidence. Mayer's (2009) work validates the learner-centered approach to technological

instructional design and may contribute to the implementation of successful multimedia instruction.

Nature of the Study

This quantitative study used a quasi-experimental approach with a nonequivalent pre and posttest comparison group design to compare the effect of technology-supported vocabulary instruction, and traditional textbook supported vocabulary instruction for ELLs in the 5th grade content area of social studies. Technology based vocabulary instruction was defined as the use of iPads to augment instruction by presenting the social studies vocabulary through visuals, sounds, movies, displays, and demonstrations. These techniques presented vocabulary in a visual and auditory sensory format to augment instruction and to aid in comprehension of the social studies terminology. This study revealed the effectiveness of technology-supported social studies vocabulary instruction in contrast with traditional textbook social studies vocabulary instruction for the teaching of ELLs in the 5th grade.

The sample was 5th grade ELLs in a southeastern state in the United States. ELL students from 8 - 5th grade classrooms were studied. The most recent World-class Instructional Design and Assessment (WIDA) scores were utilized to include students' level of understanding the English language (Wisconsin Center for Education Research [WCER], 2014). WIDA measures the annual progress of students' acquisition English language proficiency. The tests measure educational and social language ability in the areas of listening, speaking, reading, and writing (WCER, 2014). Participants representing all WIDA levels 1-6P (limited English proficient to fully English proficient),

and male and female ELL students from each category of high ability, low ability, high engagement, and low engagement were previously identified from all 5th grade classrooms. This created a range of ability for both preexisting groups. The delivery of instruction to both groups was in the regular classroom setting, which is highly representative of the demographics of the entire school.

Ninety-nine randomly sampled 5th grade ELL students were included in the study. The students in the control group received traditional textbook supported social studies vocabulary instruction delivered by the classroom teacher. The treatment group received technology-supported social studies vocabulary instruction including visuals, sounds, movies, displays, demonstrations, and techniques presented in a visual and auditory sensory format. The scores of both groups were compared in the study. Groups were taught by the 5th grade teachers for the 6-week study.

Definitions

English language learner (ELL): An individual between the ages of 3 and 21 who is enrolled in an elementary or secondary school, was not born in the United States, and has difficulties in speaking, reading, or understanding the English language (U.S. Department of Education [USDE], 2002).

Educational technology: The study and just practice of facilitating learning by creating, implementing, and managing suitable technological processes and resources (Januszewski & Molenda, 2007.).

Limited English proficient: An individual between the ages of 3 and 21, who is enrolled in an elementary or secondary school, was not born in the United States, and has difficulties in speaking, reading, or understanding the English language (USDE, 2002).

Measures of Adequate Progress (MAP) test: A computer-based program that provides teachers with tools to assess student achievement. These programs provide educators with rich instructional data that they need to enhance teaching and learning (Cronin, Dahlin, Xiang, & McCahon, 2009).

Reading comprehension: The construction of meaning from text (Fountas & Pinnell, 2012).

Struggling readers: The term assigned to students who, for a variety of reasons, routinely miscomprehend the reading process and are not able to construct a reading system that helps them to create meaning (Fountas & Pinnell, 2012).

Vocabulary knowledge: The meaning of words, and the reader's ability to cultivate the meaning of words from contextual evidence. The more the words are accessible to readers regarding meaning, the easier a text will be. An individual's reading and writing vocabularies are words that they understand and can also read or write (Fountas & Pinnell, 2012).

World-class Instructional Design and Assessment (WIDA): Title III of the No Child Left Behind Act (NCLB) signed into law in 2002 requires states to administer an assessment designed to measure progress in students' level of comprehension, speaking, listening, reading, and writing skills in English (USDE, 2002). The WIDA is made up of four tests designed to measure educational and social language proficiency in the

domains of speaking, listening, reading, and writing. A comprehension score is calculated from the listening and reading tests. The overall WIDA proficiency level (1-6P) for each student is based upon a composite score that is derived from all four tests.

Assumptions

This quantitative study examined the preexisting data from eight groups of 5th grade ELL students who were previously placed in their classrooms by the school administration. It was assumed that the eight groups were as equal as possible in their blend of ELLs and native English speakers. Also, that all participating teachers were the regular classroom teachers, some of whom had experience implementing technology into their existing social studies curriculum. In addition, it was assumed that the students would be able to transfer the knowledge from the technology delivered instruction to the short answer vocabulary quizzes. Finally, it was assumed that the sample was representative of the population of the 5th grade class of 2015-2016. These assumptions were essential to the significance of the study; however, the control of these variables was beyond the range of the study.

Scope and Delimitations

The scope of the study included all 5th grade ELL students representing English language WIDA scores of 1-6P (WCER, 2014). The school Home Language Survey (South Carolina Department of Education [SCDE], 2013) revealed that a language other than English was spoken in the home. The study was delimited to one elementary school in South Carolina with a high population of 5th grade ELLs. ELLs who were taught social studies vocabulary with technology support were compared to ELLs taught social studies

vocabulary with traditional textbook instruction methods. The delivery of instruction to both groups was in the regular classroom setting, which was highly representative of the demographics of the school.

Limitations

A limitation of the study was that all teachers participating in the study administered the intervention to their own classes during their regular social studies block. This may have potentially created bias in the level of determination and commitment each teacher made in the delivery of the intervention. Also, because each 5th grade student was provided an iPad to take home after school each day, students may have been familiar with online learning and learning with technological support. Another potential limitation was that only some of the teachers expressed experience and a positive comfort level working with technology.

Significance of the Study

This study explored whether the use of technology-supported vocabulary instruction in the content area of social studies would increase the vocabulary knowledge in 5th grade ELLs. Numerous approaches to the teaching of reading and reading comprehension have evolved in the teaching of ELL students. The use of technology could provide the tool for visual and auditory supported vocabulary instruction formulating a relatively new concept in the 5th grade elementary classroom. This study investigated the gap in both the literature and the teaching methods involved in creating background information for ELLs in the content area of social studies.

Significance to Theory

Mayer (2009) defined technology-supported instruction as multimedia learning in which an environment is created to present material in more than one format. Technology-supported instruction substantiates this theory as significant learning occurs when the learner engages in the presentation of spoken words, printed words, and pictures to formulate mental models through the integration of verbal and visual representations. These mental models lead to the long-term memory integration of building students' prior knowledge.

Significance to Practice

The results of this study could be used to prepare ELLs' future social studies instruction and could be implemented to support current social studies programs on all grade levels. In addition, the findings of this study may serve as a catalyst to implement technology-supported vocabulary instruction into all ELL classroom instruction.

Significance to Social Change

Struggling with proficiency in English has made school completion challenging for many Hispanic students (Jordan, Lara, & McPartland, 1996; McMillen, Kaufman, Hausken, & Bradby, 1993; Rumberger, 1983, 1987). According to The Condition of Education (Kena et al., 2016), the high school graduation rate for ELLs remains the highest amongst all ethnicities at 20.8% for those born outside of the United States and 7.6% for those who are native born. These rates compare to the high school dropout rate for African American students at 6.9% and Caucasian students at 4.3%. With all of the available ELL programs in the United States, the content areas of social studies and

science remain a challenge for ELLs. The implementation of technology-supported instruction in these content areas could significantly reduce the number of students leaving high school prior to graduation.

Summary and Transition

Technology-supported instruction has been implemented throughout all grade levels for word recognition, usage, and pronunciation (Baturay, Yildirim, & Daloglu, 2009; Chapelle, 2008; Demski, 2011). In-depth studies have been made on 5th grade ELL programs in the area of reading comprehension and vocabulary instruction (Proctor, Dalton, & Grisham, 2007; Proctor & Dalton et al., 2011; Proctor, Silverman, Harring, & Montecillo, 2011), yet none have compared technology-supported social studies vocabulary instruction with the traditional textbook supported vocabulary model.

The use of technology is prevalent in most U.S. classrooms today. A study by the NCES in 2009 indicated that in K-12 public schools, 97% of teachers had one or more computers located in their classroom with Internet access available for 98% of these computers (Gray, Thomas, & Lewis, 2010). The ratio of students to computers in the classroom every day was 7:1 (NCES, 2013a; Organization for Economic Cooperation and Development, 2015). The percentage of 5th grade ELL students' utilization of technological instruction in the content areas is not known.

Over the past 30 years there has been a triple increase of immigrants to the United States. This increase in ELL students has given rise to a national reevaluation of all curriculum and instructional techniques in all grade levels from pre-Kindergarten through 12th grade (Camarota & Ziegler, 2015). Many ELLs have struggled to keep up with their

native English speaking classmates in many areas of the instructional curriculum including the content area of social studies. The utilization of educational technology to support classroom instruction in the 5th grade classroom may be the solution for increasing understanding of the English language and knowledge retention of ELL students in the content areas.

The first chapter focused on the need for additional instructional support for ELL students in the content areas. Chapter 2 delivers a comprehensive review of the literature detailing the need for building background knowledge to improve comprehension for ELLs in the content area of social studies through the implementation of technology-supported instruction. In Chapter 2, I explore and analyze the research that informed this study.

Chapter 2: Literature Review

I this study I investigated and compared the teaching of social studies vocabulary terms to ELLs in 5th grade classrooms through the use of technology to support the instruction in building background knowledge as compared to teaching social studies vocabulary with traditional textbook supported material. Previous researchers have focused on the teaching of morphological awareness (Goodwin et al., 2013), vocabulary (Biemiller, 2012), reading fluency (Quirk & Beem, 2012), transference of first language to new language (Cisco & Padron, 2012), and syntactic awareness (Mokhtari & Niederhauser, 2012) in the elementary classroom. While a variety of approaches to the teaching of reading and reading comprehension have evolved throughout the years, utilizing technology to augment vocabulary instruction in the content area of social studies for speakers of other languages is a relatively new concept in the 5th grade elementary classroom.

Literature Search Strategy

The ERIC, EBSCO Host, Sage, and ProQuest databases were used for this research. The key search terms were *English Language Learners*, *reading comprehension*, *technology*, *content area vocabulary*, *schema*, *prior knowledge*, *vocabulary acquisition*, *reading*, *comprehension*, *Spanish language structure*, *research-based reading strategies*, *digital divide*, *academic vocabulary*, and *struggling readers*. The years searched ranged from 1936-2016 and included full-text journal articles, education and technology books, state and national reports, U.S. census reports, and reading and technology journals.

Theoretical Foundation

The cognitive theory of multimedia learning provided the theoretical framework of the study (Clark & Mayer, 2011; Mayer, 2001). Mayer (2001) suggested that humans process a limited amount of information in a channel of the brain at a time, and they understand incoming information by generating mental representations. Mayer proposed that all human brains contain three memory stores: sensory (receive stimuli, storing it for a short time), working (processing information, creating mental concepts (schema)), and long-term (storage of all information acquired). Mayer's cognitive theory of multimedia learning introduces the concept that the brain struggles to understand a multimedia presentation of words, pictures, and auditory information in a mutually exclusive method; the components are carefully chosen and ordered to yield logical mental constructs. Mayer emphasized the importance of learning and understanding when new information is incorporated with prior knowledge.

The cognitive aspects of learning with media provide a framework for integrating media and methods in educational technology based on empirical research evidence. Mayer (2009) validated the learner-centered approach to technological instructional design and contributed to the implementation of successful multimedia instruction.

Literature Review

The focus of this study is to investigate technology-supported vocabulary instruction compared to traditional textbook vocabulary instruction to increase 5th grade ELLs' reading comprehension in the content area of social studies. At the start of the 2013-2014 school year, South Carolina schools had enrolled more than 38,000 ELLs,

representing a 410% increase from the 2002-2003 school year and an 827% increase from the 1997-1998 school year (Batalova & McHugh, 2011; NCES, 2016a; Pandya et al., 2011; Soto, Hooker, & Batalova, 2015).

Technology-supported instruction, also known as instructional technology, is defined as facilitating learning. Appropriate technology resources infused into classroom instruction can generate more engaged and better students (Byrne, 2009; Gustad, 2014). Byrne (2009) contended that the learning through technology-supported instruction is learner-centered and situational in regards to content-based instruction. The students are able to immerse themselves in their learning. Gustad (2014) found that the use of technology in teaching reading concepts resulted in a significant increase in student motivation. Before students had access to the Internet at school, students were limited to the social studies content in books from the classroom curriculum and those they could locate in the school library. Open access to the Internet provides students with the tools for today's research and deeper learning.

The complexity of learning to read is demanding for many students, specifically, those who were raised in a home where another language was spoken exclusively. Researchers have maintained that vocabulary development plays a valuable role in reading comprehension (Allington, 2013; Hiebert, Pearson, Taylor, Richardson, & Paris, 1998; Kamil et al., 2008; McKeown & Beck, 2004; Nagy, 2006; Padak, Bromerly, Rasinksi, & Newton, 2012; Taberski, 2011; Templeton & Pikulski, 1999; USDE, 2013). In a longitudinal study of students ranging from Grades 1-6, researchers suggested that the leading predictor of reading comprehension was vocabulary knowledge and

understanding (Verhoeven & Van Leeuwe, 2008). Vocabulary development was found to be predominantly important for ELLs who come upon more unfamiliar words and are less prepared to use linguistic and contextual clues to decode unfamiliar vocabulary (Nagy, 2006). Effective vocabulary instruction must produce an adequate gravity of word knowledge and understanding. Defining and studying word definitions is not sufficient. Vocabulary gains have been seen in both ELLs and native English speakers when the definitions of academically valuable words were taught in conjunction with strategies for using information from the morphology, context, understanding of multiple meanings, and cognates to understand word meaning (Carlo et al., 2004).

The use of technology is prevalent in most U.S. classrooms today. In public schools Grades K–12, 97% of the teachers had at least one or more computers located in their classrooms with Internet access available for 93% of the computers (NCES, 2013a; 2016b). The ratio of students to computers in the classroom was 7:1 (Organization for Economic Cooperation and Development, 2015). In Grades 3-5, 62% of the students had school access to laptops, and 58% had access to tablets. Technology-supported teaching has been particularly effective with at-risk students (Darling-Hammond, Zielezinski, & Goldman, 2014). The use of technology can provide a more comfortable learning environment to a student who has repeatedly failed in the traditional classroom setting. A study by Johnson et al. (2013) determined that instructional technology was rising in its effectiveness at the elementary and secondary school levels. Mobile learning is growing in acceptability and accessibility in the K-12 classrooms. Ninety-two percent of teachers with computer access reported that the Internet has had a notable influence on their

ability to access content, materials, and resources to enhance their teaching (Purcell, Heaps, Buchanan, & Friedrich, 2013).

This section will review literature relevant to each aspect of the study including: the characteristics of struggling ELL readers, traditional classroom reading comprehension strategies for ELLs, building background knowledge, technology-supported instruction in the content area of social studies, and the digital divide.

The demands of the NCLB law have had an effect on all aspects of education since its beginning in 2002. These effects have been seen throughout schools and programs from pre-Kindergarten to adult education. NCLB had an unrealistic expectation that required all schools in America to bring all students to a proficient level, the value of which varies from state to state. Although the intent of NCLB (2002) was to help ensure that all children had the same opportunity to obtain a solid education, the expectation for all students to meet a proficient level brought anxiety and stress for ELLs before, during, and after taking state mandated tests (Bunch, 2011). The USDE (2015) defines an ELL student as an individual who is from 3 to 21 years of age and enrolled in an elementary or secondary school. The ELL student was not born in the United States or their native language is a language other than English. The ELL student displays difficulties in speaking, reading, writing, or understanding the English language and may be deficient enough in these areas to lessen their ability to meet the state proficient level of achievement on state assessments, successfully achieve in the English speaking classroom, or the opportunity to fully participate in society.

The USDE passed the Every Student Succeeds Act signed into law in December of 2015. This law is a reauthorization of the Elementary and Secondary Education Act of 1965 signed by President Lyndon Johnson. The Elementary and Secondary Education Act began as a civil rights law that provided grants to school districts serving low-income students, federal grants for textbooks, funded the building of adequate libraries in schools, provided subsidies for special education, and set up endowments to improve the education systems in the United States.

