<u>MNEMONIC VOCABULARY INSTRUCTION TO ENHANCE READING
COMPREHENSION IN THE SOCIAL STUDIES</u>

by

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Mnemonic Vocabulary Instruction to Enhance Reading Comprehension in the Social Studies

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DEDICATION

This is dedicated to my loving and supportive husband, Tom; whom I could not have committed the time and energy to this program without his support and encouragement.

I would also like to dedicate this to my children, Tommy, Amanda, Sarah, Josh, Anne, and my grandsons, V and Joshua. You all are the lights of my life and you bring me joy every single day!

I also dedicate this work to the memory of my parents, Norman and Lorraine Tucker. They instilled in me the value of education and supported and encouraged me to follow through on every endeavor I undertook. I miss you both!

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LIST OF ABBREVIATIONS

Attention Deficit Hyperactivity Disorder .... ADHD
Emotional Disability .... ED
English Language Learner .... ELL
End of Course .... EOC
Individuals with Disabilities Education Act .... IDEA
Individual Education Plan .... IEP
Other Health Impaired .... OHI
Socio-Economic Status .... SES
Specific Learning Disability .... SLD
Standard of Learning .... SOL
Students with Disabilities .... SWD

ABSTRACT

MNEMONIC VOCABULARY INSTRUCTION TO ENHANCE READING
COMPREHENSION IN THE SOCIAL STUDIES

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George Mason University, 2015

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In an era of high-stakes testing, it is important for all students to have access to
curriculum and classrooms that provide high quality instruction. Students who struggle
with literacy have difficulty accessing curriculum without specific strategies in place.

Twenty-six sixth grade students and two teachers in two heterogeneous general
education classes in a rural middle school participated in a mixed methods study. A
within-subjects crossover design in which all of the students received the mnemonic
strategy intervention at different times comprised the quantitative component of the
research. The qualitative component of this study was comprised of a student satisfaction
survey and teacher interviews.

A paired-sample t-test was used to compare students' unit-vocabulary post-test
scores, vocabulary post-test scores, and CLOZE post-test scores by treatment condition
(mnemonic-control vs. control-mnemonic). In addition, descriptive statistical analysis

was conducted to examine the differences between mnemonic and traditional vocabulary instruction for students with identified disabilities. Students demonstrated gains from pre-test to post-test on all measures.

Frequencies were used to report students' responses to the satisfaction rating scale. Student satisfaction favored the mnemonic vocabulary strategies overall. Finally, teacher interviews were analyzed. The overarching conclusion from the interviews is that the teachers found that using mnemonics vocabulary instruction was a positive experience.

The findings of this investigation provide implications for educators who work with a diverse student population in the general education environment. As more struggling students populate content classrooms, assisting teachers in strategies to facilitate learning and recall should be at the forefront of future research.

CHAPTER ONE

Converging factors in secondary education have resulted in enormous challenges for today's middle and high school teachers. One of those factors is that mandated assessments are becoming more complex than ever requiring a greater depth and breadth of knowledge for success. Another factor is that classroom populations are increasingly diverse, challenging teachers to meet a greater variety of student and academic needs. A third factor is that reading proficiency among upper elementary and secondary students appears to be stagnant. The following sections will provide details on the current situation, which lead to the rationale for the importance of this study.

The National Assessment of Educational Progress (NAEP, 2013) data reveal an achievement gap between students with disabilities and their nondisabled peers. The percentage of fourth and eighth grade students with disabilities who scored below the basic level in reading achievement was 69% and 60%, respectively, as compared with the percentage of fourth (27%) and eighth (18%) grade students without disabilities. According to the most recent NAEP report (2013) measures of academic achievement trends is part of the evaluation system for student performance at the national, state and local level. This structure is in place for monitoring the condition and progress of the nation's educational system. Of grave concern is that the gap in achievement as reported by the 2013 report has not changed since the last NAEP report in 2008.

Brozo (2009) noted that approximately two-thirds of eighth and twelfth grade students read below grade level; 32% of high school graduates are ill prepared for college-level English coursework (ACT, 2005); and 40% of students who do graduate from high school lack the literacy skills needed for employment (National Education Summit on High Schools, 2005). In essence, a large percentage of American students do not possess the literacy skills needed for school and career success.

Students with reading disabilities, struggling readers, culturally diverse learners, and those who are from economically disadvantaged backgrounds often lack literacy rich home environments, struggle to make sense of content instruction without specific strategy interventions (Kelly, Lesaux, Kieffer, & Faller, 2010). Many of these students may lack the oral language and vocabulary knowledge of their higher achieving peers (Lubliner & Smetana, 2005). These are the students most likely to struggle in content area classes because their reading deficits make it difficult for them to access the curriculum and thus be successful (Brozo & Simpson, 2007). As a result, without direct and explicit literacy instruction, including instruction in expanding word knowledge, these students have trouble keeping up with the pace of instruction and content (Nelson & Stage, 2007).

Statement of the Problem

In an era of high stakes testing, it is important for all students to have access to curriculum and classrooms that provide high-quality instruction (Watson, Gable, Gear & Hughes, 2012). Quality instruction that is interesting and motivating should be coupled with standard practice instruction that meets the needs of a diverse population of learners

(Brozo & Simpson, 2007). Students who struggle with literacy have difficulty accessing curriculum without specific strategies in place (Nelson & Stage, 2007). Among this diverse population, students identified with specific learning disabilities (SLD) often have difficulty with reading (NCLD.org, 2014). One of the primary reasons for this difficulty is that there is a need to expand students' knowledge of academic vocabulary (Wood, Mustian, & Cooke, 2012).

Students entering high school need to be equipped with strong language skills. Kelly and colleagues (2010) emphasize the importance of expanding students' word knowledge when they assert, "To ensure that students enter high school able to handle sophisticated texts, academic vocabulary instruction should be incorporated into standard practice to improve language skills and consequently boost reading comprehension for struggling readers" (p. 5). Research suggests that students' reading comprehension can be improved with direct vocabulary instruction (Lawrence, White & Snow, 2010).

Significance of the Problem

Reading comprehension. The ability to comprehend what is read is the key to academic competence as students must be able to derive meaning from what they read in order to access the demands of content curriculum (Watson, et al., 2012). Many school-age students, who struggle with reading comprehension, also have difficulty accessing the curriculum. Many have found that for this population of students, structured, direct, and explicit strategy instruction may be most effective (Swanson, Howard, & Saez, 2007; Watson et al., 2012; Williams et al., 2005).

According to Amendum, Vernon-Feagans and Ginsberg (2011), young children, who have difficulty learning how to read in early elementary school, fall behind their peers in reading and ultimately other academic areas; they become adolescents who continue to struggle academically; and these students do not benefit from traditional classroom instruction but require specific reading interventions. In addition to comprehension strategies, students require creative strategies for acquiring vocabulary skills in order to promote access to curriculum (Vitale & Romance, 2008).

Vocabulary instruction. As children develop language and vocabulary, these skills are learned both directly and indirectly. As a result, vocabulary development is an intricate and important piece of literacy instruction (Vitale & Romance, 2008). Students with strong vocabularies are better equipped to access the demands of content curriculum. Beck, McKeown, and Kucan (2002) stress the point that a large and rich vocabulary is the hallmark of an educated individual when they say, "A large vocabulary repertoire facilitates becoming an educated person to the extent that vocabulary is strongly related to reading comprehension in particular and school achievement in general" (p. 1).

Those from language rich home environments with frequent opportunities for conversations, reading, and other experiences with print and vocabulary have an advantage over their peers from economically disadvantaged homes, as well as culturally diverse learners (Lubliner & Smetana, 2005). As a result, this vocabulary gap tends to grow as low socioeconomic status and culturally diverse students' progress through school (Lubliner & Smetana, 2005).

The body of research supporting explicit vocabulary instruction includes students in upper elementary, middle, and high school from culturally and socioeconomically diverse areas. This research also includes a wide variety of strategies for vocabulary instruction (Malone & McLaughlin, 1997). Effective teaching of vocabulary words has shown to improve word knowledge, especially for at-risk learners (Vitale & Romance, 2008).

Relationship between vocabulary knowledge and reading comprehension. Research demonstrates that there is a positive correlation between vocabulary knowledge and reading comprehension (Pearson, Hiebert & Kamil, 2007). These long established linkages between vocabulary knowledge, levels of literacy, and reading comprehension highlight the interdependence of word knowledge and student academic achievement (Vitale & Romance, 2008). Watson and colleagues (2012) stress the importance of vocabulary knowledge for secondary students for understanding narrative texts, and expository texts in various academic disciplines. The increasing vocabulary demand of content curriculum is cited as a potential cause of reading difficulties (McKeown, Crosson, Artz, Sandora, & Beck, 2013).

Additionally, research has shown that including explicit vocabulary instruction into content area subjects, such as science or social studies augments students' ability to obtain content vocabulary and access the curriculum (Baumann, Edwards, Boland, Olefnik & Kame'enui, 2003; Bos & Anders 1990). As students navigate through elementary, middle school and beyond, a great deal of content area learning is dependent upon technical language specific to the discipline (Brozo & Simpson, 2007). Introducing

vocabulary that students need to understand in order to access key ideas within the content, by using vocabulary development instruction, is an important way to increase content comprehension, as well as content vocabulary knowledge (Moore & Hinchman, 2006). The use of evidence-based vocabulary strategies for all students has been shown to increase achievement in both vocabulary knowledge and reading comprehension (Lubliner & Smetana, 2005; Nelson & Stage, 2007).

Mnemonic vocabulary instruction. Although vocabulary and reading comprehension are strongly linked, this relationship can often be complex, especially for struggling learners (Vitale & Romance, 2008). Students with disabilities, low SES, and from culturally diverse backgrounds may be at a disadvantage relative to their more privileged first-language peers. Some of these students do not possess the language background, or prior knowledge for successfully responding to routine vocabulary instruction (Kelley et al., 2010). Vocabulary interventions are necessary in order to access curriculum (Spear-Swerling in Ruddell & Unrau, 2004), and mnemonic interventions have been shown to provide this type of vocabulary knowledge (Fontana, Scruggs & Mastropieri, 2007; Mastropieri & Scruggs, 1998)

Mnemonic vocabulary strategies include keyword tactics that utilize concrete, phonemically similar words to recall new vocabulary words. Peg-word mnemonics use number order as part of what needs to be recalled for learning new information, while first letter acronyms use acronyms and acrostics for recalling information (Fontana, Scruggs & Mastropieri, 2007).

All mnemonics incorporate visuals, which promotes connections to new information with a familiar image. Providing concrete images and information for activating prior and known knowledge enhances the ability to learn new information, according to Mastropieri, Scruggs and Whedon (1997), who found that, "students with disabilities learn new information better when concreteness is enhanced, and when new information is effectively encoded and elaborated with prior knowledge" (p. 18). Mnemonic interventions have repeatedly produced better recollection of historical information for students with specific learning disabilities (SLD) than fact memorization, such as paired association (Brigham, Scruggs & Mastropieri, 1995; Mastropieri & Scruggs, 1989; Mastropieri, Scruggs, Bakken, & Brigham, 1992).

Mnemonic strategies enhance memory by teaching students to develop ways to learn information in such a manner that it is easier to remember (Fontana, Scruggs, & Mastropieri, 2007). These strategies are also useful in learning new vocabulary words (Mastropieri & Scruggs, 1998). Using pictorial mnemonic strategy instruction has been shown to assist students in associating a target word with a keyword that is phonologically similar (Fontanta, Scruggs, & Mastropieri, 2007). Using this approach, students learn to relate the target word definition to the keyword, and learn to associate the correct meaning (Steele & Mills, 2011).

Research Questions

The purpose of this study is to replicate and extend research on the use of mnemonics to improve word knowledge and comprehension. Previous research on mnemonic vocabulary instruction and learning has focused on special education

populations in individualized settings (Mastropieri, Scruggs, & Fulk, 1990), self-contained small group classrooms (Condus, Marshall, & Miller, 1986), and co-taught classrooms with two teachers (Fontana, Scruggs, & Mastropieri, 2007; Marshak, Mastropieri, & Scruggs, 2011). This study is important, as the target populations are two inclusive general education sixth grade social studies classes. Only one content teacher in each class delivered the instruction to a diverse population of learners. These heterogeneous classes consisted of typically achieving students as well as students with disabilities, low SES status, and a small number of culturally diverse students. The goal of this investigation was to answer the following research questions:

1. Will the use of a mnemonic vocabulary intervention improve content vocabulary acquisition and reading comprehension for all students?

2. What is the relationship between vocabulary acquisition and comprehension of content material?

3. What are student attitudes toward the mnemonic strategy, and traditional forms of instruction for comprehension of content material?

4. What are teacher attitudes toward the mnemonic vocabulary intervention, and the impact on content area teaching?

Definition of Terms

Co-Teaching: The general definition of co-teaching involves two equally-qualified individuals who may or may not have the same area of expertise jointly delivering instruction to a group of students. A service delivery system that is part of the

continuum of services within the individual education plans (IEP), which provides support to students with disabilities.

Curriculum Framework: Specific content required by state's Standards of Learning to be taught.

Emotional Disability: An emotional disability is defined by IDEA as "a condition exhibiting one or more of the following characteristics over a long period of time, and to a marked degree that adversely affects a child's educational performance: (a) an inability to learn that cannot be explained by intellectual, sensory, or health factors, (b) an inability to build or maintain satisfactory interpersonal relationships with peers and teachers, (c) inappropriate types of behavior or feelings under normal circumstances, (d) a general pervasive mood of unhappiness or depression, (e) a tendency to develop physical symptoms or fears associated with personal or school problems" (IDEA.ed.gov).

English Language Learners: Students who are acquiring English for their education are considered English language learners. These students exhibit difficulties in speaking, reading, writing, or understanding the English language. They lack the ability to meet the State's proficient level of achievement on State assessments, and may not be able to successfully achieve in classrooms where the language of instruction is English (NCTE.org).

General Education Teacher: A teacher endorsed by the state department of education to teach specific course content.

High Stakes Testing/End of Course (EOC) tests: Assessments required by the state to be given at the end of specific courses. Students must achieve minimum scores as part of graduation requirements.

Inclusive Classrooms: Heterogeneously grouped classrooms that include general education students, students with disabilities, and English language learners.

Individuals with Disabilities Education Act (IDEA): IDEA was originally enacted by the United States Congress in 1975 to ensure that children with disabilities have the opportunity to receive a free appropriate public education, just like other children. The law has been revised many times over the years (nichcy.org).

Individual Education Plans (IEP): A written statement designed to meet a student's unique needs based on eligibility requirements as determined by IDEA.

Mnemonics: A memory and instructional strategy that connects new information with prior knowledge by means of visual and acoustic clues (Mastropieri, Sweda, & Scruggs, 2000). Mnemonics will be described in much greater detail in chapters two and three.

Other Health Impairments: According to IDEA (2004), "students with other health impairments have limited strength, vitality, or alertness, including heightened alertness to environmental stimuli that results in limited alertness with respect to the student's educational environment, and: (a) is due to chronic or acute health problems such as asthma, attention deficit disorder (ADD) or attention deficit hyperactivity disorder (ADHD), diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, or sickle cell anemia; and (b) adversely affects a

child's educational performance" (IDEA.ed.gov). The students identified as Other Health Impaired (OHI) in the participating classes have this identification due to attention deficit disorder (ADD), or attention deficit hyperactivity disorder (ADHD). Students with ADD and ADHD often struggle with staying focused, modulating attention, self-managing their behavior, and impulse control.

Socio Economic Status (SES): Socioeconomic status is commonly conceptualized as the social standing or class of an individual or group. It is often measured as a combination of education, income and occupation (APA.org, 2014).

Special Education Teacher: A teacher endorsed by the state department of education to teach students with disabilities.

Specific learning disability: "A disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. Specific learning disability does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage" (NICHCY, 2014).

Standards of Learning (SOL): The standards of learning for the state's public schools establish minimum expectations for what students should know and be able to do at the end of each grade or course in English, mathematics, science, history/social science, technology, the fine arts, foreign language, health/physical education and driver education (VDOE, 2014).

Students with Disabilities: According to the Individuals with Disabilities Education Act 2004 (IDEA): in order to fully meet the definition (and eligibility for special education and related services) as a "child with a disability," a child's educational performance must be adversely affected due to the disability (NCLD.org).

Summary

The preceding chapter provided an overview of the increasing complexity of mandated assessments, and the breadth and depth of knowledge required for students to be successful in academic subjects. While the diversity within today's classrooms continues to increase, reading proficiency appears stagnate.

As reading proficiency shows little to no improvement, the achievement gap in reading between students with disabilities and their non-disabled peers has changed little from 2008 to 2013 (NAEP, 2008, 2013). Research recognizes that vocabulary instruction is important for secondary students to access the increasing demands of academic text, and that direct vocabulary instruction can improve reading comprehension (Kelly, et al., 2010; Lawrence, White, & Snow, 2010).

The relationship between vocabulary and reading comprehension can be complex for all students (Vitale & Romance, 2008). However, for struggling readers, the demands of content curriculum without explicit vocabulary instruction can make an already difficult task even more challenging (Moore & Hinchman, 2006). As a result, using creative vocabulary strategies within academic subjects can lead to improved achievement (Nelson & Stage, 2007).

The use of vocabulary strategies and the links to reading comprehension will be discussed in the following chapter. Evidence-based practices and the efficacy of these practices are presented, as well as continuing evidence to support the current study.

CHAPTER TWO

This section presents a synthesis of research in vocabulary strategy instruction and mnemonic interventions, and their relationships to reading comprehension. Characteristics of struggling readers, and the challenges they experience accessing curriculum will be addressed. Search procedures and inclusion criteria will be explained first.

Literature Search Procedures and Criteria for Inclusion

The studies included in this literature review resulted from comprehensive literature search procedures using major psychological and educational databases including PsycInfo, EBSCO, ERIC, and Education Full Text. Keywords included intervention research in vocabulary instruction, vocabulary instruction, mnemonic interventions, and reading comprehension. Due to the rich and extensive history of mnemonic interventions, relevant articles from 1984 to present were included.

An ancestry search was performed using reference lists from chosen studies. The studies selected from this search were specific to: (1) vocabulary instruction, (2) mnemonic strategy instruction, (3) reading comprehension, (4) struggling readers, and (5) adolescent learners.

For the purposes of this study, criteria for the research studies chosen were published in a peer-reviewed journal (with the exception of government publications

pertaining to educational literacy). Publication dates could be no older than 1984 for

research specific to reading comprehension, vocabulary instruction, and mnemonic

strategy instruction. All chosen studies were primarily limited to secondary or adolescent

learners, as the focus of the current investigation is on middle school students with and

without disabilities.

Reading Comprehension

This review and analysis begins with research related to reading comprehension

because of its close association with word knowledge, and because it is a key variable of

interest to this study. Research and analysis of how students read and access content

material is not a new phenomenon as researchers have been evaluating processes and

strategies for decades. Although viewpoints differ on what is best practice, the consensus

is that students need to be taught how to read content in a comprehensive and strategic

way in order to make meaning from the text. Five areas of a comprehensive and

coordinated literacy program include word study, fluency, vocabulary development,

reading comprehension and motivation (Biancarosa & Snow, 2006). The following

section briefly discusses the research on reading comprehension.

Struggling readers and reading comprehension. Struggling readers do not

have the foundational reading skills necessary for content acquisition, nor do they possess

content specific literacy skills (Kelly, et al., 2010). Students with learning disabilities,

primarily in reading, lack the basic reading skills and/or comprehension needed to

become proficient learners (Faggella-Luby, Graner, Deschler, & Drew, 2012).

Struggling readers often are unable to apply foundational skills to the application of

content curriculum due to the demands of academic texts. These students not only require continued literacy instruction, but "general strategy instruction to uncover and teach strategies, routines, skills, language, and practices that can be applied universally to content area learning and are by definition generalizable to other domains" (Faggella-Luby et al., 2012, p. 69).

Struggling readers must be taught specific strategies in order to access content curriculum. According to Watson, Gable, Gear, and Hughes (2012), effective comprehension instruction should be highly structured, explicit, scaffolded, and intensive. It should include multiple opportunities for practice, and incorporate noteworthy assignments. Specific strategies can be matched with individual needs of students with reading comprehension difficulties. It is important to identify the reason why students are struggling to comprehend what they read, and design instruction according to the exact nature of the comprehension problem (Watson et al, 2012). Evidence-based strategies and tools such as building background knowledge, graphic organizers and guided notes; skills such as paraphrasing, summarization, creating mnemonics, and multicomponent comprehension instruction are some of the strategies found to be effective for struggling readers (Swanson et al., 2014; Vaughn et al., 2011; Watson et al., 2012). Mnemonics for learning key vocabulary is the intervention focus of the current investigation, and will be explored later in this chapter.

Balanced literacy. Vocabulary development must not be taught in isolation. It must be taught within a comprehensive literacy program (Biancarosa & Snow, 2006). Research has identified five areas of a comprehensive and coordinated literacy program.

These include word study, which relies on word analysis and word recognition strategies, in addition to identifying words that are irregular and unpredictable (Marchand-Martella, Martella, Modderman, Petersen, & Pan, 2013). Another component of a balanced literacy program includes fluency, which provides the connection between simply reading the words, and actually understanding their meaning (Boardman et al., 2008; Kamil et al., 2008). Additionally, vocabulary development facilitates knowing the meaning of words (Roberts, Torgeson, Boardman, & Scammacca, 2008; Scammacca et al., 2007). The final component of a coordinated literacy program includes comprehension, which allow readers to understand and remember content that is read, and motivation, as reading comprehension can be mired down by lack of motivation (National Reading Panel Report, 2008; Torgeson et al., 2007). Since reading comprehension requires the reader to extract and construct meaning from text through interaction and involvement (Shanahan et al., 2010), students must be provided instruction that is planned and delivered in a way that promotes comprehension and retention of critical information (Jitendra & Gajria, 2011).

The delivery of a balanced literacy program provides literacy learners the necessary skills and strategies for successfully reading and understanding text (Biancarosa & Snow, 2006). Typical learners develop these skills with relative ease. However, struggling readers require additional creative literacy instruction in order to meet grade level expectations (Nelson & Stage, 2007). The development of creative vocabulary strategies, including mnemonics, provides learners additional ways to access

academic information, and fosters reading comprehension (Pearson, Hiebert, & Kamil, 2007).

Reading strategies. In order to facilitate a comprehensive and coordinated literacy program that includes word study, fluency, vocabulary development, reading comprehension and motivation, specific strategy instruction is necessary. Included among these approaches is cognitive strategy instruction. The development of cognitive strategy instruction has been found to be effective in improving reading comprehension in content subjects. Cognitive strategies are helpful tools in assisting struggling learners (Berkley, Mastropieri, & Scruggs, 2011).

A related term to cognitive strategy instruction is metacognition, which is the self-reflection or "thinking about thinking," which is essential for students to be active learners (Baker, Gersten, & Scanlon, 2002). Building metacognitive awareness, coupled with vocabulary instruction, fluency, and activating background knowledge are important for reading content text. Similar to Faggella-Luby and colleague's (2012) recommendations, this type of instruction is believed to be generalizable across contents, and more appropriate for learners who lack the proficiency needed to use discipline specific strategies.

Johnston, Barnes, and Desrochers (2008) discussed the current knowledge base of reading comprehension for all students. They identified four strategic approaches to reading comprehension that used: (1) surface code (vocabulary and grammar), (2) text-based representations (using context and making inferences to construct meaning), (3) situation-models (knowledge-based inference, reading goals, and comprehension

monitoring), and (4) reading comprehension interventions to assess meaning. In addition, collaborative strategic reading, and peer-assisted reading strategies were found to be effective ways to improve reading comprehension. Similar to Johnston and associates' study, Allen and Hancock (2008) found that if students were deliberately taught to monitor their reading comprehension by employing strategies that used cognitive profile awareness, and metacognition such as the use of monitoring reading comprehension knowledge (background knowledge and vocabulary), their ability to successfully access classroom text improved (Johnston, Barnes, & Desrochers, 2008).

Summary of Research on Comprehending Academic Content

The literature demonstrates that there are evidence-based reading strategies that are effective in supporting struggling readers' comprehension of the text. The major implications suggested by this research are that any strategies employed to improve reading comprehension must be taught directly and explicitly (Coyne et al., 2009; Marchand-Martella et al., 2013; Mastropieri, Scruggs, & Graetz, 2003; Watson et al., 2012). Since many students do not have the literacy skills to access content curriculum, it is necessary to focus specific instruction on creative strategies that shore up their reading skills. Perhaps, if these struggling readers are provided with the necessary interventions and general strategy instruction, they may eventually be able to access content through discipline specific instruction.

In addition to direct and explicit instruction, the use of general strategy instruction to improve the reading skills of students who struggle with literacy has been found to improve their ability to access the content curriculum. In an age of high-stakes testing

and diverse classrooms, providing students with comprehension strategies within the framework of direct and explicit instruction is critical to academic success for all students.

It has been demonstrated that vocabulary instruction is critical for accessing content subjects, as well as reading comprehension strategy instruction. The following section provides evidence as to the importance of vocabulary knowledge. Within the body of research on reading comprehension, a correlation between vocabulary knowledge and reading comprehension has been noted (Beck, McKeown, & Kucan, 2002). In order to provide balanced literacy instruction, vocabulary development is a necessary component of comprehension building (Jitendra, Burgess, & Gajria, 2011; Johnston, Barnes, & Desrochers, 2008). Investigations into vocabulary interventions for comprehension-building have provided positive outcomes (NICHD, 2000).

Vocabulary Instruction

Vocabulary instruction plays an important role in the intricate cognitive process of reading comprehension. As a result, a strong description of the role that vocabulary development and vocabulary instruction play in the understanding of what has been read is necessary. Research on the most effective strategies for vocabulary acquisition and the link between vocabulary knowledge and reading comprehension is presented here. A mind-ful interface between the reader and the text is needed for successful reading comprehension to occur (NICHD, 2000).

Evidence-based vocabulary instruction. The acquisition of vocabulary knowledge is critical in the development of reading skills. As early as 1924, researchers

noted that growth in reading power meant continuous growth in word knowledge. The larger the reader's vocabulary, the easier it is to make sense of the text (NICHD, 2000). As children develop language and vocabulary, it is learned both indirectly and directly. Vocabulary development is an intricate and important piece of literacy instruction. Students with strong vocabularies are better equipped to access the demands of content curriculum (Vitale & Romance, 2008). Beck et al. (2002) emphasize the importance of having a varied and substantial vocabulary. They believe that a "large vocabulary repertoire facilitates becoming an educated person to the extent that vocabulary is strongly related to reading comprehension in particular and school achievement in general" (p. 1). Those from language rich home environments with opportunities for conversations, reading, and other experiences with print and vocabulary have an advantage over their peers from economically disadvantaged homes, as well as culturally diverse learners (Lubliner & Smetana, 2005). This gap in vocabulary tends to grow as students from low socioeconomic status backgrounds, struggling learners, and culturally diverse students' progress through school. As a result, this becomes a significant barrier to overcome. Effective teaching of vocabulary words has been shown to improve word knowledge, especially for at-risk learners, as it provides a vocabulary foundation (Vitale & Romance, 2008).

Vocabulary instruction. The need for effective vocabulary instruction has been well documented. The National Reading Technical Assistance Center (Butler et al., 2010) synthesized the current research on vocabulary instruction. Only 14 studies were reviewed, and included students from pre-K through grade three. The authors stated,

"Vocabulary is generically defined as the knowledge of words and word meaning. More specifically, we use vocabulary to refer to the kind of words that students must know to read increasingly demanding text with comprehension" (p. 1). This synthesis took the findings of the National Reading Panel (NICHD, 2000), and distinguished eight findings that designate a research-based underpinning for the development of multifaceted vocabulary instruction. These include direct instruction of vocabulary words for specific text, repeated and multiple exposures to vocabulary, vocabulary words that are useful in multiple contexts, vocabulary tasks to be restructured when needed, active engagement of vocabulary instruction, and the use of computer technology (Butler et al., 2010).

Recommendations resulting from this synthesis point out that students need to have frequent exposure to targeted vocabulary words in order to increase the chances that they will understand and remember the meanings of new words. Direct and explicit instruction of targeted vocabulary words fosters the learning of new words. Also, the use of language engagement and questioning improves the word knowledge of students (Butler et al, 2010). The evidence is clear as to what strategies help students to engage in and develop vocabulary knowledge. The method on how this can be accomplished has been investigated by a multitude of researchers.

