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Effects Of A Reading Strategy With Digital Social Studies Texts For Eighth Grade Students

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EFFECTS OF A READING STRATEGY WITH DIGITAL SOCIAL STUDIES TEXTS FOR EIGHTH GRADE STUDENTS

by

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ABSTRACT

Recent data indicate that only 34% of American eighth grade students are able to demonstrate grade-level proficiency with academic reading tasks (NCES, 2011). The staggering nature of statistics such as this is even more profound when considering that high level literacy skills combined with mastery of digital texts have become practical requirements for success in secondary education, post-secondary education, and virtually all vocational contexts. Despite this incongruent scenario, little research has been conducted to evaluate instructional methods and reading comprehension strategies with digital texts.

To address this critical issue, the present study examined the effects of a metacognitive reading comprehension instructional protocol (STRUCTURE Your Reading [SYR]; Ehren, 2008) with eighth grade students using digital texts in a standard social studies classroom in an urban American school setting. The focus of the protocol was on teaching strategies and self-questioning prompts before, during, and after reading. The study employed a randomized controlled design and consisted of three conditions with a total of 4 participating teachers and 124 participating students. The study was conducted over 25 instructional days and two instructional units with 13.83 treatment hours within the standard, social studies classes.

Hierarchical ANCOVA analyses revealed that when controlling for pre-test measurements, the comparison and experimental groups performed significantly better than the control group with instructional unit test scores (Unit 2), reading strategy use in all stages of reading (before, during, and after), and self-questioning prompts during reading. Comparison

and experimental groups did not significantly differ in these gains, indicating that this instructional protocol is effective with both paper and digital text.

These findings suggest that the SYR instructional protocol is effective with secondary students in content area classrooms when using digital text. Furthermore, they suggest that metacognition and reading comprehension strategy instruction are able to be successfully embedded within a content area class and result in academic and metacognitive gains. Clinical implications and future research directions and are discussed.

To my family, Chuck, Drew, Maya, and Matthew;
whom I love more than life itself

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CHAPTER ONE: INTRODUCTION

This study explored the effects of a metacognitive, reading comprehension, instructional protocol with eighth grade students using digital text. Treatment was delivered during standard, social studies classes. This chapter presents the current problem, purpose of the study, specific research questions, hypotheses, study limitations and delimitations, assumptions, and operational definitions.

Statement of the Problem

According to recent research, almost 100% of America's public schools have instructional technology resources with Internet access (Dalton & Grisham, 2011; National Center for Education Statistics [NCES], 2008; 2010). Additionally, 76% of public school teachers surveyed in 2009 reported that they are currently using some form(s) of digital media (e.g., computer, tablet, smart board) in their classrooms for instruction, with the majority of these resources consisting of, at minimum, digital textbooks (Hill, 2010). Coiro (2003) notes that while digital texts add several supportive learning features for students, they also present challenges. For example, digital classrooms may employ non-linear texts via the Internet. Internet based texts utilize hypertext and hypermedia (e.g., embedded videos) to help enhance learning, yet are interactive and malleable, the complete opposite of traditional, paper-based

texts. As technology rapidly changes and shapes the instructional practices in classrooms, research informing the use of such technological resources and practices must follow suit.

Fueling this move towards digitally enhanced classrooms is the National Education Technology Plan (NETP) of 2010. In their report, *Transforming American Education: Learning Powered by Technology*, the NETP notes that

> Advances in learning sciences… give us greater understanding of three connected types of human learning – factual knowledge, procedural knowledge, and motivational engagement. Technology has increased our ability to both study and enhance all three types. Today's learning environments should reflect what we have learned about how people learn and take advantage of technology to optimize learning (p. 14).

Additionally, the NETP notes that the Department of Education (DOE) should facilitate the transformation of classrooms to "digital learning environments" (p. 20) and provide online resources that not only promote learning, but also improve instructional practices.