While NCLB exposed the achievement gaps within U.S. schools, and the Common Core State Standards set rigorous standards to help ensure that every student in public schools could be prepared for college, career, and life, the expectations for ELL students was idealistic and exceedingly demanding (SCDE, 2012a; Teaching English to Speakers of Other Languages International Association, 2013). The Common Core State Standards required all students, from Kindergarten through Grade 12, to achieve proficiency in the English language arts standards of reading, writing, speaking, and listening. These standards and expectations also applied to science, social studies, and technical subject areas.

By full implementation in the 2017-2018 school year, the Every Student Succeeds Act (2015) will put in place a suitable balance between state and local regulations over education decision-making as opposed to the former need for strong and consistent national requirements for the education of at-risk populations including ELLs. The new regulations that will likely have the most influence on the ELL populations are:

- Specific standards for teaching the four domains of ELL instruction: speaking, listening, reading, and writing.
- Established methods for determining each student's English language proficiency level and teaching standards aligned with the state's academic level for that subject area.
- Accommodations to each ELL student during state testing in the content areas will be administered in a lawful and trustworthy manner including assessing the student in his or her language and custom to best derive accurate evidence on what the student knows and can do until they have attained English mastery as determined by the English proficiency assessments administered by each state.
- States are permitted to dismiss any ELL student who has recently arrived in the United States who has been enrolled in school for less than 12 months - on reading or language arts tests (not math).
- Annual assessment of the English proficiency of all ELLs in schools through assessments aligned with the states' English proficiency standards
- Long term goals, measures of interim progress, and performance indicators must be established for all student subgroups of economically challenged students, students representing major ethnic and racial groups, students with disabilities, and ELLs.
- States' system of performance indicators must include an indicator of the extent to which all ELLs in the state are progressing in achieving English language mastery.

- All ELL students will be required to take standardized English learner entrance and exit exams; the entrance exam within the first 30 days of admittance to the school.
- The definition of an ELL student is now defined as an individual who exhibits difficulty in communicating, reading, writing, or comprehending the English language enough to exclude the capability of the student to meet demanding state academic standards.

The transition from NCLB to the new Every Student Succeeds Act will provide a step forward in the equality of instructional delivery and testing accommodations for all of our ELL students.

Characteristics of Struggling ELL Readers

Struggling readers may spend a significant amount of time sounding out words without internalizing the meaning of the words. Some students are able to read words but are unable to connect meaning to them. There are also many students who yearn to read books that are too difficult for them. Struggling readers are identified with the following characteristics:

- They possess limited background knowledge, consequently they read without a clear purpose (Routman, 2014).
- Because of this limitation, these individuals are reluctant to approach reading tasks and they express negative feelings about reading or try to avoid reading (Routman, 2014).

- Many struggling readers have a limited attention span and a limited vocabulary, reading word-for-word (lacking fluency) (Beers, 2003).
- Struggling readers do not understand how to monitor their comprehension, and use few or limited reading strategies (USDE, 2015).

The connection between vocabulary meaning and reading comprehension has been studied to be an effective indicator of student reading success. Students identify the meaning of familiar words and apply strategies to comprehend what they are reading (Tomkins, 2013).

The majority of ELLs fall into the category of struggling readers (Short & Fitzsimmons, 2007). Many ELLs have a wide variety of knowledge, language, and literacy skills. Their educational experience is affected by numerous factors such as amount of time in school, quality of instruction, how often they have moved from state to state, environment, and former school experiences (Gil & Bardack, 2010). A significant difference between English and Spanish is that vowel letters look the same in both languages yet represent varied sounds (Antunez, 2002). Phonemic awareness becomes challenging for the ELL student as the English language is made up of 41 various phonemes, many of which are not represented in the ELL's native language. When examining the five major components of literacy instruction- phonemic awareness, phonics, vocabulary development, fluency, and comprehension- phonemic awareness plays a strong role in the successful literacy development of the ELL student (Antunez, 2002; August, McCardle, Shanahan, & Burns, 2014; Beers, 2003; Fountas & Pinnell, 2012; Garcia, 2009; Routman, 2014).

Effective phonics instruction is a necessity for ELL students as the vowel letters and sounds do not directly relate (Antunez, 2002). In the Spanish language, each phonetic sound is represented by one vowel; however, in English, one vowel pattern may represent several sounds (Colorin Colorado, 2007). The Spanish language is represented by five pure vowel sounds while English has 11 vowels (Perez, 2005). Spanish is comprised of approximately 22 sounds overall, while English is made up of 44 (Esparza-Brown & Sanford, 2011). Several vowel and consonant digraphs, consonant blends, initial and final letter sounds, suffixes, prefixes, and contractions do not exist in the Spanish language. These differences affect both the students' reading and spelling. A study by Lopez (2009) found that Spanish-speaking students who were taught specific English vowel spellings and pronunciations showed significant improvement in their English reading skills. Nagy (2006) contends that a students' metalinguistic awareness is vital to all reading comprehension. With the development of word roots, prefixes, and suffixes in context, word meanings are elucidated.

Good literacy instruction is the same for all students including ELLs and native English speakers (Garcia, 2009). ELLs, however, require more explicit language instruction, the use of differentiation, and a concentration on academic language (Gil & Bardack, 2010). Instructional accommodations such as visual cues, vocabulary focus before reading texts, frontloading of content background information, and text consolidation are invaluable to the ELL (August et al., 2014; Bolos, 2012).

Effective oral proficiency in English is directly connected to more successful reading comprehension skills in this language (Garcia, 2009). In his study of what makes

successful readers, Allington (2013) found that struggling readers need exactly what good readers have always had- many successful reading experiences. These successful reading experiences cultivate and perfect further reading skills including phonemic separation, interpreting, and vocabulary building. Although many ELLs with significant instruction are able to perform at the same level as native English speakers in word attack skills, they often fall behind in comprehending what they have read (Allington, 2013). By providing intensive, rigorous small group instruction in the areas of phonological awareness, phonics, reading fluency, vocabulary, and comprehension for a minimum of 90 minutes per week, strong evidence suggests that ELLs will be more likely to improve reading comprehension and learning (Baker et al., 2014). The success of the ELL students must be continuously monitored for progress, strengths and weaknesses, and further interventions (Esparza- Brown & Sanford, 2011).

Academic English is more abstract with less context clues with content-specific words and intellectual terms. ELLs may require intensive vocabulary instruction specific to the terms in the text to aid in their comprehension of the material (August & Shanahan, 2006). In the content areas, literacy intervention is difficult because reading is multifaceted and requires the integration of a variety of literacy skills, information resources, and outlooks. At the same time, instruction must engage students who have become uninterested in reading and identify themselves as unable to learn to read (Guthrie, Wigfield, & Klauda, 2012). Schools that support ELLs and their families can create an atmosphere of support, learning, and resources for future knowledge (Stepanek & Raphael, 2010). Teachers must provide clear instruction in academic language as well

as multilayered and rigorous vocabulary instruction (Silverman et al., 2013; Stepanek & Raphael, 2010).

Building Background Knowledge (Schema)

Background knowledge is defined as the knowledge and understanding students bring with them to school. It can be learned formally or through life experiences (Carrell, 1984; Fisher, Ross, & Grant, 2010). Academically, background knowledge includes content understanding, academic language, and vocabulary necessary for comprehending content material (Fisher et al., 2010). Continued learning is the process of constant affirmation and growth of a students' background knowledge (Fisher, Frey, & Lapp, 2012). A person's background knowledge is cultivated through collaboration with people, experiences, places, content formerly taught, various resources, and books read. When students have background knowledge, a bridge is provided to the new text (Carrell, 1984; Jacobs, 2008; Tomkins, 2013). Without prior knowledge, the subject matter and many of the words could be unclear and challenging. The progression of understanding of text is directed by the standard that every piece of new information is charted against an existing schema, and all characteristics of that schema must be in accord with the present information (Carrell, 1984; Harvey & Goudvis, 2007).

Background knowledge is directly influenced by sociocultural differences (Echevarria, Vogt, & Short, 2008). Studies with second language learners show that when these students read texts that embrace their background knowledge they read it faster, recall both the essence and the details stronger, and summarize or retell with more accuracy (Echevarria et al., 2008). Prereading activities can activate and extend the

background knowledge for second language learners, creating readers more equal to their native English speaking peers (Teale, 2009).

Students often take their own collection of background knowledge about topics from experiences, travels, magazines, books, and popular culture. With a trigger from familiar ground, teachers can capture the life experiences, imaginations, and interests of ELLs and build upon them (Duke, Pearson, Strachan, & Billman, 2011; Misco & Castaneda, 2009). ELL students may tend to believe the information learned from movies or television shows more than the facts they are taught because their knowledge and understanding of social appropriateness in various contexts is new (Ciechanowski, 2009). Teachers must connect all English teaching to contexts and purposes, rather than teach separate English and grammar lessons. Content area textbooks are particularly difficult for the ELL because the level of academic and disciplinary language development takes years to form (Echevarria et al., 2008). Popular culture can be a useful tool in ELLs' understanding of a difficult concept if previewed by the teacher for appropriateness and accuracy (Ciechanowski, 2009).

The schema theory (Piaget, 1936/1963) was foremost in influencing reading instruction. This theory described the process in which the prior knowledge of the learner interacted with the learner's ability to relate to the reading. It illustrated how the knowledge held by the student and preceding involvement within the world was vital to decoding and understanding the text. Learners' abilities to employ their schema, or background knowledge, played an essential role in the learner's struggle to comprehend a text.

Schema theory was grounded in the belief that past experiences led to the formation of perceptual frameworks that aided the reader in creating logic from new experiences. Students' ability to recall evidence in a text was influenced by the reader's schema (Navarro, 2008). Anderson (1978, 1984), Bartlett (1932), Bransford (1994), and Rumelhart (1980) contend that a reader can comprehend a message when he or she can recall a schema that gave justification for the items and events defined in the text. Comprehension is the method of stimulating or creating a schema that provides a comprehensible elucidation of objects and events stated in a dialogue (Anderson, 1984). Comprehension becomes the interaction between old and new information. The learner's schema reorganizes to contain new facts and details as that information is added to the structure (Omaggio-Hadley, 2001).

The age, gender, experience, and culture of the reader plays an essential role in the construction of meaning. These factors must be necessary considerations for teachers to choose materials that will motivate their students. Readers may find a text confusing and disconnected (Anderson, 1984) when they are not able to locate a schema that connects with the book or passage they are reading. Sometimes readers may not have a schema that is important or supportive to the text, or may need support in activating the appropriate schema to use in comprehending the text. It may be difficult for the student to grasp the meaning of the text; therefore, it is essential that the teacher be prepared to build background knowledge and cultivate existing prior knowledge (Carrell, 1984). Difficulties in understanding a text could be caused by a lack of prior knowledge acknowledged by the text (Bransford, 1994). The obligation of teachers would then be to

activate established schema and to help students to incorporate remote repositories of knowledge into a schema or to build new background knowledge. Teachers must determine the core background knowledge students will need to understand the text being presented (Fisher et al., 2012). The information must accurately represent the concept being studied, how and how often the background knowledge will be presented, if the information will be required for future reading, and if the information will be recalled in future exposures to the word or concept (Fisher et al., 2012). By beginning with what the students already know about a given area of knowledge, teachers can be more direct in their teaching.

Marzano (2004) defines academic background knowledge as that knowledge that relates to school subjects such as science, mathematics, and history. This background knowledge is acquired through the collaboration of the students' ability to process and store information and the quantity and regularity of the academically derived experiences. Differences in these two factors may be the cause for differences in students' academic achievement. The most effective method to build and augment students' background knowledge is to provide academically enriching experiences through field trips, rich resources, and academically sound mentoring programs.

Schemata, as defined by Kucer and Silva (2012), are multifaceted organizations of information that embody the student's past encounters with the world. These interrelated collections of knowledge play a vital role in reading comprehension. Research by Silberstein, Clarke, and Dobson (2008) found that reading is only parenthetically visual. More information is brought by the reader than by the text on the

page. Readers comprehend what they have read because they are able to take the provocation past the graphic representation on the page and assign it a relationship to an applicable collection of concepts previously stored in their memories. This concept is often defined as making connections.

When the texts to be read reflect a cultural context that varies from the student, the accumulated schemata does not serve the need. McDonough (2002) explained that this was the reason why ELL students found it challenging to read in a second language with texts that comprise cultural conventions of the target culture. The students lacked the culture specific background knowledge required to process the text in a top-down manner.

The teacher's role in activating and building schema is paramount to engaging all learners in effective reading instruction. Previous to teaching the reading lesson, texts must be selected that address the students' needs, individual differences, preferences, and cultures allowing the students to comprehend the message or activate existing schemata helping build new background knowledge (Berg & Wehby, 2013). The use of picture books can be useful in building background knowledge for ELLs (Hansen, Auproux, Brown, Giarreto, & Worthington, 2015; Louie & Sierschynski, 2015; Villano, 2005). When introduced as read-alouds to students of all ages, new information is being processed and stored while the students enjoy the teacher's enthusiasm and excitement in delivering the new material. Picture books containing little to no words relieve the students' of language demands and invite ELLs to take part in the reading experience while constructing meaning from the viewing experience.

Background knowledge has an effect on both word recognition and reading comprehension in struggling readers (Priebe, Keenan, & Miller, 2012). In a study by Priebe, Keenan, & Miller (2012), students who had prior knowledge of the topic being read showed significantly greater ability to identify words within a text. Prior knowledge was shown to facilitate word recognition by providing a network to map the word or phrase from orthographical to phonological awareness allowing the student more information to use more readily and accurately in the proper context. Building background knowledge, or frontloading, is crucial to ensuring that a new text is understandable for ELLs. It is imperative to connect the new knowledge to the students' prior knowledge to create interest in the text as well as to build the content language that will support the reading (Echevarria et al., 2008).

The term affective filter was introduced by Krashen (1982) to define students whose approaches are not ideal for second language acquisition. Regardless of the fact that the student understands the message, the new knowledge will not enter the part of the brain responsible for language acquisition. Students with attitudes accepting of second language acquisition will seek and obtain new learning thus displaying a lower or weaker filter. According to Ballantyne, Sanderman, and Levy (2008), the affective filter is the subliminal process of filtering new learning through an emotional blockage while reading or learning new material. The learners' attitudes, intentions, needs, and self-esteem trigger the affective filter. The greater the strength of the filter, the greater the acquisition of filtered out language (i.e., a greater amount of language learning will be screened out).

Effective teachers can modify this filter by the manner in which they build and manage the climate of their classroom to accept and embrace cultural differences.

Upon knowing the backgrounds and abilities of ELLs in their native language, educators can incorporate effective techniques into instructional practices (Echevarria et al., 2008). Sheltered Instruction Observation Protocol (SIOP) is a method of teaching content-area learning to ELLs implementing scaffolded instruction to build understanding of the concepts being taught while incorporating the students' English language growth. SIOP outlines the need to promote ELLs use of their first language in the learning of the English language content area concepts, as well as the use of first language texts and resources that may serve to clarify academic concepts in the second language (Hansen-Thomas, 2008). Teachers must also attend to their own language and patterns of delivery during all instruction. ELL students can become confused by the teacher's rate of speech, use of everyday colloquialisms, and both common and advanced vocabulary. The SIOP encourages background building, making connections for the students, motivating content, and heterogeneous grouping as techniques for effective teaching for ELL students.

Reading Comprehension Strategies for ELLs

ELLs have difficulty reading and understanding printed material in English because the relationship between reading and speaking skills is complex (Rivera, Moughamian, Lesaux, & Francis, 2008). Being unable to understand the sounds in English words may impede ELLs' grasp of the relationship between letters and sounds in print. Competence in academic language requires knowledge of vocabulary in the new

language, the ability to grasp increasing word length and difficulty, and understanding composite sentence structures and the corresponding English composition.

ELL students' understanding of new sounds, words, and concepts are enriched through routines, direct, clear discussion of vocabulary and word structure, and trained metacognitive skills (Linan-Thompson & Vaughan, 2007). Direct instruction is defined as teacher-led focused instruction that clearly shows how to perform a task and can be utilized to teach both the basic and advanced reading skills. Routines and clear linguistic cues used in direct teaching deliver ELL students clear, detailed, and direct procedures as they learn the new language and its uses (Kamil et al. 2008; Sibold, 2011).

Three main theories define the essence of learning to read:

- The traditional theory (bottom-up processing) concentrates on what is presented on the printed page a text.
- The cognitive view (top-down processing) heightens the responsibility of prior knowledge as well as that which is presented on the printed page.
- The metacognitive view highlights the incorporation of the reader's thought processes while reading (Alverman, Unrau, & Ruddell, 2013, Anderson, 2008).