In 2003, Bryant, Goodwin, Bryant, and Higgins reviewed vocabulary interventions for students with learning disabilities that were categorized into four areas: computer-assisted instruction (CAI), fluency-building vocabulary practice activities, mnemonic strategy instruction, and concept enhancement instruction. They identified six articles that met the criteria for inclusion. Three of those studies evaluated mnemonic

strategy instruction, while only one study for each of the other three categories was evaluated. The mnemonic studies from this synthesis will be discussed in the section on mnemonic strategy instruction.

Jitendra, Edwards, Sacks, and Jacobson completed a meta-analysis of the research on vocabulary instruction involving students with learning disabilities in 2004. Nineteen vocabulary investigations that involved 27 studies were evaluated. The focus of their investigation was vocabulary instruction that included keyword mnemonics, cognitive strategy instruction, direct instruction, constant time delay, activity based methods, and computer-assisted instruction. Mnemonics studies evaluated in this review also included the investigations described by Bryant et al (2003). In addition, the 1986 research by McLoone, Scruggs, Mastropieri, and Zucker is included in this review.

Cognitive strategy instruction. Jitendra et al's (2004) investigation examined cognitive strategy instruction. This type of instruction provides students with strategies and a framework for understanding a semantic system of words. Ten group design studies included instructional practices that emphasized categorizing vocabulary words by noting similarities and differences among related ideas using semantic maps and semantic feature analysis. For example, Bos and Anders (1990) completed an investigation with 61 junior high LD students. Students were randomly assigned to four treatment groups: (1) direct instruction (DI), (2) semantic mapping (SM), (3) semantic feature analysis (SFA), and (4) syntactic/ semantic feature analysis (SSFA). Results indicated large effect sizes demonstrating gains over direct instruction compared to SM, SFA and SSFA. Bryant et al.'s (2003) study also used semantic mapping, semantic

feature analysis, and semantic/syntactic feature analysis for improving vocabulary with students showing gains as a result of the intervention.

Direct instruction. Direct instruction includes an explicit, systematic presentation of a word and its meaning. Jitendra and her colleagues explored several different types of direct vocabulary instruction: instruction in the meaning of a word from context (MC); meaning of a word given (MG) in which instruction focused on word meanings; and meanings practiced (MP) where meanings of preselected words were presented and practiced with flash cards prior to reading a story. Similar to Jitendra et al., Bryant and her colleagues looked at a direct instruction model called the fluency-building vocabulary practice.

In a 1992 study by Stump, Lovitt, Fister, Kemp, Moore, and Schroeder, 236 general education students, and 91 LD students were provided content specific vocabulary and related concepts as a whole group. Through independent study, students had to learn the vocabulary, and then were quizzed on it. Results indicated student gains as a result of this treatment, although no effect size was reported.

Constant time delay. Another direct instruction strategy is Constant time delay as an instructional practice where the teacher presents a vocabulary word with an initial 0-second time delay. The instruction presents a vocabulary word, and then immediately states the definition. In subsequent trials, the teacher presents the word; pauses for a certain amount of time (3-5 seconds), and prompt the student for the correct definition. In a multiple probe design across students, and replicated across sets of word definitions

for two LD students, Schuster, Stevens, and Doak (1990) found improved post-test performance (Jitendra et al., 2004).

The PHAST PACES program. Improving vocabulary knowledge was also the focus of a study by Lovett, Lacerenza, DePalms, and Frijters (2011). A quasi-experimental group design that integrated word identification and text comprehension strategy instruction was the focus of this investigation. The lessons in this intervention combined direct instruction with dialogue-based metacognitive training, which has been found to be a highly effective instructional practice (Allen & Hancock, 2008; Berkeley & Riccomini, 2011; Berkeley, Mastropieri, & Scruggs, 2011; Jitendra & Gajria, 2011; Johnston, Barnes, & Desrochers, 2008; Mastropieri, Scruggs, & Graetz, 2003). This quasi-experimental design included 268 students in the treatment group, and 83 students in the control condition. All of these high school students were identified as having a reading disability. The PHAST PACES program had three tracts: one that focused on Phonological and Orthographic Knowledge; the other two were Text Knowledge and Text Comprehension. Students who received the PHAST PACES intervention achieved higher post-test scores on all reading outcomes relative to students in the control group, with an average ES .68 across all measures.

Activity-based instruction. Activity-based methods use developmentally appropriate discipline specific activities within the content. Scruggs, Mastropieri, Bakken, and Brigham (1993) conducted a within-subjects crossover design with 26 middle school students with LD. Students engaged in practical hands-on learning as they interacted with new vocabulary. Results were positive when instruction was

appropriately structured to facilitate content word knowledge of students with learning

disabilities, yielding a mean effect size of .45 (Jitendra et al, 2004).

Computer assisted instruction. Computer assisted instruction (CAI) is another

activity-based strategy that supplements teacher instruction. This type of instruction

provides drill and practice on basic skills and teaching content knowledge. Both reviews

evaluated CAI for the use of vocabulary development. Although Bryant and her

colleagues found that students showed improvements using CAI, results for Jitendra et

al's review indicated that this type of vocabulary instruction was mixed.

The overarching conclusion of both Jitendra et al's and Bryant et al's analyses is

that word knowledge and vocabulary can provide improvements in reading

comprehension. As a result, increased emphasis on vocabulary development is a strong

justification. The goal of vocabulary instruction should be to teach word meaning, which

also bolsters reading comprehension, as well as conceptual relationships and prior

knowledge (Bryant et al. 2003)

Vocabulary knowledge and content reading. Vaughn and colleagues (2013)

completed a study aimed to determine the efficacy of a content acquisition and reading

comprehension treatment, implemented by 8th grade social studies teachers. This within-

teacher design used random assignment to either the treatment or control groups. Five

teachers taught both the treatment classes (n = 261) and the control classes (n = 158).

Treatment classes used practices focused on teaching essential words, text as a source for

reading and discussion, and team-based learning approaches. Findings revealed that the

treatment students outperformed the comparison students on all three-outcome measures

(content knowledge, content reading comprehension, and standardized reading comprehension). Effect sizes were 0.17 for content acquisition, 0.29 for content reading comprehension, and 0.20 for standardized reading comprehension (ES = 0.20). Results of this investigation demonstrate support for the treatment condition in improving both knowledge acquisition, and reading comprehension within content area instruction.

Additional investigations in the areas of vocabulary development and content knowledge included a within-subjects design by Seifer and Espin in 2012. These researchers examined the effects of text reading, vocabulary learning, and combined approaches to instruction. The vocabulary learning intervention was designed to improve knowledge of text-specific terms used in science text. Each word was typed on the front of a 3×5 index card. The textbook definition, a descriptive sentence intended to connect the word to background knowledge, and two searching questions were included on the back of the card. Similar to the constant time delay described by Jitendra et al. (2004), students were shown each word one at a time as the definition was read aloud by the teacher. Students then repeated as much of the definition as they could remember. Next, the vocabulary word was used in a sentence, and the students repeated the sentence. The teacher then prompted students until they were able to verbalize the definition. Next, the instructor used the word in a sentence, and the students repeated the sentence. The students were then asked two probing questions. If the students could not answer a question, the teacher supplied the answer and the students repeated it. This process was repeated a second time. As a result of this direct instruction, students performed better on the vocabulary knowledge measures when they received instruction that focused on

vocabulary learning. Effect sizes significantly favored the treatment condition equaling 1.1.

Correlations. It has been demonstrated in a number of studies over the years that there is a positive correlation between vocabulary knowledge and reading comprehension (Pearson, Hiebert, & Kamil, 2007). There have been established linkages between vocabulary knowledge, levels of literacy and reading comprehension. In other words, vocabulary knowledge, reading comprehension, and literacy levels are interdependent and essential to student achievement (Vitale & Romance, 2008). In order to understand narrative texts, as well as expository texts in content subjects, secondary students must have strong vocabulary knowledge (Watson, et al., 2012). The increasing vocabulary demand of content curriculum is cited as a potential cause of reading difficulties (McKeown, Crosson, Artz, Sandora, & Beck, 2013).

As students navigate through elementary, into middle school, and beyond, a great deal of content area learning is dependent upon technical language specific to the discipline. Introducing vocabulary that students need to understand in order to access key ideas within the content and by using vocabulary development instruction is an influential way to generate content comprehension, as well as content vocabulary (Moore & Hinchman, 2006). The use of evidence-based vocabulary strategies for all students has demonstrated increased achievement in both vocabulary knowledge and reading comprehension (Lubliner & Smetana, 2005; Nelson & Stage, 2007).

As noted earlier, Johnston, Barnes, and Desrochers (2008) discussed the current knowledge base of reading comprehension. Among this research, the importance of

assessing meaning from the surface code through vocabulary and grammar is a vital component of reading comprehension. Watson et al. (2012) stated that vocabulary knowledge is important for secondary students to understand not only narrative texts, but also expository texts in various academic disciplines.

Summary of Research on Vocabulary Instruction

The literature review substantiates that there is a correlation between vocabulary knowledge and reading comprehension. An assortment of vocabulary development instruction has been used and evaluated with differing but positive results. Consequently, as this review indicates, creative vocabulary strategies facilitate language learning and content acquisition. As a part of vocabulary research, mnemonic vocabulary instruction has demonstrated positive results for vocabulary acquisition, and consequently comprehension of content curriculum. It has been shown that without this type of instruction, struggling readers fall behind their typically achieving peers. The use of mnemonic vocabulary strategies as a viable method for all learners to increase vocabulary knowledge will be demonstrated in the following section of this review.

Mnemonic Vocabulary Instruction

A summary of the literature review on mnemonic interventions presented here includes descriptions of the types of mnemonics used; effect sizes, overall results, and how this type of intervention can impact content reading.

Although vocabulary and reading comprehension are strongly linked, this relationship can often be complex; especially for students who lack conceptual and cultural knowledge, as well appropriate instruction (Vitale & Romance, 2008).

Struggling learners are often at a disadvantage relative to their middle class peers, as they do not possess the background for responding to routine vocabulary instruction (Kelley et al, 2010). Vocabulary interventions are necessary in order to access curriculum content (Spear-Swerling in Ruddell & Unrau, 2004). Mnemonic interventions can provide this type of vocabulary knowledge, by way of various types of creative strategies.

Visual mnemonics. Visual mnemonics connects new information with a familiar image. Visual mnemonics can be useful tools for students with LD and other struggling learners, as they often require concrete examples that elicit background knowledge. "Students with disabilities learn new information better when concreteness is enhanced, and when new information is effectively encoded and elaborated with prior knowledge" (Mastropieri, Scruggs, & Whedon, 1997, p. 18). In fact, mnemonic instruction has repeatedly produced better recollection of historical information for students with LD than fact memorization (Brigham, Scruggs, & Mastropieri, 1995; Mastropieri & Scruggs, 1989; Mastropieri, Scruggs, Bakken, & Brigham, 1992).

Keyword mnemonics. Keyword strategies use concrete, similar sounding words to aid students in the recall of new vocabulary words. For example, for the term Cold War, the word "hold" could be used. This new keyword would be associated to an interactive illustration that depicts the definition or concept and the keyword as they relate to one another (Marshak, Mastropieri, & Scruggs, 2011). This type of strategy uses prior knowledge to facilitate meaning of unfamiliar words. Keywords are paired with interactive illustrations that make evident the meaning of the new word (Fontana, Scruggs, & Mastropieri, 2007; Mastropieri, Scruggs, & Whedon, 1997).

Pegword mnemonics. Pegword mnemonics uses number order as part of what needs to be recalled for learning new information. Pegwords can also be used with keywords and illustrations. Scruggs and Mastropieri (2000) used common pegwords to substitute for numbers such as one for bun, two for shoe, three for tree, etc. By using this combination, it has been found to be useful for learning the numerical order of specific concepts (Mastropieri, Scruggs, & Whedon, 1997).

Reconstructive elaborations. Reconstructive elaborations are used to ease the recall of facts. This mnemonic device uses combinations of mimetic acoustic, symbolic, and first letter mnemonics (Fontana, Scruggs, & Mastropieri, 2007; Marshak, Mastropieri, & Scruggs, 2011). Acoustic reconstructions assist students in learning names of people, places, events, and unfamiliar vocabulary words specific to the content (Mastropieri & Scruggs, 1989). A vocabulary word is changed to one that is familiar in sound. An interactive illustration is then used to make links to name, place, or event. In order to present information that is familiar to students, symbolic reconstructions can be used (Fontana, Scruggs, & Mastropieri, 2007; Marshak, Mastropieri, & Scruggs, 2011). By matching an interactive illustration to a vocabulary word, that word is represented symbolically in order to foster recall (Mastropieri & Scruggs, 1989).

Mnemonic strategy interventions. As a vocabulary intervention, mnemonic strategies use a keyword that provides a similar sounding familiar word to connect with the unknown word. The imagery link gives a picture of the definition of the unknown word interacting with a picture of the keyword. The phonetic and visual imagery components of the target word coupled with the meaning, worked to enable

memorization and recall of specific vocabulary (Bryant et al, 2003; Jitendra et al, 2004; Fontana, Scruggs, & Mastropieri, 2007; Mastropieri, Scruggs, & Whedon, 1997). The findings from Bryant and colleagues' research demonstrated significant gains for the students in the mnemonic conditions for all three studies (2003). Upon examination of six group designs that stressed the importance of explicit imagery links in order to improve definition recall of targeted words, strong effect sizes resulted in favor of the treatment condition with a mean effect size of 1.93 (Jitendra et al, 2004).

Mnemonic strategies have been found to enhance memory by teaching students to develop a way to learn information in such a manner that it is easier to remember. These strategies are found to be useful in learning new vocabulary words (Mastropieri & Scruggs, 1998). Using pictorial mnemonic strategy instruction assists students in associating a target word with a keyword that is phonologically similar. The students learn to relate the target word definition to the keyword, and learn to associate the correct meaning (Steele & Mills, 2011.)

Mnemonic strategy research. A number of studies specific to social studies content, exploring the efficacy of using keyword mnemonics for vocabulary learning have been completed over the last three decades. These studies have sought to determine the effectiveness of a keyword strategy to facilitate learning. By providing mnemonics for struggling readers, key content-area vocabulary definitions are easier to remember (Bryant et al., 2003; Mastropieri, Scruggs, Levin, Gaffney, & McLoone, 1985). Findings suggest that mnemonic strategies, including the keyword method, can be

effective for a variety of content areas (Scruggs, Mastropieri, Berkeley, & Marshak, 2010).

Research syntheses summarizing the effectiveness of mnemonic instruction validate the use of this type of vocabulary intervention. Mastropieri and Scruggs (1989a) reported on the outcomes of 24 research studies on mnemonic instruction for students with mild disabilities. A total of 983 students were involved, and a significantly large overall mean effect size of 1.62 (SD = 0.79) was reported. Students in the mnemonic condition scored 75% correct on a post-assessment compared to only 43.8% correct for the students in the control group. In a follow-up meta-analysis of 34 studies, mnemonic strategy instruction for students with disabilities at the secondary level was reported. This report identified a mean overall effect size of 1.38. These effect sizes combined are substantial, and demonstrate a consistency among special education research (Scruggs & Mastropieri, 2000).

Mastropieri, Scruggs, Levin, Gaffney, and McLoone (1985) investigated the use of mnemonic pictures, and mnemonic imagery in two studies. Thirty-two seventh-grade students participated in the mnemonic picture condition, and thirty seventh-grade students participated in the mnemonic imagery study. These two group post-test designs randomly assigned students to one of two conditions, and stratified them by grade level. In both studies, the researcher administered instruction individually. Results indicated substantial and significant improvements in mean recall for both studies. Students in the mnemonic pictures condition scored 79.5% correct compared to 31.2% correct for the

control students. Students in the mnemonic imagery condition scored 69.3% correctly compared to 46.7% correct for the control students.

As described by the Bryant, Goodwin, Bryant, and Higgins meta-analysis (2003), Condus, Marshall, and Miller (1986) conducted an investigation that employed keyword images in the treatment condition. This study included 60 junior high students in a pre-test, post-test design. The researcher delivered the intervention in a small group setting. Also described by this review, Mastropieri, Scruggs, and Fulk (1990) evaluated the use of keyword images using a two group design that stratified students by grade level, and randomly assigned them to either the treatment or control condition. Twenty-five students in sixth-grade were provided individualized instruction delivered by the researcher. Both of these studies found that students in the treatment groups significantly outperformed the students in the control groups.

In this investigation, one group of students received mnemonics instruction, and one group received directed rehearsal instruction in a two group post-test only design. Like the investigations by Mastropieri et al. (1985), and Mastropieri, Scruggs, and Fulk (1990), this study was stratified by grade level, and students were randomly assigned to either the treatment or control groups. McLoone, Scruggs, Mastropieri, and Zucker (1986) completed an investigation that yielded results on mean recall strongly in favor of the mnemonics condition with effect size = 3.13.

Wolgemuth, Cobb, and Alwell (2008) completed a systematic review on the effects of mnemonic interventions on the academic outcomes for students with disabilities. They evaluated a total of 20 studies that included 669 students with

disabilities. Every investigation employed three types of mnemonic strategies: keyword, keyword–pegword, and reconstructive elaborations. Seventeen of these studies used keyword mnemonics for the intervention groups. Of the twenty studies, fourteen were post-test only control group designs and six were within-subject crossover designs. In almost every investigation, students were instructed to use information they already knew in order to learn new information. The average effect-size for all 20 studies was 1.38.

Notable studies from this synthesis included Mastropieri and Scruggs (1988), in which the keyword mnemonic strategy was used to recall U.S. state capitals. Twenty-seven middle school students with learning disabilities participated in a within-subject design. Students in this investigation received both traditional and mnemonic instruction in counterbalanced order. Significant effects were shown for the treatment group on chapter tests, with an effect size of 1.13.

Scruggs, Mastopieri, Brigham, and Sullivan (1992) investigated the effects of mnemonic reconstructions on the spatial learning of adolescents with learning disabilities. Thirty-nine seventh and eighth grade students identified as LD were randomly assigned to treatment and control groups. Students in the mnemonic conditions were taught the keywords and color codes for specific battles on a map. Results favored the treatment students as they scored significantly higher than the control group students.

Mastropieri, Scruggs, and Levin (1985, 1986) also used keyword mnemonics for vocabulary word recall. Results from both of these investigations yielded strong effect sizes of 2.45 and 1.05, respectively. Scruggs, Mastropieri, McLoone, Levin, and Morrison (1987) conducted a study for vocabulary word recall. The mnemonic condition

students significantly outperformed their control counterparts, resulting in an effect size of 2.10. As described, the findings of Wolgemuth and associates (2008) support previous reviews of mnemonic interventions, as strong effect sizes were reported in favor of all treatment groups.

Support for the use of mnemonics in the secondary social studies classroom is evident in the findings of Hall, Kent, McCulley, Davis, and Wanzek (2013). Their analyses of intervention research suggest the use of instructional strategies that teachers can use to help secondary students comprehend social studies texts, and remember information from content specific text. Two strategies most frequently found by the research to have the greatest effect size are mnemonics and graphic organizers. When students learn to use mnemonics or graphic organizers for learning social studies content, large to moderate effect sizes have been reported (Gajria et al., 2007; Swanson et al., 2012). The authors noted that visual mnemonics connect new information with a familiar image.

Since "students with disabilities learn new information better when concreteness is enhanced, and when new information is effectively encoded and elaborated with prior knowledge" (Mastropieri, Scruggs, & Whedon, 1997, p. 18), visual mnemonics can be useful tools for students with LD. Mnemonic instruction has repeatedly produced better recall of historical information for students with LD than more rote instructional routines such as rehearsal (e.g. Brigham, Scruggs, & Mastropieri, 1995; Mastropieri & Scruggs, 1989; Mastropieri, Scruggs, Bakken, & Brigham, 1992).

Mnemonic strategy interventions have been used for all grade levels from elementary to high school. Students with disabilities have been taught vocabulary using the mnemonic condition for social studies content with positive results (Brigham, Mastropieri, & Scruggs, 1995; Fontana, Scruggs, & Mastropieri, 2007). These interventions have focused on the names of states and capitals (Mastropieri et al., 1992), information about U.S. Presidents (Mastropieri, Scruggs, & Whedon, 1997), and units on 20th century world history (Fontana, Scruggs, & Mastropieri, 2007) as well as Industrialism, Progressive Movement, and Imperialism (Marshak et al., 2011).

Fontanta, Scruggs, and Mastropieri (2007) extended the research using mnemonic strategy instruction in the co-taught setting. Four inclusive world history classes at the high school level delivered mnemonic strategies and direct instruction to 59 students. A within-subjects research design compared the mnemonic strategies and direct instruction on academic performance. The results of this study demonstrated significantly higher scores on a cumulative multiple-choice test on content using mnemonic strategies compared to the direct instruction. Interestingly, ELL students scored higher after using the mnemonic instruction compared to typical peers, as well as students with disabilities as measured by an obtained group by interaction condition.

Marshak and her colleagues (2011) conducted an investigation extending previous efforts to provide instructional support to students with mild disabilities in inclusive secondary classrooms by using mnemonic strategies coupled with peer tutoring. Participants in this study were a combination of 186 seventh-grade students, 42 students with disabilities, and 16 ELL students. Eight co-taught classrooms were randomly

assigned to the curriculum enhancement (which included mnemonic strategies) or traditional instruction conditions. Substantial gains were reported for the use of mnemonic materials for target items on the cumulative test with an effect size of 1.23 for both non-disabled students and student with disabilities (Marshak, Mastropieri, & Scruggs, 2011).

Summary of Research on Mnemonic Vocabulary Instruction

Strong effect sizes have been found in a large number of mnemonic vocabulary interventions. By developing vocabulary understanding and usage through mnemonics, students are provided additional tools for accessing content material; thus experiencing greater academic achievement. The mnemonic studies reported in this review varied in classroom types, student population, service delivery and content area. The early research primarily took place in self-contained special education classrooms with high-incidence disability students. Subject matter ranged from science, social studies, math, and language arts. More recent research included students with and without disabilities, as well as second language learners. Classroom settings varied from self-contained classrooms to co-taught settings. Investigations in general education, inclusive classrooms, without special education support seem to be lacking. Consequently, this lack of research in inclusive classrooms was the reason that the present investigation was completed in the general educational environment. It is evident from the research that the use of mnemonic strategy instruction leads to positive results for struggling students.

Summary. The literature reviewed in this chapter provided evidence-based interventions designed to facilitate vocabulary knowledge and ultimately, reading

comprehension. The body of research on improving reading comprehension provided

skills and strategies found to successfully assist students in accessing content curriculum.

Instruction that is highly structured, explicit, provides scaffolding, and is intense was

recommended within a balanced literacy program. The literature identifies a balanced

literacy program as one containing word study, fluency building, vocabulary

development and comprehension. Using varying strategies within this framework have

been found to be efficacious for struggling readers.

Although struggling readers benefit from a comprehensive approach to reading,

all students can profit from these creative strategies. As noted in this review, vocabulary

development is an important component of balanced literacy instruction. It plays a

critical role in the development of reading comprehension, and a relationship between the

two has been well documented. The use of vocabulary strategies within the literacy

classroom has proven to improve word knowledge within the content areas; in particular

for struggling learners as it builds a much needed vocabulary foundation. While a

number of vocabulary interventions were presented in this review, it was found that

mnemonic strategy instruction was most beneficial for all types of learners. In particular,

students with learning disabilities, who often have memory issues, mnemonics provided

effective tools for remembering factual information and key vocabulary.

In the research described in this dissertation, the efficacy of a mnemonic type of

instructional strategy was explored in social studies classrooms to determine if equally

positive results for this intervention could be obtained with heterogeneous groups of

learners. Effect sizes showed significant differences in favor of the treatment groups;

especially for students with disabilities. In addition, positive results for second language

learners within the social studies co-taught classroom indicates that mnemonic instruction

can positively benefit all learners. Therefore, this investigation replicated and extended

the research using mnemonics vocabulary strategies within the heterogeneous, inclusive

setting.

CHAPTER THREE

This section describes the design of this study, and the methods used for this investigation. The subsequent sections include the research design descriptions, operational definitions, materials, participants, procedures, dependent measures, data for analysis, and treatment fidelity.

Research Design

A mixed methods study was used to determine the effects of a mnemonic vocabulary intervention on content vocabulary acquisition and comprehension. A within-subjects crossover design in which all of the students received the mnemonic strategy intervention at different times comprised the quantitative component of the research. The qualitative components consist of a student satisfaction survey and teacher interviews.

This within-subjects crossover type of design has frequently been used with high-incident populations, as it enhances statistical power, while reducing difficulties associated with student attrition (Scruggs & Mastropieri, 1989a, 1994; Fontana et al., 2007). High-incidence populations within special education comprise 94% of all students with disabilities. The most common disabilities are specific learning disabilities, mild intellectual disabilities, other health impairments, and emotional disabilities (NCLD.org, 2014). Each class was randomly assigned to a counterbalanced treatment design in which

there were two possible conditions, and the subjects were tested for both conditions. By counterbalancing the order of the conditions, carry over effects are less likely to occur.

In this four-week study, intervention of the mnemonic treatment condition was provided in Unit 1 for class A, and traditional vocabulary instruction for Unit 2. Class B received traditional vocabulary instruction for Unit 1, and the mnemonic treatment condition for Unit 2. As a result, all students were provided both the mnemonic intervention and the traditional instruction, and served as their own control (Fontana, Scruggs, & Mastropieri, 2007; Scruggs & Mastropieri, 1989a, 1994). Crossover designs have become popular in educational research as every subject is exposed to the intervention, which permits a reduction in sample size for determining the effects of the intervention (Fontana, Scruggs, & Mastropieri, 2007; Scruggs & Mastropieri, 1989a, 1994).

Participants. Twenty-six students and two teachers in two heterogeneous general education sixth-grade social studies classes participated in this mixed methods study. Two teachers and their students within these classrooms participated in a within-subject crossover design.

Human subject protections. Submission to the University's Institutional Review Board (IRB) was made prior to the beginning of the study. The IRB application is included in Appendix A. Based on the nature of this investigation, the IRB replied that, "the Office of Research Integrity & Assurance (ORIA) has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations." Upon receipt of IRB approval, all necessary paperwork was provided to the school system's Associate

Superintendent of Instruction and the building level administration. The IRB

determination letter is included in Appendix B.

In addition to the IRB submissions, letters describing the study and informed

consent forms were provided to the teachers, and were sent home for parents' permission

for student participation in the study. Student assent forms were also provided to the

participating students. The following information was given: (a) type of research

procedures; (b) risks associated with participation; (c) benefits associated with

participation in this research; (d) confidentiality pertaining to all student information; (e)

participation in this study; (f) alternatives to participation; and (g) researcher contact

information. Informed consent forms for parents and teachers, as well as student assent

forms can be found in Appendices C, D, E and F.

Student participants. All thirty-one students in the two classrooms were given

consent and assent forms in order to participate in this research study. Twenty-six

returned the signed parental consent and assent forms agreeing to participate. Of those

twenty-six, 9 students (35%) were identified as students with disabilities, and receive

some level of special education support as described by federal, state and district

regulations. Five of these students were identified as having specific learning disabilities

(SLD)-two of which were also English language learners (ELL). Two students had a

primary identification of a specific learning disability, and a secondary identification of

other health impaired (OHI). One student had a primary identification of specific

learning disability with a secondary identification of emotionally disabled (ED), and one

was identified as other health impaired. Four students (15.3%) were identified as ELL.

Two of the nine students identified as learning disabled were dual identified as they receive services for both special education and the ELL program.

The students with disabilities (SWD) who participated in this investigation were able to access the general education curriculum with specific accommodations. Of the nine SWDs, six had a "read aloud" accommodation, in which texts, tests and quizzes, were read aloud. All of the students received extended time for tests, quizzes, and large assignments. Six students received small group testing, in which they went to a resource room to take tests and quizzes. Four IEP's stated, "large assignments and projects were to be broken down into smaller components." One student identified as emotionally disabled was permitted per the IEP to take frequent breaks during testing. Finally, one student was permitted to respond orally to tests and quizzes.