At the forefront of the technological innovation in schools are digital textbooks. Some states (e.g., California, Florida, Texas) have recently adopted initiatives to implement digital textbooks statewide (Bailey, 2011; Hill, 2010). However, just presenting textbooks in a digital format is not in and of itself going to increase student learning (Dillon, 1996). Research has shown that student motivation towards and engagement with instructional tasks (including reading) are increased with the use of digital tools such as eReaders, smart boards, and computers (Moje 2009; Moje, Overby, Tysvaer, & Morris, 2008); however, increased comprehension of written, digital instructional content (e.g., textbooks) is not as successfully

correlated as motivation and engagement are with the use of these tools (Dalton & Grisham, 2011; Dalton & Proctor, 2008; MacArthur, Ferretti, Okolo, & Cavalier, 2001).

Digital textbooks may be the future for instructional content; however, effective instructional methods to foster reading comprehension with digital texts, and thus student learning, are lacking empirical data. With adoption of digital texts by states and school districts, more data are needed to support their use in classrooms.

There is general agreement among reading scholars that the primary purpose for reading is to construct meaning from text (e.g., Edmonds et al., 2009). This may be a significant challenge, however, for secondary students encountering more dense, informational texts, and a greater challenge for students with learning disabilities (Gajria et al., 2007). These challenges are further exacerbated by several factors: texts in secondary schools are typically written above the specified grade level, lack organizational attributes, contain context clues not employable by the reader, and use a number of different text structures (Armbruster & Anderson, 1981, Ehren, 2006; Gordon, Schumm, Coffland, & Doucette, 1992). Students may address these challenging texts, digital or traditional, by the effective employment of reading strategies. Evidence exists that use of reading strategies improves reading comprehension for all students, but even more so for students struggling with literacy demands (e.g., Ehren, 2005; Ellis & Graves, 1990; Gajria et al., 2007). Additionally, Ehren (2005) notes, "[s]uccessful reading comprehension involves using a variety of reading strategies, largely dependent on the purpose for reading, the type of material being read, and the reader's own strengths and weaknesses" (p. 315). Therefore, it is important to investigate the use of reading comprehension strategies with adolescent readers with digital texts.

Finally, although research demonstrates that students are more motivated and engaged with instructional practices and learning outcomes in digitally based classrooms (e.g., Moje 2009; Moje, Overby, Tysvaer, & Morris, 2008), there exists a lack of data to show that research-validated, paper-based reading comprehension strategies generalize to digital texts. Moreover, research suggests that students reading online digital texts (and most digital textbooks are online), must employ different reading comprehension strategies from those they employ when they read offline, static, linear, or traditional paper-based texts (Coiro, 2007; Coiro & Dobler, 2007: Leu, et al., 2005; Leu et al., 2008).

Purpose of the Study

The primary purpose of this study is to examine whether a metacognitive, reading comprehension, instructional protocol, which has had promising results (i.e., improved reading comprehension and metacognitive processes) with print materials (Ehren, 2007), is that effective for eighth grade students when reading digital texts. As increasing numbers of students read instructional materials digitally (Palermo, 2008), there is need for an empirical research base to inform reading instruction and intervention.

Because digital texts are significantly different from traditional, paper-based texts, and it is currently unknown if reading strategies validated on paper-based texts are as effective with digital texts, research is needed on the use of reading strategies with digital texts (Castek et al., 2006; McKenna & Walpole, 2007). Therefore, this study aims to explore the effects of a particular metacognitive, strategic reading, instructional protocol (i.e., STRUCTURE Your

Reading [SYR]) on reading comprehension, metacognition, and improvement in overall classroom performance (e.g., unit tests).

Research Questions

1. Does STRUCTURE Your Reading (SYR) with digital, eighth grade, social studies texts produce greater social studies unit comprehension scores than SYR with paper-based social studies texts or typical social studies instruction alone?
2. Does STRUCTURE Your Reading (SYR) with digital, eighth grade, social studies text produce greater use of before, during, and after reading comprehension strategies than SYR with paper-based social studies texts or typical social studies instruction alone?
3. Does STRUCTURE Your Reading (SYR) with digital, eighth grade, social studies text produce greater use of before, during and after reading self-questioning prompts than SYR with paper-based texts or typical social studies instruction alone?
4. Does STRUCTURE Your Reading (SYR) with digital, eighth grade, social studies text produce greater overall reading comprehension gains as measured on a standardized measure than SYR with paper-based texts or typical social studies instruction alone?