Traditional reading instruction (bottom-up). The traditional approach to reading was derived from the behaviorist psychology of Pavlov (1927), Piaget (1936/ 1963), Skinner (1938), and Watson (1930) who maintained that learning was based on the formation of habits as a result of the repeated relationship of a stimulus with a response. Linguistic learning was defined as a response structure that humans acquire through involuntary conditioning practices as some systems of language are reinforced.

Behaviorism developed into the audio-lingual technique which sought to build second language practices by the process of drill, repetition, and continuous adjustment. These basic skills are concerned with recognizing and recalling words as connected to the visual stimulus.

This viewpoint is seen in ELL textbooks which include drills that emphasize literal comprehension and do not employ or take into consideration the reader's background knowledge or involvement with the subject being studied. The only collaboration is with the rudimentary structure of the sounds and words. The majority of activities are grounded on recognition and recollection of verbal and linguistic forms highlighting the perceptual and decoding element.

The cognitive theory (top-down). In the 1960s, the new cognitive theory exemplified the mind's instinctive ability to learn. Questions guided the reading, including what readers recall after reading a text (Alverman et al., 2013; Goodman, 1965). Reading comprehension was considered the precise chronological word recognition and recall of the text representing no concrete understanding of the meaning of what was being read. This theory placed a new focus on the manner in which humans attained their first language creating a massive influence in the field of English language learning and teaching, as psycholinguists defined the methods by which the representations of the imported language created new language and knowledge within the learner's intellectual ability (Omaggio-Hadley, 2001).

Mayer (2002) noted a major difference between meaningful learning and rote learning. He clarified that rote learning is committing lists of isolated words or facts to

memory in a new language whereby the new information becomes provisional and may be lost. Meaningful learning transpires when new information is presented in an appropriate context and is connected to the background knowledge of the learner so that the new knowledge can be incorporated into the existing cognitive structure of the learner. New information must be meaningful to the student for it to become permanent knowledge.

The metacognitive view (bottom-up/top-down). Metacognition is defined as acquired knowledge about a student's thinking as it pertains to their various experiences, engagements, or objectives (Keene & Zimmerman, 2013). Metacognition is augmenting one's awareness of beliefs and their intent in relating approaches to process new information (Kuhn, 2000). This mindfulness is ever evolving. Skilled readers use metacognitive strategies to comprehend text. Metacognitive experiences are any mindful or affective experiences that accompany and relate to any intellectual enterprise.

In the context of reading, metacognition encompasses thinking about what one is doing while reading (Boulware-Gooden, Carreker, Thornhill, & Joshi, 2007). Strategic readers involve many activities in the process of reading. Three stages lead to effective metacognition of reading material: before, during, and after reading. The activities the reader includes before reading are to identify the role of the reading and the form or type of the text. In the second stage (while reading), the reader thinks about the overall character and features of the form of the text. In this stage, the reader locates a topic sentence and monitors supporting details to form a conclusion, decides the author's purpose for writing the text, reads in detail, makes constant predictions about what will

occur next in the text based on prior knowledge, and formulates conclusions acquired within the previous stages. In the last stage (after reading) students form a summary or make inferences of what was read.

Students who continue to struggle with reading and comprehension by the time they reach third grade risk falling further behind as they continue through their elementary school experience (Lanning, 2008). Researchers have identified approaches that characterize the core of reading comprehension by investigating the reading strategies that proficient readers use to understand what they read (Harvey & Goudvis, 2007). The traditional classroom model for effective reading comprehension instruction is based upon four strategies: (a) a gradual-release approach that begins with instruction delivered by the teacher leading to student-directed learning as skills increase, (b) specific teaching techniques (retelling, predicting, questioning, visualizing, summarizing), (c) detailed lesson examples for reading instruction and content area reading (fact and opinion, cause and effect, compare and contrast, main idea and details, drawing conclusions, making inferences, summarizing), and (d) reflecting on each strategy.

Academic Vocabulary

Academic vocabulary is more challenging for most students including native speakers of English and ELLs because it is more exact and abstract (Hiebert, 2012; Sibold, 2011). Effective vocabulary instruction cultivates the connection between words and concepts (Templeton & Pikulski, 1999). If a concept is familiar then the word that corresponds to this fundamental information will be understood, recalled, and applied.

Those students with lesser word knowledge and vocabularies are at a greater risk in learning new material (Sibold, 2011) as the lack of knowledge is often the major obstacle to their complete understanding of academic materials and texts. Nearly 90% of the words in texts come from approximately 4,000 word families (Hiebert, 2012). The other 10% are unique words connected to each academic content area. These words require direct instruction for all students, especially the ELL, within the 5th grade social studies curriculum (Hiebert, 2012). Calderon (2007) noted the importance of explicit teaching ELLs' academic vocabulary before reading the required text. This method includes a clear demonstration of new vocabulary found in the text, definitions of any new terms and words, rewording of the vocabulary terms in a context familiar to the students, and using verbal learning activities to reinforce the learning (Calderon, 2007).

Reading comprehension was found to be an outcome of vigorous collaborations between information, strategies, goals, and outlooks (Lee & Spratley, 2010; Wessels, 2011). The strategies that good readers used were identified as questioning, predicting, hypothesizing, summarizing, and monitoring for understanding while utilizing correctional strategies as needed. When teachers model, teach, and reinforce the strategies that good readers use when teaching the ELL student, the expectation is presented in a clear and well-defined format.

A 6-step process to teaching academic vocabulary to all students is defined by Marzano and Pickering (2005). The teacher first assigns a description or example of the new term then asks the students to repeat the description in their own words. Next, the teacher asks the students to create a picture, character, or graphic to represent the word.

Following this initial learning, the teacher engages the students regularly in activities that help them add to their word knowledge. Lastly the teacher discusses the new words and frequently involves the students in games that reinforce the newly learned terms (Marzano & Pickering, 2005).

The Sheltered Instruction Observation Protocol (SIOP) (Echevarria et al., 2008; Short, Echevarria, & Richards-Tutor, 2011) is an outline for preparing and delivering instruction to ELLs in all content areas. Academic language is incorporated into all instruction, reading, and content areas so that students can learn and practice English throughout all areas of school including content-area vocabulary from all subject areas. Teachers modify their teaching methods and style so that the language being taught is comprehensible to the ELL students. The instruction strategies include lesson planning and preparation, building background knowledge, clear delivery of information, classroom collaboration, practice and application, and review and assessment (Echevarria et al., 2008).

Technology-Supported Instruction in the Content Area of Social Studies

Technology provides a framework for learning that is continuously available to students, educators, and administrators irrespective of their location or class period. Technology provides access to information as well as to people and learning communities. Technology delivers new ways of sharing information with multimedia incorporating text, photographs, moving images, and audio with real world application and timely delivery (USDE Office of Educational Technology, 2016). Technology-supported teaching, also known as instructional technology, is often referred to as

facilitating learning (Egbert, 2009). Technology is a powerful resource that provides engaging, motivating, and effective instructional support for teachers in all grades and classroom situations (Egbert, 2009). In the area of content learning, technology can display illustrations, demonstrations, visualizations, and collaborations that help students comprehend concepts and ideas. Moreno and Mayer (1999) contended that it is more beneficial to teach information in both text and visuals than in text alone. Students who read a text containing photograph captions and illustrations positioned adjacent to the matching words generated 65% more solutions in problem transferring than did students who simply read the text (Moreno & Moreno, 1999). The use of computer technology in education, when accurately executed, has a significant positive influence on student success as measured by test scores in all disciplines and with all student abilities (Sankey, Birch, & Gardiner, 2011)

Technology empowers students to become actively involved in determining their learning paths thereby allowing students choices in their educational progression (Sankey et al., 2011; Thigpen, 2014). Educators have the ability to connect school curriculum with student interests and real world situations through the use of technology. Technology can be a tool for modifying many literacy challenges both procedural and theoretical (Biancarosa & Griffiths, 2012; Rajeswari, 2014). It can be a useful tool for providing the vocabulary and background knowledge essential to becoming a successful reader. With deliberate planning, technology tools can be embedded into existing literacy programs to build vocabulary understanding and support higher level reading comprehension

strategies by displaying visual presentations of word connections within the text (Biancarosa & Griffiths, 2012; Dalton & Grisham, 2011).

Learning with technological support is learner-centered and situational in regards to content-based instruction (Januszewski & Molenda, 2007). The learner is able to construct their own understanding based on prior experiences or through student-to-student collaboration. In multimedia learning, students with a significant volume of prior knowledge may be able to create their own conceptual imageries when reading or listening to a text (Moreno & Mayer, 1999). Learning that occurs online differs greatly from traditional classroom learning (Cator, 2011). Traditional classrooms today are predominately print-based environments with dated textbooks and supplemental materials. The digital classroom can provide personalized instruction and collaboration utilizing up-to-the-minute information and facts.

Computers provide the means to both address the needs of the ELLs as well as create equality within the classroom. Technology provides the ELL with an abundance of the subject specific strategies recommended for English acquisition (Black, 2009; Montero, Newmaster, & Ledger, 2014). A few of these are visual aids, simulated activities, and archived primary sources. The computer provides a one-to-one connection allowing the ELL the extra time that they may require for complete understanding of a concept.

Computers are vital to the implementation of the jump-starting strategy for ELLs (Echevarria et al., 2008; Lan, 2013). This strategy focuses on assisting struggling readers by scaffolding the background information and necessary vocabulary prior to reading.

This can reduce the gap in knowledge between what the student knows and what they must learn. Echevarria et al. (2008) proposed that the startup activity triggers prior knowledge, builds schema, presents vocabulary, and introduces the content material previous to the assigned reading. Digital storytelling technology may provide a more effective and efficient alternative to the traditional startup activity (Rance-Roney, 2010). ELLs can visit a computer to display the preview to the story being read. The unique feature of the digital jump start is that it includes all of the components to scaffold the reading, the necessary background information for the reading, and the teacher's voice incorporated into one creation (Rance-Roney, 2010).

Technology produces constructive learning environments that could positively affect reading comprehension in adolescent students (Keengwe, Onchwari, & Agamba, 2014; Manea, 2011; Moran, Ferdig, Pearson, Wardrop, & Blomeyer, 2008). Although Keengwe et al. (2014), Manea (2011), and Moran et al. (2008) addressed the lack of research in this area, they suggested that teachers consider technology as a significant tool for cultivating adolescent reading achievement. Reading comprehension has been shown to increase in the middle school setting through scaffolding instruction utilizing technology (Proctor & Dalton, et al., 2011). In a study of interactive vocabulary and reading comprehension in 5th grade English speaking and bilingual students, Proctor and Dalton, et al. (2011) found that direct interaction with scaffolded word meanings and word relationships increased students' comprehension of the text.

Program materials must be designed on many academic levels so that students of varying levels of ability, language proficiency, and cognitive ability may freely access

these resources (Procter et al., 2007). The materials must draw on the existing research studies on bilingual students' reading behaviors and be created with the understanding that students learning English in a second language should utilize the literacy skills from their first language to support second language comprehension. With grade level and above literacy expectations on all students, it is vital that new technological resources be focused on reading and writing settings that support students whose needs may differ from the average population, especially ELLs (Procter et al., 2007).

Learning environments can be created in the technology-infused classroom to guide the learner through a variety of computer based or Web-enhanced teaching and face-to-face instruction (Blair, 2012). Technology can provide support for student learning with methods that include (a) presenting information and activities to students, (b) assessing student work, (c) responding to student work, (d) and scaffolding instruction by providing word pronunciations and definitions (Linik, 2012; Sherman, Kleiman, & Peterson, 2007; Yang & Wu, 2013). Multimedia technology can present auditory and visual information linked to visual representations to reinforce teaching and learning. The programs can respond to student answers and provide feedback for individualized instruction (Sherman et al., 2007). Studies regarding reading performance and technology in both elementary and middle schools determined that technology and an atmosphere of positive learning affect reading comprehension grades (Moran et al., 2008; Schechter, Macaruso, Kazakoff, & Brooke, 2015). Moran et al. (2008) and Schechter et al. (2015) contend that the youth in America are turning to the Internet as their primary source for completing homework, research, and studying.

The iPad was first introduced in January of 2010 as the first hand-held tablet with touchscreen and a virtual keyboard (Ritchie, 2014). The tablets were first introduced to U.S. schools in May 2010 with a pilot program in Canby School District in Portland, Oregon, followed by a pilot program at Avery Middle School in Vallecito Union School District in Avery, California (Roscorla, 2016). The first district purchase of the iPad for schools occurred in 2013 with the Los Angeles Unified School District spending $50 million to provide 30,000 students in 47 schools from Grades K–12 with iPads for classroom use (Leonard, 2013). Many studies show that the use of iPads in the classroom allows students and teachers to augment instruction and learning presented in the classroom (Cheung & Slavin, 2012; Clark & Luckin, 2013). Reading instruction and vocabulary comprehension can be enhanced through the use of one-to-one technology intervention through the use of iPads (Rivera, Mason, Moser, & Ahlgrim-Delzell, 2014; Zhen, Ayres, & Vail, 2016). In the 2015-2016 school year, half of U.S. K-12 schools were expected to have access to one-to-one computing through the use of tablets, including the iPad (Molnar, 2015).

Multimedia presentations can address a variety of learning styles by incorporating sounds, script, and moving images (Clark, Touchman, Martinez-Garza, Ramirez-Marin, & Skjerping-Drews, 2012; Hur & Suh, 2012; Roessingh, 2014; Sherman et al., 2007). These technologies can create student engagement by pointing, clicking, underlining, moving, typing, listening or speaking. Multimedia can provide direct instruction by scaffolding learning and adjusting the information being presented to meet each ELL students' needs.

Consistent and ongoing vocabulary development is vital to achieving reading proficiency in all students (Lazaros, 2012). A study of the effects of computer-facilitated texts and vocabulary learning in second language learners by Abraham (2008) found that reading comprehension increased for students who studied vocabulary terms with mandatory assistance with the definitions of the terms. With the meanings of the vocabulary words displayed automatically during the reading of the text, students' learning was not interrupted to stop for dictionary use (Abraham, 2008). Yang (2014) found that subtitles provided during authentic videos in the content area increased ELL students' listening comprehension and vocabulary growth.

Student Motivation

Technology-supported instruction directly affects students' motivation to learn (Campbell & Jane, 2012; Gustad, 2014; Linik, 2012; Proctor, Daley, Louick, Leider, & Gardner, 2014; Sankey et al., 2011; Shapley, Sheehan, Maloney, & Caranikas-Walker, 2010; Sherman et al., 2007). The flexibility of the presentation, the visual and auditory support provided, the immediate responsiveness to student needs, and the interesting look of the programs may be valuable tools to increase students' motivation to read. Self-efficacy played a major role in student motivation and reading comprehension growth. Students from classrooms utilizing computer technology display more positive behavior toward learning, attend school more often, reflect lower drop-out rates, qualify for more college scholarships, and attend college in greater numbers than do students from classrooms with no computerized learning (Sankey et al., 2011).

Students in Grades 3-5 display increased interest and engagement during reading activities supported with technology (Campbell & Jane, 2012; Proctor et al., 2014). Personal satisfaction, student engagement, and increased social interaction were also reported as significant factors to student success. With a one-to-one implementation of laptop computers in the middle school, Shapley et al. (2010) found an increase in student motivation and increased reading and math achievement. The authors emphasized that teacher involvement and fidelity were integral to a successful program.

Finally, teaching with technological support can have a great effect on students, teachers, and administrators (Byrne, 2009; Gustad, 2014; Linik, 2012; Proctor et al., 2014; Schechter et al., 2015). Teachers have the availability of current and appropriate information for students who can generate their own inquiries about content area studies and can cultivate the practice of checking, verifying, and detailing all information received.