Of the total 26 students-14 were male, and 12 were female. According to school data, 18 students (69%) were identified as Caucasian, four (15%) were African American, two (7.8%) were Hispanic, one (3.8%) was Indian, and one (3.8%) was Asian.

Table 1 lists the students by number, class (A or B), gender, ethnicity, special education eligibility and test scores for the Iowa Test of Basic Skills (ITBS) Reading grade level proficiency, and the 5th grade Standard of Learning Reading (SOL) test scores (a score of 400 is considered proficient). It is important to note that the number of students with and without disabilities is comparable in the two classes as shown by the independent sample t-test. Results of this analysis indicate that there was no statistical difference between the classes on both the SOL and ITBS; which indicates that reading levels as measured by these tests were comparable among all students.

Table 1

Student Demographic and Testing Information

Class	Student ID	Gender	Ethnicity	Eligibility	Test Scores
A	1	Female	Caucasian	None	ITBS: 5.7; SOL: 403
A	2	Female	Caucasian	None	ITBS: 5.6; SOL: 389
A	3	Male	Caucasian	LD/OHI	ITBS: 3.4; SOL: 329
A	4	Male	Caucasian	None	ITBS: 6.0; SOL: 428
A	5	Female	Afr-American	LD	ITBS: 6.0; SOL: 439
A	6	Female	Caucasian	None	ITBS: 6.5; SOL: 456
A	7	Male	Caucasian	None	ITBS: 4.6; SOL: 419
A	8	Male	Afr-American	None	ITBS: 6.1; SOL: 411
A	9	Female	Caucasian	LD	ITBS: 3.3; SOL: 309
A	10	Female	Caucasian	None	ITBS: 8.3; SOL: 437
A	11	Female	Caucasian	None	ITBS: 2.9; SOL: 283
A	12	Male	Hispanic	OHI	ITBS: 3.8; SOL: 333
A	13	Male	Caucasian	LD/OHI	ITBS: 3.9; SOL: 403
A	14	Male	Afr-American	LD	ITBS: 4.6; SOL: 419
B	15	Male	Hispanic	None	ITBS: 4.2; SOL: 389
B	16	Female	Asian	LD	ITBS: 4.9; SOL: 436
B	17	Male	Caucasian	LD/ED	ITBS: 3.7; SOL: 260
B	18	Female	Caucasian	LD	ITBS: 3.3; SOL: 371
B	19	Male	Caucasian	None	ITBS: 7.9; SOL: 419
B	20	Male	Caucasian	None	ITBS: 3.10; SOL: 419
B	21	Female	Caucasian	None	ITBS: 3.7; SOL: 394
B	22	Male	Indian	None	ITBS: 5.3; SOL: 367
B	23	Female	Caucasian	None	ITBS: 4.2; SOL: 349
B	24	Male	Afr-American	None	ITBS: 3.3; SOL: 371
B	25	Male	Caucasian	None	ITBS: 3.9; SOL: 403
B	26	Female	Caucasian	None	ITBS: 4.0; SOL: 349

Note. LD = learning disabilities; OHI = other health impaired; ED = emotional disabilities. ITBS = Iowa Test of Basic Skills Grade Level Reading Score. SOL = 5th grade Standard of Learning Reading Score.

Group comparison. Using SPSS, an independent sample t-test was run in order to determine whether any statistical significance existed between the two groups based on their scores from the ITBS reading test and the fifth grade SOL reading test. Results of this analysis are provided in Table 2 and 3, and indicate that there was no statistical difference between the classes on the ITBS ($t(24) = 1.801, p = .084$) and SOL ($t(24) = $ (789, $p = .433$) test scores.

Table 2

Means and Standard Deviations of ITBS GL and SOL Scores Across Classes

Class	ITBS GL Mean (SD)	SOL Mean (SD)
	5.40 (1.70)	393.60 (56.74)
Class A		
Class B	4.30 (1.28)	377.30 (46.27)

Note. ITBS = Iowa Test of Basic Skills Grade Level Reading Score. SOL = 5th grade Standard of Learning Reading Score.

Table 3

Differences Between Classes on ITBS GL and SOL Scores

	df	*t*	Sig. (2 tailed)
	24	1.80	.08
ITBS GL Reading			
Reading SOL	24	0.79	.43

Note. ITBS = Iowa Test of Basic Skills Grade Level Reading Score. SOL = 5th grade Standard of Learning Reading Score.

Teacher participants. The two teachers participating in this investigation were general education social studies teachers assigned to one of two sixth grade teams. Both teachers were males-one Caucasian, and one African-American. At the time of the study, the first teacher was 57 years old and had been teaching for 22 years. He holds a Master's degree in Education, and is licensed to teach Early Education NK-4, History, Social Sciences, and Middle Education Grades 4-8. He was also, at the time of this investigation, in a doctoral program seeking to earn his EdD. The second teacher was 68 years old, and had 45 years of teaching experience when the study was conducted. He has a bachelor's degree in Government, and is licensed to teach grades 4 through 7 and U.S. Government. Both teachers have taught in this school district their entire teaching careers. The first teacher has taught exclusively at the middle school where the study took place.

Although both teachers have successfully taught sixth-grade social studies for many years, they were both very enthusiastic to participate in this investigation. As they teach students of varying abilities, they were interested in learning new vocabulary and literacy strategies for meeting the needs of a diverse population of learners. Inclusive classrooms require a great deal of differentiation, and these teachers are always seeking to improve their instruction for all learners.

Table 4

Teacher Characteristics

Teacher	One	Two
Type of Educator	GE	GE
Number of Years Teaching	22	45
Highest Degree Held	M.Ed.	B.S. Government
Licensure	NK-4, History and SS, 4-8	4-7, U.S. Government
Age	57	68
Race	Caucasian	African-American

Note. GE = General Education Teacher; B.S.= Bachelor of Science degree; M.Ed.= Masters of Education Degree

Setting. This investigation was conducted in a predominately rural school district located in a mid-Atlantic state. The middle school chosen is one of five middle schools among a total of twenty schools in the school district. The total school board budget for fiscal year 2014 was $127,576,560, with a per pupil cost of $11,363. The total student population of the school district was 11,035. Student demographics consist of 74.38% Caucasian, 10.52% Hispanic, 9.36% African-American, 2.04% Asian, 0.30% Indian, and 3.41% Multi-cultural. Approximately 11.16% of students are identified as having a disability, 11.9% are identified as English Language Learners, and 32.7% are eligible for free or reduced lunch.

At this particular middle school, the total student population was 491 students in grades six, seven and eight with 50 total faculty members. Demographic breakdown was

40% Caucasian, 38% African-American, 18% Hispanic, 2% Asian, 2% Other, 12% Students with Disabilities, 29% Economically Disadvantaged, and 14% Limited English Proficient. Twenty-nine percent of the student population was eligible for free or reduced lunch. The demographics of this middle school are different from the overall school district, as the African-American and Hispanic population is significantly larger, with a smaller Caucasian population. This may be due to the rural area from which this school serves students compared to other parts of the school district, which are more suburban and a larger middle-class population. This middle school provides a continuum of special education services including both self-contained and collaborative content area classes, as well as a self-contained class for students with emotional and multiple disabilities.

The middle school schedule was comprised of seven 57-minute periods with an additional 30-minute intervention and enrichment period. With the exception of students in the self-contained multiple disabilities class, all sixth and seventh-grade students were assigned to a grade level team consisting of English, math, science, and social studies. Eighth-grade students followed a schedule that included English, math, science, and social studies, but were not part of the team concept as they prepared for transition to the high school.

Classrooms. The participating classes were comprised of a total of 31 students and two teachers. Class A had seventeen students with one general education teacher and no instructional assistant. The classroom was a large room with windows on one side. Instead of desks with chairs that are one unit, each student had a small desk with a separate pull-out chair. The desks were arranged in groups of four to facilitate

cooperative learning activities. A smart board was at the front of the room with an overhead projector so that the teacher could display PowerPoint presentations, as well as show video clips relevant to the unit instruction. The teacher's desk was located at the side of the room by the windows.

Class B was set up in a similar fashion, and the classroom was the same size as Class A. This class had fourteen students, one general education teacher and no instructional assistant. The desks were the same type as in Class A, but were arranged in pairs rather than small groups. When cooperative learning activities were planned for more than two students, the desks were re-arranged. A smart board was also at the front with an overhead projector that was attached to a laptop computer for PowerPoint presentations and video clips for instruction. The teacher's desk was located opposite the windows, by the classroom door.

Independent Variable

The independent variable for this investigation was the use of keyword mnemonics. Keyword mnemonics connect new information with a familiar image. Providing concrete images and information for activating prior knowledge enhances the ability to learn new information, especially for SWDs. According to Mastropieri, Scruggs, and Whedon (1997), "students with disabilities learn new information better when concreteness is enhanced, and when new information is effectively encoded and elaborated with prior knowledge" (p. 18).

The teachers of both classes provided students their typical instruction throughout the study period, which consisted of class lectures, note-taking routines, reading,

vocabulary instruction, and homework assignments. This "business as usual" instruction was maintained throughout the study period, with the exception of the mnemonic vocabulary instruction for the first fifteen minutes of class for each treatment condition.

Students in the mnemonic condition were provided instruction using keyword mnemonics cards. Each term had a script that introduced the keyword, connected the keyword to the meaning, and taught the procedure to retrieve the definition using the keyword and pictorial representation (Fontana, Scruggs, & Mastropieri, 2007). The teacher showed the students a completed mnemonics card for each vocabulary word on the projector, which is provided in Appendices G and I. Students were instructed to write the definition of the vocabulary word on their mnemonics card, and to replicate the keyword illustration to the best of their ability. See Appendices H and J for samples of student mnemonics cards.

The control condition consisted of traditional vocabulary instruction. This condition provided vocabulary instruction within content teaching. Word walls were used to highlight unit vocabulary, especially difficult words. Students were encouraged to highlight vocabulary that they had the most difficulty with, and add those words to the class word wall, by using notecards with the word and definition.

Teaching materials. With the participation and input of both teachers, the researcher developed keyword mnemonic instructional materials. Materials for both classes included the classroom textbook, United States History: From Civil War to Present (Harcourt, 2003), classroom binders, interactive class notes, PowerPoint presentations of the mnemonic cards, and keyword mnemonic cards. The researcher

worked with both teachers to determine the appropriate vocabulary content for the keyword cards, and created the keyword mnemonic materials. The social studies content covered during this intervention was the Cold War era and the Civil Rights movement.

Teaching materials: Both conditions. Specific vocabulary identified from the textbook was derived from the social studies unit. Vocabulary pre-tests were given to students in both conditions to determine the focus vocabulary for both mnemonic and direct vocabulary instruction. Vocabulary words for the Cold War era were *Iron Curtain, containment, Cold War, Harry S. Truman, Fair Deal, Ike (Dwight D.) Eisenhower, George C. Marshall, desegregate, cease fire, demilitarized zone, McCarthyism, arms race, Geneva Summit, Taft-Hartley Act, Joseph Stalin, Berlin Airlift, communism, Berlin Wall, North Atlantic Treaty Organization,* and *Union Soviet Socialist Republic.* For the Civil Rights movement, *vocabulary words were integrate, boycott, National Association for the Advancement of Colored People, Thurgood Marshall, Brown vs. Board of Education- Topeka, Kansas, Rosa Parks, Martin Luther King, Jr., Lyndon B. Johnson, Great Society, civil disobedience, Freedom Riders, Montgomery Bus Boycott, Civil Rights Act of 1964, sit-in, Malcolm X, Feminist Movement, Sandra Day O'Connor, Cesar Chavez* and *diverse.*

Manuals were provided for both conditions. Each teacher received a manual that described both treatment and control instruction as they both provided the mnemonic strategy instruction albeit at different times. In section one of each manual, explanations were provided on: (a) the purpose of the study; (b) the potential benefits of the study; (c) the materials to be used; (d) the curriculum content for instruction; (e) teacher roles; (f)

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when to use materials for the specific condition; (g) when to give pre-tests and post-tests; (h) record-keeping; and (i) the need for classroom observations.

Section two of the manual contained forms and copies of the assessments. These included copies of consent forms for parents and teachers, student assent forms, record sheets, observation forms, and all pre and post-tests.

Teaching materials: Treatment condition. Section three in the teachers' manual contained scripts for each unit. When introducing the mnemonic strategy, teachers provided students with a PowerPoint presentation that introduced each vocabulary word with the keyword illustration and definition. The researcher developed each mnemonic vocabulary card; the definition and keyword definition was validated by another researcher familiar with the development and use of mnemonic vocabulary strategies for social studies. For example, for the content vocabulary word, "Cold War," the mnemonic flashcard looked like:

Cold War (hold)	**Tensions between the NATO (free countries) and the USSR (communist). These countries never engaged in full fledge combat.**
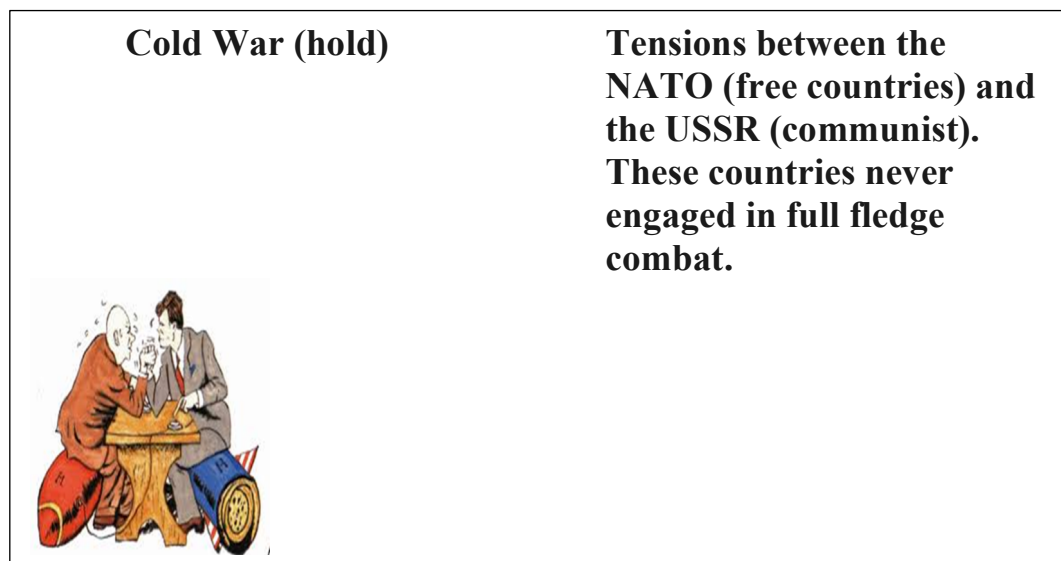
Figure 1. Mnemonic card for Cold War

Teachers described the procedure for using these mnemonic strategies for learning vocabulary. An example of the teacher script is as follows:

Speaker   **Response**

Teacher   "In the Cold War, there were tensions between the NATO (free countries) and the USSR (communist). These countries never engaged in full fledge combat. What is a Cold War?"

Students   "The Cold War is…"

Teacher   "The keyword for Cold War is hold. What is the keyword for Cold War?"

Students   "The keyword for Cold War is…"

Teacher   "To remember what Cold War means, think of the keyword hold and the strategy illustration of two men sitting on missiles while arm wrestling. When I ask what Cold War means, think of the keyword and what is happening in the picture."

"What is Cold War?"

Students   "Cold War is…"

Teacher   "Good! What is the keyword for Cold War?"

Students   "The keyword for Cold War is…"

Teacher   "What is the picture strategy?"

Students   "The picture strategy is…"

Teacher   "What is Cold War?"

Students   "Cold War is…"

Teacher   "Great! What is Cold War?"

The teacher script for each vocabulary word is included in Appendices K and L, as well as the keyword mnemonic cards for each word (Appendices G and I).

Teaching materials: Control condition. Traditional instruction was provided for the content vocabulary for each control group. The teachers used the textbook, video clips, and PowerPoint slides to introduce the content material to students. Interactive notebooks for writing notes, and defining vocabulary words were the primary source for instruction. Notecards for developing word walls were provided to all students in this condition.

Student materials: Both conditions. Student materials for both conditions included the classroom textbook, interactive notebooks, notecards (one set designed for the mnemonic instruction, and a blank set for the word walls), pencils, pens, colored pencils and/or colored markers. Scissors and glue sticks were also provided so students could include graphics in their student notebooks.

Student materials: Treatment condition. Student materials that were specific to the intervention group included mnemonic cards that had the vocabulary word, the keyword, and space for students to include their own drawings that replicated the illustrations on the teacher presented mnemonics and definition. Since only two to three vocabulary words were presented each day, the teachers collected the student cards to review, and returned them at the beginning of the next class. Mnemonic instruction

continued every day during the intervention unit. Student mnemonic cards can be found

in Appendices H and J. An example of a mnemonic flashcard for students:

<div style="border: 1px solid black; padding: 20px;">

Cold War *(hold)*

                                                     Space for Illustration

_____

_____

_____

_____

_____

</div>

Figure 2. Student mnemonic card for Cold War

A review of the treatment condition is described in more detail later in this chapter in the procedures section.

> **Student materials: Control condition**. Students in the traditional instruction condition used the materials described for both conditions with the exception of the mnemonic cards.

Dependent Measures

The purpose of this investigation was to compare the effects of mnemonic vocabulary instruction on achievement, and to determine whether vocabulary instruction correlates to improvement in reading comprehension. Student attitudes and teacher perceptions of the mnemonic condition were also evaluated. Thus, a number of different measures were created to measure these dependent variables.

Pre and post-tests. Students were given pre-tests on the first day of the investigation, and post-tests on the last day of the study. Vocabulary, unit pre-tests, as well as a CLOZE assessment (see Appendices M, N, P, O, Q and R) were given to all students to determine prior knowledge, to inform and guide instruction, and for use in the subsequent data analysis. Students were informed that the pre-assessments would not impact their grades, and were only being used to determine what they knew and what they still needed to learn.

Unit and vocabulary post-tests, as well as CLOZE assessments were also given to students in both conditions at the end of each two-week unit of instruction (see Appendices M, R, S, T, U and V). The use of pre post-testing compared the participant groups, and measured the overall effectiveness of the intervention. Since both groups received the intervention, results of the post-tests after the intervention were compared to the pre-tests prior to treatment according to Creswell (2008).

Unit tests. Unit pre-tests were used to determine prior knowledge, and to guide and inform instruction. Unit tests were taken from textbook assessments that have been used by both teachers for a number of years. Although the unit tests were comprised of

five matching questions and five multiple-choice questions, only questions that were directly related to the unit vocabulary were scored for the pre and post-test analysis. As a result, four out of ten questions on the pre-test, and six out of ten questions on the post-test were scored. The matching questions provided definitions pertinent to the content in column A, and the correct term, or phrase in column B. Students were directed to match the definition in column A to the correct term in column B. The multiple-choice questions provided a definition or description with four possible answer choices below. For this section, students were directed to choose the best answer from the four possible choices for each multiple-choice question. An answer key that corresponded with the unit test from the textbook assessment defined the correct answer. Each correct answer was awarded one point. Incorrect or missing answers did not receive any points. The unit post-tests had the same format, except that the pre-test was "Form B" and the post-test was "Form A."

Vocabulary tests. Vocabulary pre-tests, post-tests, and corresponding answer keys were developed by the researcher, and were validated by another researcher with expertise in mnemonics research. These tests were very simple in format. Content words were chosen by the teachers, in collaboration with the researcher as words that have been historically difficult for students. Twenty words that were to be taught via the mnemonics or traditional vocabulary instruction were included in the vocabulary pre-assessment. This test was in a chart format with the vocabulary word on the left, and three blank columns to the right of the word. The first column was labeled, "this means…" The second column was labeled, "I think it means (or is)…" The third

column was labeled, "I don't have a clue." Students were instructed to fill in the

definitions of the words they knew in the first column. If they thought they knew the

definition, but were unsure, they were instructed to fill in the second column. If they did

not know the definition, they were instructed to put a check mark in the third column.

The answers were considered to be complete and correct if they matched the full answer

on the answer key. Those correct answers were awarded one point. A partially correct

definition was awarded ½ point. Partial credit was given if enough information was

included in the answer so that it could be inferred back to the vocabulary word, and if

both teachers and the researcher agreed. Incorrect or blank answers were not awarded

any points. The vocabulary post-test was identical to the pre-test (See Appendices M and

R).

     CLOZE tests. The CLOZE assessments were researcher developed, and were

validated by a literacy researcher familiar with the use of CLOZE reading assessments

(see Appendices N, O, S, and T). These tests were expository text related to the content.

For the pre-test, content specific information was included within the text. In each

paragraph, three underlined words, names or titles were interspersed. Students were

required to circle the correct answer. Thus, each correct answer was given one point, and

incorrect or missing answers did not receive any points. The CLOZE post-assessment

was similar to the pre-assessments with one exception: instead of having three underlined

words to circle, a blank was in place and a word bank was provided; students were

directed to fill in the blank with the correct word.

Student satisfaction rating scale. This rating scale was a cross-sectional design in which the researcher collected information at one point in time. Information collected for the survey took place at the end of the study according to Creswell (2008). By asking participants to rate their satisfaction, a social validity aspect to the study was included. Social validity refers to participants' feelings in regards to the goals, procedures, and effects of a treatment. According to Lindo and Elleman (2010), the collection and report of social validity data can provide understanding of how participants perceive the instructional practice, and whether the practice provided positive results (See Appendix W for Student Satisfaction Rating Scale).

Students were asked to rate their experiences from strongly agree to strongly disagree using a Likert type rating scale. Using Survey Monkey, an online survey tool, ten questions asked students to rate their feelings about the intervention from one to five (one being "strongly disagree" to five being "strongly agree"). Five questions focused on mnemonic instruction. Three questions related to the traditional vocabulary instruction, and two questions focused on the ease or difficulty of learning U.S. History. Students were invited to write additional comments for each question.

Teacher interviews. Both teachers were interviewed as to their opinions and perceptions of the intervention, and the value of using mnemonic strategies for enhancing vocabulary instruction. Nine open-ended questions related to ease of implementation of the mnemonic intervention were discussed during teacher interviews. These questions asked: (1) Do you feel as though mnemonics or standard vocabulary instruction helped you improve content instruction? Why? Can you give me an example? (2) Would you

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use mnemonics in the future? Why? Could you please describe how? (3) Do you feel that mnemonics or direct instruction of vocabulary is better for teaching specific events, people or vocabulary? Why? Can you give me an example? (4) Which type of instruction did you prefer for teaching targeted factual information, mnemonics, or traditional instruction of vocabulary? Why? (5) Which type of instruction seemed easier for the delivery of specific factual information, mnemonics or traditional instruction of vocabulary? Why? (6) What did you enjoy the most about teaching with mnemonics? (7) What did you enjoy the least about teaching with mnemonics? (8) What did you enjoy best in general about mnemonics or mnemonic instruction? (9) According to your perception of classroom performance, did your students appear to recall more facts using mnemonics? (See Appendix X for teacher interviews).

Procedures

   Testing procedures. For each pre and post-assessment, students were provided unlimited time to complete the measures. Instructions specific to each assessment, as described in the sections for the unit tests, vocabulary tests and CLOZE tests, were read aloud to the whole group. Vocabulary pre and post-tests were given first at both the beginning and end of the instructional unit. Although students were allowed unlimited time, all completed the vocabulary test within 30 minutes. Unit pre and post-assessments were given next. Again, students were allowed unlimited time. However, 45 minutes was the maximum amount of time needed for completion. The CLOZE pre and post-tests were the last assessment given at the beginning and end of each two-week period. The maximum time needed to complete these tests was 30-minutes.

General education accommodations. Students with Individual Education Plans (IEP's) were provided general education accommodations. Specific accommodations were "small group testing," "read aloud of tests," and for one student, "respond orally to a scribe." These students were taken to a separate testing area, and were administered each assessment by special education paraprofessionals. In addition to the testing accommodations described previously, other accommodations included "larger assignments to be broken down into smaller components" and "frequent breaks." If students required a break, they were allowed to leave the classroom to use the restroom, get a drink of water, or to sit in the hall. However, this accommodation was not utilized during the course of any pre or post-testing periods.

Instructional procedures: Both conditions. Both teachers met twice a week to discuss the unit content, and to align instruction with the curriculum-pacing guide and with the Standards of Learning. Discussions included what information would be covered that week, and the outline of their individual lesson plans. Both teachers used the same unit pre-tests to inform and guide their instruction, focusing on the areas of weakness demonstrated by the students on the assessment.

With the exception of the mnemonic vocabulary intervention delivery during the first fifteen minutes of class for the treatment condition, all instructional routines remained the same throughout the study period. Teachers continued to provide students with content information through the use of PowerPoint slides, video selections, shared reading activities, and independent seatwork. Both classes participated in whole group instruction, as well as small group activities such as "think-pair-share" and "jigsaws."

Think-pair-share activities involve the teacher posing a question to students that they must consider alone, and then discuss with a neighbor before settling on a final answer (Fisher, Brozo, Frey, & Ivey, 2011; Sadler, 2011). Jigsaw activities involve cooperative learning groups that allow each student of a group to specialize in one aspect of the learning unit. Students met with other groups who were assigned the same portion. After mastering the content material, students returned to their original group to teach the other group members (Fisher et al, 2011).

Instructional procedures: Treatment conditions. During the intervention condition, the mnemonic vocabulary strategies were taught for the first15-minutes of the social studies block of 57 minutes every day of the week. Students received direct and explicit vocabulary instruction using mnemonics for ten class periods, totaling 150 minutes of the intervention.

After students took the pre-tests, results were used to guide delivery of content instruction. Teachers continued to utilize the curriculum-pacing guide, and SOL framework to ensure that they were covering the necessary material as mandated by the state requirements.

The daily mnemonic instruction introduced two to three vocabulary words each day. These cards were first presented as a PowerPoint presentation with the teacher introducing each vocabulary word along with the illustration that connected pictorial images of concrete keywords with an action that represented the vocabulary word's definition (Fontana, Scruggs, & Mastropieri, 2007). Students were directed to take notes in their interactive notebooks, and to ask questions or pose comments before being given

the mnemonic flashcards. After introducing the mnemonic strategy to the students as a whole group, students were given flashcards of the mnemonic strategies to complete independently.

After the initial mnemonic strategy instruction at the beginning of class, teachers provided content information with a discussion of material covered previously, including homework assignments, tests, and quizzes. As in the control condition, students were encouraged to ask questions, and to seek clarification on specific assignments. PowerPoint presentations, video clips, whole group and small group activities were provided for the day's content focus with students writing notes in their interactive notebooks. The primary difference between the treatment and control group's instruction was the manner of vocabulary instruction. Instead of adding vocabulary to the word wall, the mnemonic group used the keyword mnemonic flashcards for completing assignments, and preparing for the unit and vocabulary post-tests.

Instructional procedures: Control condition. Since both teachers had been teaching sixth-grade history for many years, they were familiar with vocabulary words most likely to cause difficulty in any given unit of instruction. Difficult vocabulary was highlighted during traditional vocabulary instruction with the use of a word wall. A word wall is an organized collection of vocabulary words displayed in the classroom (Fisher et al., 2011). Although word walls are often used to teach younger students reading and spelling, these two sixth-grade classrooms used the word wall to highlight important content vocabulary.

Class instruction normally began with a discussion of material covered previously, including homework assignments, tests, and quizzes. This took place during the first ten minutes of class. Students were encouraged to ask questions, and to seek clarification on specific assignments. PowerPoint presentations were provided for that day's content focus with students taking notes in their interactive notebooks. This content instruction comprised approximately 30 minutes of class time. The purpose of the interactive notebook is to encourage students to be creative, independent thinkers and writers. Interactive notebooks are used for class notes, as well as other activities that require students to express their own ideas and process the information presented in class (adlit.org). Both teachers in the sixth-grade history classes required their students to take notes and write in questions they wanted answered, as well as paste in maps, graphs and other visuals provided from handouts and worksheets. The final 15 minutes of class time was reserved for students to work independently, or with a partner on their interactive notebooks and word wall cards.

Test preparation included a unit study guide that contained matching fill in the blank, multiple choice and short answer questions. Students were encouraged to work with a partner when filling out the study guide, with each student taking turns looking up the answers in their textbook and interactive notebook. Once the study guides were completed, each pair took turns providing the answers, as the teacher recorded the answers on the smart board or overhead projector.