Hypotheses

1. Students in an eighth grade social studies class taught STRUCTURE Your Reading (SYR) with a digital textbook will demonstrate equal to or greater than social studies unit comprehension gains than students taught with a paper-based textbook or students in a traditionally taught eighth grade social studies class.

2. Students in an eighth grade social studies class taught STRUCTURE Your Reading (SYR) with a digital textbook will demonstrate equal to or greater than use of reading comprehension strategies before, during, and after reading than students taught with a paper-based textbook or students in a traditionally taught eighth grade social studies class.
3. Students in an eighth grade social studies class taught STRUCTURE Your Reading (SYR) with a digital textbook will demonstrate equal to or greater than use of self-questioning prompts before, during, and after reading than students taught with a paper-based textbook or students in a traditionally taught eighth grade social studies class.
4. Students in an eighth grade social studies class taught STRUCTURE Your Reading (SYR) with a digital textbook will demonstrate equal to or greater than reading comprehension gains than students taught with a paper-based textbook or students in a traditionally taught eighth grade social studies class.

Limitations of the Study

This study has the following limitations:

1. While most secondary students are considered digital natives simply based on their age, some students may not know how to interact with the technology (e.g., computers) in which the digital texts were presented.
2. Students without a history of interaction with a variety of digital technologies may become overwhelmed or distracted by the technology itself, thus negatively impacting their gains.

3. Participating students are all residents of the Central Florida area and therefore may not be representative of students in other geographical areas.
4. The presence of the researcher in experimental and comparison classes may impact student performance on assessment measures.
5. While classes were randomly assigned to intervention conditions, the experimental classes were conducted in a computer lab outside of the traditional classroom. The computer lab layout and arrangement of student workspace may have contributed to reduced attentive class time.
6. Due to time constraints, the full SYR instructional protocol was not implemented (e.g., no "zoom in" phase). An abbreviated SYR instructional protocol was designed to fit within the confines of the current study, thereby limiting the robustness of the SYR instructional protocol used.

Delimitations

This study has the following delimitations:

1. The study included three groups of participants; (a) an experimental group consisting of two eighth grade social studies classes with a total of 38 students; (b) a comparison group consisting of two eighth grade social studies classes with a total of 43 students; and (c) a control group consisting of two eighth grade social studies classes with a total of 43 students.
2. Student participants were required to meet the following inclusionary criteria:

    (a) be enrolled in eighth grade at the participating school

(b) be enrolled in an eighth grade standard social studies class

3. Teacher participants were required to meet the following inclusionary criteria:

   (a) be employed as a social studies teacher at the participating school

   (b) have at least two standard social studies classes on their instructional schedule for the duration of the study

4. Teacher participants were paired and randomly assigned to a study condition based on years of teaching experience in social studies, in middle school, and years teaching at the participating school. Pairing was done in order to allow for comparable statistical analyses (hierarchical ANCOVA with nesting for class/teacher), and to help control the variation in teacher quality across conditions.
5. Participating classes were randomly assigned to one of three conditions.
6. The intervention was provided over the course of two instructional social studies units (25 days), on a daily basis, during the participating social studies classes.
7. Student participants completed all pre-test assessments prior to intervention beginning.
8. Student participants completed all post-test assessments upon intervention completion.

Assumptions

This study makes the following assumptions:

1. Decoding and/or reading fluency issues may be at the root of some comprehension difficulties for students enrolled in the participating eighth grade social studies classes.
2. Years of content area instructional experience enhances teacher quality.