The Digital Divide

While the Every Student Succeeds Act of 2015 identifies an increase in educational technology support through grants specific to those needs, the population of ELLs is the least likely populace to have a computer with Internet access in the home. Household income is a major forecaster of Internet use as 62% of families earning less than $30,000 per year use the Internet compared with 90% of families earning $50,000-$74,999 a year and 97% making more than $75,000 a year (Pew Research Center, 2013). Education as well as household income remain connected, representing an extensive range of interests and ownership of devices. Racial minorities are not as likely as Whites

to have home internet connectivity while foreign-born and Spanish-dominant Latinos follow native and English-speaking Latinos in this area. The Pew Research Center report (2013) on Internet use in the home states that 62% of all U.S. adults have high-speed Internet access at home. This represents two-thirds (66%) of Whites, 49% of African Americans and 51% of Hispanics. Groups with the lowest levels of home broadband access include 22% of adults who have not completed high school, 30% of seniors age 65 and older, and 41% of those living in households making less than $30,000 per year (Pew Research Center, 2013). College graduates represent 85% of this total, with 76% of adults under age 30, and 89% of people making a minimum of $75,000 per year (Pew Research Center, 2013).

Most teachers utilize technology in coaching students to conduct research online. Purcell et al (2013) found that 79% of teachers instruct students to gain access and complete assignments online, and 76% ask students to submit their work digitally. Interactive online learning such as participating in online discussions and working in collaborative platforms are also used by some teachers (Purcell et al., 2013; Rogers, 2016). Many teachers of low-income students report their schools do not use digital tools effectively in the learning process. Nearly 56% of teachers of low-income students report a lack of resources to access digital technologies making this an obstacle to integrating more technology into their teaching. Students with home computers and Internet access at home scored higher on both reading and math tests (Vigdor, Ladd & Martinez, 2012). In a study by the Pew Research Center (2013), 54% of the teachers surveyed reported that all or nearly all of their students had adequate access to technology at school, but

only18% of the teachers reported all or almost all of their students had access to the technology access they need at home (Purcell et al., 2013).

Student to computer ratios and school access to the Internet are not the only aspects of the digital divide. Warschauer, Knobel, and Stone (2004) demonstrated that numerous other factors contribute to technological inequity in schools. All schools, with both low and high-income students, must have adequate quantities of highly trained and experienced teachers, staff, and administrators (Reinhart, Thomas, & Toriskie, 2011). Funding must be in place so that all students, specifically ELLs, have equal access to computer time in the classroom. Teachers must utilize their technology for instructional and creative purposes such as learning, investigation, and analysis rather than for prepared software programs. Students must be instructed on how to use technology for their individual empowerment. Research is emerging regarding the consequences of technology use in both the classroom and the home. Kim and Kim (2001) and Ritzhaupt, Liu, Dawson, and Barron (2013) stated that the key to resolving the digital divide is not only access and application of advanced information but also understanding how to utilize technology for the improvement of quality of life.

Summary and Conclusions

The teaching of reading and reading comprehension is vital to all students' learning success. Reading is vital to learning in all content areas, not exclusively the English language arts classroom (Turkan, Bicknell, & Croft, 2012). Unfortunately, this is a difficult undertaking for most ELLs. Lack of English language proficiency and understanding may affect a student's school performance in several ways including

establishing and maintaining social relationships, involvement in academic procedures, understanding texts read, and comprehension as part of content instruction (Blachowicz, Fisher, & Watts-Taffe, 2005).

Eighty-eight percent of Hispanic families state that a college degree is important for progressing in life (Lopez, 2009). Knowledge and understanding of academic language are vital to all students' learning success. Many ELLs display a lack of ability in understanding academic language thereby limiting these students' capability to comprehend and analyze texts and to express themselves effectively in their writing. This can impede the attainment of academic content in all subject areas, including math (Rivera, Moughamian, Lesaux, & Francis, 2008). Mayer (2005) defined multimedia learning as the procedure by which individuals construct mental images from words, the spoken or written text, pictures, illustrations, photographs, videos and/or animations. The use of technology to model concepts taught, provide examples of the subject area information presented, and afford a mechanism for exploration and research may be the assistance these students need for content comprehension and learning success.

Chapter 3: Research Method

The purpose of this study was to compare the difference in comprehension achievement of 5th grade ELLs utilizing technology-supported vocabulary instruction and traditional textbook vocabulary instruction in the content area of social studies. In a longitudinal study of students ranging from Grades 1-6, researchers suggested that the leading predictor of reading comprehension was vocabulary knowledge and understanding (Verhoeven & Van Leeuwe, 2008). Technology-supported vocabulary instruction was defined as the use of iPads to deliver authentic photographs or video clips, with one or both functions using voice over explanations of terms. The social studies vocabulary instruction presented on these technological devices were visuals, sounds, movies, displays, demonstrations, or techniques presented in a visual and auditory sensory format to create background knowledge.

Research Design and Rationale

This quantitative study used a quasi-experimental approach with a nonequivalent pre and posttest comparison group design to compare the effect of technology-supported vocabulary instruction and traditional textbook vocabulary instruction for ELLs in the 5th grade content area of social studies. To equate the groups, a pretest was used as the covariate, and a posttest was used to compare the two groups. Both treatments were administered within the classroom environment using the regular 5th grade classroom teachers.

The foundation for this design is found in Creswell's (2009) description that a quantitative approach employing an experimental research design is best used to

conclude if a particular treatment impacts an outcome. A quasi-experimental design uses control and experimental groups but does not randomly assign the participants to groups (Creswell, 2009). This study employed preexisting groups of 5th grade students who were already placed in their classrooms by the school administration. A pre and posttest control group comparison design was used for all groups to determine equivalency (Triola, 2012). Some 5th grade teachers had decided to incorporate technology into the instruction of social studies vocabulary. The scores were compared to scores from teachers' students who followed the traditional textbook instruction. Pre and posttesting of 5th grade social studies vocabulary terms were analyzed (SCDE, 2011).

All 5th grade ELL students from WIDA scores levels 1-6P and MAP Rausch Unit (RIT) scores (the complexity of each MAP assessment question is measured using the RIT scale; the RIT score for each student specifies the level at which the student answered the questions correctly 50% of the time) comprised both the control group and the treatment group (Northwest Evaluation Association, 2012). The control group received traditional textbook social studies vocabulary instruction delivered by the classroom teacher. The technology-supported group received technology-supported social studies vocabulary instruction including visuals, sounds, movies, displays, demonstrations, and techniques presented in a visual and auditory sensory format delivered by their classroom teacher for the 6-week study. The consistency of the instruction was set by the lesson plans and script provided for all teachers in the study.

This study examined the effectiveness of technology-supported social studies vocabulary instruction versus traditional textbook social studies vocabulary instruction

for reading comprehension of ELLs in the 5th grade. The pretest/posttest design is the preferred method to compare participant groups and measure the gradation of variation occurring as a result of specific interventions. These comparisons address the issues of assignment bias and the distribution of participants to groups. In the field of education, where researchers strive to observe the results of a new instructional method upon groups of students, the pretest/posttest design is favored (Campbell & Stanley, 1963).

Methodology

Population

All 5th grade ELLs from an elementary school in a southeastern state in the United States served as participants in the study. The school serves 980 students with a demographic of 49% Latino, 40% Caucasian, 10% African American, and 1% Asian (PowerSchool, 2014). The majority of students (60%) receive free and reduced lunches. All ELL students from 8 - 5th grade classrooms were studied. The most recent WIDA scores, students who have been previously identified as requiring ELL services, and MAP scores were utilized to determine students' English language level of understanding social studies vocabulary (WCER, 2014). ELL students representing WIDA levels 1-6P, and male and female ELL students from each category of high ability, low ability, high engagement, and low engagement were included from all 5th grade classrooms creating a range of ability in both groups.

Sampling and Sampling Procedures

All ELL students with English language WIDA (WCER, 2014) scores of 1-6P took part in the study. Because the study utilized preexisting scores from instruction

presented to the entire class in the regular classroom setting, all ELL students qualified for participation and no consent forms were required. The Home Language Survey was also considered to determine students' qualification for ELL services, literacy intervention services, or both (SCDE, 2013). The MAP fall and winter scores were also utilized to determine ELL students' reading comprehension and understanding (Northwest Evaluation Association, 2012). The MAP reading score is a composite scale score in word recognition, vocabulary, and reading comprehension, which is based on the South Carolina state standards for reading. MAP growth is measured three times a year using a RIT scale. Students with a fall RIT mean value of below 207.1 or a winter RIT mean value of below 209.8 are reading below the level for 5th grade.

The effect size of 0.8 or greater required a minimum sample size of 40 students in each group resulting in a minimum sample of 80 students (Triola, 2012). A power analysis setting power at .80, α level at .05, and effect size at .8 indicated a minimum sample size of 80 participants were required for the study (Laerd, 2013). Consequently, all ELL students in the 5th grade class were studied resulting in a sample size of 99 students. The existing groups of students were either placed in the technology-supported social studies instruction group or the traditional social studies instruction group, leading to the number of participants being greater than 80.

Procedures for Recruitment, Participation, and Data Collection (Primary Data)

The existing pretest and posttest scores from 99 5th grade ELL students were included in the study. The social studies vocabulary instruction to both groups took place in the regular classroom delivered by the regular classroom teacher. Because the study

utilized preexisting scores from instruction presented to the entire class in the regular classroom setting, all ELL students qualified for participation in the study. Students were assigned to classrooms by the school administration. Intact classrooms were identified as control or treatment groups. Some teachers at the school had decided to follow a detailed plan using technology-supported delivery of instruction, while others wished to continue to use textbook supported delivery of instruction in the content areas. The teachers chose the intervention to administer to their classes, either traditional textbook instruction or technology-supported instruction. The posttest data were collected following the intervention period of 6 weeks.

The results of the study were used by the classroom teachers, ELL teachers, administrators, and curriculum specialists to learn improved methods to teach social studies vocabulary words to build background knowledge for ELL students, as well as native English students requiring the support. I began collecting data when permission was granted from the Walden University Institutional Review Board (IRB). Walden University's IRB approval number is 07-27-15-0107599 and its expiration date is May 22, 2017.

The teachers participating in both the technology-supported social studies instruction and the traditional textbook social studies instruction were given a survey to complete based upon a modified Teachers' Perceptions of Classroom Technology Use Survey (Hogarty, Lang, & Kromrey, 2003). This survey (Appendix A) was produced and modified with permission (Appendix B) from the authors of the Teacher's Perception of Classroom Technology Use Survey created by Hogarty et al. (2003) to measure teachers'

experience and comfort levels in utilizing technology to augment their teaching. The information obtained from the survey provided valuable support to elements of the research question and for further clarification for the teachers' mindset during delivery of the intervention. Based on the survey results, the teachers' showed no difference in proclivity toward teaching with technology-supported delivery of instruction or traditional textbook supported delivery of instruction.

Intervention

All student participants were introduced to the 5th grade social studies vocabulary by the classroom teachers including a pretest administered before official instruction began (Appendix C). All eight classroom teachers taught the students social studies vocabulary terms from the social studies standards based list of vocabulary definitions (Appendix D) in their classroom for 20 minutes per day, three times each week, for 6 weeks. The teachers followed the prepared teacher directions and background material (Appendix E) to teach 10 vocabulary words each week. The only support permitted for the four control group classrooms' vocabulary instruction was the current social studies textbook (Foresman, 2009) used by the 5th grades at the school, and the background material provided by the South Carolina Social Studies State Standards. All teachers reviewed the words and their meanings throughout the week and administered a quick short answer vocabulary quiz (Appendix F) on Friday of each week. The vocabulary words were read orally to the students for all testing.

The 5th grade social studies vocabulary technology-supported instruction was administered to the treatment groups for an equal 20 minutes per day, three times a week,

for 6 weeks. I created the 5th grade social studies vocabulary technology-supported instruction which was administered following the prepared teacher directions and background material to teach 10 vocabulary words each week. The support permitted for the technology-supported vocabulary instruction was database content created from the current social studies textbook (Foresman, 2009) being utilized by the 5th grades at the school and the background material provided (with permission) by the South Carolina Social Studies State Standards (Appendix G) delivered through visual representations, video clips, and audio recordings through the use of iPads displaying the technological component of the vocabulary terms. The teachers reviewed the words and their meanings throughout the week and administered a quick, short answer vocabulary quiz on Friday of each week. The vocabulary words were read orally to the students for all testing. The posttest was administered to all participating students following the instruction (Appendix H).

Instrumentation and Operationalization of Constructs

The vocabulary portion of the WORD Test Two Elementary was the model for the pretest and posttest standardized vocabulary measure (Bowers, Huisingh, LoGuidice & Orman, 2004). This test was standardized on 1,940 subjects with a reliability coefficient of .93 established by the use of test-retest and was "highly satisfactory" for all tasks with "the total test at all age levels" (Bowers et al., 2004, Validity section, para. 1). The structural equation model for the test was 3.46. Content validity and internal consistency, as measured by Kuder-Richardson 20 reliability coefficients and test-retest, found the overall consistency estimates to be evidently satisfactory.

Data Analysis Plan

This study employed a quasi-experimental pretest/posttest comparative group design (Campbell & Stanley, 1963). ANCOVA analysis was utilized to compare the vocabulary acquisition of both groups. A study design measuring the same dependent variable in two or more independent groups whereby it is alleged the postintervention scores will depend on the preintervention scores is most suitable to compare differences in postintervention scores between the interventions with the preintervention scores as a covariate using ANCOVA (Laerd, 2013). The data collection including setting, population, sample, experimental treatment, and instrumentation are defined.

The research question of this study focused on examining the effect of technology-supported instruction versus traditional textbook instruction to build vocabulary as an influence on the reading comprehension performance of 5th grade ELLs. In the study, technology-supported instruction was defined as the use of iPads to support the instruction provided by the classroom teacher to build background knowledge for the learners.

A power analysis setting power at .80, α level at .05 and effect size at .8 indicated a minimum sample size of 80 participants were required for the study (Laerd, 2013). Consequently, all ELL students in the 5th grade classes were studied, resulting in a sample size of 99 students. The existing groups of students were placed in the technology-supported social studies instruction group or the traditional textbook social studies instruction group, making the number of participants greater than 80.

Is there a statistically significant difference in social studies vocabulary knowledge as measured by posttest social studies vocabulary testing between 5th grade ELL students who are taught with technology-supported instruction compared to those taught with traditional textbook supported instruction?

Null Hypothesis: There is not a statistically significant difference in social studies vocabulary knowledge between 5th grade students who are taught social studies vocabulary with technology-supported instruction compared to those who are taught with traditional textbook instruction.

Alternative Hypothesis: There is a statistically significant difference in social studies vocabulary knowledge between 5th grade students who are taught social studies vocabulary with technology-supported instruction compared to those who are taught with traditional textbook instruction.

Summary

This study was conducted to examine the difference in comprehension achievement of 5th grade ELLs utilizing technology-supported vocabulary instruction and traditional textbook vocabulary instruction in the content area of social studies. The existing pretest and posttest scores from 99 5th grade ELLs from an elementary school in a southeastern state in the Unites States served as participants in the study. The teachers participating in both the technology-supported social studies instruction and the traditional textbook social studies instruction were given a survey inquiring about their perception of technology use in the classroom. Technology-supported vocabulary instruction was defined as the use of iPads to deliver authentic photographs and video

clips with one or both features having voice over explanations of terms. The social studies vocabulary instruction presented on these technological devices were visuals, sounds, movies, displays, demonstrations, or techniques presented in a visual and auditory sensory format to create background knowledge. The social studies vocabulary instruction to both groups took place in the regular classroom delivered by the regular classroom teacher. To equate the groups, a pretest was used as the covariate and a posttest was used to compare the two groups. The posttest data were collected following the intervention period of 6 weeks.

Educators relentlessly attempt to provide the most beneficial educational programs and support to increase student achievement in the content areas. The methodology, design, intervention, and analysis plan for this research study was presented in this section. Chapter 4 provides the results of the study, an interpretation of the findings, and a summary of the study outcomes.

Chapter 4: Results

The purpose of this quantitative comparative study was to explore reading comprehension when taught through presentation software, online historical photographs and data, and graphic representations including movie clips to ELLs in the 5th grade content area of social studies. The study examined the use of technology-supported instruction compared to traditional textbook supported methods to augment vocabulary education as an influence on the reading comprehension performance of 5th grade ELLs. In the study, technology-supported instruction was defined as the use of iPads to provide visuals, sounds, movies, displays, demonstrations, and techniques to support the instruction provided by the classroom teacher to supplement vocabulary education for ELLs.

The study examined the use of technology-supported instruction to determine if 5th grade ELL students would show increased skill and comprehension of social studies terms through technology-supported instruction as opposed to traditional textbook instruction. This quasi-experimental study utilized all ELL students from the 5th grade classes in an elementary school in the southeastern United States.