After students took the pre-tests, results were used to guide delivery of content instruction. Teachers continued to utilize the curriculum-pacing guide and Standards of

Learning (SOL) framework to ensure that they were covering the necessary material for the content SOL test that was administered in late May. The curriculum-pacing guide is designed by the school district for each content subject. Teachers used this guide to pace their instruction so that all content material was covered. The SOL tests are state mandated content tests that students must take at the end of the school year to determine whether they learned the necessary subject material.

As discussed previously, during the traditional vocabulary instruction, teachers provided content information with a discussion of material covered previously, including homework assignments, tests, and quizzes. Students were encouraged to ask questions, and to seek clarification on specific assignments. PowerPoint presentations, video clips, whole group and small group activities were provided for the day's content focus with students taking notes in their interactive notebooks. The focus of the traditional vocabulary instruction was students adding vocabulary words to the word wall as they were introduced in the classroom.

Fidelity of Implementation

For fidelity of treatment, both classrooms were observed for treatment and control conditions. Before beginning observations, the researcher trained the principal and assistant principal in the use of the observation logs. The use of the log was thoroughly discussed in order to establish the inter-rater reliability for fidelity of implementation measure. By establishing the observation routine with the use of the logs and determining inter-rater reliability, the rigor of the study was increased.

Thus, each class was observed once for each condition by three different observers. The school principal, assistant principal, and researcher observed each condition using a researcher developed observation log. As a result, each individual observed Class A during the mnemonic treatment phase, and Class B was observed by each individual during the direct vocabulary phase for the Cold War unit. Subsequently, Class B was observed by each individual during the mnemonic treatment phase, and Class A was observed by each individual during the direct vocabulary phase for the Civil Rights unit. By completing routine walk-throughs with the observation logs, the principal and assistant principal could determine whether the mnemonic intervention was being taught directly, explicitly, and correctly in the prescribed amount of time. Each observation took place during the first fifteen minutes of class for each condition when the vocabulary instruction took place. Days of observation were random. Total time of observations was 90 minutes for each two-week unit, with a total of 180 minutes of observation.

Treatment fidelity is a measure of the reliability of the intervention in a treatment study. It is an important aspect of a study, as it ensures that the treatment is being provided with accuracy and in the prescribed period of time (Gersten et al., 2005).

Fidelity of treatment logs was used by the principal, assistant principal, and researcher to record observations of instruction in both treatments. The primary objective of these observations was to log the type of instruction being delivered in each condition. Questions that were answered included: (a) Is the appropriate treatment being used (i.e., mnemonic strategy instruction or traditional vocabulary instruction)? (b) How much time

is being spent on the instruction? (c) Is the mnemonic instruction being delivered

correctly? (d) Are there any deviations from the instruction (for example, did the teacher

not follow the script for the mnemonic instruction)? (e) Are there any interruptions to the

instruction? By completing and logging the observations, it allowed the researcher to

determine if the instructional practices were delivered appropriately and with fidelity.

Observers rated each question on the observation logs from one to five. One, indicating

"not observed" and five, indicating "excellent" (See Appendix Z, Fidelity of Treatment

Log).

At the conclusion of each two-week intervention, the three observers- principal,

assistant principal and researcher met to discuss the observations and logs. Fidelity of

treatment was based on agreement or disagreement for each observation within each

classroom and treatment. This method negates the potential bias of any one individual

when two or more parties are making the observations (Creswell, 2008). At the end of

the first unit, the average score between the three observers was 4.5 for the treatment

group, and 4.9 (based on a scale of one to five) for the control group. This indicated

agreement of 90% and 98% respectively on the fidelity of treatment for the Cold War

unit. The average score between the three observers for the Civil Rights unit was 4.9 for

the treatment group, and 4.9 for the control group. This indicated 98% agreement on the

fidelity of implementation for both conditions for unit two. Consequently, fidelity of

implementation was found to be strong for both instructional units and conditions.

Inter-rater Reliability of Scoring

Inter-rater reliability of scoring was established by having both teachers and the researcher score each assessment together. The teachers and the researcher discussed their scoring of each assessment. If there was a disagreement, a compromise was reached, and the scoring was changed accordingly. Thus, an agreement for all test scores was 100% between the teachers and the researcher. A graduate student was employed to check all data input for the data analysis into SPSS.

Data Analysis

To address research question one, which was concerned with the use of mnemonic vocabulary instruction, a paired-sample t-test was used to compare students' scores on unit post-test scores, vocabulary post-test scores, and CLOZE post-test scores by treatment condition (mnemonic-control vs. control-mnemonic). In addition, frequencies were conducted to examine the differences between mnemonic and traditional vocabulary instruction for students with identified disabilities. To address research question two, which was concerned with the relationship between vocabulary knowledge and comprehension of content information, a non-parametric Spearman correlation test was conducted to identify possible correlation between students' performance on the vocabulary post-test and unit post-test.

For research question three, which was concerned with how satisfied students were with the mnemonic vocabulary instruction, descriptive statistics were used to report students' responses to the satisfaction rating scale. The percentages of students who agreed and/or disagreed with each statement were reported. To address question four,

teacher interviews were analyzed using elements of the constant comparative analysis (CCA) method (Merriam, 1998). The teachers' perceptions about the mnemonic instruction were determined through open coding. After transcribing the interviews, the researcher read through them multiple times to note whether tentative categories and themes emerged from these data. The reoccurring patterns across the interviews, and anecdotal notes provided valuable information on the social acceptance of the mnemonic instruction by participating teachers.

Summary

The primary goal of this study was to determine whether the use of a keyword mnemonic vocabulary intervention in sixth grade social studies had a positive effect on the vocabulary acquisition of the students in both classes. Another goal of this study was to determine if a correlation existed between content vocabulary acquisition and comprehension of content material. Teacher and student satisfaction with the mnemonic intervention was determined using a survey format, as well as brief teacher interviews.

The research methods employed for this investigation included pre and post-tests for unit vocabulary, unit content, and CLOZE reading as dependent variables. These were measured against treatment and control groups using the mnemonic vocabulary intervention as the independent variable compared to traditional vocabulary instruction. Fidelity of treatment was closely monitored with direct classroom observations by the principal, assistant principal, and the researcher. Inter-rater reliability was 100% as both classroom teachers and the researcher scored all assessments as a team.

Appropriate analytical procedures were employed in order to determine the outcomes of this study. Coding of the survey results and teacher interviews were completed, as well as cleaning of data prior to being put into SPSS for analysis. A graduate student, blind to the study, double-checked all input into the SPSS files to assure accuracy.

CHAPTER FOUR

This chapter presents the results of this research investigation. A within-subjects crossover design in which all of the students received the mnemonic strategy intervention at different times comprised the quantitative aspect of the research. Parametric and non-parametric inferential and descriptive analyses were conducted to compare students' performance on the three major measures: unit test, vocabulary test, and CLOZE test by treatment order: mnemonic instruction in the first unit followed by traditional vocabulary instruction in the second unit, and traditional vocabulary instruction in the first unit followed by the mnemonic instruction in the second unit. Percentages were used to describe student responses on the student attitude survey. Findings from the qualitative analysis of the teacher interviews are also included in chapter five

Research Question 1

"Will the use of a mnemonic vocabulary intervention within an inclusive sixth-grade social studies classroom improve content vocabulary acquisition for all students?" To address this question, a paired-sample t-test was used to compare students' performance on the unit post-test scores, vocabulary post-test scores, and CLOZE post-test scores by treatment condition-mnemonic-control versus control-mnemonic. Prior to the analysis, the normality of data was established using a Quantile-Quantile (Q-Q) plot. The Q-Q plot data for unit, vocabulary, and CLOZE pre-tests and post-tests did appear

linear, indicating a normal distribution of data. Descriptive statistical analysis was also

conducted to examine the differences between mnemonic and traditional vocabulary

instruction for students with identified disabilities.

Unit test. Reliability of scoring was established by having both teachers and the

researcher score each assessment together, reaching 100% agreement. Additionally, a

graduate student checked all data input into SPSS for the data analysis.

First, two classes were compared on the unit pre-test scores. An independent

sample t-test indicated no difference between classes on the unit pre-test scores for both

the Cold War and Civil Rights units ($t(24) = -.51$; $p = .62$ and $t(15.7) = 1.38$; $p = .19$

respectively); suggesting that the classes were comparable in their performance prior to

each unit of instruction. The means of the unit pre-test and post-test scores by class and

unit are presented below in Table 5.

Table 5

Differences Between Classes on Unit Pre-test Scores

	df	*t*	Sig. (2 tailed)
Unit pre-test: Cold War	24	-.51	.62
Unit pre-test: Civil Rights	15.70	1.38	.19

As can be seen in Table 6 below, students in both classes showed improved unit

test scores on the post-tests as compared to the pre-tests. In addition, students from Class

A, who received mnemonics instruction first, obtained a higher mean of 85.50 (SD =

12.88) on the unit post-test for unit 1, as compared with the mean of 78.57 (SD = 18.93)

on the unit post-test for unit 2. Students from Class B, who received direct instruction

first, obtained a slightly lower mean score of 74.83 (SD = 13.11) on the unit post-test for

unit 1, as compared with the mean of 77.75 (SD = 17.79) on the unit post-test for unit 2.

Table 6

Means and Standard Deviations for Unit Pre- and Post-test Scores by Treatment

	Treatment order - Mnemonics in Unit 1 - Traditional vocabulary instruction in Unit 2		Treatment order - Traditional vocabulary instruction in Unit 1 - Mnemonics in Unit 2	
	Pre-test *M* (*SD*)	Post-test *M* (*SD*)	Pre-test *M* (*SD*)	Post-test *M* (*SD*)
Unit 1 Cold War	42.86 *(15.28)*	85.50 *(12.88)*	45.83 *(14.43)*	74.83 *(13.11)*
Unit 2 Civil Rights	57.14 *(15.28)*	78.57 *(18.93)*	43.75 *(30.39)*	77.75 *(17.79)*

As shown in Table 7, the results of a paired-sample t-test indicate that there was

no statistical difference between the classes on the unit post-tests regardless of the

treatment order: $t(13) = .19$, $p = .85$ and $t(11) = .42$, $p = .69$, respectively.

Table 7

Differences Between Groups on Unit Post-test Scores by Treatment Order

	df	t	Sig. (2 tailed)
Treatment order (Mnemonic – Traditional Instruction)	13	.19	.85
Treatment order (Traditional Instruction – Mnemonic)	11	.42	.69

Vocabulary Test

Reliability of scoring was established by having both teachers and the researcher score each assessment together, reaching 100% agreement. A graduate student checked all data input for the data analysis into SPSS.

First, two classes were compared on the vocabulary pre-test scores. An independent sample t-test indicated no difference between classes on the vocabulary pre-test scores for both the Cold War and Civil Rights units ($t(24) = -.55$, $p = .59$ and $t(17.10) = 1.97$, $p = .07$ respectively); suggesting that the classes were comparable in their performance prior to each unit of instruction. The means of the vocabulary pre-test and post-test scores by class and unit are presented below in Table 8.

Table 8

Differences Between Classes on Vocabulary Pre-test Scores

	df	t	Sig. (2 tailed)
Unit pre-test: Cold War	24	-.55	.59
Unit pre-test: Civil Rights	17.10	1.97	.07

As indicated in Table 9 below, students in both classes showed improved vocabulary test scores on the post-tests as compared to the pre-tests. Students from Class A, who received mnemonics instruction first, obtained a higher mean of 40.0 (SD = 17.97) for unit 1, as compared with a mean score of 35.71 (SD = 19.40) for unit 2. Students from Class B, who received direct instruction first, obtained a substantially lower mean of 38.75 (SD = 11.10) for unit 1, when compared with the mean scores of 50.83 (SD = 12.94) on unit 2. As shown in Table 10 below, there was no statistically significant difference between classes on the vocabulary test in unit 1 $(t(13) = 1.03, p = .32)$. However, there was a statistically significant difference between the classes on the vocabulary test in unit 2 $(t(11) = 2.61, p = .02)$.

Table 9

Means and Standard Deviations Vocabulary Pre- and Post-test Scores (Standard Deviations) by Treatment Order

	Treatment order - Mnemonics in Unit 1 -Traditional vocabulary instruction in Unit 2		Treatment order - Traditional vocabulary instruction in Unit 1 - Mnemonics in Unit 2	
	Pre-test *M* (*SD*)	Post-test *M* (*SD*)	Pre-test *M* (*SD*)	Post-test *M* (*SD*)
Unit 1 Cold War	8.93 *(8.13)*	40.00 *(17.97)*	10.42 *(4.98)*	38.75 *(11.10)*
Unit 2 Civil Rights	18.57 *(14.34)*	35.71 *(19.40)*	10.42 *(5.42)*	50.83 *(12.94)*

Table 10

Differences Between Groups on Vocabulary Post-test Scores by Treatment Order

	df	*t*	Sig. (2 tailed)
Treatment order (Mnemonic – Traditional Instruction)	13	1.03	.32
Treatment order (Traditional Instruction – Mnemonics)	11	2.61	.02

CLOZE Test

As in all other assessments, reliability of scoring was established by having both teachers and the researcher score each assessment together, reaching 100% agreement. A graduate student checked all data input for the data analysis into SPSS.

First, the two classes were compared on the CLOZE pre-test scores. An independent sample t-test indicated no difference between classes on the CLOZE pre-test scores for both the Cold War and Civil Rights units ($t(24) = -.69$, $p = .50$ and $t(24) = -.35$, $p = .73$ respectively); suggesting that the classes were comparable in their performance prior to each unit of instruction. The means of the CLOZE pre-test and post-test scores by class and unit are presented below in Table 11.

Table 11

Differences Between Classes on CLOZE Pre-test Scores

	df	*t*	Sig. (2 tailed)
Unit pre-test: Cold War	24	-.69	.50
Unit pre-test: Civil Rights	24	-.35	.73

As can be seen in Table 12 below, students in both classes showed improved CLOZE test scores on the post-tests as compared to the pre-tests. Students from Class A, who received mnemonics instruction first, obtained a higher mean of 68.21 (SD =17.38) for unit 1 than the mean scores of 62.86 (SD =19.29) for unit 2. Students from Class B,

who received direct instruction first, obtained slightly lower mean of 68.33 (SD = 10.08) for unit 1, as compared with the mean scores of 70.0 (SD = 16.38) on unit 2. As shown in Table 13 below, there was no statistical difference between the classes on the CLOZE tests ($t(13) = 1.77$, $p = .10$ and $t(11) = .44$, $p = .67$; respectively).

Table 12

Means and Standard Deviations for CLOZE Pre-test and Post-test Scores by Treatment Order

	Treatment order - Mnemonics in Unit 1 -Traditional vocabulary instruction in Unit 2		Treatment order - Traditional vocabulary instruction in Unit 1 - Mnemonics in Unit 2	
	Pre-test *M* (*SD*)	Post-test *M* (*SD*)	Pre-test *M* (*SD*)	Post-test *M* (*SD*)
Unit 1 Cold War	51.07 *(21.32)*	68.21 *(17.38)*	56.25 *(16.11)*	68.33 *(10.08)*
Unit 2 Civil Rights	51.43*(19.94)*	62.86 *(19.29)*	54.17 *(20.32)*	70.00 *(16.38)*

Table 13

Differences Between Groups on CLOZE Post-test Scores by Treatment Order

	df	*t*	Sig. (2 tailed)
Treatment order (Mnemonic – Traditional Instruction)	13	1.77	.10
Treatment order (Traditional Instruction - Mnemonic)	11	.44	.67

Students with Disabilities

Due to the small number of students with disabilities (n=6 in Class A and n=3 in Class B), the unit, vocabulary, and CLOZE test results have been collapsed across units, and the descriptive results are presented regardless of the treatment order. As can be seen in Table 14 below, students with disabilities in the mnemonic condition across two units obtained a mean of 78.20 (SD = 13.58) on the unit post-test. Students with disabilities who received traditional vocabulary across two units obtained a mean of 81.50 (SD = 14.53) on the unit post-test. Furthermore, students with disabilities in the mnemonic condition across two units obtained a mean of 41.00 (SD = 18.23) on the vocabulary post-test, whereas students with disabilities who received traditional vocabulary across two units obtained a mean of 30.50 (SD = 18.77) on the vocabulary post-test. Finally, students with disabilities in the mnemonic condition across two units obtained a mean of 64.00 (SD = 18.68) on the CLOZE post-test, whereas students with disabilities who received traditional vocabulary across two units obtained a mean of 58.50 (SD = 18.27) on the CLOZE post-test.

Table 14

Means and Standard Deviations for Unit Pre- and Post-test Scores for Students with Disabilities

	Pre-test	Post-test
SWD Cold War Unit	38.89 (SD = 18.16)	83.11 (SD = 14.34)
SWD Civil Rights Unit	47.22 (SD = 23.20)	81.33 (SD = 15.40)

Research Question 2

"What is the relationship between vocabulary acquisition and comprehension of content material?" To address this question, a non-parametric Spearman correlation test was conducted to identify possible correlation between students' performance across two units on the unit post-test, vocabulary post-test, and CLOZE post-test following the mnemonic instruction regardless of the treatment order. The results of Spearman's rho indicate that there are no statistically significant correlations between:

(a) Unit post-test scores and vocabulary post-test scores (r_s (26) = .10, p = .63)

(b) Unit post-test scores and CLOZE post-test scores (r_s (26) = .05, p = .81)

(c) Vocabulary post-test scores and CLOZE post-test scores (r_s (26) = .27, p = .19) following the mnemonic instruction.

Research Question 3

"What are student attitudes toward the mnemonic strategy for improving comprehension of content material?" To address this question, a student satisfaction survey was presented, and completed online using Survey Monkey (surveymonkey.com). In this section, data collected on student satisfaction with treatment conditions is presented.

Student Satisfaction Survey: Scoring. The student satisfaction survey was comprised of ten questions that required students to choose responses on a Likert-type scale: 1-strongly disagree, 2-disagree, 3-undecided, 4-agree, and 5-strongly agree. These questions related to preferences for either the mnemonic instruction strategy or direct

instruction, as well as how easy U.S. History was for them to learn. In addition, students were invited to include questions, comments, or concerns after each question.

Descriptive statistics were used to report students' responses to the satisfaction rating scale. The percentages of students who agreed and/or disagreed with each statement were recorded. These results for each question were transferred to the SPSS data bank by the researcher. An individual unfamiliar with the study established clerical reliability at 100%. Data entry into SPSS was matched and verified for accuracy. Numbers and percentages are based on N=21.

Student Satisfaction Survey. Student satisfaction results are presented based on the responses from 21 participants. Five students were unable to provide their responses due to absences.

Satisfaction: Mnemonic instruction. Students were asked to rate their satisfaction with the mnemonic vocabulary instruction. When asked if students liked using mnemonics-14.29% strongly agreed, 61.90% agreed, 19.05% were undecided, and 4.76% strongly disagreed. As to ease of use for the mnemonic strategy-23.81% strongly agreed, 47.62% agreed, 19.05% were undecided, and 9.52% disagreed. When asked if students learned more U.S. History when using mnemonics strategies-42.86% strongly agreed, 33.33% agreed, 14.29% were undecided, 4.76% disagreed, and 4.76% strongly disagreed. Students were also asked if they would use mnemonic vocabulary strategies in other classes-14.29% strongly agreed, 52.38% agreed, 23.81% were undecided, and 9.52% disagreed.

Satisfaction: Traditional instruction. Students were asked to rate their

satisfaction with the direct instruction of content vocabulary. When asked if they liked learning definitions with direct instruction-14.29% strongly agreed, 52.38% agreed, 14.29% were undecided, 14.29% disagreed, and 4.76% strongly disagreed. As to whether students learned more U.S. History with direct instruction definitions-14.20% strongly agreed, 19.05% agreed, 47.62% were undecided, and 19.05% disagreed. When asked if direct instruction of definitions helped students learn more U.S. History-4.76% strongly agreed, 23.81% agreed, 42.86% were undecided, and 28.57% disagreed.

Satisfaction: Perceptions of content difficulty. The final two questions inquired how students felt about the difficulty of the U.S. History content. When asked if U.S. History was easy to learn-4.76% strongly agreed, 47.62% agreed, 23.81% were undecided, and 23.81% disagreed. Finally, student responses to the statement that U.S. History is difficult to learn, resulted in 4.76% strongly agreeing, 19.05% agreeing, 19.05% undecided, 38.10% disagreeing, and 14.05% strongly disagreeing.

Additional responses. After each survey question, students were asked if they had any other comments, questions, or concerns. Only three students responded with comments. One responded that he/she liked making the mnemonic cards. The second student responded by stating, "I think I learn the same both ways. I like memorizing things and learning by my own way." The third student stated that he/she liked the PowerPoint slides, "Cuz they helped me with the mnemonics." Data from the Likert-type scale is presented below in Table 15.

Table 15

Responses Frequencies for the Student Satisfaction Survey

Sample Size	Questions	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
n=21	Did you like using mnemonics?	14.29%	61.9%	19.05%	0%	4.76%
n=21	Using the mnemonic strategy was easy for me.	23.81%	47.62%	19.05%	9.52%	0%
n=21	Did you learn more U.S. History when you used the mnemonic strategies?	42.86%	33.33%	14.29%	4.76%	4.76%
n=21	Did you like learning definitions with direct instruction?	14.29%	52.38%	14.29%	14.29%	4.76%
n=21	Did you learn more U.S. History with direct instruction definitions?	14.20%	19.05%	47.62%	0%	19.05%
n=21	Using mnemonic strategies helped me learn more U.S. History.	14.20%	19.05%	47.62%	19.0%	0%
n=21	Direct instruction of definitions helped me learn more U.S. History.	4.76%	23.81%	42.86%	28.57%	0%
n=21	Would you use mnemonic vocabulary strategies in other classes?	14.29%	52.3%	23.81%	9.52%	0%
n=21	U.S. History is easy	4.76%	47.62%	23.81%	23.81%	0%

	for me.				
n=21	U.S. History is difficult to learn.	4.76%	19.05% 19.05%	38.10%	14.05%

Research Question 4

"What are teacher attitudes toward the mnemonic vocabulary intervention and the impact on content area teaching?" In order to address this question, personal interviews were conducted with each teacher. Both teachers in this investigation (who will be referred to as Mr. B. and Mr. M.) were interviewed individually as to their perceptions and satisfaction with mnemonic and direct instruction conditions within the inclusion social studies class. The researcher conducted a brief face-to-face, nine-question interview at the end of the two-week study period. A simple coding matrix was developed based on the teacher interviews, and can be found in Appendix Y. Their answers and comments are provided next.

When asked whether mnemonics or traditional vocabulary instruction helped to improved content instruction, both teachers responded that they felt as though the mnemonics vocabulary intervention improved their content teaching. Mr. B. believed that "The mnemonics gave the students something to scaffold on for generating ideas and for accessing content knowledge." Mr. M. agreed with this sentiment, adding that he felt that "The keyword paired with the illustration was a great memory device."

When asked if they would you use mnemonics in the future, Mr. M. stated, "Absolutely! I think it is really useful for vocabulary development. I will incorporate it

into my toolbox of instruction." Mr. B. agreed with Mr. M. by saying, "No doubt about it! I found that my students really enjoyed the pictures, especially the visual learners. I think that using the mnemonics enhanced memory."

In response to the question about whether teachers felt that mnemonics or direct instruction of vocabulary was better for teaching specific events, people or vocabulary, Mr. M. stated that, "It depends on the vocabulary. You could make a case for using both depending on the event, people and vocabulary. For example, the term "containment," it is a hard concept but with the keyword mnemonic that we used for the Cold War unit, it took an abstract concept and made it more concrete." Mr. B. favored the mnemonics strategy, saying, "I saw that it was really helpful; in particular, students with short-term memory deficits. These students remembered the material better and longer. The script was good and the illustrations made the delivery easier."

When asked which type of instruction they preferred for teaching targeted factual information, mnemonics or direct instruction of vocabulary, Mr. B. answered by saying, "I'm old-fashioned, but I'm not too old to try new things. I can make a case for using both and using them together. However, I prefer mnemonics for differentiating instruction."

In turn, Mr. M. stated, "For specific words, I prefer using mnemonics. As I mentioned before, some vocabulary can be kind of abstract and it is hard for students, especially struggling students to understand the meaning. When you use the keywords and the illustration, it is easier for students to understand and remember; especially for words with specific meaning for the content."

When asked which type of instruction seemed easier for the delivery of specific factual information, mnemonics or direct instruction of vocabulary, Mr. M. shared: "Direct instruction allows for deeper discussion of events, cause and effect, and the nuances found in history. Mnemonics is very structured and lends to explicit instruction of content vocabulary. Actually, they work really well together."

On the other hand, Mr. B. enthusiastically endorsed mnemonics instruction, saying: "Often, students get overloaded with the amount of content in the history curriculum. By providing keywords and illustrations for content vocabulary, it makes even hard to understand information easier to understand."

In response to the question of what they enjoyed the most about teaching with mnemonics, Mr. M. said, "I really enjoyed the interesting visual presentations. The visual aspect of the keyword mnemonic illustration supported the literacy development of vocabulary within the content. I also think that it hits on more learning styles. I found my students to be much more engaged and interested in the instruction. They were able to interact with the lesson when making their own mnemonic cards."

Mr. B. echoed Mr. M.'s sentiments, "I loved the keywords and the illustrations. Students were very attentive and seemed to enjoy making their mnemonic cards and the illustrations. We went on to include the keywords for a review."

In turn, when asked what they enjoyed the least about teaching with mnemonics, Mr. B. felt restricted by following a script, saying "I followed the script to the letter, and sometimes would have liked to say more. I would have liked to discuss in more depth many of the events, people and even specific words." Mr. M. concurred with his

colleague by saying, "Since I was following the script, I was reluctant to extend the conversation and go deeper into the content. Of course, after doing the mnemonics instruction, I did revisit the targeted vocabulary in class discussions."

Mr. M. also stated, "I feel as though mnemonics dovetails well with the way I already teach. I already use a lot of visuals for presenting content information, and incorporating the mnemonics cards encouraged the students to be more involved in the instruction." Mr. B. agreed, "I really liked how well the students paid attention to instruction. I think that student engagement was outstanding. Even my students, who struggle to attend to instruction, really followed along and kept up with everything.

To the final question, "According to your perception of classroom performance, did your students appear to recall more facts using mnemonics?" Mr. B. replied, "Some students did. Some didn't. I think that the students who struggle with short-term memory may still struggle even with this type of memory aide. I think those students probably did remember more vocabulary than they would have without the mnemonics."

Mr. B. elaborated that he plans to continue to incorporate mnemonics into his instruction next year, saying "I have been teaching for many, many years. It just goes to show that you CAN teach an old dog new tricks!"

Mr. M. said, "I think so. I saw better student engagement. Since the mnemonics component of the lesson was for fifteen minutes, the students had a shorter period of instructional time, but it was specific to vocabulary."

Summary

Based on the analysis of the results of the unit pre- and post-tests, vocabulary pre- and post-tests, and CLOZE pre- and post-tests, all students improved their performance from the pre-test to post-test. However, there were no statistically significant differences between classes for the unit and CLOZE post-test scores by treatment order. There was a statistically significant difference between the classes on the vocabulary post-test scores in unit 2 in the second treatment order when traditional vocabulary instruction in unit 1 was followed by the mnemonic instruction in unit 2. In addition, across two units, students with disabilities performed better on the vocabulary and CLOZE post-test measures following the mnemonic instruction as compared to the traditional vocabulary instruction. Furthermore, no statistically significant correlations were found on the Spearman's rho test between unit comprehension, vocabulary acquisition, and students' performance on the CLOZE test.

Based on the student satisfaction survey, students favored the mnemonic vocabulary strategies overall. Although, the unit post-test scores were not significantly different, nearly 81% of the students reported liking the mnemonic strategies, whereas, only 66% reported liking the direct instruction. Over 76% of the students believed that they learned more U.S. History with the mnemonic instruction as opposed to only 33% feeling that direct instruction helped them learn more. In addition, over 66% of the students reported that they would use the mnemonic strategies in other classes.