3. Purposeful student effort in learning SYR and completing the assessment measures affect outcomes.

Operational Definitions

The following terms are operationally defined for the purposes of this study:

1. *Digital Textbook:* Public school officially adopted textbook material that is presented via computer (PC). The digital textbook is the same version and published year as the paper-based textbook.
2. *Strategy:* An individual's approach to a task…including how a person thinks and acts when planning, executing, and evaluating performance on a task and its subsequent outcomes (Deshler & Lenz, 1989).
3. *Strateroutine:* A strateroutine is a teaching procedure that starts out as a routine directed by the teacher and progresses to a strategy in the student's control. It is an outgrowth of research conducted at the University of Kansas Center for Research on Learning (KUCRL) in the areas of Learning Strategies (the "strate" part) and Content Enhancement Routines (the "routine" part) as part of the Strategic Instruction Model (SIM). It is a hybrid of the two approaches, the former including tools for students to help them become strategic, independent learners and the latter involving an instructional procedure used by teachers to engage students in strategic thinking, rooted in interactive dialogue around a visual device (Ehren, 2008). However for the purposes of this study the terms "strateroutine" and "strategy" will be used interchangeably, as the term strategy is more widely utilized in the literature and students are more likely to know that term.

4. *Social studies*: "the integrated study of the social sciences and humanities to promote civic competence…drawing upon such disciplines as anthropology, archaeology, economics, geography, history, law, philosophy, political science, psychology, religion, and sociology, as well as appropriate content from the humanities, mathematics, and natural sciences" (National Council for the Social Studies, 1994, p. 3).
5. *Standard social studies class*: A standard social studies class, as used in this study, is a social studies class that is not labeled by the school district as "advanced" or "gifted and talented". Standard social studies classes have students with a range of skills and abilities.

Summary

This chapter presents an introductory outline for the current study, the problem statement, purpose of the study, specific research questions, hypotheses, study limitations and delimitations, assumptions, and operational definitions. This study examines the effects of a metacognitive, reading comprehension, instructional protocol with eighth grade students using digital text in a content area class. Specific research questions are posed to investigate gains with classroom unit tests, reading strategy use, use of metacognitive prompts, and overall reading comprehension.

CHAPTER TWO: LITERATURE REVIEW

This study investigated the effects of a metacognitive, reading comprehension, instructional protocol with digital, social studies text. This is an important area of study for many reasons, including the literacy achievement gap of youth in the United States. Adolescent literacy data as a whole, while slightly improving, remain stagnant and weak (Edmonds et al., 2009). Systematic changes with regard to classroom instruction and incorporation of new, technologically enhanced materials are being implemented with little to no empirical data to support such changes; and even fewer to empirically support advancement of adolescent literacy with their use. Technological adoptions in content area classes are likely to have an impact on classroom performance, reading comprehension, student motivation, and, ultimately, the skills needed for workforce readiness.

Pertinent research related to the use of reading comprehension strategies by adolescents with digital social studies texts will be explored. This review is organized around the following subtopics: the importance of adolescent literacy, including workforce literacy; digital literacy, including metacognition with digital literacy; a framework for reading comprehension; motivation in literacy; disciplinary literacy; and reading comprehension strategies.

The Importance of Adolescent Literacy

The path to becoming a successful adolescent reader begins as early as infancy, with the beginnings of learning language, awareness of phonemes and phonology, and introduction to exposure to print (Justice, Chow, Capellini, Flanigan, & Colton, 2003). Literacy further develops during the preschool and early school-age years with focus on foundational skills, or precursor skills (i.e.: semantics, phonology, rhyme, print concepts), otherwise known as emergent literacy (Justice et al., 2003; Justice & Pullen, 2003). Emergent literacy typically extends until children enter school, or until they are approximately five or six years of age (Justice et al., 2003). These early exposures to language and literacy are what begin to form the foundation for the success or failure of future literacy skills. Burns et al. (1999) note consistent data supporting increased literacy success upon entering school when children are more knowledgeable about language and literacy prior to starting kindergarten.