The research question for this study focused on comparing the effect of technology-supported instruction to traditional textbook supported instruction to build vocabulary as an influence on the reading comprehension performance of 5th grade ELLs.

Research Question: Is there a statistically significant difference in social studies vocabulary knowledge as measured by posttest social studies vocabulary testing between

5th grade ELL students who are taught with technology-supported instruction compared to those taught with traditional textbook instruction?

Null Hypothesis: There is not a statistically significant difference in social studies vocabulary knowledge between 5th grade students who are taught social studies vocabulary with technology-supported instruction compared to those who are taught with traditional textbook instruction.

Alternative Hypothesis: There is a statistically significant difference in social studies vocabulary knowledge between 5th grade students who are taught social studies vocabulary with technology-supported instruction compared to those who are taught with traditional textbook instruction.

In this chapter, the method of the study is detailed, and the results are presented. An overview of the research design and procedures are presented followed by a discussion of the data analysis and study results.

Data Collection

Data collection took place from October 12-November 24, 2015. Prior to the onset of the study, I reviewed my role as a researcher with the administration of the school. The school earned a B rating (87.5 % of students earned MET or above on the state assessment) in 2014, providing additional evidence of the validity of the measurement (South Carolina Education Oversight Committee, 2015). The existing pretest and posttest scores from 99 5th grade ELL students were included in the study exceeding the requirement of 80 participants. The social studies vocabulary instruction for both groups took place in the regular classroom delivered by the regular classroom

teacher. Because the study utilized preexisting scores from preexisting groups applying instruction presented to the entire class in the regular classroom setting, all ELL students qualified for participation in the study. Students were assigned to classrooms by the school administration. Intact classrooms were identified as control or treatment groups. Some teachers at the school had decided to follow a detailed plan using technology-supported delivery of instruction, while other teachers wished to continue to use textbook supported delivery of instruction in the content areas. The teachers chose the intervention to administer to their classes—either traditional textbook instruction or technology-supported instruction. The posttest data were collected following the intervention period of 6 weeks. I found no discrepancies in the data plan as presented in Chapter 3.

The teachers participating in both the technology-supported social studies instruction and the traditional textbook instruction were given a survey based upon a modified Teachers' Perceptions of Classroom Technology Use Survey (Hogarty et al., 2003) to complete. This Teacher's Perception of Classroom Technology Use Survey was modified and used with permission from one of the authors (Hogarty et al., 2003) to measure teachers' experience and comfort levels in utilizing technology to augment their teaching. The information obtained from the survey provided valuable support to elements of the research question and for further clarification of the teachers' mindset during delivery of the intervention. Based on the survey results, the teachers' showed no difference in proclivity toward teaching with technology-supported delivery or traditional textbook supported delivery of instruction.

This study employed a quasi-experimental pretest/posttest cluster sample design (Campbell & Stanley, 1963). The vocabulary portion of the WORD Test Two Elementary was the model for the pretest and posttest standardized vocabulary measure (Bowers et al., 2004). This test was standardized on 1,940 subjects with a reliability coefficient of .93 established by the use of test-retest was highly satisfactory for all tasks with the total test at all age levels. The structural equation model for the test was 3.46. Content validity and internal consistency, as measured by Kuder-Richardson 20 reliability coefficients and test-retest, found the overall consistency estimates to be satisfactory.

The 5th grade classroom teachers administered the treatment. I used the existing scores acquired during the regular classroom social studies vocabulary instruction for both technology-supported and the traditional textbook instruction. The teachers who participated in the study reported that no adverse events occurred during instruction.

At the onset of the 2014-2015 school year, every 5th grade student at the school had the use of an iPad during the school day. At the start of the 2015-2016 school year, these iPads were permitted to be taken home by all students. The 5th grade teachers planned the instruction for all social studies units and implemented the vocabulary content as part of their regular social studies instruction.

An additional analysis was conducted to ensure fidelity of the intervention. To determine if the teachers' choice of intervention influenced results, an Independent-Samples *t* test was run on the Teachers' Perceptions of Technology Use in the Classroom Survey. Sauro (2013) stated that sample sizes between 5 and 30 could be statistically measured using an Independent Samples *t* test to compare the samples. All eight teachers

participating in the study completed the survey. The mean for the technology group was 4.075; while the mean for the textbook control group was 4.400. Both are shown in Table 1. The standard deviation for the technology group was .403, and the textbook group was .316 as shown in Table 2. Table 3 shows that variances between the two groups were nonsignificant, as the *p*-value is .473, which is greater than .05. The 2-tailed significance further defines this nonsignificance of variances at .252, substantially higher than .05. These data show that there was not a significant difference in the teachers' experience and comfort levels in utilizing technology to augment their teaching between the technology-supported social studies vocabulary instruction group and the traditional textbook instruction group. This information demonstrates no evidence of an effect. It cannot, therefore, further define the teachers' inclination toward teaching the technology group or the traditional textbook group, even though the teachers taught their own preexisting classes determined by the administration of the school at the onset of the school year.

Table 1

Mean Performance Scores of Teachers' Views of Technology in the Classroom

Group	*N*	Mean	Std. Deviation	Std. Error Mean
Tech	4	4.075	.403	.202
Textbook	4	4.400	.316	.158

Table 2

Standard Deviations for Technology Group and Traditional Textbook Group

Survey Group	Mean	*N*	Std. Deviation
Tech	4 .073	4	.403
Textbook	4.400	4	.316
Total	4.237	8	.377

Table 3

Variances between Technology Group and Traditional Textbook Group

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	*df*	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Survey	Equal variances assumed	.587	.473	-1.269	6	.252	-.325	.256	-.952	.302
	Equal variances not assumed			-1.269	5.678	.254	-.325	.256	-.960	.311

Study Results

The pretest and posttest scores from 99 5th grade ELL students from an elementary school in a southeastern state in the United States were studied. The pretest/posttest quasi-experimental design required data collection on the participants' level of achievement using the 50-word short answer social studies vocabulary test before and after the treatment through either technology-supported instruction or traditional textbook instruction.

All participants in the study were introduced to the 5th grade social studies vocabulary by the classroom teachers. All eight classroom teachers taught the students in their classroom for 20 minutes per day, three times each week, for 6 weeks. They followed the prepared teacher directions and background material to teach 10 vocabulary words each week. The only support permitted for the four control group classrooms' vocabulary instruction was the current social studies textbook (Foresman, 2009) utilized by the 5th grades at the school and the background material provided by the South Carolina Social Studies State Standards. All teachers reviewed the words and their meanings throughout the week and administered quick short answer vocabulary quizzes on Friday of each week. The vocabulary words were read orally to the students for all testing. The sixth week was used for review and reteaching if the teacher deemed necessary. The posttest was administered to all participating students following the 6-week intervention.

The school site sponsored this intervention and communicated that all teachers reported that the treatment was administered as planned in the regular 5th grade classroom setting. I utilized the existing scores acquired during the regular classroom social studies vocabulary instruction for both the technology-supported instruction and the traditional textbook instruction. No adverse events were reported during the instruction, as all students participated in the intervention of their own volition in a safe and equal environment.

An ANCOVA analysis was used to mathematically compare the achievement of the control group and the treatment groups while controlling for the pretest. ANCOVA is

a commonly utilized statistical process to compare the effect of two or more treatments while adjusting for the differences between the groups through the implementation of a pretest measure (Gall, Gall, & Borg, 2010). Using SPSS 21, pretest and posttest scores from the 5th grade social studies vocabulary tests were analyzed.

To determine if there was a relationship between the technology-supported instruction and the traditional textbook instruction—the assumption of linearity—a scatterplot was employed. As can be seen in Figure 1, visual inspection of the scatterplot revealed a strong linear relationship of 0.669 between pre and posttests.

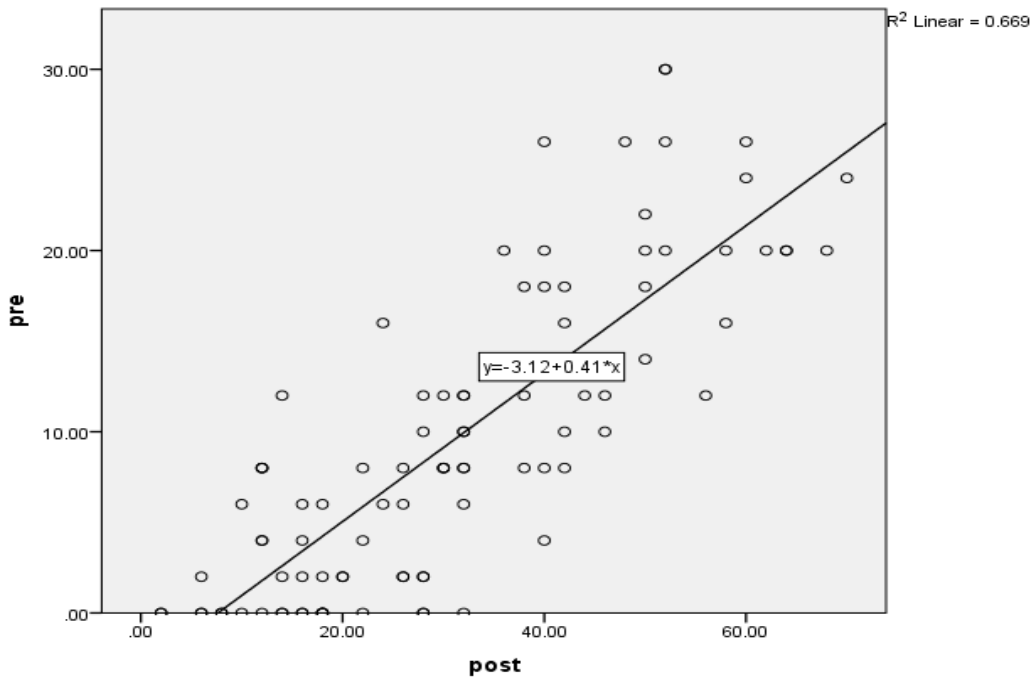

Figure 1. Linear relationship between pretest and posttest scores.

An examination of Table 4 shows the lowest pretest score for both the intervention and control groups was 0, while the highest pretest score for both groups was

30. The mean pretest score was 9.65; the posttest score was 31.23. The standard deviation between the two posttest groups was .503.

Table 4

Comparison of Pretest and Posttest Scores for Total Sample

		Pretest	Posttest	Group
N	Valid	99	99	99
	Missing	0	0	0
Mean		9.656	31.230	1.510
Median		8.000	30.000	2.000
Mode		.00	32.00	2.00
Std. Deviation		8.280	16.590	.503
Range		30.00	68.00	1.00
Minimum		.00	2.00	1.00
Maximum		30.00	70.00	2.00

In Table 5, homogeneity of regression slopes can be seen upon examination of the Tests of Between-Subjects Effects showing $p = .574$. Because the p value is greater than 0.05, the interaction term is not statistically significant, and homogeneity of regression slopes has been met.

Table 5

Homogeneity of Regression Slopes

Dependent Variable: Posttest					
Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
Corrected Model	18688.503	3	6229.501	71.456	.000
Intercept	10028.454	1	10028.454	115.033	.000
group	106.222	1	106.222	1.218	.272
pre	17831.390	1	17831.390	204.538	.000
group*pre	50.016	1	50.016	.574	.451
Error	8282.002	95	87.179		
Total	123916.000	99			
Corrected Total	26970.505	98			

Note. a. *R* Squared = .693 (Adjusted *R* Squared = .683)

In Table 6, homoscedasticity and homogeneity of variances can be seen through Levene's test of homogeneity of variance showing $p = .007$. Because the p value is less than 0.05, the differences in the sample variances are statistically significant and unlikely to have occurred due to random sampling from a population with equal variances. As a result, the null hypothesis of equal variances cannot be rejected, and it can be assumed that the variances are homogeneous.

Table 6

Homoscedasticity and Homogeneity of Variances

Dependent Variable: Posttest			
F	*df1*	*df2*	Sig.
7.560	1	97	.007

In Table 7, the Shapiro-Wilk Test of Normality shows that the residuals were .158 for the technology instruction group and .706 for the textbook control group. This shows that the data distribution is not statistically significant to a normal distribution as levels exceeded p =.05. This indicates that the data came from a normally distributed population and cannot be rejected.

Table 7

Residuals for Technology Group and Traditional Textbook Group

	Group	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	*df*	Sig.	Statistic	*df*	Sig.
Standardized Residual for	Tech	.94	49	.200	.965	49	.158
Posttest	Print	.095	50	.200	.983	50	.706

An ANCOVA was run was run to determine if there was a difference between the posttest scores of the treatment group as compared to the control group while accounting for the variability of the pretest scores as the covariate. Table 8 indicates the technology-supported instruction group's adjusted mean score was significantly different from the

traditional textbook instruction as $p = .011$, less than .05. Therefore, there is a significant difference, and the null hypothesis can be rejected.

Table 8

Technology Group and Traditional Textbook Group Significance

Dependent Variable: Posttest						
Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared
Corrected Model	18638.407	2	9319.244	107.375	.000	.691
Intercept	10111.449	1	10111.449	116.502	.000	.548
pre	17793.044	1	17793.044	205.008	.000	.681
group	585.844	1	585.844	6.750	.011	.066
Error	8332.018	96	86.792			
Total	123916.000	99				
Corrected Total	26970.505	98				

Note. a. *R* Squared = .691 (Adjusted *R* Squared = .685)

Table 9 displays the mean differences between the pretest and posttest scores of the technology-supported group and the traditional textbook group. The posttest adjusted mean score for the technology-supported group was 34.24, while the posttest adjusted mean score for the traditional textbook group was 28.40. This indicates the technology-supported group scored significantly higher on the posttest than the traditional textbook group, after accounting for differences in the pretest scores.

Table 9

Group Statistics

	Group	*N*	Mean	Std. Deviation	Std. Error Mean
pre	Tech	49	9.9592	8.24105	1.17729
	Textbook	50	9.3600	8.38307	1.18555
post	Tech	49	34.2449	17.72772	2.53253
	Textbook	50	28.4000	15.01020	2.12276

Summary

SPSS analytical software was used to generate statistical data. A one-way analysis of covariance (ANCOVA) was conducted with α at .05 with a 95% confidence interval for difference. The pre (covariate) and post (dependent) scores of 49 ELL students that received technology-supported social studies instruction (experimental group) and the pre (covariate) and post (dependent) scores of 50 students that received traditional textbook instruction (control group) were analyzed. ANCOVA revealed a significant difference of $p = .011$ between the adjusted mean post scores of the two groups when the pretest scores were used as a covariate for the groups. These findings suggested there is a significant difference between the two groups. The posttest adjusted mean score for the technology-supported group was 34.24, while the posttest adjusted mean score for the traditional textbook group was 28.40, indicating the technology-supported group scored significantly higher on the posttest than the traditional textbook group. Therefore, the null

hypothesis can be rejected. Chapter 5 presents a discussion of the findings within the context of the literature as well as recommendations for educational practice in this area.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this quantitative comparative study was to explore reading comprehension when taught through presentation software, online historical photographs and data, and graphic representations including movie clips to ELLs in the 5th grade content area of social studies. The study examined the use of technology-supported instruction compared to traditional textbook instruction to augment vocabulary teaching as an influence on the reading comprehension performance of 5th grade ELLs. In the study, technology-supported instruction was defined as the use of iPads to provide visuals, sounds, movies, displays, demonstrations, and techniques to support the instruction provided by the classroom teacher to supplement vocabulary instruction for ELLs. The quasi-experimental study included 99 ELLs from the 5th grade classes at an elementary school in the southeastern United States.

The treatment was administered by the 5th grade classroom teachers. I utilized the existing scores acquired during the regular classroom social studies vocabulary instruction for both the technology-supported instruction and traditional textbook instruction. The teachers delivering the instruction reported no adverse events occurred during the teaching.

Students were assigned to classrooms by the school administration. Intact classrooms were identified as control or treatment groups. Some teachers at the school had decided to follow a detailed plan using technology-supported delivery of instruction, while other teachers wished to continue to use traditional textbook supported delivery of instruction in the content areas. The teachers chose the intervention to administer to their

classes—either traditional textbook instruction or technology-supported instruction. The only difference between the groups was the technology component. The existing experimental and control groups were created by the classroom teachers. These groups had already been assigned to classrooms based on the school procedures for classroom assignment. At the onset of the 2014-2015 school year, every 5th grade student at the school had the use of an iPad during the school day. At the start of the 2015-2016 school year, these iPads were permitted to be taken home by all students. The 5th grade teachers planned the instruction for all social studies units and implemented the vocabulary content as part of their regular social studies instruction.