United States History is an academic subject that requires students to learn a great deal of information. This can be challenging for students with learning difficulties,

especially those with memory deficits. However, when asked if U.S. History was easy to learn, 52% responded in the affirmative, as opposed to 23% of the respondents agreeing that U.S. History was difficult to learn. Perhaps, the teaching methods of the teachers in this investigation, as well as the use of the mnemonic strategies provided enough differentiated support, that students perceived the social studies content easier to learn.

Based on the teacher interviews, both teachers felt as though the use of mnemonic strategy instruction was a useful memory device. They believed that it helped improve content instruction, giving students a scaffold for generating ideas. Using this type of strategy instruction is something that both teachers stated they intend to use in the future. They found it to be a useful tool for vocabulary development, and a way to enhance student memory. Although both teachers agreed that mnemonics helps with short-term memory deficits, and helps take abstract concepts and makes them more concrete, Mr. M. believes that it also depends on the content vocabulary; however, he can make a case for using both mnemonics and traditional instruction within the social studies classroom.

The type of instruction for teaching targeted factual information, according to Mr. B., would be a combination of both direct instruction and mnemonics. He believes that mnemonics is helpful for differentiating his instruction. However, both teachers agreed that traditional instruction sometimes allows for deeper discussion of events, cause and effect, as well as the nuances found in history.

The use of the visual presentation in mnemonics instruction, as in the keyword and illustrations, was found to increase student engagement. Even students with attention deficit issues were found to be more involved with the learning process as they made

their own mnemonics cards. However, both teachers felt constrained by the scripted

lessons. They believe that following a script can be limiting. By following the script, it

made extending the conversation and delving deeper into the content difficult.

Overall, both teachers believe that using mnemonics vocabulary instruction is a

positive experience. They agreed that the strategy increases student engagement, which

can lead to better achievement outcomes. In addition, they recognized that this type of

instruction can support students with different learning styles and educational needs.

They acknowledge that the mnemonic strategy allows for ease of differentiation while

delivering content vocabulary instruction in an engaging and meaningful way. It is often

a challenge to get veteran teachers to try new teaching strategies when they possess their

own "toolbox" of instructional techniques that have proven to be successful over the

years. However, both of these teachers enthusiastically embraced the use of mnemonic

vocabulary strategies for teaching sixth-grade social studies content.

The following chapter is a more in-depth discussion of the results of this study.

Quantitative and qualitative results will be presented, and how these findings related to

the previous research on mnemonic vocabulary instruction will be discussed.

CHAPTER FIVE

This investigation examined the potential value of using mnemonic vocabulary strategy instruction within an inclusive sixth-grade social studies classroom for students with and without disabilities, as well as culturally diverse learners. The classroom teachers delivered keyword mnemonic strategy instruction within the framework of content vocabulary teaching. This study also examined the satisfaction of the participating students as well as the perceptions of the teachers as to the use of mnemonics vocabulary instruction versus traditional vocabulary instruction. The results of this study will be discussed relative to the specific findings for each research question.

Finding 1

The primary research question for this intervention was: "Will the use of a mnemonic vocabulary intervention within an inclusive sixth-grade social studies classroom improve content vocabulary acquisition for all students?"

In the present investigation, students were instructed how to use the mnemonic keyword strategy to remember important content vocabulary in U.S. History in a within-subject crossover design. Students in both conditions demonstrated gains on all measures from pre-test to post-test. Although statistical significance did not result for outcome measures for treatment students, with the exception of the vocabulary post-test for Unit 2, all students demonstrated improvements; which was the overarching goal of this study.

Overall findings determined:

1. No significant differences existed in student performance for condition on the Unit 1 vocabulary tests; however, there was a statistically significant difference between the classes on the vocabulary test on Unit 2.

2. No significant differences existed in student performance for condition on unit tests.

3. No significant differences existed in student performance for condition on CLOZE tests.

4. Students with disabilities demonstrated gains between the pre- and post-tests on both the Cold War and Civil Rights unit tests.

The current investigation replicates and extends previous research on the use of mnemonic strategy instruction in a content area class. For example, Scruggs, Mastropieri, Brigham, and Sullivan (1992) taught eighteenth century war battles using keyword mnemonics to 39 seventh and eighth graders identified as having specific learning disabilities. Instruction and assessment was provided outside of the classroom in a one-on-one setting. Results of that study demonstrated that the students receiving the mnemonic instruction scored significantly higher than the students who did not receive the instruction. The results of the current investigation demonstrated that students in the treatment groups did not establish significantly higher scores on the unit or CLOZE tests for each instructional unit. However, significant improvement was found on the Unit 2 vocabulary tests. This study extends the Scruggs et al. study, as the researcher delivered the instruction in an individualized setting. In the present study, the classroom teachers

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delivered the mnemonic vocabulary instruction in a whole group, inclusive classroom as opposed to researcher delivered instruction.

In another mnemonics study, Condus, Marshall and Miller (1986) employed researcher delivery of the intervention. The intervention employed keyword images for the treatment condition only. The study included 60 junior high students in a pre-test, post-test design. The researcher delivered the intervention in a small group setting, in which the mnemonic students obtained higher post-test scores than the control students. The current investigation extended this 1986 study in several ways. First, the teachers delivered all instruction to the whole group. Second, the current study employed a within-subject crossover design, in which all students were their own control, and the intervention was provided to all students at some point in time. Similar to the Condus et al.'s study, students in the treatment conditions for the current investigation demonstrated higher post-test scores on the unit and vocabulary assessments.

In another study with similar features to the current investigation into mnemonics for vocabulary learning, Mastropieri, Scruggs, Bakken, and Brigham (1994) taught eight students with disabilities 20 U.S. state names, and their corresponding capital using keyword mnemonics. The investigation took place over a 4 to 5 week period using a single subject design to measure student performance. The current study replicates Mastropieri et al.'s investigation but extends it in several ways. First, the current study used a crossover design, in which each student became his/her own control as opposed to a single subject design. In addition, the treatment length was only two-weeks as opposed to the 4 to 5 week instructional period used by Mastropieri et al. The current

investigation also extends how instruction of the mnemonic materials was delivered. In Mastropieri et al.'s (1994) study, the researcher delivered the mnemonic information compared to the classroom teachers delivering the mnemonic instruction in the current study.

Brigham, Scruggs, and Mastropieri (1995) also utilized mnemonics within the social studies curriculum. Students were taught the details of American Revolution battles and their corresponding location. Seventy-two middle school students with disabilities participated in one-on-one instruction outside of their classroom. Students in the treatment condition recalled significantly more facts. The current study extends this investigation as it takes place in an inclusive general education classroom. The current investigation also extends the method of instruction. In Brigham et al.'s study, the researcher provided the instruction. In the current study, the classroom teachers provided the mnemonic vocabulary instruction. Finally, students in both studies demonstrated gains in scores on all post-tests, although statistical significance only resulted on the vocabulary post-test for Unit 2 in the current investigation.

In another mnemonics intervention, Mastropieri, Scruggs, and Fulk (1990) delivered individualized instruction to twenty-five students in sixth-grade in a two-group design study. The investigation evaluated the use of keyword images that stratified students by grade level, and randomly assigned them to either the treatment or control condition. Mastropieri and her colleagues' study found that students in the treatment groups significantly outperformed the students in the control groups. The current study replicates the use of keyword images for teaching factual information. However, the

current investigation used a within-subject crossover design for two sixth grade intact classes. Randomization was done for treatment order, and both classes were provided the intervention at some point.

Fontana, Scruggs, and Mastropieri (2007) extended the research using mnemonic strategy instruction in the co-taught setting. Four inclusive world history classes at the high school level delivered mnemonic strategies and direct instruction to 59 students. The results of that study demonstrated that students had significantly higher scores on a cumulative multiple-choice test on content using mnemonic strategies compared to the direct instruction. The current study replicates Fontana and colleagues' investigation as the classroom teachers delivered social studies content using a within-subjects crossover design. However, the current inquiry extended this research, as the general education teachers delivered the mnemonic instruction in the inclusive classrooms without direct special education support for the students with disabilities. Additionally, Fontana and colleagues reported that the mean scores by student group were not significant, with the exception of the ESL subgroup. In the current investigation, increased mean scores for all students on the post-tests were achieved, although the only statistical significant result was on the vocabulary post-test for Unit 2.

Finally, Marshak, Mastropieri, and Scruggs (2011) conducted an investigation extending previous efforts to provide instructional support to students with mild disabilities in inclusive secondary social studies classrooms. That study used mnemonic strategies coupled with peer tutoring within co-taught inclusive classrooms. Substantial gains were reported for the use of mnemonic materials for target items on the cumulative

test. The present investigation also utilized mnemonic strategies to improve vocabulary learning in social studies. However, no direct special education support was provided in the classroom. The general education teachers provided all instruction to all of the students. Mean gain scores were obtained on all measures in this study, whereas Marshak and colleagues only reported gains for targeted items on the cumulative test.

Significance of findings. The methods in the previous research compared to the methods of the current study may explain some of the differences in outcomes. Previous mnemonic vocabulary interventions within secondary classrooms were primarily delivered in a one to one setting, or small group. In all but the 2007 research by Fontana, Scruggs and Mastropieri, and the 2011 investigation by Marshak and colleagues, the researcher delivered the intervention. Researcher delivered instruction of a researcher-developed intervention is likely to yield greater outcomes. Further, instruction within co-taught classrooms where both the general education and special education teachers provided content delivery and support may have led to better student achievement (Fontana, Scruggs, & Mastropieri, 2007; Marshak, Mastropieri, & Scruggs, 2011). Only the content general education teachers delivered all instruction, and supports within the inclusive classroom in the current investigation. Although both classes were small, the teachers were still required to meet the needs of a diverse student population, including differentiating instruction and providing accommodations in preparation for the end of year high stakes test.

With the exception of the single subject design with only eight students by Mastropieri, Scruggs, Bakken, and Brigham (1994), and the two-group design with 25

students by Mastropieri, Scruggs, and Fulk (1990), the sample sizes were larger in all of the other studies compared to the current investigation. Small sample sizes can make finding statistical significance more difficult. As a result, a larger sample size in the current study may have yielded different results.

Finding 2

The second research question for this investigation was: "What is the relationship between vocabulary acquisition and comprehension of content material?"

Research substantiates that a positive correlation exists between vocabulary knowledge and reading comprehension (Pearson, Hiebert, & Kamil, 2007). Student achievement requires the interdependent nature of vocabulary knowledge and reading comprehension (Vitale & Romance, 2008). In order to be able to read and understand both narrative and expository texts in content subjects, secondary students must have strong vocabulary knowledge (Watson, Gable, Gear, & Hughes, 2012). In fact, a potential cause of reading difficulties in content curriculum is the lack of vocabulary knowledge relevant to each subject (McKeown, Crosson, Artz, Sandora, & Beck, 2013).

Although students demonstrated gains on all post-tests, a relationship did not exist between vocabulary development and reading comprehension in the current study. A correlation test was conducted to identify possible correlation between students' performance across two units on the unit post-test, vocabulary post-test, and CLOZE post-test following the mnemonic instruction regardless of the treatment order.

Overall findings determined:

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1. No statistically significant correlations were found between unit post-test scores and vocabulary post-test scores.

2. No statistically significant correlations were found between unit post-test scores and CLOZE post-test scores.

3. No statistically significant correlations were found between vocabulary post-test scores and CLOZE post-test scores.

Significance of findings. Previous research on the effectiveness of content vocabulary acquisition, and reading comprehension has provided a sound argument for teaching vocabulary to improve content understanding. Vaughn et al. (2013) completed a study aimed to determine this relationship. A within-teacher design in eighth-grade social studies classes used random assignment to either the treatment or control groups. Five teachers taught both the treatment classes (n = 261) and the control classes (n = 158). Treatment classes utilized practices that focused on teaching essential words, text as a source for reading and discussion and team-based learning approaches. Findings revealed that the treatment students outperformed the comparison students on all three outcome measures-content knowledge, content reading comprehension, and standardized reading comprehension.

In another investigation in the areas of vocabulary development and content knowledge, Seifer and Espin (2012) conducted an inquiry using a within-subjects design. Their study examined the effects of text reading, vocabulary learning, and combined approaches to instruction. The vocabulary learning intervention was designed to improve knowledge of text-specific terms used in a content curriculum class. As a result of this

direct instruction, students performed better on the vocabulary knowledge measures when they received instruction that focused on vocabulary learning

In an activity-based method that employed developmentally appropriate discipline specific activities within the content, Scruggs, Mastropieri, Bakken, and Brigham (1993) conducted a within-subjects crossover design with 26 middle school students with LD. Students engaged in practical hands-on learning as they interacted with new vocabulary. Results were positive when instruction was appropriately structured to facilitate content word knowledge of students with learning disabilities.

Lovett, Lacerenza, DePalms, and Frijters (2011) explored improving vocabulary knowledge. A quasi-experimental group design that integrated word identification and text comprehension strategy instruction was the focus of this investigation. This design included 351 students that were identified as having a reading disability. Students in the treatment group (n = 268) who received the intervention achieved higher post-test scores on all reading outcomes relative to students in the control group, including reading comprehension.

Previous investigations in vocabulary development and reading comprehension have yielded statistically significant outcomes that support the hypothesis that a correlation exists between vocabulary knowledge and reading comprehension. However, many of these investigations included much larger samples than the current study. Additionally, the type of vocabulary interventions varied from rote memorization strategies using vocabulary cards to computer-assisted instruction that included drill and

practice on basic skills and content knowledge to semantic mapping and semantic feature analysis.

Many research studies in mnemonic vocabulary strategies have produced significant outcomes for content comprehension. However, the majority of these studies included larger sample sizes than the current investigation. While no statistically significant correlations were found between unit post-test scores and vocabulary post-test scores, unit post-test scores and CLOZE post-test scores, or vocabulary post-test scores and CLOZE post-test scores, other explanations may be attributed to these results. For example, both teachers participating in this study were veteran teachers highly skilled in social studies content and instruction. Their expertise and pedagogical knowledge may have aided in the overall learning experiences for their students, regardless of whether mnemonic vocabulary strategies or traditional vocabulary instruction was employed.

Finding 3

The third research question was: "What are student attitudes toward the mnemonic strategy for improving comprehension of content material?" An additional finding from this investigation was that students reported that the use of the keyword mnemonics strategy was helpful for learning content vocabulary and content material. Overall, students were positive about the benefits of using this type of strategy to learn material, and were enthusiastic about using it as a learning tool in the future.

Overall findings were:

1. The majority of students reported that they liked using mnemonics over traditional vocabulary instruction.

2. The majority of students reported that they learned more U.S. History using mnemonic strategies.

3. The majority of students reported that they would use mnemonic vocabulary strategies in other classes.

Significance of findings. Students were asked questions in a survey format as to their preferences regarding mnemonic versus traditional instruction. The majority of the students favored mnemonics. Results indicated that students liked using mnemonics with 76.19% in agreement. Over 71% of the students responded that using the mnemonic strategies was easy, and another 76.19% indicated that U.S. History was easier to learn using the mnemonic strategies. Moreover, 66.67% reported that they would use mnemonic vocabulary strategies in other classes.

As to the direct instruction, 66.67% of the students responded favorably to learning vocabulary with direct instruction. However, only 33.25% felt that they learned more U.S. History with direct instruction, and only 28.57% felt that direct instruction of definitions helped them learn more U.S. History.

The results of the student survey replicate results from the Fontana, Scruggs, and Mastropieri (2007) study. In that study, the researchers taught 59 ninth-grade students in co-taught world history classes using mnemonics. Teachers taught students using both mnemonics and traditional instruction in a within-subject crossover design. Fontana and her colleagues conducted student satisfaction surveys in much the same way as the current inquiry. In both the investigation by Fontana and colleagues and the current investigation, students reported that they liked using the mnemonic strategies. Also, in

both studies, students believed they learned more using the mnemonics than with the traditional instruction. Students in both studies reported that they would like to use the mnemonics strategies in other classes.

The current investigation took place in two sixth-grade social studies classes. The use of the keyword mnemonics strategy employed the use of interactive illustrations that many students were able to find engaging and motivating. Although outcome measures between treatment groups were not significant, providing students with creative strategies that may facilitate learning in content area classes may lead to improved recall, and ultimately greater access to content curriculum.

Finding 4

The final research question was: "What are teacher attitudes toward the mnemonic vocabulary intervention, and the impact on content area teaching?" Teacher interviews were conducted to determine their perceptions and satisfaction with the use of mnemonic strategy instruction within the inclusion social studies class. A brief nine-question interview was done at the end of the study period. Overall findings were:

1. Both teachers reported that they enjoyed using mnemonic strategy instruction for content vocabulary.

2. Both teachers reported that they would continue to use mnemonic strategy instruction for specific content vocabulary.

3.   Both teachers reported that the use of the keyword mnemonics was helpful for making abstract vocabulary concepts more concrete.

4. Both teachers reported that the keyword mnemonic strategy was very helpful for differentiating instruction.

Both participating teachers believe that the use of mnemonic strategy instruction is a useful memory device for their students, that it helps improve content instruction, and gives students a scaffold for generating ideas. The teachers also reported that this type of strategy instruction is something they both intend to use in the future. Depending on the content vocabulary, mnemonics can help students take abstract concepts and make them more concrete. Both teachers reported that they would use both traditional vocabulary instruction and mnemonics instruction together in their teaching.

According to the teachers' responses in the interviews, the type of instruction for teaching targeted factual information would be a combination of both direct instruction and mnemonics. Since they teach such a diverse student population, differentiation of instruction is mandatory. Mr. B. and Mr. M. reported that mnemonics was an excellent tool for differentiation. In spite of their enthusiasm for mnemonic strategies, both teachers stated that they prefer traditional vocabulary instruction for the discussion of events, cause and effect, as well as the nuances found in history, as this type of instruction allows for deeper discussion.

Increased student engagement was a by-product of the mnemonics instruction. Using the keywords and illustrations positively aided students with attention deficit issues. Since the students made their own mnemonics cards, the teachers felt that they were more involved in class instruction. Both teachers had mixed feelings about using

the scripts for the mnemonics vocabulary instruction. They felt that by following the script, they could not extend the conversation, or delve deeper into the content.

Both teachers believe that using mnemonics vocabulary instruction is beneficial to their students. Although students did not demonstrate statistically significant improvements in unit performance, Mr. B. and Mr. M. felt that using this strategy allowed them to differentiate instruction more effectively. They also reported that students exhibited increased engagement, and appeared to be more motivated. As a result of mnemonic strategy instruction, Mr. B. and Mr. M. felt that they were better equipped to meet the diverse educational needs of students in their classrooms.

Significance of findings. The use of teacher interviews in the current investigation rather than teacher surveys differs from previous research. The results of the investigation by Fontana and colleagues (2007) using a teacher survey reported positive teacher attitudes overall. Marshak, Mastopieri and Scruggs (2011) also employed a teacher survey to determine teacher attitudes toward mnemonics instruction. Their survey results also found that the participating teachers felt favorably toward using mnemonics. Consistent between these two studies was the belief that student engagement and motivation increased with the use of mnemonics. Although the previous investigations used teacher surveys as opposed to the teacher interviews used in the current study, consistency in teacher attitudes across all three studies was determined.

The use of personal interviews as opposed to a survey can provide greater insight into teacher perceptions. Survey formats provide answer choices that do not allow for elaboration. Although some surveys provide space for comments, respondents are still

constrained as to how they answer specific questions. In the current investigation, teachers were asked questions, and were encouraged to expand on their answers. While the questions were specific to the study, both participating teachers delivered comprehensive responses that provided clear insight into their perceptions.

Teacher attitudes and perceptions are important when employing new instructional strategies. If participating teachers are not willing to use an instructional strategy with confidence and fidelity, outcomes may be less valuable. As a result, fidelity of treatment is more likely to be adhered to when the teachers endorse the intervention. Furthermore, when teachers are willing to endorse a new teaching strategy, others are more willing to use the strategy in their content instruction as well.

Implications

Due to the rigor of high-stakes testing in content area classes, students are required to learn large amounts of content information. As a result, general education teachers are required to instruct students with varying ability levels within the heterogeneous classroom. Students with disabilities, as well as struggling learners, culturally diverse learners, and typically achieving students must access instruction that is often challenging and fast paced within the same instructional environment. Teachers need to differentiate instruction in order to meet the needs of this diverse student population. Instructional strategies such as keyword mnemonics can be a useful tool for teachers to include in their repertoire of instruction. The use of keyword mnemonics as a means to differentiate instruction is an educational implication that can assist teachers seeking better student achievement outcomes.

All students need strategies that facilitate learning, whether they are struggling learners or high achievers. Taking notes in class and using rote memorization can be challenging for even the best students. By providing learners with various creative ways to access content, educators are allowing students to take ownership of their learning, which can improve engagement and motivation. Student participants in this investigation reported that they liked using mnemonics within the social studies classroom. Although statistical significance only resulted on the vocabulary post-test for Unit 2, student responses indicated that using mnemonics was a useful strategy that they would use again.

Like their students, teachers need variety within their teaching repertoire. This is especially important as today's inclusive general education classrooms become more culturally diverse. General education content teachers are charged with providing differentiated instruction that meets the needs of all learners. Differentiating instruction was more effective, when using the mnemonics strategy according to both Mr. B. and Mr. M. They also believe that student engagement and motivation was higher when using mnemonics. The teachers in this investigation reported overall satisfaction with the mnemonic vocabulary strategies. Although they stated that using a combination of traditional vocabulary instruction with mnemonics was their preference, they found that mnemonics was a useful tool for teaching abstract terms.

While this investigation did not find statistically significant differences between the treatment and control group outcome measures, with the exception of the vocabulary post-test on Unit 2, students and teachers reported that using mnemonic strategies was

interesting and valuable. Strategy instruction of any kind can lead to increased student learning. Mnemonic strategy instruction has historically been shown to be beneficial, especially in content area classes. The teachers participating in this investigation verbalized that it was a strategy for their "teaching toolkit," and they would use it in the future. Since the overarching goal of any intervention is to see improvements in the acquisition of new information, the use of mnemonics vocabulary instruction has proven to be beneficial.

Limitations

There were a number of limitations to the current study, which are addressed below.

Random assignment. Random assignment of students could not be done as the school year was ongoing, and classes were already formed. As a result, only random assignment to the order of treatment was possible.

Length of instructional time. Students in the treatment condition received the mnemonic vocabulary instruction for only fifteen minutes each day for a two-week period. However, previous research has garnered statistically significant results with shorter time periods for the intervention. For example, Mastropieri and Scruggs (1989) provided mnemonics instruction in a social studies class for one week. Mean scores on the post-tests were significantly different, favoring the mnemonic condition. In another investigation, Scruggs, Mastropieri, Brigham, and Sullivan (1992) provided one to one instruction for only one session. The students in the mnemonic condition achieved

significantly higher scores than the control students. However, it must be noted that instruction was one to one and researcher delivered.

Perhaps, students in the current study would have demonstrated more gains within the treatment condition if they were provided longer instructional time when learning the mnemonic instructional strategy. Due to constraints of the school calendar, and the requirements of the curriculum-pacing guide, teachers were required to complete each unit of instruction within a specific amount of time. As a result, students may not have had enough practice using the mnemonics strategy, and the teachers may have needed more time to become comfortable with this type of instruction. Providing this manner of strategy instruction over multiple units might provide students and teachers with more practice in the use of mnemonics, which could lead to better vocabulary acquisition.

Sample size. Due to the small sample size-two classrooms with a total of 26 participating students-statistical analysis was limited. The researcher could not utilize tools that may better inform the results, as these types of tools require a larger number of participants.

The decision to use only two classrooms was based on the make-up of the team concept within the middle school. Only two sixth grade teams with two social studies teachers limited the potential sample pool. Since this investigation sought inclusive classes with SWD, struggling learners, culturally diverse students, and typically achieving students, only one class per team met this criterion. In a small school such as this, the master schedule and the limited resources preclude having multiple classes that include all of the above-mentioned students. Additionally, previous research with small

sample sizes (below 30) yielded statistically significant results in favor of the mnemonic condition (Mastropieri & Scruggs, 1988; Mastropieri & Scruggs, 1989; Scruggs, Mastropieri, & Levin, 1985).

Dependent variables. Another possible limitation of the study is related to the dependent variables. In this investigation, assessments from the textbook were limited to unit tests and quizzes. A comprehensive vocabulary test or CLOZE test was not available. As a result, the researcher with the input of the participating teachers developed the vocabulary and CLOZE tests. Although the vocabulary chosen for the keyword mnemonics came from the units on the Cold War and Civil Rights chapters in the textbook, the amount of vocabulary embedded within the unit tests was not as closely aligned with the content vocabulary, compared to the researcher developed assessments. A possible improvement would be to make sure that all three assessments were "standardized"; for example, all from the textbook or all researcher-created.

Instruction. In this particular intervention, a possible limitation was the integrity of the traditional instruction used in the control units. Both instructors were highly skilled social studies teachers. As a result, the mnemonic intervention was compared to very good traditional instruction. The results demonstrate that student gains were greater in the mnemonic condition, which indicated that the intervention was at least as effective, if not even better. The only statistical significance found was on the vocabulary post-test for the Civil Rights unit. This may be attributed to the personal experiences of the teacher. Mr. B., an African-American was able to describe events during this time in

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history from his viewpoint. Essentially, he was a primary historical source, which may have made vocabulary and content more accessible for his students.

Another limitation within the instruction was that observations were not done every day to determine the effectiveness of each teacher's instruction. Both instructors are excellent teachers with years of experience. Without daily observation, it was not possible to determine the potency of instruction with or without the mnemonic approach. Additionally, in spite of the ecologically valid approach of this investigation, having two teachers deliver both the experimental and traditional instruction limited the control of the instructional approach.

Implications for Future Research

High stakes testing continues to require teachers to deliver large quantities of information to a diverse population of learners. Classroom populations are more culturally diverse, challenging teachers to meet a greater variety of academic needs.

Implications for practice. As more students with disabilities and struggling readers are included in the general education classroom, differentiation of instruction is crucial to meet the needs of all students. Teachers require creative strategies they can use in class to help students digest and learn large amounts of content information. The use of mnemonic vocabulary strategies is an excellent tool for delivering content information in a manner that is accessible to all students. The results of this particular study demonstrated that although achievement gains were not statistically significant, students demonstrated improvements, as well as improved engagement and positive attitudes towards learning.

General education teachers are responsible for the delivery of instruction and must design lessons that are differentiated, in order to meet the needs of students that learn content at varied paces. It is possible that many of these teachers may have little to no training in instructional delivery and strategies to help struggling learners and students with disabilities. The use of keyword mnemonics has helped diverse groups of students regardless of whether or not they have a disability. Therefore, mnemonics strategies can be used with all students in inclusive settings to foster the acquisition of content information.

Implications for future research. Future research should also explore the use of student created mnemonics (King-Sears, Mercer, & Sindelar, 1992) for improving student performance. Student-generated mnemonics may assist in linking prior-knowledge to specific content vocabulary and facts, which may increase learning and engagement. By having students develop their own mnemonics, student engagement and motivation may improve as this may lead to an increased multi-sensory approach to instruction. As more struggling students populate content classrooms, assisting teachers in strategies to facilitate learning and recall should be at the forefront of future research.

The current investigation adds to the body of literature on the use of mnemonics vocabulary strategy instruction within the heterogeneous social studies classroom. While a large amount of research has been done using mnemonics strategies over the past forty years, further inquiry into the efficacy of this type of intervention in a whole group setting may be valuable.

Summary

The amount of intervention research in social studies general education classrooms that includes students with disabilities is limited. Yet, special needs students are frequently included in the general education social studies classroom with and without special education support. Since these classes contain increasingly diverse student populations, teachers need creative instructional strategies that can be used in order to meet the unique needs of every student. This current investigation demonstrates the effectiveness of using mnemonic vocabulary strategies in a general education inclusive classroom. Students showed greater gains on assessments during the mnemonic conditions. More importantly, both students and teachers expressed preferences for the mnemonic strategies, which provided greater instructional differentiation and increased student engagement.

APPENDIX A: IRB APPLICATION

Institutional Review Board Application Form

Instructions:

1. CITI certification (www.citiprogram.org) must be completed for all team members at the time of application submission.