This emphasis on literacy development occurring in early childhood, has led to copious research conducted with literacy development and instruction in the early grades (i.e.: preschool through third grade). Literacy instruction in the early grades focuses primarily on the basic mechanics of reading and writing, phonemic and phonological awareness, print concept skills, the alphabetic principle, spelling, sight word recognition, reading fluency, vocabulary, and comprehension (Burns et al., 1999). The support for such prominence in literacy instruction during the earlier years is rooted in theory that early intervention may reduce reading difficulties later (Biancarosa & Snow, 2004; Heller & Greenleaf, 2007; Torgesen et al., 2007). Furthermore, with such a focus on literacy in the early grades, many teachers may assume that when students

enter secondary education settings, their literacy skills are intact (Edmonds et al., 2009). The data do not support this assumption. Only 34% of eighth graders in the United States demonstrate grade-level proficiency with regards to reading, as shown by the most recent National Assessment of Educational Progress (NAEP) Reading test (NCES, 2011). Additionally, 24% of eighth graders read below the *basic* level; meaning they lack even "…partial mastery of the prerequisite knowledge and skills that are fundamental for proficient work at each grade" (NCES, p. 6). An alternate way to analyze these data is to consider that close to 70% of eighth grade students are not able to "demonstrate competency over challenging content matter," consisting of locating, recalling, integrating, interpreting, critiquing, and evaluating subject matter (NCES, p. 6).

While early literacy focuses on the technique of learning to read, literacy in the secondary grades of middle and high school tends to focus on comprehension and using the text to gain new and important information (Edmonds et al, 2009). It should also be noted that, as students progress to later elementary grades and into the secondary settings, the content and organization of classroom texts become increasingly more complex (Shanahan & Shanahan, 2008; RAND Reading Study Group [RRSG], 2002). The vast majority of instruction in U.S. classrooms is taken from, and rooted in, textbooks (RRSG, 2002). In fact, as high as 55%-95% of classroom instruction may be spent with students reading or interacting with textbooks (Albright & Ariail, 2005; Zahorik, 1991). Meanwhile, research has consistently noted that textbooks are 'inconsiderate' (Armbruster & Anderson, 1981; Beck, McKeown, Sinatra, & Loxterman, 1991; Ehren, 2006) towards readers who struggle as the texts apply poor organizational patterns, include content that distracts the reader, and do not diversify for various readers (Boone &

Higgins, 2007). Thus, secondary students may be fluent readers (e.g., decoders) but poor comprehenders. When they encounter inconsiderate texts, as is the case in many classrooms, their problems increase.

Continued literacy development is the gateway to student learning. The old adage, 'students learn to read until third grade and then read to learn after third grade' is no longer echoed by reading educators (Biancarosa & Snow, 2004). Simply put, teaching children to read well by the end of the third grade has not translated to gains in literacy for adolescents (Buehl, 2011). Middle and high school students encounter new and increasingly complex texts and vocabulary each day; thus continuously learning to read may require not only further literacy instruction, but instruction on learning strategies which may be employed in a variety of settings (Biancarosa, 2005; Langer, 2001). Additionally, learning to read should be viewed as an ongoing, lifelong process when considering disciplinary literacy. Disciplinary literacy, as defined by Shanahan and Shanahan (2012) is "an emphasis on the knowledge and abilities possessed by those who create, communicate, and use knowledge within the disciplines" (p. 8). Discipline-specific texts are typically abstract, subtle, ambiguous, and conceptual (Shanahan & Shanahan, 2008). Therefore, adolescent readers should continue to be instructed in literacy and learning in order to successfully learn and flourish academically.

With only one third of the national adolescent population demonstrating literacy skills at or above proficient levels, however, it is prudent to question the type and intensity of literacy instruction in secondary settings. Prominent researchers in adolescent literacy have sought more intervention, research, and support for adolescent readers who struggle. In the foreword for *Reading Next* (2004), Catherine Snow notes, "…many excellent third-grade readers will falter or

fail in later-grade academic tasks if the teaching of reading is neglected in the middle and secondary grades" (p. 1). Research has repeatedly shown that adolescents are continually learning how to read new material, are learning new reading material, or are learning new literacies (Archer, Gleason, & Vachon, 2003; Biancarosa & Snow, 2004; Biancarosa 2005; Ehren, Lenz, & Deshler, 2004; Moore, Bean, Birdyshaw, & Rycik, 1999). Therefore current research supports the assertion that adolescent literacy is a much needed area of instruction and research in our nation's schools. While the improvement in the current statistics (e.g., NCES, 2011) is not striking, it appears the recent push for literacy intervention at the secondary level may be working, as these studies indicate the first increase in test performance since 2002 (Ayers & Miller, 2009; NCES, 2011).