To determine if teachers' choice of intervention influenced student scores, a survey was administered to the teachers participating in the study. There was no statistically significant difference between the two teacher groups in terms of proclivity of teachers for instructional technology or traditional textbook social studies instruction. That proclivity likely did not influence teacher choice of experimental or control group and therefore did not influence student scores.

The research question of the study focused on comparing technology-supported instruction to traditional textbook instruction to build vocabulary as an influence on the reading comprehension performance of 5th grade ELLs. The analysis showed the posttest adjusted mean score for the technology-supported group was 34.24, while the posttest adjusted mean score for the traditional textbook group was 28.40. This indicates the technology-supported group scored significantly higher on the posttest than the traditional textbook group in social studies vocabulary understanding between 5th grade

ELL students who are taught with technology-supported instruction compared to those taught with traditional textbook instruction.

Interpretation of Findings

Based on the foundation of Mayer's (2009) cognitive theory of multimedia learning, this study was conducted to explore the impact of technology-supported social studies vocabulary on the reading comprehension of ELL students in the 5th grade. The study examined the use of technology-supported instruction compared to traditional textbook instruction to augment vocabulary instruction as an influence on the reading comprehension performance of 5th grade ELLs. The findings resulting from this study confirm Mayer's cognitive theory of multimedia learning proposing the theory that for meaningful learning to occur the learner must engage in the presentation of spoken words, printed words, and pictures to formulate mental models through the integration of verbal and visual representations. Mayer highlighted the importance of learning and understanding when new information is incorporated with prior knowledge as provided by the technology-supported instruction.

This study was guided by a single research question: Is there a statistically significant difference in social studies vocabulary knowledge as measured by posttest Social Studies vocabulary testing between 5th grade ELL students who are taught with technology-supported instruction compared to those taught with traditional textbook supported instruction? The results of the study indicated that technology-supported instruction for 5th grade ELLs could aide in their understanding of vocabulary comprehension in the content area of social studies. This outcome could have occurred

because many ELLs lack the background knowledge required to categorize, interpret, and make meaning of new knowledge. Academic background knowledge is defined by Marzano (2004) as knowledge that relates to school subjects such as science, mathematics, and history which is acquired through the collaboration of the students' ability to process and store information and the quantity and regularity of the academically derived experiences. Echevarria et al. (2008) found that when second language learners read texts that embrace their background knowledge they read it faster, show better recall of information and the details, and summarize with more accuracy. The technology-supported instruction provided the information for the ELL students to build background knowledge with multimedia incorporating text, photographs, moving images, and audio with real world application.

The results of this study reflect the composition of the preexisting groups of 5th grade ELL students within their regular classroom settings. These ELL students were previously placed by administration in classrooms representing similar groupings of native English speakers and ELLs in each classroom. The 5th grade classroom groups were representative of WIDA levels 1-6P with male and female ELL students from each category of high ability, low ability, high engagement, and low engagement. Changes in any of these factors could result in an altered outcome of the intervention, therefore the study. In addition, a different 5th grade unit of social studies could result in a different outcome, as some of the ELL students might have innate background knowledge in that area of vocabulary terms (i.e., World War II or world conflict).

Limitations of the Study

Mayer's (2009) cognitive theory of multimedia learning presented the idea that the brain does not understand a multimedia presentation of words, pictures, and auditory information in a mutually exclusive method; the components are carefully chosen and ordered to yield logical mental constructs. Mayer (2001) emphasized the importance of learning and understanding when new information is incorporated with prior knowledge. The intent of this study was for the 5th grade teachers to present the social studies vocabulary in a teacher led delivery manner, whether it be whole class, small group, or one-on-one. The technology component was intended to support the teacher-led instruction in any of these three categories. With the large amount of computer presentation teaching tools and applications, some of the teachers in the technology-supported instruction group may have employed the technology to supplant the teacher aspect of the instruction, rather than to support the teachers' presentation of the content.

Stratham and Torell (1996) recognized that the use of computer technology in education, when accurately executed, has a significant positive influence on student success as measured by test scores in all disciplines and with all abilities of students. With deliberate planning, technology tools could be embedded into existing literacy programs to build vocabulary understanding and support higher level reading comprehension strategies by displaying visual presentations of word connections within texts (Biancarosa & Griffiths, 2012; Dalton & Grisham, 2011).

Recommendations

The results of this study indicated that the students' adjusted mean scores for the technology-supported social studies vocabulary instruction group and the students' adjusted mean scores for the traditional textbook supported social studies instruction group were significantly different from one another after the intervention occurred. At posttest the technology-supported instruction group scored higher than the traditional textbook instruction group when controlling for pretest scores. The results of the study presented the posttest mean score for the technology-supported group to be 34.24 and the posttest mean score for the traditional textbook group to be 28.40.

The cognitive theory of multimedia learning (Clark & Mayer, 2011; Mayer, 2009) provided the theoretical framework of the study. Mayer's cognitive theory of multimedia learning presented the idea that the brain does not understand a multimedia presentation of words, pictures, and auditory information in a mutually exclusive process; the components are judiciously chosen and ordered to yield logical mental constructs. Mayer (2001) emphasized the importance of learning and understanding when new information was incorporated into existing prior knowledge.

Mayer (2009) described two approaches to multimedia design for learning: the technology-centered approach and the learner-centered approach. The technology-centered approach focused on the computer-aided method to teaching and learning, such as a teacher who is presented on a computer screen rather than a teacher in real life in front of a classroom of students. This approach had been determined to be less effective in leading to lasting improvements in education and learning since the focus was placed

on the presenter rather than expanding the cognizance of the student utilizing the technology. The learner-centered approach focused on an understanding of the human mind, the processing of new information, and the long-term retention of that information. Mayer (2009) reasoned that the multimedia learning environments that stimulate meaningful learning use computers to enhance and support human cognition.

A discrepancy occurs between the information acquisition and knowledge construction understandings of multimedia learning (Mayer, 2009). In knowledge construction, the learner seeks to build a comprehensible mental representation from the material presented, organize that material, and integrate the information into their bank of earlier knowledge and experiences. The teacher, according to Mayer, was the cognitive guide who provided needed leadership to support the learner's cognitive processing.

Li (2013) defined four best practices in teaching ELLs as (a) increasing comprehension through clearly presented input, (b) encouraging social collaboration, (c) relating learning to the real world, and (d) providing supportive learning environments. She suggested the critical concept for ELLs is to connect all new learning to students' prior knowledge and experiences. To provide solid learning and to build schema for ELLs, the use of technology can be a convenient tool to support content within a meaningful context (Duke, 2005). Duke (2005) contended that ELL students do not need to understand every word or facet of information presented to them, but they must gain a solid understanding of the material being taught.

To properly scaffold the instruction, the classroom teacher must be ever-present in all content area instruction (Echevarria et al., 2008). The intent of sheltered instruction is

to provide access to the content area curriculum by teaching in a way that is meaningful and understandable for ELLs to acquire and understand the academic language of the content areas. ELLs will most likely gain very little new understanding if left on their own to learn content area knowledge through the use of an iPad or any other individual device.

Instruction is defined as an "interaction that involves teachers, students, and content that takes place in an environment that can offer both constraints and opportunities" (Cohen, Raudenbush, & Ball, 2003, p. 132). This is particularly true of the ELL students who depend on the scaffolding prepared for them to achieve the most beneficial learning outcome (Echevarria et al, 2008). Effective educators plan lessons and the needed support for their ELLs that reduce constraints, maximize opportunities, and create positive results.

Implications

The motivation for this study was the observations of 5th grade ELL students struggling to understand the social studies content area vocabulary presented to them. Year after year, ELLs continued to score poorly on the high stakes tests for the state, causing them to fall behind their peers. With the implementation of iPads for all 5th grade students, the teachers believed that technology might be the answer. After an extensive review of the literature in the area of technology-supported instruction as an influence on the reading comprehension of 5th grade ELLs, the results of the study showed the posttest mean score for the technology-supported group to be 34.24 and the posttest mean score for the traditional textbook group to be 28.40. With these data, I concluded that

technology-supported instruction did make a significant difference in the content area comprehension of vocabulary terms for 5th grade ELLs.

Content specific vocabulary has a greater phonological complexity and requires more complex linguistic structures taking students substantially more time to learn and dialog about the vocabulary, practice its use, and make it part of their knowledge base (Bolos, 2012). ELLs, their teachers, and the schools in which they are enrolled have been faced with a triple challenge. First, students must be taught and learn English at a proficiency level high enough to provide a solid understanding of the academic content. Second, they must be taught and learn academic content at a level equivalent to that of native English proficient students, and finally, they must actively engage in their own learning (Uriarte et al., 2011).

Previous researchers have focused on the teaching of morphological awareness (Chappell, 2008; Goodwin et al., 2013), vocabulary (Biemiller, 2012), reading fluency (Quirk & Beem, 2012), transference of first language to new language (Cisco & Padron, 2012), and syntactic awareness (Mokhtari & Niederhauser, 2012) in the elementary classroom. While a variety of approaches to the teaching of reading and reading comprehension evolved throughout the years, utilizing technology to augment vocabulary instruction for speakers of other languages presented a relatively new concept in the 5th grade elementary classroom.

The foreign-born population of the United States has tripled in the past 30 years. In 2014, a record 63.2 million U.S. residents (native-born, legal immigrants, and illegal immigrants) spoke a language other than English at home (Camarota & Ziegler,

2015). Regrettably, ELLs have not been able to keep up with their native English speaking peers in many curricular areas including the content area of social studies. The consequence of this deficiency in reading comprehension in the content areas has been that many students entering middle and high schools are basic sight word readers with poor comprehension skills (USDE, 2013).

Conclusion

Between 2000 and 2013**,** South Carolina led the United States with the largest percent in growth of immigrant populations at 99%. Tennessee followed this pattern with 92% growth, Kentucky with 86%, Alabama with 85%, and Arkansas with 82% (Zong & Batalova, 2015). Empowering ELL students to take control of their learning, manage the rate of their learning, and develop their identity as speakers of English can prepare the ELL students to become more easily integrated into the academic and social life of their schools (Liu et al., 2014).

There is a broadening achievement gap between many ELL students and their native English-speaking peers in U.S. public schools. This gap will only become wider if educators do not provide the essential instruction for ELL students to learn and comprehend the vocabulary vital to understanding the content area concepts being taught. The results of this study could be used to prepare ELLs' future social studies instruction, and may be implemented to support current social studies programs at all grade levels. In addition, the findings of this study may serve as a catalyst to implement technology-supported vocabulary instruction into all ELL classroom instruction.

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Appendix A: Teachers' Perceptions of Technology Use in the Classroom Survey

Name _____ Date _____

Please read the following directions carefully before completing the survey.

The purpose of this survey is to examine teachers' perceptions of classroom technology use. Results will be used to determine if students' vocabulary acquisition is linked to teachers' use of technology. The survey should take no longer than 10-15 minutes of your time. Please respond to the items based on your agreement or disagreement with the statement. There are no risks or benefits anticipated as a result of your participation. Failure to participate will not lead to a loss of benefits to which you are otherwise entitled. Your responses will be kept completely confidential. You may choose to stop answering questions at any time. Should you have any questions or concerns about this study, please contact Catherine Crum at catherine.crum@waldenu.edu

0	1	2	3	4	5
strongly disagree			agree		strongly agree

1. I am comfortable using computers for classroom instruction. _____
2. My use of computer technology enhances student performance. _____
3. The computer enhances my teaching. _____
4. I use computers effectively in my classroom. _____
5. I am developing expertise in the use of technology in the classroom. _____
6. I am comfortable giving computer assignments to my students. _____
7. I am comfortable with computer terminology. _____

8. I have had adequate training in using computers. _____

9. Incorporating multimedia into lessons enhances teaching. _____

10. Computer instruction is just another fad. _____

11. The use of computers should be confined to computer courses. _____

12. Computers diminish my role as a teacher. _____

13. Computers further the gap between students along socioeconomic lines. _____

14. I can help others solve computer problems. _____

15. Computer skills are essential to my students. _____

16. I would like every student in my class to have access to a computer. _____

17. More training would increase my use of the computer in the classroom. _____

18. Computers make my job easier. _____

19. Computers change my role as a teacher. _____

20. Computers should be incorporated into classroom curriculum. _____

Appendix B: Permission to Use Teachers' Perceptions of Technology Use in the Classroom Survey

Kromrey, Jeffrey <kromrey@usf.edu> May 3

to me, Kristine

Hi Catherine,

Thanks for your interest in our work! You certainly have permission to use our survey constructs and questions in your dissertation.

Take care,

Jeff

Jeffrey D. Kromrey
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Department of Educational Measurement and Research
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Appendix C: Fifth-Grade Social Studies Vocabulary Pretest

Name _____ Date _____

Write the definition for each of the social studies vocabulary terms.

1. Reconstruction-_____

   _____

2. Abraham Lincoln-_____

   _____

3. North-_____

   _____

4. South-_____

   _____

5. Border states-_____

   _____

6. Economy- _____

   _____

7. Carpetbaggers-_____

   _____

8. Scalawags-_____

   _____

9. Enslaved-_____

   _____

10. Freedom-_____

    _____

11. Assassinate-_____

_____

12. Thirteenth Amendment-_____

_____

13. Fourteenth Amendment-_____

_____

14. Fifteenth Amendment-_____

_____

15. Rights-_____

_____

16. Restrictions-_____

_____

17. Protect-_____

_____

18. Political-_____

_____

19. Social-_____

_____

20. Economic opportunity-_____

_____

21. Veto-_____

_____

22. Free labor-_____

_____

23. Democratic Party-_____

_____

24. States' rights-_____

_____

25. Impeach-_____

_____

26. Federal government-_____

_____

27. Abolish-_____

_____

28. Freedmen's Bureau-_____

_____

29. Plantation-_____

_____

30. Sharecropping-_____

_____

31. Agriculture-_____

_____

32. Black Codes-_____

_____

33. Ku Klux Klan-_____

_____

34. Missionaries-_____

_____

35. Segregation-_____

_____

36. Civil rights-_____

_____

37. Louisiana Purchase-_____

_____

38. Treaty-_____

_____

39. Manifest destiny-_____

_____

40. Sutter's Mill-_____

_____

41. Forty-niners-_____

_____

42. Boomtowns-_____

_____

43. Native Americans-_____

_____

44. “Gateway to the West”-_____

_____

45. Transcontinental Railroad-_____

_____

46. Union Pacific-_____

_____

47. Central Pacific-_____

_____

48. Nez Perce-_____

_____

49. Reservation-_____

_____

50. Battle of Little Big Horn-_____

_____

Appendix D: Fifth-Grade Social Studies Vocabulary Definitions

1. *Reconstruction*. 1865-1877. A period of great hope, change, and efforts at rebuilding the Southern states following the Civil War.
2. *Abraham Lincoln*. 16th President of the United States from 1861–1865. He was the leader in preserving the Union during the Civil War and beginning the process of Emancipation Proclamation that led to the end of slavery in the United States.
3. *North*. The Union states of California, Connecticut, Illinois, Indiana, Iowa, Kansas, Massachusetts, Michigan, Minnesota, Nevada, New Hampshire, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont, and Wisconsin. These states did not support slavery.
4. *South*. The Confederate states of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia. These states believed that slavery should be legal.
5. *Border states*. Delaware, Maryland, Kentucky, Missouri, and West Virginia. These states divided the North from the South. They accepted slavery but did not support it fully.
6. *Economy*. The wealth and resources of a country or region. The production and consumption of goods and services.
7. *Carpetbaggers*. Northerners (Yankees) who moved to the South during the Reconstruction era (1865-1877) to profit from the unsteady economy that existed following the Civil War. The term carpetbagger referred to the carpet bags (luggage at the time) which many of the newcomers carried.