2. Complete all sections and required addenda. Submit one complete package with all via IRBNet.

3. Projects with funding/proposed funding must include a copy of the grant application or proposal.

4. Research may not begin until you have received notification of IRB approval.

5. Handwritten and incomplete forms cannot be accepted.

1. Study Title: Vocabulary Instruction to Enhance Reading Comprehension in the Social Studies Classroom

2. Study Investigators

A. Principal Investigator (must be faculty/staff and meet PI Eligibility, University Policy 4012) Name: William Brozo, PhD Department: CEHD Mail Stop: 4B3 Phone: 703-993-3894 E-mail: wbrozo@gmu.edu

B. Co-Investigator/Student Researcher Name: Katherine T. Nutt, MEd Department: CEHD Mail Stop/Address: 1F2 Phone: 703-994-0019 E-mail: knutt@gmu.edu

C. Are there additional team members? No Yes If yes, attach Addendum J to list additional team members

D. Do any investigators or team members have conflicts of interest related to the research? No-X Yes If yes, explain

3. Study Type: Faculty/Staff Research Doctoral Dissertation-X Master's Thesis; Student Project (Specify Grad or Undergrad) Other (Specify)

4. Complete Description of the Study Procedures

A. Describe the aims and specific purpose of the study:

The purpose of this proposed study is to replicate and extend previous research on the use of mnemonics to improve word knowledge and comprehension. Previous research has focused on special education populations in both self-contained small group classrooms and co-taught classrooms with two teachers. This study is important as the target population is two inclusion general education middle school social studies classes. Only one content teacher in each class will deliver instruction to a diverse population of learners. This heterogeneous class consists of typically achieving students as well as students with disabilities, low SES status and ELL students.

The goal of this investigation is to answer the following research question: 1.What effect will the use of a mnemonic vocabulary intervention have on sixth grade students' vocabulary acquisition? 2. What is the relationship between vocabulary acquisition and comprehension content material? 3. What are students' attitudes toward the use of the mnemonic vocabulary strategy? 4. What are teacher attitudes toward the use of the mnemonic vocabulary intervention and its impact on content area teaching?

B. Provide a COMPLETE description of the study procedures in the sequence they will occur including the amount of time each procedure will take (attach all surveys, questionnaires, standardized assessment tools, interview questions, focus group questions/prompts or other instruments of data collection):

This is a four-week intervention study. Thirty-one students and two teachers in two heterogeneous general education classes will participate in a mixed methods study. A within-subjects crossover design in which all students will receive the mnemonic strategy intervention at different times will provide the quantitative piece of the research. Each class will be randomly assigned to a counterbalanced treatment design in which there are two possible conditions and the subjects are tested for both conditions. During the intervention condition, the mnemonic vocabulary strategies will be taught for 15 minutes of the social studies block of 56 minutes every day of the week for two weeks. Students will receive direct and explicit vocabulary instruction using mnemonics for ten class periods, totaling 150 minutes of the intervention.

Pre and post-testing that assesses vocabulary acquisition and knowledge, a pre and post CLOZE reading comprehension instrument, as well as pre and post-assessment of the social studies content will be provided for all participants (assessments are attached). In addition to the data from the intervention, students will be asked to rate their experiences from excellent to poor using a Likert type survey (student survey questions attached.) Teachers will answer interview questions relating to the strategy instruction (teacher interview questions attached.)

C. Describe the target population (age, sex, ethnic background, health status, etc.):

The participants in this study are 31 sixth grade students and two general education teachers (total of 33 participants) in two heterogenious inclusion history classes. The class makeup include sixteen students (51.6%) identified as students with disabilities and receive some level of special education support, five students (16.1%) are identified as English Language Learners, and two (6%) students are dual identified as they receive services for both special education and the ELL program. Of the total thirty-one students, seventeen are male and fourteen are female. According to school data, twenty- three students (76.6%) are identified as Caucasian, three (9.6%) are African American, three (9.6%) are Hispanic, one (3.2%) is Indian and one (3.2%) is Asian.

1. Summarize the inclusion/exclusion criteria for participation in the study:

The inclusion criteria for this investigation are based on student enrollment in each social studies class.

2. Are there any enrollment restrictions based on gender, pregnancy, race or ethnic origins? Yes No-X. If yes, please describe the process and reasons for restriction(s):

3. Do you have a relationship to any participants?   Yes No-X. If yes, please describe the relationship and how you will manage any possibility of undue influence:

4. Estimated number of subjects (may use a range): 31 students and two teachers

5. Estimated amount of total participation time per subject:

Fifteen minutes per day for ten days, totaling 150 minutes will be the amount of time for the intervention.

D. Where will the study occur (list all study sites and collaborators)? The study will take place in two sixth grade social studies classes in a rural public middle school in a school district 60 miles west of a metropolitan area in a mid-Atlantic state.

E. Describe other approvals that have been/will be sought prior to study initiation (facility authorizations, biosafety review, IRB approval from collaborating institutions, etc.): Approval has been requested from the school district's Associate Superintendent

of Instruction.

5. Recruitment and Consent

A. Describe the processes used for selecting subjects and the methods of recruitment, including use of advertising. Include when, how, and by whom the subjects will be recruited (attach all recruitment materials including flyers, emails, SONA posting, scripts, etc.)?

The inclusion criteria for this investigation are based on student enrollment in each social studies class. The social studies classes identified for participation by the building principal are two inclusive general education classes with students with disabilities, second language learners, low SES and typically achieving students. Teachers were approached by the principal and student researcher as to their interest in participation. Both teachers agreed to participate in this study and their consent forms are attached. Participants will be provided teacher and parent consent and student assent forms in order to participate in this study. (see attached)

The student researcher will meet with the teachers to describe the study and discuss the consent process for teachers and parents, as well as the assent process for students. Prior to handing out the consent and assent forms, the student researcher will read a letter to the classes describing the study and the assent forms for the students to sign if they agree to participate. In addition, they will be informed of the consent process for parents to agree (or disagree) for the students to participate. This will take place in the middle school during their social studies class period.

B. Describe the consent process including how and where the consent will take place, who will conduct the consent process, and information that will be discussed with and distributed to subjects (attach all consent documents):

Classroom teachers will provide informed consent forms and a letter explaining the study for students to take home to parents to secure participation permission. Student assent forms will be provided to students. Teachers will also be provided informed consent forms for participation in this study.

C. Is a waiver of signature of Informed Consent being requested? Yes No-X. If yes, complete the following:

1. This waiver is being sought because (check one): The only record linking the subject and the research would be the consent document AND

the principal risk would be potential harm resulting from a breach of confidentiality. The research presents no more than minimal risk of harm to

subjects AND involves no

procedure for which written consent is normally required outside of the research context. 2. Explain why the waiver of signature is being requested:

6. Privacy & Confidentiality

A. How will you protect the privacy of the participants and the confidentiality of the data obtained?

All research materials, including student identification will be kept locked in the researcher's desk during the course of the study. All identifying student information will be removed from all forms and documents and will be replaced with identification numbers for use during the study.

B. What individually identifiable information will be collected?

None. Class rosters with names removed and identification numbers will be assigned to each participant.

C. Where will the data be stored (Copies of records should be stored on Mason property)? All data will be stored in a locked desk in the researcher's office at GMU.

D. How long will the data be stored?

Data will be stored for a minimum of five years from the completion of the study.

E. What, if any, are the final plans for disposition/destruction of the data (data must be retained for at least 5 years after the study ends)?

All files will be erased and hard copies will be shredded.

F. Will results of the research be shared with the participants? Yes NoX If yes, describe how this will be accomplished:

G. Will individually identifiable information be shared with anyone outside of the research team (If yes, please explain and be sure to include this information in the consent form)?

Yes No-X. If yes, please explain:

7. Risks

A. Summarize the nature & amount of risk if any (include side effects, stress, discomfort, physical risks, psychological and social risks):

Not likely

B. Estimate the probability if any (e.g. not likely, likely, etc.) that a given harm may/will occur and its severity: None

C. What procedure(s) will be utilized to prevent/minimize any potential risks? No procedures are necessary as this is an educational intervention study.

8. Benefits

A. Describe any probable benefits (if any) of the research for the subject(s) (Do not address compensation in this section):

It is anticipated that the participants will benefit from the use of mnemonic vocabulary instruction for accessing content instruction. In addition, this study anticipates that students will develop strategies for remembering key vocabulary terms and meaning that is pertinent to the social studies unit.

B. Describe the benefits to society and general knowledge the study is likely to yield:

It is anticipated that the participating teachers will develop vocabulary instruction strategies that will benefit all of the students they teach. In addition, it is hoped that they will share these strategies with other teachers.

9. Financial Information

A. Is there any external funding or proposed funding for this project? Yes No-X. If yes, funding agency and OSP # (attach grant application)

B. Are there financial costs to the subjects? Yes No-X. If yes, please explain: C. Will subjects be paid or otherwise compensated for research participation? Yes No-X.

If yes, please respond to the following questions:1. Describe the nature of any compensation to subjects (cash, gifts, research credits, etc.): 2. Provide a dollar amount/research credit amount, if applicable:3. When and how is the compensation provided to the subject?4. Describe partial compensation if the subject does not complete the study: 5. If research credit, what is the non-research alternative to research participation?

10. Special Topics

A.   Will the study involve minors? Yes-X. No If yes, complete addendum A

Will the study involve prisoners? Yes No-X. If yes, complete addendum B

C. Will the study specifically target pregnant women, fetuses, or neonates? Yes No-X.

If yes, complete addendum C

D.   Will the study involve FDA regulated drugs (other than the use of approved
      drugs in the course of   medical practice)? Yes NoX If yes, complete addendum
      D

E. Will the study involve evaluation of the safety or effectiveness of FDA regulated
      devices? Yes No   If yes, complete addendum E

F. Will false or misleading information be presented to subjects (deception)? Yes No-
      X.   If yes, complete addendum F

G.   Will participants be audio or videotaped? Yes No-X. If yes, complete
      addendum G

H.   Will the research involve other potentially vulnerable participants (e.g. disabled
      or addicted individuals, populations engaging in illegal behavior)? ☐Yes No-
      X. If yes, complete addendum H

I. Will the research be conducted outside of the United States? Yes No-X. If yes,
      complete addendum I

11. Investigator Certification

I certify that the information provided in this project is correct and that no other
procedures will be used in this protocol. I agree to conduct this research as described in
the attached supporting documents. I will request and receive approval from the IRB
for changes prior to implementing these changes. I will comply with all IRB policies
and procedures in the conduct of this research. I will be responsible for ensuring that
the work of my co-investigator(s)/student researcher(s) complies with this protocol. I
understand that I am ultimately responsible for the entire conduct of this research.

Office of Research Integrity and Assurance

Research Hall, 4400 Univeristy Drive, MS 6D5, Fairfax, Virginia 22030 Phone: 703-993-5445; Fax: 703-993-9590

DATE: MAY 5, 2014

TO: William Brozo, PhD

FROM: George Mason University IRB

Project Title: [590742-1] Vocabulary Instruction to Enhance Reading Comprehension in the Social Studies Classroom

SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF EXEMPT STATUS

DECISION DATE: May 5, 2014

REVIEW CATEGORY: Exemption category #1 & 2

Thank you for your submission of New Project materials for this project. The Office of Research Integrity & Assurance (ORIA) has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

Please remember that all research must be conducted as described in the submitted materials.

Please note that any revision to previously approved materials must be submitted to the ORIA prior to initiation. Please use the appropriate revision forms for this procedure.

If you have any questions, please contact Karen Motsinger at 703-993-4208 or

kmotsing@gmu.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within George Mason University IRB's records

APPENDIX C: LETTER TO PARENTS

Dear Parents,

I am a doctoral candidate at George Mason University in Fairfax, Virginia. I will be doing an educational research study at Marshall Middle School from early April to mid-May. Sixth grade social studies teachers, Mr. Barbour and Mr. Maher have kindly consented to allow me to do my research in your child's class. This study is a keyword mnemonic intervention. Keyword mnemonics are an instructional strategy designed to help students improve their memory of important information. This technique connects learning new vocabulary to prior knowledge through the use of visual or picture cues. In this case, students will learn new vocabulary words using picture cues for the unit of instruction in the history class. Each class will be provided mnemonic picture cards for unit vocabulary instruction during the first fifteen minutes of class every day for two weeks. Students will take vocabulary pre-tests before instruction and post-tests after instruction to determine whether this type of instructional strategy helps them learn the content vocabulary better. Mr. Barbour and Mr. Maher will be providing this instruction to their students. Included with this letter is a consent form to be signed by the parent and an "assent" form to be signed by the student. Please return the signed forms to Mr. Barbour or Mr. Maher by May 1, 2014.

If you have any questions or concerns, I can be reached at knutt@gmu.edu or (703) 994-0019.

Sincerely,

Katherine T. Nutt, MEd

George Mason University

APPENDIX D: IRB INFORMED CONSENT FORM

Mnemonic Vocabulary Instruction to Enhance Reading Comprehension in the Social Studies Classroom
PARENTAL INFORMED CONSENT FORM
RESEARCH PROCEDURES
The purpose of the proposed study is to use keyword mnemonics to improve word knowledge and content reading comprehension in the sixth-grade social studies classes. Students will be provided content vocabulary instruction using keyword mnemonics. This instruction will take place during social studies class, and all assignments will be done in class. No additional work will be required of the students.
RISKS
There are no foreseeable risks to your child for participating in this research.
BENEFITS
There are no benefits to your child as a participant other than that your child may increase vocabulary and reading skills as a result of keyword mnemonics instructional strategies.
CONFIDENTIALITY
The data in this study will be confidential. Names of participants will not be used. Each participant will be assigned a code. Upon completion of assessments, all tests will be in the researcher's possession until coded. For coded identifiable data: (1) your child's name will not be included on the collected data; (2) a code will be placed on collected data; (3) through the use of an identification key; only the researcher will be able to link your student's test scores and survey responses to student identity; and (4) only the researcher will have access to the identification key
PARTICIPATION
Your child's participation in this research is voluntary, and he/she may withdraw from the study at any time and for any reason. If you decide not to have your student participate or if your child withdraws from the study, there is no penalty or loss of benefits to which your child is otherwise entitled. Whether your child participates in this study or not will have no impact on his/her grades. There are no costs to your child or any other party. There will be no compensation for your child's participation.
ALTERNATIVES TO PARTICIPATION
For students who decide not to participate in the research, their data will not be collected and will not be included in the research study
CONTACT
This research is being conducted by Katherine T. Nutt, Graduate School of Education, at George Mason University. She may be reached at 703-994-0019 for questions or to report a research-related problem. The faculty advisor's name is Dr. William Brozo, 703-993-

3894. You may contact the George Mason University Office of Research Integrity & Assurance at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

This research has been reviewed according to George Mason University procedures governing your participation in this research.
CONSENT
I have read this form and agree to participate in this study.

_____
Name

_____
Date of Signature
Version date:

APPENDIX E: STUDENT ASSENT FORM

Assent Form for Sixth-Graders

Who: Sixth grade students

Why: Learn how to use keyword mnemonics for remembering important
vocabulary words that are part of the social studies unit.

How:
- Take part in class instruction and activities
- Take a unit pre-tests
- Take the end of unit test.

What if:
- Do I have to do it? ……………………………. No, it's completely your choice.
- Can I change my mind? ……………………… Yes, it's ok, you can quit!
- Will I get in trouble? …………………………. No, it's ok! Just let me know.
- I don't understand the lesson? .... We will re-teach you.
- Will I have extra homework? .... No!
- Who will see my grades? ……………………….. Just your teachers and I.

Where: In your own classroom with your teacher during social studies class.

When: Over the next month

Questions: See Mr. B or Mr. M in Room _____/_____.

_____ **Yes,** I agree to take part in this study.

_____ **No**, I do NOT agree to take part in this study.

_____   _____
              Student signature   Date

Verbal confirmation of participation attained: **YES**

_____   _____
            Researcher Signature   Date

Mnemonic Vocabulary Instruction to Enhance Reading Comprehension in the Social Studies Classroom

TEACHER INFORMED CONSENT FORM

RESEARCH PROCEDURES
The purpose of the proposed study is to use keyword mnemonics to improve word knowledge and content reading comprehension in the sixth-grade social studies classes. You will be asked to provide mnemonic vocabulary instruction for one unit in the social studies curriculum. The student researcher will prepare materials, and you will be trained on the delivery of the intervention. A scripted PowerPoint presentation and mnemonic vocabulary cards for the students will be provided. Training should take approximately 30-minutes, and can be done at a time convenient for you.

At the conclusion of the study, a teacher interview will be conducted lasting approximately one-hour. This interview is to find out what you thought of the mnemonic vocabulary intervention, and if you think it had an impact on content area teaching. A possible follow-up interview may be scheduled at your convenience, and would take no longer than 30-minutes.

RISKS
There are no foreseeable risks to you for participating in this research.

BENEFITS
There are no benefits to you as a participant other than that you may develop additional instructional strategies as a result of keyword mnemonics instruction.

CONFIDENTIALITY
The data in this study will be confidential. Names of participants will not be used. Each participant will be assigned a code. For coded identifiable data: (1) names will not be included on the collected data; (2) a code will be placed on collected data; (3) through the use of an identification key; only the researcher will be able to link your class's test scores and survey responses to your identity; and (4) only the researcher will have access to the identification key

PARTICIPATION
Your participation in this research is voluntary, and you may withdraw from the study at any time and for any reason. If you decide not participate or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party. There will be no compensation for your participation.

CONTACT
This research is being conducted by Katherine T. Nutt, Graduate School of Education, at George Mason University. She may be reached at 703-994-0019 for questions or to report a research-related problem. The faculty advisor's name is Dr. William Brozo, 703-993-3894. You may contact the George Mason University Office of Research Integrity & Assurance at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

This research has been reviewed according to George Mason University procedures governing your participation in this research.
CONSENT
I have read this form and agree to participate in this study.

_____
Name

_____
Date of Signature
Version date:

APPENDIX G: COLD WAR MNEMONIC POWERPOINT PRESENTATION

10/4/14

The Cold War Era

Content Vocabulary

Iron Curtain *(curtain)*

Term used to describe the political and economic separation between communist and free countries.

Free : France, England, West Germany

Communist: Russia, Poland, East Germany

Containment *(container)*

The US policy of preventing the spread of communism.

Cold War *(hold)*

Tensions between the NATO (free countries) and the USSR (communist). These countries never engaged in full fledge combat.

Harry S. Truman *(true)*

The 33rd US president Truman was "true" to helping Americans get jobs and improve the nations' economic problems.

True   False

Fair Deal (fair)

Plan to help solve some of the nations' economic problems by providing "fair" ways for Americans to get ahead.
This was part of Truman's domestic reform agenda which included:
- Aid to education
- Universal health insurance
- Repeal the Taft-Hartley Act

Before the Fair Deal

Before the Fair Deal

Ike (Dwight D.) Eisenhower *(like)*

Elected the 34th US president in 1952, Ike was well liked by Americans because he was a war hero.

George C. Marshall/Marshall Plan (man)

The man behind the plan that called for the US to pledge funding to rebuild western Europe after WWII.

I'm George C Marshall...I had a plan

Desegregation (separate)

Desegregation:Ended laws, customs and practices that separated people by race

Cease Fire *(peace)*

To stop fighting.

DMZ/Demilitarized Zone *(military)*

A "no man's land" between warring nations.

McCarthyism (car)

The RED scare!
Senator Joe McCarthy
Made a BLACK LIST
accusing lots people
of being
Communists

Beware Commies

2

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Arms Race *(race)*

The competition/**race** between the US and Soviet Union to build more and more weapons.

Finish Line

Geneva Summit 1955 *(sum)*

US
Great Britain
France
+   Soviet Union
BIG 4

Met in Geneva Switzerland to talk about avoiding a "HOT" War

Taft-Hartley Act, 1947 *(heart)*

The "heart" of the law was to limit the power of labor unions.

Limit the power of labor unions

Joseph Stalin
(Russia/Soviet Union 1920s-1953) (pollen)

The communist leader in the Soviet Union after WWII.

Bees live in colonies/ communes in order to work together and gather pollen

Berlin Airlift *(airplane)*

Because of the Soviet blockade, the allies carried food and fuel into West Berlin by airplane .

Communism *(common)*

A socioeconomic system structured upon common ownership although the government owns everything.

Communist Government Owns everything

Communism

You have two cows. The state takes both and gives you some milk.

Berlin Wall *(tall)*

A **tall wall** built by the Russian communists to separate East and West Berlin.

1961-1989

North Atlantic Treaty Organization (NATO) *(Treat)*

It's a treat to work with you for defense and political safety

Union Soviet Socialist Republic *(USSR)*

A socialist state governed as a single-party state by the Communist Party with Moscow as its capital.

Russia controlled satellite countries under one communist government.

4

APPENDIX H: COLD WAR MNEMONIC CARDS FOR STUDENTS

The%Cold%War%Era%

Content%Vocabulary%

Iron%Curtain%(*curtain)**

Containment%(*container)**

Cold%War%(*hold)%

Harry%S.%Truman%(*true)%

Fair%Deal%(*fair)%

Ike (Dwight D.) Eisenhower *(like)*	George C. Marshall/Marshall Plan *(man)*

Desegregate *(separate)*	Cease Fire *(peace)*

Demilitarized Zone *(military)*	McCarthyism *(car)*

Arms Race *(race)*	Geneva Summit, 1955 *(sum)*

Taft-Hartley Act, 1947 *(heart)*	Joseph Stalin *(in)* Russia/Soviet Union 1920's-1953

Joseph Stalin *(pollen)* Russia/Soviet Union 1920's-1953	Berlin Airlift *(airplane)*

3

Communism *(common)*	Berlin Wall *(tall)*
_____ _____ _____ _____ _____ _____ _____ _____	_____ _____ _____ _____ _____ _____ _____

North Atlantic Treaty Organization *(NATO)*	Union Soviet Socialist Republic *(USSR)*
_____ _____ _____ _____ _____ _____ _____	_____ _____ _____ _____ _____ _____ _____

4

APPENDIX I: CIVIL RIGHTS MNEMONIC POWERPOINT PRESENTATION

10/4/14

Civil Rights Era

Content Vocabulary

Integrate *(into)*

- Any person can go **into**
  - A school
  - A restaurant
  - A bus
  - A movie theater

- Integrate = desegregate

Boycott *(boy)*

- To refuse to buy items
- To refuse to use
- To show disapproval or to force acceptance of one's terms.

No more riding the school bus for me!

National Association for the Advancement of Colored People *(NAACP)*

- Founded in 1909, the *NAACP* is the nation's 1st, oldest and largest civil rights organization.

NAACP

We are number 1!

Thurgood Marshall *(good)*

- Chief lawyer of the NAACP
- Brown vs. Board of Education, Topeka, Kansas
- 1st African American appointed to the Supreme Court

The **good** news is Marshall helps win the Brown vs. Board of Education!

GOOD NEWS!

Brown vs. Board of Education- Topeka, Kansas *(brown)*

- Supreme Court ruling
- Separate is not equal
- Ruled that it is unconstitutional to separate school children by race

Board of education

VS

Linda *Brown*

Rosa Parks *(parked)*

- Rosa *Parked* herself in the section saved for whites and refused to move to the rear.
- Rosa Parks' actions started the bus boycott in Montgomery, Alabama

Dr. Martin Luther King, Jr. *(king)*

- Baptist minister
- Leader in the Civil Rights Movement
- "I Have a Dream"

"King" of the Civil Rights Movement

Lyndon B. Johnson *(LBJ)*

- *LBJ* became president after John F. Kennedy.
- Great Society

Great Society *(social)*

Government spending on:
- Social programs
- Poverty
- Equality
- Education
- Rebuild decaying cities

Civil disobedience *(disobey)*

- Non-violent way to *disobey* laws that are considered unfair

Freedom Riders *(free to ride)*

- Freedom Riders set out for the Deep South to defy Jim Crow laws.
- They were met by hatred and violence.
- The Riders' efforts transformed the civil rights movement.

Free to Ride

Freedom Riders

Montgomery Bus Boycott *(bus)*

- A 13-month mass protest against segregated buses
- People refused to ride the public buses in Montgomery , Alabama
- Ended with the U.S. Supreme Court ruling that segregation on public buses is unconstitutional.

I'll walk

Civil Rights Act of 1964 *(action)*

Help Wanted
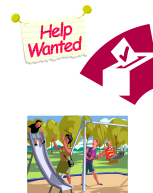
Action against the discrimination against African Americans in
- Jobs
- Voting
- Public places

Sit-in *(sit)*

- The act of protesting by sitting in and taking up seats in restaurants that would not serve African Americans.

SIT-IN
HOW FOUR FRIENDS STOOD UP BY SITTING DOWN
ANDREA DAVIS PINKNEY
ILLUSTRATED BY BRIAN PINKNEY
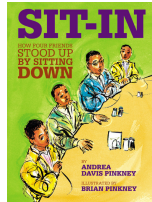
Malcolm X *(come)*

- Civil rights leader
- Nation of Islam/ Black Muslims
- Racial Pride
- Black nationalism

Feminist Movement *(move)*

- Promoted equal rights for women
- Equal rights = same pay for same job

- *Move* forward to equal

Equal rights For Women!

rights for women!
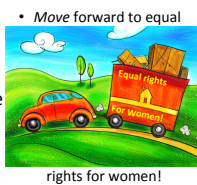
Sandra Day O'Connor *(oh)*

- First female justice of the Supreme Court

TIME
Justice—At Last

Oh yes! I am the first woman justice on the Supreme Court!

Reagan Nominee Sandra O'Connor

3

Cesar Chavez *(ceasar salad)*

- Organized migrant farm workers into the United Farm Workers (UFW).
- Lead to the boycott of lettuce.

Diverse *(different)*

- To be *different* from one another

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APPENDIX J: CIVIL RIGHTS MNEMONIC CARDS FOR STUDENTS

10/4/14

Civil Rights Era Content Vocabulary	**Integrate (into)**
Boycott (boy)	**National Association for the Advancement of Colored People (NAACP)**
Thurgood Marshall (good)	**Brown vs. Board of Education- Topeka, Kansas (brown)**

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Rosa Parks (parked)

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Dr. Martin Luther King, Jr. (king)

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Lyndon B. Johnson (LBJ)

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Great Society (social)

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Civil disobedience (disobey)

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Freedom Riders (free to ride)

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Montgomery Bus Boycott (bus)

Civil Rights Act of 1964 (action)

Sit-in (sit)

Malcolm X (come)

Feminist Movement (move)

Sandra Day O'Connor (oh)

Cesar Chavez *(ceasar salad)*

Diverse (different)

APPENDIX K: COLD WAR MNEMONIC TEACHER SCRIPT

Iron Curtain

T: The Iron Curtain was the term used to describe the political and economic separation between communist and free countries. What is the Iron Curtain?

SR: The Iron Curtain is…

T: The keyword for Iron Curtain is a curtain. What is the keyword for Iron Curtain?

SR: The keyword…

T: To remember what the Iron Curtain is, think of the keyword curtain and the strategy illustration of curtains. When I ask what Iron Curtain means, think of the keyword and what is happening in the picture.

What is the Iron Curtain?

SR: The Iron Curtain is…

T: Good! What is the keyword for Iron Curtain?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What is the Iron Container?

SR: …

T: Great!

T: What is the Iron Curtain?

Containment

T: Containment is the US policy of preventing the spread of communism. What is containment?

SR: Containment is…

T: The keyword for containment is container. What is the keyword for containment?

SR: The keyword…

T: To remember what containment is, think of the keyword container and the strategy illustration of the container with the communism labeled on it and with a bear and USSR globe on top of the container. When I ask what containment means, think of the keyword and what is happening in the picture.

What is containment?

SR: Containment is…

T: Good! What is the keyword for containment?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What is containment?

SR: …

T: Great!

T: What is containment?

Cold War

T: In the Cold War, there were tensions between the NATO (free countries) and the USSR (communist). These countries never engaged in full fledge combat. What is a Cold War?

SR: The Cold War is…

T: The keyword for Cold War is hold. What is the keyword for Cold War?

SR: The keyword…

T: To remember what Cold War means think of the keyword hold and the strategy illustration of two men sitting on missiles while arm wrestling. When I ask what Cold War means, think of the keyword and what is happening in the picture.

What is Cold War?

SR: Cold War is…

T: Good! What is the keyword for Cold War?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What is Cold War?

SR: …

T: Great!

T: What is Cold War?

Harry S. Truman

T: Harry S. Truman was the 33rd US president. Truman was "true" to helping Americans get jobs and improve the nations' economic problems.

Who was Harry S. Truman?

SR: Harry S. Truman was…

T: The keyword for Harry S. Truman is true. What is the keyword for Harry S. Truman?

SR: The keyword…

T: To remember who Harry S. Truman was, think of the keyword true and the strategy illustration of Harry S. Truman with the slogan, "Truman announces Fair Deal program" and the true/false boxes with a checkmark for true. When I ask who Harry S. Truman was, think of the keyword and what is happening in the picture.

Who is Harry S. Truman?

SR: Harry S. Truman was…

T: Good! What is the keyword for Harry S. Truman?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: Who was Harry S. Truman?

SR: …

T: Great!

T: Who is Harry S. Truman?

Fair Deal

T: The Fair Deal was a plan to help solve some of the nations' economic problems by providing "fair" ways for Americans to get ahead.

What was the Fair Deal?

SR: The Fair Deal was…

T: The keyword for Fair Deal is fair. What is the keyword for Fair Deal?

SR: The keyword…

T: To remember what the Fair Deal was, think of the keyword fair and the strategy illustration of the poster of everyday American workers with the text saying, "All we want is a fair deal". When I ask what the Fair Deal was think of the keyword and what is happening in the picture.

What was the Fair Deal?

SR: The Fair Deal was…

T: Good! What is the keyword for the Fair Deal?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What was the Fair Deal?

SR: …

T: Great!

T: What was the Fair Deal?

Ike (Dwight D.) Eisenhower

T: Ike (Dwight D.) Eisenhower was elected the 34th US president in 1952. Ike was well liked by Americans because he was a war hero.

 Who was Ike (Dwight D.) Eisenhower?

SR: Ike (Dwight D.) Eisenhower was…

T: The keyword for Ike (Dwight D.) Eisenhower is like. What is the keyword for Ike (Dwight D.) Eisenhower?

SR: The keyword…

T: To remember who Ike (Dwight D.) Eisenhower was, think of the keyword like and the strategy illustration of the campaign button that said "I like Ike". When I ask who Ike (Dwight D.) Eisenhower was, think of the keyword and what is happening in the picture. Who was Ike (Dwight D.) Eisenhower?

SR: Ike (Dwight D.) Eisenhower was…

T: Good! What is the keyword for Ike (Dwight D.) Eisenhower?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: Who was Ike (Dwight D.) Eisenhower?

SR: …

T: Great!

T: Who was Ike (Dwight D.) Eisenhower?

George C. Marshal/Marshall Plan

T: George C. Marshall was the man behind the Marshall Plan that called for US funding to help rebuild Western Europe after WWII. Who was George C. Marshall and what was the Marshall Plan?

SR: Disarmament is…

T: The keyword for George C. Marshall/Marshall Plan is man. What is the keyword for George C. Marshall/Marshall Plan?

SR: The keyword…

T: To remember who George C. Marshall was and what the Marshall Plan was, think of the keyword man and the strategy illustration of a photo of George C. Marshall with a text balloon that says, "I'm George C. Marshall…I had a plan. You guys in Europe need another one". When I ask who George C. Marshall was and what the Marshall Plan was, think of the keyword and what is happening in the picture.

Who was George C. Marshall and what was the Marshall Plan?

SR: George C. Marshall was and the Marshall Plan was…

T: Good! What is the keyword for George C. Marshall/Marshall Plan?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: Who was George C. Marshall and what was the Marshall Plan?

SR: …

T: Great!

T: Who was George C. Marshall and what was the Marshall Plan?

Desegregation

T: Desegregation means ending laws, practices that separated people by race. What is desegregation?

SR: Desegregation is…

T: The keyword for desegregation is separate. What is the keyword for desegregation?

SR: The keyword…

T: To remember what desegregation is, think of the keyword separate and the strategy illustration of people of different races holding hands. When I ask what desegregation means think of the keyword and what is happening in the picture.

What is desegregation?

SR: Desegregation is…

T: Good! What is the keyword for desegregation?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What is desegregation?

SR: …

T: Great!

T: What is desegregation?

Cease Fire

T: Cease Fire means to stop fighting. What is a Cease Fire?

SR: A Cease Fire is…

T: The keyword for Cease Fire is peace. What is the keyword for Cease Fire?

SR: The keyword…

T: To remember what a Cease Fire is, think of the keyword peace and the strategy

illustration of the two boys fighting with blocks spelling out peace above them. When I

ask what Cease Fire means, think of the keyword and what is happening in the picture.

What is Cease Fire?

SR: Cease Fire is…

T: Good! What is the keyword for Cease Fire?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What is Cease Fire?

SR: …

T: Great!

T: What is Cease Fire?

DMZ/Demilitarized Zone

T: DMZ/Demilitarized Zone is a "no man's land" between warring nations. What is

DMZ/Demilitarized Zone?

SR: DMZ/Demilitarized Zone is…

T: The keyword for DMZ/Demilitarized Zone is military. What is the keyword for

DMZ/Demilitarized Zone?

SR: The keyword…

T: To remember what DMZ/Demilitarized Zone is, think of the keyword military and the

strategy illustration of a map of North and South Korea with a red line dividing it. When

I ask what DMZ/Demilitarized Zone means think of the keyword and what is happening

in the picture.

What is DMZ/Demilitarized Zone?

SR: DMZ/Demilitarized Zone is…

T: Good! What is the keyword for DMZ/Demilitarized Zone?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What is DMZ/Demilitarized Zone?

SR: …

T: Great!

T: What is DMZ/Demilitarized Zone?

McCarthyism

T: McCarthyism is named for Senator Joe McCarthy who led The RED scare! He made a

BLACK LIST accusing lots people of being Communists.

 What is McCarthyism?

SR: McCarthyism is…

T: The keyword for McCarthyism is car. What is the keyword for McCarthyism?

SR: The keyword…

T: To remember what McCarthyism is, think of the keyword car and the strategy

illustration of a red car with the caption on the car that says, "Beware Commies". When I

ask what McCarthyism is, think of the keyword and what is happening in the picture.

What is McCarthyism?

SR: McCarthyism is…

T: Good! What is the keyword for McCarthyism?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What is McCarthyism?

SR: …

T: Great!

T: What is McCarthyism?

Arms Race

T: An arms race was the competition/race between the US and Soviet Union to build more and more weapons. What was the arms race?

SR: An arms race was…

T: The keyword for arms race is race. What is the keyword for arms race?

SR: The keyword…

T: To remember what an arms race was, think of the keyword race and the strategy illustration of a person crossing a finish line where there are different weapons depicted. When I ask what an arms race was, think of the keyword and what is happening in the picture.

What was the arms race?

SR: An arms race was s…

T: Good! What is the keyword for arms race?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What was an arms race?

SR: …

T: Great!

T: What was an arms race?

Geneva Summit 1955

T: The 1955 Geneva Summit was a meeting of the "Big 4", US, Great Britain, France and the Soviet Union to discuss was of avoiding a "hot war". What was the Geneva Summit?

SR: The Geneva Summit was…

T: The keyword for Geneva Summit is sum. What is the keyword for Geneva Summit?

SR: The keyword…

T: To remember what the Geneva Summit was, think of the keyword sum and the strategy illustration of US + Great Britain + France + Soviet Union = BIG 4 and the photo of the leaders of those four countries. When I ask what the Geneva Summit was, think of the keyword and what is happening in the picture.

What was the Geneva Summit?

SR: The Geneva Summit was …

T: Good! What is the keyword for the Geneva Summit?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What was the Geneva Summit?

SR: …

T: Great!

T: What was the Geneva Summit?

Taft-Hartley Act, 1947

T: The Taft-Hartley Act is a law enacted in 1947 to limit the power of labor unions.

What is the Taft-Hartley Act?

SR: The Taft-Hartley Act was…

T: The keyword for the Taft-Hartley Act is heart. What is the keyword for the Taft-

Hartley Act?

SR: The keyword…

T: To remember what the Taft-Hartley Act is, think of the keyword hear and the strategy

illustration of a heart picture frame that says "limited the power of labor unions". When I

ask what the Taft-Hartley Act is, think of the keyword and what is happening in the

picture.

What is the Taft-Hartley Act?

SR: The Taft-Hartley Act is…

T: Good! What is the keyword for the Taft-Hartley Act?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What is the Taft-Hartley Act?

SR: …

T: Great!

T: What is the Taft-Hartley Act?

Joseph Stalin

T: Joseph Stalin was the communist leader in the Soviet Union after WWII. Who was

Joseph Stalin?

SR: Joseph Stalin was…

T: The keyword for Joseph Stalin is pollen. What is the keyword for Joseph Stalin?

SR: The keyword…

T: To remember who Joseph Stalin was, think of the keyword in and the strategy

illustration of a bee covered in pollen. When I ask who Joseph Stalin was, think of the

keyword and what is happening in the picture.

Who was Joseph Stalin?

SR: Joseph Stalin was…

T: Good! What is the keyword for Joseph Stalin?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: Who was Joseph Stalin?

SR: …

T: Great!

T: Who was Joseph Stalin?

Berlin Airlift

T: Because of the Soviet blockade, the allies carried food and fuel into West Berlin by airplane. This was called the Berlin Airlift. What was the Berlin Airlift?

SR: The Berlin Airlift was…

T: The keyword for the Berlin Airlift is airplane. What is the keyword for the Berlin Airlift?

SR: The keyword…

T: To remember what the Berlin Airlift was, think of the keyword airplane and the strategy illustration of an airplane dropping groceries and fuel. When I ask what the Berlin Airlift was, think of the keyword and what is happening in the picture.

What was the Berlin Airlift?

SR: The Berlin Airlift was…

T: Good! What is the keyword for the Berlin Airlift?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What was the Berlin Airlift?

SR: …

T: Great!

T: What was the Berlin Airlift?

Communism

T: Communism is a socioeconomic system structured upon common ownership although the government owns everything.

What is communism?

SR: Communism is…

T: The keyword for communism is common. What is the keyword for communism?

SR: The keyword…

T: To remember what communism is, think of the keyword common and the strategy illustration of the cows with the caption, "a farmer had two cows, the government took the cows; the farmer got some milk-Maybe. When I ask what communism is, think of the keyword and what is happening in the picture.

What is communism?

SR: Communism is…

T: Good! What is the keyword for a communism?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What is communism?

SR: …

T: Great!

T: What is communism?

North Atlantic Treaty Organization (NATO)

T: The North Atlantic Treaty Organization was an organization of different countries,

including Western Europe and the US that promised to defend each other if attacked.

What is The North Atlantic Treaty Organization?

SR: North Atlantic Treaty Organization is…

T: The keyword for The North Atlantic Treaty Organization is *"treat"*. What is the

keyword for North Atlantic Treaty Organization?

SR: The keyword…

T: To remember what North Atlantic Treaty Organization is, think of the keyword, treat.

When I ask what The North Atlantic Treaty Organization is, think of the keyword and the

strategy illustration of the two people shaking hands and saying, "It's a treat to work with

you for defense and political safety."

What is the North Atlantic Treaty Organization?

SR: The North Atlantic Treaty Organization is…

T: Good! What is the keyword for the North Atlantic Treaty Organization?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What is the North Atlantic Treaty Organization?

SR: …

T: Great!

T: What is the North Atlantic Treaty Organization?

Union Soviet Socialist Republic (USSR)

T: The Union Soviet Socialist Republic was s socialist state governed as a single-party

state by the Communist Party with Moscow as its capital.

What was the Union Soviet Socialist Republic?

SR: The Union Soviet Socialist Republic was…

T: The keyword for Union Soviet Socialist Republic is the acronym USSR. What is the

keyword for Union Soviet Socialist Republic?

SR: The keyword…

T: To remember what Union Soviet Socialist Republic was, think of the

keyword/acronym USSR, which is the first letter in each word and the strategy

illustration of the map of the USSR. When I ask Union Soviet Socialist Republic was,

think of the keyword/acronym and what is happening in the picture.

What is the Union Soviet Socialist Republic?

SR: The Union Soviet Socialist Republic was…

T: Good! What is the keyword/acronym for the Union Soviet Socialist Republic?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What is the Union Soviet Socialist Republic?

SR: …

T: Great!

T: What is the Union Soviet Socialist Republic?

APPENDIX L: CIVIL RIGHTS MNEMONIC TEACHER SCRIPT

Integrate

T: Integrate means to end separation of races that any person can go *"into"* a school, a

restaurant, a bus, a movie theatre. Integrate = desegregate. What does integrate mean?

SR: Integrate means…

T: The keyword for integrate is "*into*". What is the keyword for integrate?

SR: The keyword…

T: To remember what integrate means, think of the keyword "*into*" and the strategy

illustration of the children from different races holding hands. When I ask what integrate

means, think of the keyword and what is happening in the picture.

What does integrate mean?

SR: Integrate means…

T: Good! What is the keyword for integrate?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What does integrate mean?

SR: …

T: Great!

T: What does integrate mean?

Boycott

T: Boycott means to refuse to buy items; to refuse to use in order to show disapproval or force acceptance of one's terms. What does boycott mean?

SR: Boycott means…

T: The keyword for boycott is "*boy*". What is the keyword for boycott?

SR: The keyword…

T: To remember what boycott means, think of the keyword "*boy*" and the strategy illustration of the boy in the cartoon saying "no more riding on the school bus for me". When I ask what boycott means, think of the keyword and what is happening in the picture.

What does boycott mean?

SR: Boycott means…

T: Good! What is the keyword for boycott?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What does boycott mean?

SR: …

T: Great!

T: What does boycott mean?

National Association for the Advancement of Colored People

T: The National Association for the Advancement of Colored People is an organization founded in 1909 that worked on behalf of African Americans. It is the nation's 1st and largest civil rights organization. What is the National Association for the Advancement of Colored People?

SR: The National Association for the Advancement of Colored People is…

T: The keyword for National Association for the Advancement of Colored People is the acronym "*NAACP*". What is the keyword/acronym for National Association for the Advancement of Colored People?

SR: The keyword/acronym…

T: To remember what the National Association for the Advancement of Colored People is, think of the keyword/acronym "*NAACP*" and the strategy illustration of a scroll with "NAACP" and "we are number 1!" written on it. When I ask what the National Association for the Advancement of Colored People is, think of the keyword/acronym and what is happening in the picture.

What is the National Association for the Advancement of Colored People?

SR: The National Association for the Advancement of Colored People is…

T: Good! What is the keyword/acronym for the National Association for the Advancement of Colored People?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What is the National Association for the Advancement of Colored People?

SR: …

T: Great!

T: What is the National Association for the Advancement of Colored People?

Thurgood Marshall

T: Thurgood Marshall was the Chief lawyer of the NAACP and helped win the landmark case of Brown vs. Board of Education, Topeka, Kansas. He later became the first African American appointed to the Supreme Court. Who was Thurgood Marshall?

SR: Thurgood Marshall was…

T: The keyword for Thurgood Marshall is ”*good*”. What is the keyword for Thurgood Marshall?

SR: The keyword…

T: To remember who Thurgood Marshall was, think of the keyword *“good”* and the strategy illustration of a newspaper with the headline “Good News” and the caption above it that says, “The ***good*** news is Marshall helps win Brown vs. Board of Education!” When I ask who Thurgood Marshall was, think of the keyword and what is happening in the picture.

Who was Thurgood Marshall?

SR: Thurgood Marshall was…

T: Good! What is the keyword for Thurgood Marshall?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: Who was Thurgood Marshall?

SR: …

T: Great!

T: Who was Thurgood Marshall?

Brown vs. Board of Education- Topeka, Kansas

T: Brown vs. Board of Education- Topeka, Kansas is the ruling by the Supreme Court

that it is unconstitutional to separate school children by race.

What is the Brown vs. Board of Education- Topeka, Kansas?

SR: Brown vs. Board of Education- Topeka, Kansas is…

T: The keyword for Brown vs. Board of Education- Topeka, Kansas is "*brown*". What is

the keyword for Brown vs. Board of Education- Topeka, Kansas?

SR: The keyword…

T: To remember what Brown vs. Board of Education- Topeka, Kansas is, think of the

keyword "*brown"* and the strategy illustration of a chalk board that says "Board of

Education VS" and a picture of an African American girl with the name of "Linda

Brown" next to it. When I ask what the Brown vs. Board of Education- Topeka, Kansas

is, think of the keyword and what is happening in the picture.

What was Brown vs. Board of Education- Topeka, Kansas?

SR: The Brown vs. Board of Education- Topeka, Kansas is…

T: Good! What is the keyword for the Brown vs. Board of Education- Topeka, Kansas?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What is the Brown vs. Board of Education- Topeka, Kansas?

SR: …

T: Great!

T: What is the Brown vs. Board of Education- Topeka, Kansas?

Rosa Parks

T: Rosa Parks sat in a bus seat in the section reserved for whites and refused to move to the rear. This led to the Montgomery Bus Boycott.

 Who was Rosa Parks?

SR: Rosa Parks was…

T: The keyword for Rosa Parks is "*parked*". What is the keyword for Rosa Parks?

SR: The keyword…

T: To remember who Rosa Parks was, think of the keyword *"parked"* and the strategy illustration of the cartoon of Rosa Parks sitting (*parked)* on a bus with the caption that says, "the only tired I was, was tired of giving in." When I ask who Rosa Parks was, think of the keyword and what is happening in the picture.

Who was Rosa Parks?

SR: Rosa Parks was…

T: Good! What is the keyword for Rosa Parks?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: Who was Rosa Parks?

SR: …

T: Great!

T: Who was Rosa Parks?

Dr. Martin Luther King, Jr.

T: Dr. Martin Luther King, Jr. was a Baptist minister who became one of the great leaders of the civil rights movement. Who was Dr. Martin Luther King, Jr.?

SR: Dr. Martin Luther King, Jr. was…

T: The keyword for Dr. Martin Luther King, Jr.? is "*king*". What is the keyword for Dr. Martin Luther King, Jr.?

SR: The keyword…

T: To remember who Dr. Martin Luther King, Jr. was, think of the keyword "*king*" and the strategy illustration of the cartoon picture of Dr. Martin Luther King, Jr. with a crown above his head with the initials "MLK" and the caption that says, *"King"* of the Civil Rights Movement. When I ask who Dr. Martin Luther King, Jr. was, think of the keyword and what is happening in the picture.

Who was Dr. Martin Luther King, Jr.?

SR: Dr. Martin Luther King, Jr. was…

T: Good! What is the keyword for Dr. Martin Luther King, Jr.?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

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T: Who was Dr. Martin Luther King, Jr.?

SR: …

T: Great!

T: Who was Dr. Martin Luther King, Jr.?

Lyndon B. Johnson

T: Lyndon B. Johnson became president after John F. Kennedy. He sought to continue the reforms and civil rights through the "Great Society". Who was Lyndon B. Johnson?

SR: Lyndon B. Johnson was…

T: The keyword for Lyndon B. Johnson is *"LBJ",* which were his initials. Many people knew the president as *"LBJ"*. What is the keyword for Lyndon B. Johnson?

SR: The keyword…

T: To remember who Lyndon B. Johnson was, think of the keyword/initials *"LBJ"* and the strategy illustration of the election button that pictures Johnson with the logo "All the Way with LBJ". When I ask who Lyndon B. Johnson was, think of the keyword/initials and what is happening in the picture.

Who was Lyndon B. Johnson?

SR: Lyndon B. Johnson was…

T: Good! What is the keyword for Lyndon B. Johnson?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: Who was Lyndon B. Johnson?

SR: …

T: Great!

T: Who was Lyndon B. Johnson?

Great Society

T: The Great Society was a government-spending program that included social programs to reduce poverty, promote equality, improve education, and rebuild decaying cities. What was the Great Society?

SR: The Great Society was …

T: The keyword for Great Society was *"social"*. What is the keyword for Great Society?

SR: The keyword…

T: To remember what the Great Society was, think of the keyword *"social"* and the strategy illustration of LBJ leaning over a cow that is divided up into government spending and a label that says *"LBJ"*. When I ask what the Great Society was, think of the keyword and what is happening in the picture. What was the Great Society?

SR: The Great Society …

T: Good! What is the keyword for Great Society?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What was the Great Society?

SR: …

T: Great!

T: What was the Great Society?

Civil disobedience

T: Civil disobedience is non-violent ways to disobey laws that are considered unfair.

What is Civil disobedience?

SR: Civil disobedience is…

T: The keyword for Civil disobedience is "*disobey*". What is the keyword for Civil

disobedience?

SR: The keyword…

T: To remember what Civil disobedience is, think of the keyword *"disobey"* and the

strategy illustration of Dr. Martin Luther King with the caption *"disobey"* below his face.

When I ask what Civil disobedience means think of the keyword and what is happening

in the picture.

What is Civil disobedience?

SR: Civil disobedience is…

T: Good! What is the keyword for Civil disobedience?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What is Civil disobedience?

SR: …

T: Great!

T: What is Civil disobedience?

Freedom Riders

T: In 1961, the Freedom Riders set out for the Deep South to defy Jim Crow laws. They were met by hatred and violence. But the Riders' efforts transformed the civil rights movement. What were the Freedom Riders?

SR: Freedom Riders were…

T: The keywords for Freedom Riders are *"free to ride"*. What are the keywords for Freedom Riders?

SR: The keywords…

T: To remember who the Freedom Riders were, think of the keywords "*free to ride*" and the strategy illustration of a bus that is "*free to ride"* for all people including the group of people waiting for the bus and who are Freedom Riders. When I ask who the Freedom Riders were, think of the keywords and what is happening in the picture.

Who were the Freedom Riders?

SR: The Freedom Riders were…

T: Good! What are the keywords for Freedom Riders?

SR: The keywords…

T: What is the picture strategy?

SR: The picture…

T: Who were the Freedom Riders?

SR: …

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T: Great!

T: Who were the Freedom Riders?

Montgomery Bus Boycott

T: The Montgomery Bus Boycott was a 13-month mass protest against segregated buses. People refused to ride the public buses in Montgomery, Alabama. It ended with the U.S. Supreme Court ruling that segregation on public buses is unconstitutional. What was the Montgomery Bus Boycott?

SR: The Montgomery Bus Boycott was…

T: The keyword for the Montgomery Bus Boycott is *"bus"*. What is the keyword for the Montgomery Bus Boycott?

SR: The keyword…

T: To remember what the Montgomery Bus Boycott was, think of the keyword *"bus"* and the strategy illustration of a cartoon of a bus labeled "segregation" and the African American man standing outside the bus saying, "uh uh, I'm not going your way, I'll walk."

What was the Montgomery Bus Boycott?

SR: The Montgomery Bus Boycott was…

T: Good! What is the keyword the Montgomery Bus Boycott?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What was the Montgomery Bus Boycott?

SR: …

T: Great!

T: What was the Montgomery Bus Boycott?

Civil Rights Act of 1964

T: The Civil Rights Act of 1964 banned discrimination against African Americans in employment, voting and public places. What was the Civil Rights Act of 1964?

SR: The Civil Rights Act of 1964 was…

T: The keyword for the Civil Rights Act of 1964 is *"action".* What is the keyword for the Civil Rights Act of 1964?

SR: The keyword…

T: To remember what the Civil Rights Act of 1964 was, think of the keyword *"action"* and the strategy illustration of the help wanted sign (jobs), the ballot box (voting) and the public park (public places). When I ask what the Civil Rights Act of 1964 was, think of the keyword and what is happening in the picture.

What was the Civil Rights Act of 1964?

SR: The Civil Rights Act of 1964 was …

T: Good! What is the keyword for the Civil Rights Act of 1964?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What was the Civil Rights Act of 1964?

SR: …

T: Great!

T: What was the Civil Rights Act of 1964?

Sit-in

T: A sit-in is the act of protesting by sitting in and taking up seats in restaurants that would not serve African-Americans. What is a sit-in?

SR: A sit-in is …

T: The keyword for sit-in is *"sit".* What is the keyword for sit-in?

SR: The keyword…

T: To remember what a sit-in is, think of the keyword *"sit"* and the strategy illustration of the book cover that shows four young African American men sitting at a luncheon counter with the caption, "SIT-IN- how four friends stood up by sitting down." When I ask what a sit-in is, think of the keyword and what is happening in the picture.
What is a sit-in?

SR: A sit-in …

T: Good! What is the keyword for sit-in?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What is a sit-in?

SR: …

T: Great!

T: What is a sit-in?

Malcolm X

T: Malcolm X was Civil rights leader and leader of the Black Muslims.

He called for racial pride and black-nationalism. Who was Malcolm X?

SR: Malcolm X was…

T: The keyword for Malcolm X is *"come"*. What is the keyword for Malcolm X?

SR: The keyword…

T: To remember who Malcolm X was, think of the keyword *"come"* and the strategy

illustration of a photo of Malcom X. When I ask who Malcolm X was, think of the

keyword and what is happening in the picture.

Who was Malcolm X?

SR: Malcolm X was…

T: Good! What is the keyword for Malcolm X?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: Who was Malcolm X?

SR: …

T: Great!

T: Who was Malcolm X?

Feminist Movement

T: The Feminist Movement promoted equal rights for women. What was the Feminist

Movement?

SR: The Feminist Movement was …

T: The keyword for feminist is *move*". What is the keyword for feminist?

SR: The keyword…

T: To remember what feminist means, think of the keyword *"move"* and the strategy illustration a VW bug pulling a trailer with "Equal Rights for Women" painted on the side of the trailer and the caption, "move forward to equal rights for women." When I ask what the Feminist Movement was, think of the keyword and what is happening in the picture.

What was the Feminist Movement?

SR: The Feminist Movement was…

T: Good! What is the keyword for Feminist Movement?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What was the Feminist Movement?

Sandra Day O'Connor

T: Sandra Day O'Connor is the first female justice of the Supreme Court. Who is Sandra Day O'Connor?

SR: Sandra Day O'Connor is…

T: The keyword for Sandra Day O'Connor is "*oh*". What is the keyword for Sandra Day O'Connor?

SR: The keyword…

T: To remember who Sandra Day O'Connor is, think of the keyword, *"Oh"*. When I ask who Sandra Day O'Connor is, think of the keyword and the strategy illustration of the Time magazine cover with Sandra Day O'Connor with her saying, "Oh yes! I am the first woman justice on the Supreme Court."

Who is Sandra Day O'Connor?

SR: Sandra Day O'Connor is…

T: Good! What is the keyword for Sandra Day O'Connor?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: Who is Sandra Day O'Connor?

SR: …

T: Great!

T: Who is Sandra Day O'Connor?

Cesar Chavez

T: Cesar Chavez organized thousands of migrant farm workers into the United Farm Workers and participated in the boycott of lettuce.

Who was Cesar Chavez?

SR: Cesar Chavez was…

T: The keyword for Cesar Chavez is "ceasar salad". What is the keyword for Cesar Chavez?

SR: The keyword…

T: To remember who Cesar Chavez was, think of the keyword "ceasar salad", and the strategy illustration of an empty bowl and the caption, "there is no lettuce for my ceasar salad". When I ask who Cesar Chavez was, think of the keyword and what is happening in the picture.

Who was Cesar Chavez?

SR: Cesar Chavez was…

T: Good! What is the keyword for Cesar Chavez?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: Who was Cesar Chavez?

SR: …

T: Great!

T: Who was Cesar Chavez?

Diverse

T: Diverse means to be different from one another.

What does diverse mean?

SR: Diverse means…

T: The keyword for diverse is "*different*". What is the keyword for diverse?

SR: The keyword…

T: To remember what diverse means, think of the keyword *"different"*, and the strategy illustration of the three women of different races and ethnicities. When I ask what diverse means, think of the keyword and what is happening in the picture.

What does diverse mean?

SR: Diverse means…

T: Good! What is the keyword for diverse?

SR: The keyword…

T: What is the picture strategy?

SR: The picture…

T: What does diverse mean?

SR: …

T: Great!

T: What does diverse mean?

APPENDIX M: COLD WAR VOCABULARY PRE- AND POST-ASSESSMENT

1) Vocabulary Word	2) This means…	3) I think it means (or is)	4) Not a clue
Iron Curtain			
Containment			
Cold War			
Harry S. Truman			
Fair Deal			
Dwight D. Eisenhower			
George C. Marshall			
Desegregate			
Cease Fire			
Demilitarized Zone			
Senator Joe McCarthy			
Arms Race			
Geneva Summit			
Taft-Hartley Act			
Joseph Stalin			
Berlin Airlift			
Communism			
Berlin Wall			
NATO			
USSR			

Name:_____ Date: _____ Teacher:_____

Directions: In the chart above, you will find names and vocabulary that are essential for the unit of study. Write your answer in the first box. If you are not sure, write what you think the answer is in the second box. If you do not know, put a check mark in the last box.