8. *Scalawags*. Southern White people who supported Reconstruction and the Republican Party after the Civil War. The word originally referred to low-grade farm animals but came to refer to Southern Whites who formed a Republican coalition with Black freedmen and Northern newcomers (carpetbaggers) to take control of their state and local governments.
9. *Enslaved*. To force African Americans to become the legal property of White owners and held to obey and work for them for little or no pay.
10. *Freedom*. African Americans were no longer owned or forced to work for Southern plantation owners for little or no pay. After the Civil War, freed slaves wanted to give meaning to freedom by reuniting families separated under slavery, establishing their own churches and schools, seeking economic independence, and demanding equal civil and political rights.
11. *Assassinate*. The murder of a prominent person or political figure by a surprise attack for political or religious reasons. On April 14, 1865, John Wilkes Booth assassinated Abraham Lincoln in his box seat at Ford's Theater in Washington D.C. Booth believed in slavery and thought that Lincoln would destroy the South.
12. *Thirteenth Amendment*. The Emancipation Proclamation that officially abolished (ended) slavery in the United States on January 31, 1865.
13. *Fourteenth Amendment*. Granted citizenship on July 9, 1868, to all persons born or naturalized in the United States including former slaves recently freed. It gave all persons the right to life, liberty, and the pursuit of happiness and equal protection under the law.

14. *Fifteenth Amendment*. Granted on February 3, 1870. Gave African American men the right to vote by announcing that the right to vote shall not be denied by the United States or by any state due to race, color, or former slavery.
15. *Rights*. Freedoms all humans are allowed, including the right to life and liberty, freedom of thought and expression, and equality under the law.
16. *Restrictions*. Slave owners had total power over their slaves. The slaves were not permitted to learn how to read or write; they could not own weapons, leave their owner's plantation without permission, or protect themselves from the White overseer.
17. *Protect*. To keep people safe from harm or injury. Slave families stayed close so that they could protect each other from the overseers and plantation owners.
18. *Political*. The ideas or strategies of a particular party or group in government. The North supported equality while most of the South believed in slavery.
19. *Social*. To form relationships with others who believe in the same values as oneself.
20. *Economic opportunity*. The chance for all people to earn an income and support their families.
21. *Veto*. A constitutional right to reject a decision or proposal made by a law-making body.
22. *Free labor*. A Northern belief that workers could advance themselves into wealth and power. Led to the formation of the Republican Party. President Lincoln was a Republican.

23. *Democratic Party*. The party in place in the South. Believed in slavery for all of the United States.
24. *States' rights*. The rights and powers held by individual states rather than by the federal government.
25. *Impeach*. To remove a current president or government official from office. The people impeached Andrew Johnson on February 24, 1868.
26. *Federal government*. The form of government in which power is shared between a central government and individual states.
27. *Abolish*. To officially end or stop; to completely do away with.
28. *Freedmen's Bureau*. Established in 1865 by Congress to help former slaves and poor Whites in the South following the Civil War. The Freedmen's Bureau provided food, housing, and medical aid; it established schools and offered legal assistance.
29. *Plantation*. A large farm where the owner used slaves to tend to the crops. Plantations usually grew tobacco or cotton.
30. *Sharecropping*. A system of agriculture where the landowner allows the tenant to use the land and the tenant pays the landowner a share of the crop produced on the land. Sharecropping started after the Civil War as a way for poor freed slaves to have their own farms.
31. *Agriculture*. Farming, the cultivation of the soil for the growing of crops and raising animals to provide food and other products.

32. *Black Codes*. The unofficial laws passed by Southern governments during Reconstruction to try to control the former slaves. These laws were outlawed by the Fourteenth and Fifteenth Amendments to the Constitution.
33. *Ku Klux Klan*. A secret society created by Southern White racists that tried to intimate African Americans after the Civil War. The society used many violent tactics against Blacks.
34. *Missionaries*. Religious persons who arrived in the South, some sent by Northern churches to help the freed slaves find their religious beliefs.
35. *Segregation*. The forced separation of Blacks and Whites.
36. *Civil Rights*. The Civil Rights Act of 1866 declared that all citizens were equally protected by the law. It was intended to protect the rights of African Americans following the Civil War.
37. *Louisiana Purchase*. The purchase by the United States from France of the large Louisiana Territory in 1803. President Thomas Jefferson ordered the purchase to stop Napoleon, the French leader, from gaining land in North America**.**
38. *Treaty*. An official agreement between two or more states.
39. *Manifest Destiny*. The belief that the United States was meant to expand from coast to coast.
40. *Sutter's Mill*. A mill in Sacramento, California, owned by John Sutter where gold was first discovered. It led to the Gold Rush of 1849.
41. *Forty-niners*. A prospector in the California Gold Rush of 1849.

42. *Boomtowns*. Towns that grew rapidly because of sudden prosperity from the Gold Rush. They were abandoned as soon as the gold was no longer discovered.
43. *Native Americans*. The term for people whose ancestors lived in North and South America before the arrival of Europeans in 1492.
44. *"Gateway to the West."* St. Louis, Missouri. The entrance point to the West traveled by the early pioneers.
45. *Transcontinental Railroad*. In 1862, the Central Pacific and the Union Pacific Railroad companies set out to build a railroad that would link the United States from east to west. When completed the two railroads met with a golden spike at Promontory, Utah, on May 10, 1869.
46. *Union Pacific*. Part of the Transcontinental Railroad, the Union Pacific Railroad, would build westward from the Missouri River, near the Idaho-Nebraska border. The two lines of track would then join.
47. *Central Pacific*. Part of the Transcontinental Railroad. The Central Pacific Railroad Company would start building in Sacramento and continue east across the Sierra Nevada mountains, joining the track built by the Union Pacific Railroad.
48. *Nez Perce*. The Native American tribe forced from their land in the Bear Paw Mountains of Montana during the building of the Transcontinental Railroad. Chief Joseph was their leader.
49. *Reservation*. An area of land that was set aside for Native American tribes who were forced to move for the building of the Transcontinental Railroad.

50. *Battle of Little Big Horn*. A battle in 1876 in Montana near the Little Bighorn River between United States horse soldiers led by General George Custer and several groups of Native Americans. Custer attacked the Sioux tribe led by Sitting Bull. Custer was killed along with all of his soldiers.

Appendix E: Fifth-Grade Social Studies Teacher Directions and Background Material

Thank you for your participation in my study of textbook supported versus technology-supported Social Studies vocabulary comprehension. Here are some guidelines for all to follow:

- Please follow the definitions as written.
- For textbook supported Social Studies vocabulary instruction you may add any information from the Social Studies textbook or from the following background material for clarity and understanding, but do not add any technologically obtained material, as the study will become invalid. Technologically obtained material is defined as anything acquired from the Internet, e-books, or websites, including videos, video clips, photographs, charts, maps, graphs, or illustrations.
- For technology-supported Social Studies vocabulary instruction, please use the websites, video clips, photographs, charts, maps, graphs, or illustrations provided to support the Social Studies vocabulary instruction. You may add any information from the following background material for clarity and understanding, but do not add any information or material from the Social Studies textbook, as the study will become invalid.
- Please follow the timeline as it is presented. Introduce 10 words each week for 5 weeks, with the sixth week for review and reteaching, if needed.
- You may choose to present the vocabulary words to your entire class, or in a small group, but please ensure that all of the selected English Language Learner (ELL) students receive the full instruction. If any of the selected ELL students

should be absent, please make up the vocabulary lessons when possible within the 6-week timeframe. If a student is absent for an extended period of time, you may choose to use the sixth week for the missed instruction.

- Please come to me with any questions, clarifications, or concerns.

Background Material

(South Carolina Department of Education, 2012b)

The aims of Reconstruction varied for different groups of Americans depending upon their goals. Abraham Lincoln's aim was to preserve the Union and end the Civil War as quickly as possible. He promised an easy Reconstruction in order to persuade Southern states to surrender. Lincoln promised that if 10% of the people of a state would pledge their allegiance to the United States of America and ratify the Thirteenth Amendment that abolished slavery, they could form a new state government, elect representatives to Congress, and fully participate in the Union again. Lincoln was assassinated soon after Robert E. Lee surrendered at the Appomattox Courthouse. His assassination did not immediately change the course of Reconstruction; however, Reconstruction policy did change within a year.

It is a common assumption that Lincoln's easy Reconstruction policy would have continued if he had lived. Lincoln was determined to protect the rights of the freed slaves and his policy may have become stricter as Southerners defied the intention of the Thirteenth Amendment. When Vice President Andrew Johnson became president, he continued Lincoln's basic policy; however, Johnson's aim was also to humiliate the Southern elite. He required Southerners who owned large amounts of property to ask for

a presidential pardon. Johnson wanted the elite Southerners to acknowledge his power, but he granted pardons easily. While Congress was not in session, Johnson allowed Southern states to form new state governments.

Once they were defeated, the aim of many Southerners were returning their lives to normal as soon as possible, but many did not want the society they knew to change politically, socially, or economically. They were willing to recognize the end of slavery, but were not willing to grant rights to the freedmen. Southern states passed laws known as Black Codes that replaced the slave codes and kept the freedmen in positions of social, political, and economic inferiority. Southerners used violence and threats to intimidate their former slaves. Southerners also elected former Confederates to Congress.

The aim of the United States Congress for Reconstruction was different from that of Southerners or the president. They wanted to ensure that the Civil War had not been fought in vain and that the freed slaves would indeed be free. They refused to allow the former Confederates elected as senators and representatives by the Southern states to take their seats in Congress. They passed a bill extending the Freedman's Bureau so that it could continue to protect the rights of the freedman against the Black Codes. President Johnson vetoed the bill, but Congress overrode the veto. Congress also passed the Fourteenth Amendment, which recognized the citizenship of African Americans, and recognized the rights of all citizens to "due process of law" and "equal protection of the laws." The Southern states refused to ratify the amendment.

President Johnson campaigned against the Fourteenth Amendment in the Congressional elections of 1866. Because the violence against freedmen had been

described in the Northern newspapers, voters elected Republicans to Congress who promised to protect the outcome of the war and the freedom of the freedmen. This Republican Congress then established a new Congressional Reconstruction policy calling for military occupation of the Southern states. Southern states were required to write new constitutions that would recognize the Fourteenth Amendment and the rights of African American citizens. This Congressional Reconstruction policy has been called Radical Reconstruction. This was a term that was used by Southern critics to discredit Congressional Reconstruction by labeling it radical or excessive.

The aim of Southern African Americans for Reconstruction was different from that of Southern whites and often from that of the United States Congress. African Americans wanted to consolidate their families and communities, establish a network of churches and other autonomous institutions, stake a claim to equal citizenship, which included access to land and education, and carve out as much independence as possible in their working lives.

Three Reconstruction amendments were designed to end slavery and protect the rights of the newly freed slaves. The Thirteenth Amendment freed the slaves everywhere in the United States. It is a common misconception that the Emancipation Proclamation freed the slaves. The only slaves freed by President Lincoln's proclamation were slaves that were in territories still controlled by the Confederacy. The Confederate government did not recognize the right of the President of the United States to free its slaves. The Union Army freed the slaves in the territories that it conquered; however, there were still slaves in the Border states that had not left the Union and in parts of the South that the

Union Army did not control. This amendment recognized the rights of all Americans to "life liberty and the pursuit of happiness" as promised in the Declaration of Independence. Consequently, during Reconstruction, the rights of African Americans were protected by the federal government.

The Fourteenth Amendment overturned the Dred Scott decision and recognized the citizenship of African Americans. The amendment also recognized the rights of all citizens to "due process of law" and "equal protection of the laws." The amendment affected African Americans in all parts of the United States, not just in the South. Southern states refused to ratify the amendment and so Congressional Reconstruction was imposed. The Fourteenth Amendment also included provisions for lessening the political power of states that did not recognize the rights of citizens to vote; however, this was not effective and led to the passage of the Fifteenth Amendment.

The Fifteenth Amendment declared that a male citizen's right to vote could not be infringed upon based on "race, creed or previous condition of servitude." The amendment affected African Americans in all parts of the United States, not just in the South. Southern states were required to write new constitutions that allowed African Americans to vote. Southern critics claimed that the only reason Congress passed this amendment was to protect the power of the Republican Party. This motive played a part in the passage of the Fifteenth Amendment; however, as a result of the amendment, African Americans were able to vote, hold political office, and were elected to state legislatures and congressional delegations during the Reconstruction period.

Although the Thirteenth, Fourteenth, and Fifteenth Amendments were designed to protect the rights of African Americans, they were only effective so long as the Republicans had control of state governments or federal troops were able to protect their social and political rights. No provisions were passed to ensure that African Americans would be able to own land, and most Southerners refused to sell land to African Americans, even if the former slaves had the money to purchase it. Consequently, the economic rights and independence of freedmen were limited during Reconstruction. Once Reconstruction ended, there were no protections in place for the rights of African Americans. Although African Americans had constitutional rights as a result of the Thirteenth, Fourteenth and Fifteenth Amendments, these were often violated by groups such as the Ku Klux Klan (KKK).

The initial reaction of freedmen to emancipation ranged from exhilaration to hesitancy to fear. Most celebrated the day of Jubilee. The aim of African Americans during Reconstruction was to reunite with their families and enjoy the freedom that had been denied to them for so long under slavery. Many left their plantations, but most soon returned to the land that they knew. It is a common misconception that many freedmen immediately migrated to the North and the West. African Americans did not migrate in large numbers from the South until the late 19th and early 20th centuries. Instead, they married and established strong communities in the South. African Americans formed their own churches where they could worship freely. Many African Americans sought an education in the freedom schools that had been established. Some established businesses, voted, and held elective offices during Reconstruction.

African Americans also tried to acquire land; however, for the most part, this was unsuccessful. General Sherman advocated distribution of "forty acres and a mule" to African American war refugees, and some land was distributed during and shortly after the Civil War. The federal government returned most land that had been confiscated from Confederates and given to freedmen to White landowners because the government respected the rights of Whites to their landed property. Most freedmen had no money to purchase land and little opportunity to work for wages since there was little currency available in the South. Consequently, freedmen entered into agreements with White landowners to trade their labor for land in an arrangement known as sharecropping. In exchange for the right to work the land that belonged to Whites, African Americans and poor landless Whites would be given a share of the crop they grew. Although African Americans suffered from violence and intimidation, they carved out as much independence as possible in their own lives.

The Bureau of Freedmen, Refugees and Abandoned Lands, or Freedman's Bureau for short, was established by Congress prior to the end of the Civil War. Although the Bureau was never effectively staffed or funded, it was the first line of assistance to all people in the South in need, especially the destitute freedmen. The Freedman's Bureau provided food, clothing, medical care, education, and some protection from the hostile environment in the South. The Bureau helped many freedmen find jobs and provide some protection in their labor contracts. African Americans, however, were not able to achieve economic independence because the great majority did not receive their own land to farm. Instead, the Freedman's Bureau helped African Americans establish the

sharecropping relationship with the workerless plantation owners. The most important contribution of the Freedman's Bureau was the establishment of over 1,000 schools throughout the South.

During the Reconstruction period, several discriminatory groups developed to intimidate the freedmen. The most infamous of these was the KKK. Originally, the KKK was a social organization of ex-Confederate soldiers, but it soon grew into a terrorist group. The goal of the KKK was to use violence, intimidation, and voter fraud to keep African Americans from exercising their rights under the Thirteenth, Fourteenth, and Fifteenth Amendments so that Whites could regain control of state governments. Public lynchings became common methods of intimidating African Americans who did not "know their place." Although the federal government made some feeble attempts to control the KKK and other groups who practiced racial discrimination and intimidation, by 1876, these groups had achieved their purpose. The election of 1876 was so riddled with fraud that the electoral votes in three states were called into question. The election was decided by the House of Representatives. Democrats agreed to support the election of the Republican candidate in exchange for the removal of all federal troops from the South. This Compromise of 1877 resulted in the end of Reconstruction, and African Americans were abandoned by the federal government. Democrats won control of the Southern state governments.

The constitutional rights gained by the Civil War amendments (13-15) were regularly violated by terrorist groups like the KKK. This group included working-class Whites as well as businesspeople, lawyers, judges, and politicians. Although African

Americans protested their rapidly deepening exclusion from public life, violence, intimidation, and lynchings by terrorist groups effectively silenced most protests. Southern governments began passing laws to limit the rights of African Americans guaranteed by the Fifteenth Amendment.