APPENDIX N: COLD WAR UNIT CLOZE PRE-TEST

Name:_____Date:_____Teacher:_____

Directions: Read the passage below. Circle the correct term to complete each sentence.

During World War II, the United States, the Soviet Union, and Great Britain worked out plans for the organization of the postwar world. Although a demilitarized zone, cease fire, fair deal was issued; which was expected to end all fighting, other problems were developing throughout Europe. The Soviet Union, also known as NATO, Geneva Summit, USSR was gaining strength. Soviet leader, George C. Marshall, Harry S. Truman, Joseph Stalin led the Soviet plan to set up governments that owned and controlled all property and means of production in Eastern Europe.   This type of government was called containment, Taft-Hartely Act, Communism. Political and military barriers isolated the Soviet-controlled countries. They were described as being behind an Iron Curtain, Berlin Wall, NATO. Meanwhile, increasing tensions with the United States led to a struggle over political differences just short of the development of war. The U.S. and Soviet Union began to build more and more weapons, which was called cease fire, arms race, desegregation. This type of war is called Cold War, containment, demilitarized zone. To contain communism, the United States sent aid to Western European countries and was named after the secretary of state, Joseph Stalin, Harry S. Truman, George C. Marshall.

The Cold War competition for influence affected independence movements around the world. In Germany, a barrier was erected in the middle of Berlin, called Iron Curtain, demilitarized zone, Berlin Wall. When East Germany cut off routes into West Berlin, the U.S. and other western European nations carried supplies in with the Berlin Airlift, Taft-Hartley Act, Fair Deal.

The Communist takeover of China's government led to fears that all of Asia would fall to communism. A "no man's land" was created between warring countries called, Berlin Wall, Iron Curtain, demilitarized zone. Democratic governments banded together and developed policies that prevented the expansion of hostile powers. This organization was called NATO, USSR, Geneva Summit.

In the United States, Dwight D. Eisenhower, Joseph Stalin, Senator Joe McCarthy led a massive and damaging hunt to uncover Communist spies and supporters within the country. Tensions ran high and many people were accused of being communists.

After World War II, the U.S. government lifted controls, and prices began to rise faster than wages. In 1945, President Roosevelt died and his vice president, Dwight D. Eisenhower, Senator Joe McCarthy, Harry S. Truman became the new US President.

President Truman had a vision of reforms aimed at solving some of the nation's economic problems. One such reform was called the <u>Taft-Hartley Act, Fair Deal, Geneva Summit.</u> The Republican-controlled Congress, however, wanted to limit government spending and reduce the power of labor unions. They also wanted to limit the actions that workers could take against their employers through the <u>Fair Deal, Taft-Hartley Act, Berlin Airlift.</u>

In 1953, WWII hero, <u>Dwight D. Eisenhower, Joseph Stalin, George C. Marshall</u> was elected president of the United States. He had been a proponent of <u>cease-fire, containment, desegregation</u> by having black and white soldiers serve together during World War II. In 1955, President Eisenhower joined other world leaders to discuss ending worldwide tensions. This meeting was called <u>NATO, Geneva Summit, cease-fire.</u>

APPENDIX O: COLD WAR UNIT CLOZE POST-TEST

Name:_____Date: _____Teacher:_____

Directions: Read the passage below. Fill in the blank to complete each sentence using the word bank below.

During World War II, the United States, the Soviet Union, and Great Britain worked out plans for the organization of the postwar world. Although a _____ _____was issued, which was expected to end all fighting, other problems were developing throughout Europe. The Soviet Union, also known as _____ _____was gaining strength. Soviet leader, _____led the Soviet plan to set up governments that owned and controlled all property and means of production in Eastern Europe, this type of government was called _____ _____. Political and military barriers isolated the Soviet-controlled countries. They were described as being behind an _____. Meanwhile, increasing tensions with the United States led to a struggle over political differences just short of the development of war. The U.S. and Soviet Union began to build more and more weapons, which was called_____. This type of war is called_____. To contain communism, the United States sent aid to Western European countries and was named after the secretary of state,

_____.

The Cold War competition for influence affected independence movements around the world. In Germany, a barrier was erected in the middle of Berlin, called_____ _____. When East Germany cut off routes into West Berlin, the U.S. and other western European nations carried supplies in with the _____

_____.

The Communist takeover of China's government led to fears that all of Asia would fall to communism. A "no man's land" was created between warring countries called,_____. Democratic governments banded together and developed policies that prevented the expansion of hostile powers. This organization was called_____.   In the United States, _____ _____led a massive and damaging hunt to uncover Communist spies and supporters within the country. Tensions ran high and many people were accused of being communists.

After World War II, the U.S. government lifted controls, and prices began to rise faster than wages. In 1945, President Roosevelt died and his vice president, _____ _____became the new US President. President Truman had a vision of

reforms aimed at solving some of the nation's economic problems. One such reform was called the _____. The Republican-controlled Congress, however, wanted to limit government spending and reduce the power of labor unions. They also wanted to limit the actions that workers could take against their employers through the _____.

In 1953, WWII hero, _____ was elected president of the United States. He had been a proponent of _____ by having black and white soldiers serve together during World War II. In 1955, President Eisenhower joined other world leaders to discuss ending tensions. This meeting was called _____.

Word Bank:

Taft-Hartley Act	George C. Marshall	Fair Deal	Iron Curtain
Harry S. Truman	Dwight D. Eisenhower	Joseph Stalin	Containment
Cease fire	Arms race	Geneva Summit	Sen. Joe McCarthy
USSR	NATO	Berlin Wall	Cold War
Desegregate	Communism	Berlin Airlift	Demilitarized Zone

APPENDIX P: COLD WAR UNIT PRE-TEST

Name_____ Date_____ Class_____

Score: _____

Chapter 13 Test, Form B
The Cold War Era

Matching **DIRECTIONS:** Match each item in Column A with an item in Column B. Write the correct letter in each blank. *(5 points each)*

Column A

_____	1. UN commander in Korea
_____	2. Communist investigator
_____	3. opposed Joseph McCarthy
_____	4. Communist leader
_____	5. Soviet leader during the 1950s

Column B

A. Nikita Khrushchev

B. Douglas MacArthur

C. Joseph Welch

D. Mao Zedong

E. Joseph McCarthy

Multiple Choice **DIRECTIONS:** In the blank, write the letter of the choice that best completes the statement or answers the question. *(8 points each)*

_____ 6. Which of the following provided for unemployment and health benefits for GIs?

A. Fair Deal

B. Servicemen's Readjustment Act

C. Marshall Plan

D. U.S. Marine Bill of Rights

_____ 7. When North Korea invaded South Korea, it gained control over which city?

A. Seoul

B. Pusan

C. Inchon

D. Pyongyang

_____ 8. Which country fought on the side of the North Koreans?

A. Japan

B. China

C. Germany

D. United States

_____ 9. What helped bring about Joseph McCarthy's downfall?

A. airplane travel

B. the army

C. television

D. radio

_____ 10. The "Big Three" Allied leaders met to discuss the postwar world at Yalta in

A. Great Britain.

B. France.

C. the United States.

D. the Soviet Union.

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APPENDIX Q: COLD WAR UNIT POST-TEST

Score: _____

Chapter 13 Test, Form A
The Cold War Era

Matching DIRECTIONS: Match each item in Column A with an item in Column B. Write the correct letter in each blank. *(5 points each)*

Column A

_____ 1. cut off Eastern Europe from the West

_____ 2. gave economic aid to Europe

_____ 3. Servicemen's Readjustment Act

_____ 4. put strain on education system

_____ 5. differing attitude of old and young

Column B

A. baby boom

B. GI Bill of Rights

C. "iron curtain"

D. Marshall Plan

E. generation gap

Multiple Choice DIRECTIONS: In the blank, write the letter of the choice that best completes the statement or answers the question. *(8 points each)*

_____ 6. The winner of the 1948 presidential election was

　　A. Harry S. Truman.　　**C.** Thomas Dewey.
　　B. Henry Wallace.　　**D.** Strom Thurmond.

_____ 7. The popular general fired by President Harry S. Truman was

　　A. Dwight D. Eisenhower.　　**C.** Douglas MacArthur.
　　B. Thomas Dewey.　　**D.** Strom Thurmond.

_____ 8. President Truman presented a plan of domestic reforms called the

　　A. New Deal.　　**C.** Fair Deal.
　　B. GI Bill.　　**D.** Marshall Plan.

_____ 9. Who won the presidency in 1952 in a landslide victory?

　　A. Roosevelt　　**C.** Truman
　　B. Nixon　　**D.** Eisenhower

_____ 10. The most dramatic spy case to come before the House Un-American Activities Committee involved the

　　A. Rosenbergs.　　**C.** Hisses.
　　B. McCarthys.　　**D.** Chamberses.

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APPENDIX R: CIVIL RIGHTS VOCABULARY PRE- AND POST-ASSESSMENT

1) Vocabulary Word	2) This means…	3) I think it means (or is)	4) Not a clue
Freedom Riders			
Boycott			
National Association for the Advancement of Colored People (NAACP)			
Thurgood Marshall			
Brown vs. Board of Education-Topeka, Kansas			
Rosa Parks			
Dr. Martin Luther King, Jr.			
Integrate			
Civil disobedience			
Lyndon B. Johnson			
Great Society			
Civil Rights Act of 1964			
Malcolm X			
Feminist			
Equal Rights Amendment			
Sandra Day O'Connor			
Cesar Chavez			
Montgomery Bus Boycott			
Sit-in			
diverse			

APPENDIX S: CIVIL RIGHTS UNIT CLOZE PRE-TEST

Name/Student ID: _____ Date: _____ Teacher: _____

DIRECTIONS: READ THE PASSAGE BELOW. CIRCLE THE CORRECT TERM TO

COMPLETE EACH SENTENCE.

<u>The Civil Rights Era</u>

After World War II, African Americans and other supporters of civil rights challenged discrimination in job opportunities, housing, and education. The United States was a <u>diverse, feminist, Great Society</u> nation, yet many voices were not being heard. The <u>Equal Rights Amendment, sit-in, NAACP</u> worked on behalf of African-Americans. In 1954, the Supreme Court ruled that the segregation of public schools was illegal. The push to <u>sit-in, integrate, NAACP</u> schools led to the landmark case <u>Thurgood Marshall, Brown vs. Board of Education- Topeka, Kansas</u>. The chief lawyer of the NAACP, <u>Dr. Martin Luther King, Sandra Day O'Connor, Thurgood Marshall</u> helped win this case and became the first African-American appointed to the Supreme Court.

An increasing number of people were drawn to the civil rights movement, using nonviolent protest, also called <u>sit-in, Montgomery Bus Boycott, Rosa Parks</u> to secure the rights of African Americans. One woman, who refused to vacate her seat to a white man, <u>Sandra Day O'Connor, Cesar Chavez, Rosa Parks</u> set the stage for the 13 month mass protest against segregated buses. This boycott was called <u>Brown vs. Board of Education-Topeka, Kansas, Montgomery Bus Boycott, Freedom Riders</u>.

When President John F. Kennedy was assassinated, the nation was stunned. Vice President <u>Lyndon B. Johnson, Cesar Chavez, Dr. Martin Luther King</u> became president and continued to support civil rights issues. He continued to support programs to reduce poverty, promote equality, improve education, and rebuild decaying cities. This was called the <u>Great Society, Equal Rights Amendment, Civil Rights Act of 1964.</u>

New leaders and groups emerged as the civil rights movement grew. <u>Malcolm X, Dr. Martin Luther King, Lyndon B. Johnson</u> a young, Baptist minister, emerged as a leader of the civil rights movement. High school and college students staged <u>Freedom Riders, Civil Disobedience, sit-ins</u> to challenge segregation, and Freedom Riders endured violence to ensure that interstate buses could not practice segregation. Others fought to integrate universities and to change the laws denying African Americans the right to vote. The <u>Civil Rights Act of 1964, Equal Rights Amendment, Great Society</u> banned discrimination on the basis of race, gender, religion and nationality.

By the mid-1960s, the civil rights movement had won many victories. Yet a growing number of African Americans believed changes were happening too slowly. Leaders such as Malcolm X, Rosa Parks, Cesar Chavez called for a "society for honest black-white brotherhood". Some African American leaders embraced more radical approaches to change, including violence. The assassination of Malcolm X, Lyndon B. Johnson, Dr. Martin Luther King, in 1968 set off riots across the country.

The influence of the civil rights movement led many American women to organize and push for greater rights. Women pushed for equal pay for equal work were called Freedom Riders, feminist, diverse. The Civil Rights Act of 1964, Equal Rights Amendment, NAACP was a proposed amendment to the Constitution to guarantee equal rights for women, but was defeated. However, women were being heard. Rosa Parks, Sandra Day O'Connor, Lyndon B. Johnson was the first woman appointed to the Supreme Court.

In the 1960s and 1970s, others entered the struggle for equality. Mexican American farm workers, led by Malcolm X, Thurgood Marshall, Cesar Chavez formed a union and organized successful sit-in, civil disobedience, boycott to protest their harsh working conditions.

APPENDIX T: CIVIL RIGHTS UNIT CLOZE POST-TEST

Name/Student ID: _____ Date: _____ Teacher: _____

Directions: Read the passage below. Fill in the blank to complete each sentence

using the word bank below.

The Civil Rights Era

After World War II, African Americans and other supporters of civil rights challenged discrimination in job opportunities, housing, and education.   The United States was a _____ nation, yet many voices were not being heard. The _____ _____worked on behalf of African-Americans. In 1954, the Supreme Court ruled that the segregation of public schools was illegal. The push to _____ schools led to the landmark case of _____. The chief lawyer of the NAACP, _____ helped win this case and became the first African-American appointed to the Supreme Court.

An increasing number of people were drawn to the civil rights movement, using nonviolent protest, also called _____to secure the rights of African Americans. One woman, who refused to vacate her seat to a white man, _____ _____set the stage for the 13-month mass protest against segregated buses. This boycott was called _____.

When President John F. Kennedy was assassinated, the nation was stunned. Vice President _____became president and continued to support civil rights issues. He continued to support programs to reduce poverty, promote equality, improve education, and rebuild decaying cities. This was called the _____.

New leaders and groups emerged as the civil rights movement grew. _____ _____a young, Baptist minister, emerged as a leader of the civil rights movement. High school and college students staged _____to challenge segregation, and Freedom Riders endured violence to ensure that interstate buses could not practice segregation. Others fought to integrate universities and to change the laws denying African Americans the right to vote. The _____banned discrimination on the basis of race, gender, religion and nationality.

By the mid-1960s, the civil rights movement had won many victories. Yet a growing number of African Americans believed changes were happening too slowly. Leaders such as _____ called for a "society for honest black-white brotherhood". Some African American leaders embraced more radical approaches to

change, including violence. The assassination of _____, in 1968 set off riots across the country.

       The influence of the civil rights movement led many American women to organize and push for greater rights. Women pushed for equal pay for equal work were called _____. The _____ was a proposed amendment to the Constitution to guarantee equal rights for women, but was defeated. However, women were being heard. _____ was the first woman appointed to the Supreme Court.

       In the 1960s and 1970s, others entered the struggle for equality. Mexican American farm workers, led by _____formed a union and organized successful _____to protest their harsh working conditions.

Word Bank:

Freedom Riders	Lyndon B. Johnson	Boycott	Civil disobedience
NAACP	Integrate	Thurgood Marshall	Dr. Martin Luther King Jr.
Rosa Parks	Brown vs. Board of Education-Topeka, Kansas	Sit-in	Great Society
Montgomery Bus Boycott	Civil Rights Act of 1964	Cesar Chavez	Malcolm X
Sandra Day O'Connor	Diverse	Feminist	Equal Rights Amendment

APPENDIX U: CIVIL RIGHTS UNIT PRE-TEST

Name_____ Date_____ Class_____

Chapter 14 Test, Form B

The Civil Rights Era

Score: _____

Matching   DIRECTIONS: Match each item in Column A with an item in Column B. Write the correct letter in each blank. *(5 points each)*

Column A

_____ **1.** female justice of the Supreme Court

_____ **2.** feminist author

_____ **3.** attended the University of Mississippi

_____ **4.** fought for better conditions for migrant workers

_____ **5.** occupied Wounded Knee, South Dakota

Column B

A. AIM

B. Sandra Day O'Connor

C. James Meredith

D. Betty Friedan

E. UFW

Multiple Choice   DIRECTIONS: In the blank, write the letter of the choice that best completes the statement or answers the question. *(8 points each)*

_____ **6.** Which program helped fund public housing projects?

    A. VISTA   **C.** Model Cities
    B. Upward Bound   **D.** HUD

_____ **7.** Which leader was assassinated on April 4, 1968?

    A. Martin Luther King, Jr.   **C.** Robert Kennedy
    B. Malcolm X   **D.** John F. Kennedy

_____ **8.** Which organization fought for equal rights for women in all aspects of life?

    A. VISTA   **C.** NOW
    B. NAACP   **D.** CORE

_____ **9.** Which group of Hispanics did César Chávez organize into the UFW?

    A. truck drivers   **C.** farm owners
    B. farmworkers   **D.** schoolteachers

_____ **10.** Which lawyer challenged the idea of "separate but equal"?

    A. Malcolm X   **C.** Martin Luther King, Jr.
    B. Stokely Carmichael   **D.** Thurgood Marshall

Score: _____

Chapter 14 Test, Form A

The Civil Rights Era

Matching   DIRECTIONS: Match each item in Column A with an item in Column B. Write the correct letter in each blank. *(5 points each)*

Column A   **Column B**

_____ **1.** bringing races together   **A.** poverty line

_____ **2.** refusal to use   **B.** feminist

_____ **3.** minimum income needed to live   **C.** integrating

_____ **4.** an act of protest   **D.** boycott

_____ **5.** activist for women's rights   **E.** sit-in

Multiple Choice   DIRECTIONS: In the blank, write the letter of the choice that best completes the statement or answers the question. *(8 points each)*

_____ **6.** The NAACP worked to end

    A. segregation.   **C.** integration.

    B. civil rights.   **D.** boycotting.

_____ **7.** The refusal to obey laws that are considered unjust is called

    A. integration.   **C.** segregation.

    B. boycotting.   **D.** civil disobedience.

_____ **8.** Who said, "Ask not what your country can do for you—ask what you can do for your country"?

    A. Martin Luther King, Jr.   **C.** John F. Kennedy

    B. Malcolm X   **D.** Richard M. Nixon

_____ **9.** President Lyndon B. Johnson declared an unconditional war on

    A. Communists.   **C.** segregation.

    B. poverty.   **D.** integration.

_____ **10.** The first of a series of racial riots that hit cities in 1965 was in

    A. Baltimore, Maryland.   **C.** Harlem in New York City.

    B. New Orleans, Louisiana.   **D.** Watts in Los Angeles.

APPENDIX W: STUDENT SURVEY QUESTION

Student Survey Questions

Using a scale of 1 to 5, please answer the following questions to the best of your ability.

1= strongly disagree, 2= disagree, 3= undecided, 4= agree, 5= strongly agree

1. Did you like using mnemonics?

   1= strongly disagree, 2= disagree, 3= undecided, 4= agree, 5= strongly agree

   Comments:

2. Using the mnemonic strategy was easy for me.

   1= strongly disagree, 2= disagree, 3= undecided, 4= agree, 5= strongly agree

   Comments:

3. Did you learn more U.S. History when you used the mnemonic strategies?

   1= strongly disagree, 2= disagree, 3= undecided, 4= agree, 5= strongly agree

   Comments:

4. Did you like learning definitions with direct instruction?

   1= strongly disagree, 2= disagree, 3= undecided, 4= agree, 5= strongly agree

   Comments:

5. Did you learn more U.S. History with direct instruction definitions?

   1= strongly disagree, 2= disagree, 3= undecided, 4= agree, 5= strongly agree

   Comments:

6. Using mnemonic strategies helped me learn more U.S. History.

   1= strongly disagree, 2= disagree, 3= undecided, 4= agree, 5= strongly agree

   Comments:

7. Direct instruction of definitions helped me learn more U.S. History.

   1= strongly disagree, 2= disagree, 3= undecided, 4= agree, 5= strongly agree

   Comments:

8. Would you use mnemonic vocabulary strategies in other classes?

   1= strongly disagree, 2= disagree, 3= undecided, 4= agree, 5= strongly agree

   Comments:

9. U.S. History is easy for me.

   1= strongly disagree, 2= disagree, 3= undecided, 4= agree, 5= strongly agree

   Comments:

10. U.S. History is difficult to learn.

    1= strongly disagree, 2= disagree, 3= undecided, 4= agree, 5= strongly agree

    Comments:

APPENDIX X: TEACHER INTERVIEW QUESTIONS

Teacher Interview Questions

1. Do you feel as though mnemonics or standard vocabulary instruction helped you improve content instruction? Why? Can you give me an example?

2. Would you use mnemonics in the future? Why? Could you please describe how?

3. Do you feel that mnemonics or direct instruction of vocabulary is better for teaching specific events, people or vocabulary? Why? Can you give me an example?

4. Which type of instruction did you prefer for teaching targeted factual information, mnemonics or direct instruction of vocabulary? Why?

5. Which type of instruction seemed easier for the delivery of specific factual information, mnemonics or direct instruction of vocabulary? Why?

6. What did you enjoy the most about teaching with mnemonics?

7. What did you enjoy the least about teaching with mnemonics?

8. What did you enjoy best in general about mnemonics or mnemonic instruction?

9. According to your perception of classroom performance, did your students appear to recall more facts using mnemonics?

APPENDIX Y: TEACHER INTERVIEW CODING MATRIX

Question	Teacher A	Teacher B	Commonality	Difference
Do you feel as though mnemonics or standard vocabulary instruction helped you improve content instruction? Why? Can you give me an example?	I believe that mnemonics instruction helped me improve my content instruction. It gave students something to scaffold on for generating ideas and for accessing content knowledge	Mnemonics! The students loved it. I really think the keyword paired with the illustrations is a great memory device.	Mnenonics: Great memory device Helps improve content instruction. Scaffolding	
Would you use mnemonics in the future? Why? Could you please describe how?	Absolutely. I think it is really useful for vocabulary development. I will incorporate it into my toolbox of instruction	Absolutely. I found that my students really enjoyed the pictures; especially the visual learners. I think that using the mnemonics enhanced memory.	Very useful for vocabulary development. Enhanced memory.	
Do you feel that mnemonics or direct instruction of vocabulary is better for teaching specific events, people or vocabulary? Why? Can you give me an example?	It depends on the vocabulary. You could make a case for using both depending on the event, people and vocabulary. For example, the term "containment"; it is a hard concept but with the keyword mnemonic that we used for the Cold War unit, it took an abstract concept and made it more concrete	Mnemonics. I saw that it was really helpful; in particular, students with short term memory deficits. These students remembered the material better and longer. The script was good and the illustrations made the delivery easier.	Mnemonics: Helps short term memory deficits. Helps take abstract concepts and makes more concrete.	Depends on event, people and content vocabulary
Which type of instruction did you prefer for teaching targeted factual information, mnemonics or direct instruction of	For specific words, I prefer using mnemonics. As I mentioned before, some vocabulary can be kind of abstract and it is hard for students, especially struggling	I am old fashioned, but I am not too old to try new things. I can make a case for using both and using them together. I prefer mnemonics for differentiating instruction.	Mnemonics for specific vocabulary, especially abstract words. Also good for differentiating	Can use both or use together.

Question	Teacher A	Teacher B	Commonality	Difference
vocabulary? Why?	students to understand the meaning. When you use the keywords and the illustration, it is easier for students to understand and remember; especially for words with specific meaning for the content.		instruction.	
Which type of instruction seemed easier for the delivery of specific factual information, mnemonics or direct instruction of vocabulary? Why?	I have to go with the direct instruction. Direct instruction allows for deeper discussion of events, cause and effect and the nuances found in history. Mnemonics is very structured and lends to explicit instruction of content vocabulary. Actually, they work really well together	Mnemonics. Often, students get overloaded with the amount of content in the history curriculum. By providing keywords and illustrations for content vocabulary, it makes even hard to understand information easier to understand.	Mnemonics; makes hard content information easier to understand.	Direct instruction allows for deeper discussion of events and the nuances found in history.
What did you enjoy the most about teaching with mnemonics?	I really enjoyed the interesting visual presentations. The visual aspect of the keyword mnemonic illustration supported the literacy development of vocabulary within the content. I also think that it hits on more learning styles. I found my students to be much more engaged and interested in the instruction. They were able to interact with	I loved the keyword and the illustrations. Students were very attentive and seemed to enjoy making their mnemonic cards and the illustrations. We went on to include the keywords for a review.	Visual aspect of keyword mnemonic illustration supports literacy development of content vocabulary. Greater student engagement.	

	the lesson when making their own mnemonic cards.			
What did you enjoy the least about teaching with mnemonics?	Since I was following the script, I was reluctant to extend the conversation and go deeper into the content. Of course, after doing the mnemonics instruction, I did revisit the targeted vocabulary in class discussions.	I followed the script to the letter and sometimes would have liked to say more. I would have liked to discuss in more depth many of the events, people and even specific words.	Following the script was limiting.	
What did you enjoy best in general about mnemonics or mnemonic instruction?	I feel as though mnemonics dovetails well with the way I already teach. I already use a lot of visuals for presenting content information and incorporating the mnemonics cards encouraged the students to be more involved in the instruction.	I really liked how well the students paid attention to instruction. I think that student engagement was outstanding. Even my students who struggle to attend to instruction, really followed along and kept up with everything.	Use of visuals for presenting content information. Great for student engagement, even students with attention problems.	
According to your perception of classroom performance, did your students appear to recall more facts using	I think so. I saw better student engagement. Since the mnemonics component of the lesson was for fifteen minutes, the students had a shorter period of instructional time specific to vocabulary	Some students did. Some didn't. I think that the students who struggle with short-term memory may still struggle even with this type of memory aide. I think those students probably did remember more vocabulary than they would have without the	Better student engagement leads to better performance. Better recall for students with short-term memory deficits.	
mnemonics?		mnemonics. I plan to continue to incorporate mnemonics into my instruction next year. I have been teaching for many, many years. It just goes to show that you CAN teach an old dog, new tricks.	Both plan to continue using mnemonics.	

APPENDIX Z: FIDELITY OF TREATMENT LOG

Cold War	Obs 1	Obs 2	Obs 3	Civil Rights	Obs 1	Obs 2	Obs 3
Treatment	4.7	5.0	4.0	Treatment	5.0	5.0	4.3
	5.0	5.0	3.3		5.0	5.0	5.0
Average	4.85	5.0	3.65	Average	5.0	5.0	4.65
Control	4.5	5.0	5.0	Control	5.0	5.0	4.5
	5.0	5.0	5.0		5.0	5.0	5.0
Average	4.75	5.0	5.0	Average	5.0	5.0	4.75
Obs Avg-Treatment	4.5	90%		Obs Avg-Control	4.9	98%	
Obs Avg-Control	4.9	98%		Obs Avg-Treatment	4.9	98%	

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BIOGRAPHY

Katherine Tucker Nutt was born in Honolulu, Hawaii to Norman and Lorraine Tucker. She was raised in McLean, Virginia and graduated from McLean High School in 1978. Kathy attended Mary Washington College, graduating with a B.A. in Economics in 1986. She earned a M.Ed. in Special Education from George Mason in University in 1997. In 2003, Kathy earned a second M.Ed. in Reading from the University of Virginia.

Kathy worked as special education teacher at the middle and high school level for Fauquier County Public Schools for seventeen years. She also held leadership roles as the Special Education Department Chair and Resource Specialist at both Marshall Middle School and Fauquier High School.

In 2011, Kathy became a Curriculum and Instruction Coordinator for the Virginia Department of Education Training and Technical Assistance Center at George Mason University.   Her professional focus is on inclusive practices and co-teaching initiatives, differentiating instruction, school improvement, summative and formative assessments, data analysis for instructional focus, and literacy instruction.