The end of slavery, not Reconstruction policy, changed society in the South. The Southern elite wanted to quickly reestablish the commercial viability of cotton production and thus retain their social position and regain political domination. As a result of losing their enslaved workforce and a lack of cash to hire free workers, Southern planters were forced to find another way to work their land. They entered into sharecropping relationships with freedmen. Because state taxes were raised in order to provide for schools and other public services, some landowners, who were unable to pay the taxes, lost their land. The impact of these taxes, however, was exaggerated by those Southerners who opposed the Reconstruction governments. Most landowners continued to own their land and be the social elite of the South. They had economic control over the sharecroppers, and they regained political control as a result of the end of Reconstruction.

African Americans defined freedom differently than did most Northerners and Southerners. To them, freedom literally meant that they could leave the plantation and do whatever they wanted to do. Most sought every opportunity to reestablish family connections and provide the basic necessities of life for these families. Most Northerners and Southerners were interested in reestablishing a labor system that ensured high productivity at little cost to the investor. Consequently, freedmen were often denied the opportunity to own land; however, because African Americans preferred not to be under

the direct control of the landowners, they were willing to enter into sharecropping agreements. They moved away from the Big House to the plot of land they worked. They refused to participate in work gangs, or have their wives and children work the fields from sun up to sun down as they had been forced to do under slavery. African Americans gained some measure of social independence, although they remained economically dependent on the landowners for land and credit. Many sought the opportunity to attend school and to worship as they pleased. They voted and elected African Americans and White Republicans who supported their interests to political offices.

For poor Whites, the Reconstruction period allowed some to have a political voice for the first time. Because they cooperated with the Republican government in the South, they were called “scalawags” by the Southern elite and remained in a position of social inferiority. Some poor Whites entered into sharecropping or tenant farming relationships with landowners. Like African American sharecroppers, they were economically dependent on the landowner for land and credit. These poor farmers needed cash advances on crops in order to feed their families while they waited for the harvest. Often the harvest did not cover the debt, or the farmer needed to borrow again the next year in order to sustain his family. This kept the sharecropper in a condition of constant debt and poverty and restricted his ability to improve his economic situation by either moving or changing crops.

Some Northerners moved to the South during Reconstruction. Southerners accused these Northerners of taking advantage of the South, devastated by the war, and called them “carpetbaggers.” This derisive name suggested that they were opportunists

who had packed all of their belongings in a carpetbag and come south to line their own pockets. The historical, however, record shows that most of the Northern migrants came as missionaries and entrepreneurs to help educate the freedmen and rebuild the economy of the South.

The movement from farms to factories did not occur during Reconstruction, but rather during the last two decades of the 19th century, after Reconstruction had ended. Entrepreneurs began to build textile factories in the Upcountry and later in the Midlands and Lowcountry. As prices for cotton fell due to worldwide overproduction and decreased demand, the profitability of farming decreased significantly. Cotton depleted the soil and the boll weevil devastated cotton crops and forced more farmers from the land. Textile factories attracted White workers from the farms; however, most jobs at the mills were denied to African American workers.

Mountain ranges, rivers, and deserts formed obstacles to westward migration. Pioneers traveled to embarkation points such as St. Louis, which came to be called the "Gateway to the West." From there they traveled by covered wagon across trails that had originally been created by Native Americans. Explorers and mountain men followed the Native American trails and wrote guidebooks that helped to show the way to those missionaries and then pioneers who came afterwards. The trails became increasingly marked as more and more migrants traveled along these paths. After the Civil War, the Transcontinental Railroad provided a way for those who had the means to travel to the West.

Migrants first traveled to, and settled in, the west coast rather than the Great Plains they first traversed. Underestimated and misunderstood, the Great Plains were called the “Great American Desert,” and the agricultural potential of this dry, flat land was not realized at first. With the advent of technology such as the steel plow, the windmill, and the mechanical reaper, the potential of the “American Breadbasket” would be unleashed. The steel plow was needed to till the hard-packed earth; the windmill would bring scarce water to the surface, seeds such as Russian wheat would grow in the challenging climate, and mechanical reapers would make the harvest possible.

Travelers to the West had to traverse not only the plains but also major rivers and the Rocky Mountains. The major rivers systems of the West to be crossed were the Mississippi, Columbia, Colorado, and Snake. Trails through the mountains followed passes that were often impassable during spring rains and winter snows. This made it imperative that travelers leave St. Louis in time to avoid these circumstances. Mishaps along the way that delayed the rate of travel could mean disaster. Students should be able to use a map to interpret travel to the West. Students should be able to locate the Rocky Mountains on a map.

The climate of the West was also a challenge to both travelers and settlers. Hot, dry summers brought drought, dust storms, and swarms of insects. Winters brought snow and the resulting spring floods. Storms were often accompanied by tornadoes. Unpredictable weather such as early snows or late-spring hailstorms could ruin crops and imperil livelihoods.

The West was an area with economic possibilities. People could use the land for its resources (fur trade, mining) and move on or settle permanently and use the resources (ranching, farming). The slow evolution of land policies such as the Homestead Act of 1861, allowed “squatters” to claim land and keep it. The building of transcontinental railroads and the government’s generous land grants to the railroads encouraged their growth and also served to bring settlers to the region. As the region became more and more populated, the way of life of the Native American inhabitants was greatly affected.

The environment of the West was influenced by the men and women who settled the region. Land was plowed and irrigation created to make the plains the breadbasket of the country. When the railroads crossed the plains, they affected herds of bison that had freely wandered there. The iron rails of the railroad tracks were trampled and mangled by the great herds. Railroad owners hired riflemen to shoot the offending beasts. Soon the bison herds were decimated and the way of life of the Native Americans, who depended on the buffalo, was significantly impacted.

As more and more migrants settled the West, they infringed on the land that had been the domain of many Native American tribes. Native Americans resisted this encroachment, but a series of Indian wars occurred after the Civil War that ended with the remainder of the western Native Americans being forced onto reservations. By the end of the 19th century, the U.S. government tried to make the Native Americans into farmers. The reservations were divided into parcels for individual Native American families. The Native Americans, however, did not want to give up their traditional way of

life, and their reservation land was not, in most cases, well suited for farming that they, in turn, were not trained to utilize.

The Transcontinental Railroad impacted the development of the West by providing a means of travel, attracting new immigrant settlers, and providing a means for transporting the agricultural products grown in the West to market. Many settlers traveled by rail in order to settle in the West. Despite the inexpensiveness of railroad travel, some settlers from the East, such as poor farmers and immigrants, could not afford to travel by rail and continued to travel by covered wagon. The railroad also attracted new immigrants to the United States.

As a result of the government's support for the building of the railroads, the railroad companies owned thousands of acres of land along their routes. In order to fund the laying of the track, the railroad sold much of this land to settlers. They even advertised this land in Europe and this helped attract new immigrants. Towns developed along the routes. The settlers who bought land in the West from the railroad, or who received free land from the government, hoped to make a profit from farming. The railroad fostered trade and economic growth by providing Western farmers with a means of getting their crops to market. Cash crops, such as corn and wheat, became profitable as did the raising of cattle and hogs. The railroad transported these agricultural products to processing centers and helped major industries such as flour milling and meat processing develop in cities like Chicago.

As tracks crossed the plains and tunnels were dug through the mountains, railroads had an impact on the natural environment. The coal burning engines required

more and more fuel, and this led to an increase in mining, which impacted the environment. Because railroads brought goods to market, they fostered the development of industry which also affected the environment. Smoke from the factories and wastes from the processing plants polluted the air and the water.

Although the journey West often required groups of people to help one another, settlement also brought conflict among groups that competed for access to the natural resources of the region. The discovery of gold and silver brought men westward seeking their fortunes. Prospectors competed with one another to find precious minerals and often created a lawless society. Mining companies that had the equipment to dig deeper into the terrain competed with solitary proprietors for claims to the richest sites. Boom towns grew quickly to serve the needs of the miners, and just as quickly, turned to ghost towns once the ore vein had been depleted.

Ranchers and cowboys cooperated to develop the cattle industry. Cowboys drove the herds owned by the ranchers across the open plains to the nearest railroad depot and shipped them to processing plants farther east. They competed with rustlers and often came in conflict with the townspeople they encountered along the way. After the Civil War, farmers settled and fenced large parts of the plains interfering with the long drive across open ranges upon which cowboys drove the herds after spring roundup. The cowboys, who did not want to be fenced in, and the farmers, who built the fences with the newly invented and highly effective barbed wire, fought over how the western lands should be used and who should use them. The era of the cattle drive did not survive the establishment of farms on the plains.

At first, many Native Americans welcomed and cooperated with explorers of the West. Federal policy, however, changed in the post-Civil War period as a result of the Transcontinental Railroad, the discovery of rich mineral deposits on some reservations, and continued movement west of white settlers. The destruction of the buffalo by sharpshooters hired by the railroad companies undermined the culture of the Plains Indians. In the second half of the 1800s, farmers and miners claimed the lands that the Native Americans believed to be theirs. Pushed onto smaller and smaller reservations, some tribes went to war against the settlers and the soldiers who supported them. The Indian Wars were marked by massacres by White soldiers of Native American women and children such as the Sand Creek Massacre of 1864. After silver was discovered in the Black Hills, the Native Americans who lived there were driven out.

Although treaties between the U.S. government and Native American tribes granted the Native Americans reservations in their tribal lands and recognized tribal land ownership, these treaties were often not honored by the government. When gold was found on a reservation in the Black Hills, the Native Americans (Lakota Sioux under the leadership of Sitting Bull) were forced off the land against their will. The Battle of Little Bighorn, or "Custer's Last Stand," (1876) between the Native Americans and the U. S. Army created public support for a much larger military force that crushed Native American resistance in the area. A Native American tribe in Oregon (Nez Perce led by Chief Joseph in 1877) fled to Canada rather than be moved off of their traditional lands to Idaho to make way for White settlers. Surrounded by the United States Army, the tribe

surrendered when they were promised to be allowed to return to Oregon. This promise was not kept and the tribe was taken to a reservation in Oklahoma.

The Plains Indians of the Southwest also attempted to resist (Apaches led by Geronimo), but their leader was eventually captured and returned to a reservation. Soon, resistance by other Native American tribes was also broken. Some Native Americans escaped the reservation and attempted to restore their old way of life, but they were surrounded by the army at Wounded Knee, South Dakota (1890). U.S. soldiers massacred approximately 300 men, women, and children as they attempted to give up their weapons. Native American resistance to the reservation policy was over.

Life on the reservation was not easy. Native Americans were forced from their tribal homelands to much less desirable lands to which their culture was not adapted. Plains Indians, whose culture centered on hunting the buffalo, could no longer provide enough food for their families. Although the U.S. government had promised to supply the Native Americans with food, the corruption of the Bureau of Indian Affairs meant that many Native Americans did not get enough supplies. Poverty, starvation, and despondency were prevalent on the reservations. Reformers of the late 19th century were concerned about the plight of the Native Americans and the unfairness of the many treaties broken by the U.S. government. These reformers believed that if Native Americans would give up their tribal traditions and adopt the ways of the White man they would prosper. A new federal policy took the tribal lands of the reservation and divided it up into farms for individual Native American families (Dawes Severalty Act, 1887); however, Native Americans had different ideas of land ownership than Whites. They

believed that the land belonged to the group, not individuals. This policy violated those beliefs and the traditions of hunting that had sustained Native American culture for centuries. Many of the farms belonging to Native Americans failed as did many farms in the late 19th century that belonged to Whites, and the Native Americans lost their land.

Appendix F: Fifth-Grade Social Studies Vocabulary Weekly Quizzes

Week One
Name _____ Date _____

Write the definition for each of the Social Studies vocabulary terms.

1. Reconstruction-_____
   _____
2. Abraham Lincoln-_____
   _____
3. North-_____
   _____
4. South-_____
   _____
5. Border states- _____
   _____
6. Economy-_____
   _____
7. Carpetbaggers-_____
   _____
8. Scalawags-_____
   _____
9. Enslaved-_____
   _____
10. Freedom-_____
    _____

Week Two
Name _____ Date _____

Write the definition for each of the Social Studies vocabulary terms.

1. Assassinate-_____

   _____

2. Thirteenth Amendment-_____

   _____

3. Fourteenth Amendment-_____

   _____

4. Fifteenth Amendment_____

   _____

5. Rights-_____

   _____

6. Restrictions-_____

   _____

7. Protect-_____

   _____

8. Political-_____

   _____

9. Social-_____

   _____

10. Economic opportunity-_____

    _____

Week Three
Name _____ Date _____

Write the definition for each of the Social Studies vocabulary terms.

1. Veto-_____

   _____

2. Free labor-_____

   _____

3. Democratic Party-_____

   _____

4. States' rights-_____

   _____

5. Impeach-_____

   _____

6. Federal government-_____

   _____

7. Abolish-_____

   _____

8. Freedmen's Bureau-_____

   _____

9. Plantation-_____

   _____

10. Sharecropping-_____

    _____

Week Four
Name _____ Date _____

Write the definition for each of the Social Studies vocabulary terms.

1. Agriculture-_____

   _____

2. Black Codes-_____

   _____

3. Ku Klux Klan-_____

   _____

4. Missionaries-_____

   _____

5. Segregation-_____

   _____

6. Civil Rights-_____

   _____

7. Louisiana Purchase-_____

   _____

8. Treaty-_____

   _____

9. Manifest Destiny-_____

   _____

10. Sutter's Mill-_____

    _____

Week Five
Name _____ Date _____

Write the definition for each of the Social Studies vocabulary terms.

1. Forty-niners-_____

   _____

2. Boomtowns-_____

   _____

3. Native Americans-_____

   _____

4. "Gateway to the West"-_____

   _____

5. Transcontinental Railroad-_____

   _____

6. Union Pacific-_____

   _____

7. Central Pacific-_____

   _____

8. Nez Perce-_____

   _____

9. Reservation-_____

   _____

10. Battle of Little Big Horn-_____

_____

_____

Appendix G: Permission Granted to Use South Carolina Department of Education Resources

4 Sara Court
Hilton Head Island, SC 29926

September l, 2016

Ms. Elizabeth King
South Carolina Department of Education
1429 Senate Street
Room 61 1-C
Columbia, SC 29201

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- South Carolina Department of Education, Office of Instructional Practices and Evaluations. (2012, July).Grade 5 United States studies: 1985 to the present. Retrieved from South Carolina Department of Education website: http://ed.sc.gov/scdoe/assets/tile/agency/ccr/Standards-Learning/documents/Grade5.pdf

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Elizabeth King

Date: 9/19/16

Appendix H: Fifth-Grade Social Studies Vocabulary Posttest

Name _____ Date _____

Write the definition for each of the Social Studies vocabulary terms.

1. Reconstruction-_____

   _____

2. Abraham Lincoln-_____

   _____

3. North-_____

   _____

4. South-_____

   _____

5. Border states-_____

   _____

6. Economy- _____

   _____

7. Carpetbaggers-_____

   _____

8. Scalawags-_____

   _____

9. Enslaved-_____

   _____

10. Freedom-_____

    _____

11. Assassinate-_____

_____

12. Thirteenth Amendment-_____

_____

13. Fourteenth Amendment-_____

_____

14. Fifteenth Amendment_____

_____

15. Rights-_____

_____

16. Restrictions-_____

_____

17. Protect-_____

_____

18. Political-_____

_____

19. Social-_____

_____

20. Economic opportunity-_____

_____

21. Veto-_____

_____

22. Free labor-_____

_____

23. Democratic Party-_____

_____

24. States' rights-_____

_____

25. Impeach-_____

_____

26. Federal government-_____

_____

27. Abolish-_____

_____

28. Freedmen's Bureau-_____

_____

29. Plantation-_____

_____

30. Sharecropping-_____

_____

31. Agriculture-_____

_____

32. Black Codes-_____

_____

33. Ku Klux Klan-_____

_____

34. Missionaries-_____

_____

35. Segregation-_____

_____

36. Civil Rights-_____

_____

37. Louisiana Purchase-_____

_____

38. Treaty-_____

_____

39. Manifest Destiny-_____

_____

40. Sutter's Mill-_____

_____

41. Forty-niners-_____

_____

42. Boomtowns-_____

_____

43. Native Americans-_____

_____

44. “Gateway to the West”-_____

_____

45. Transcontinental Railroad-_____

_____

46. Union Pacific-_____

_____

47. Central Pacific-_____

_____

48. Nez Perce-_____

_____

49. Reservation-_____

_____

50. Battle of Little Big Horn-_____

_____