Although the most current data show improvement with adolescent literacy, when examining the overall data from the past four decades, there are not significant gains demonstrated (Perie, Moran, & Lutkus, 2005; Rampey, Dion, & Donahue, 2009). Some have suggested that the literacy skills that adolescents are being taught differ from those on which they are being tested (e.g., Hoffman, Assaf, Pennington, & Paris, 2001). Teachers are teaching to high-stakes tests (e.g., Barksdale-Ladd & Thomas, 2000), or simply providing instruction for test taking (e.g., Merchant, 2004). While high-stakes testing is widely used and regarded as a fundamental means to gauge student learning, it has also has been found to contribute to higher dropout rates with secondary students (Futrell & Rotberg, 2002; McNeil, Coppola, Radigan, & Heilig, 2008). Such testing does not necessarily focus on the higher-order skills students need for success in secondary and post-secondary education settings as well as the workforce (Ayers & Miller, 2009). Successful completion of school and substantive contributions to the workforce

ultimately is a desired outcome for a focus on adolescent literacy.

Workforce Literacy

Consider the impact adolescent literacy has on the workforce and, ultimately, the economy of the nation. In order for students to become competent, successful learners, equipped to enter the workforce to make significant contributions to the global economy, they must master significantly more than a high-stakes test. They must be prepared with high academic and literacy skills in a variety of areas (e.g., reading, writing, math, and science), advanced interpersonal skills, and superior applied skills (e.g., professionalism, critical thinking, and innovation) (Ehren & Murza, 2010).

Workforce literacy has been the focus for several large international organizations (e.g., Partnership for 21st Century Skills, 2003). A focal point for preparing future employees for success in the workforce has been secondary students. In order for individuals to successfully enter the workforce, be significant contributors, and make a living, there are certain fundamental literacy skills that must be mastered. These include basic communication, decision-making, interpersonal, and life long learning skills (Ott, 2001). In order to efficaciously and substantively add to the workforce, however, a specialized set of literacy skills should also be mastered. Workforce literacy, as defined by Ott (2001) is,

> [i]n the simplest of terms…the set of knowledge and skills required of a worker to effectively perform job-specific tasks. Workforce literacy refers to the education of the nation's workforce with the goal of realizing higher levels of literacy for all workers. It

is a crucial strategy in sustaining economic growth for the nation, the state, and local communities (pp. 3-4).

These requirements are problematic as the demand for a literate workforce in today's global economy is increasing and is only expected to grow (RRSG, 2002; Partnership for 21st Century Skills, 2003). Several decades ago, lower-level positions did not require workers to demonstrate higher levels of literacy mastery; in fact the industrial revolution thrived with workers who were able to build and repair new and complex machinery with little literacy demands (Ott, 2001). This is not the case today. Current employers, even those looking to fill entry-level positions, are requiring higher levels of literacy mastery (Askov, 1995; Casner-Lotto & Barrington, 2006; Langer, 2001). For example, individuals in entry-level banking positions in past years have not necessarily needed high-level literacy skills to be successful in their positions. Given technological innovations and global economics now influencing this industry, however, even entry-level workers must be able to employ higher-level thinking and problem solving skills, as well as effective communication skills (Askov, 1995). While this is just one example, multiple occupations and industries are requiring such skills. In fact, Askov notes, "[s]imilar changes are found in almost every business and industry, regardless of the type" (1995, p. 5).

Furthermore, individuals looking to establish careers in administrative or higher-level corporate positions must exceed proficient literacy skills with advanced mastery, as well as possess multiple high-level skills such as: critical and innovative thinking, problem solving, collaboration, leadership abilities, planning and organizing, use of technology, and effective communication (Casner-Lotto & Barrington, 2006). Adding further support to the urgency of

this matter, world business leaders clearly and repeatedly outline higher-level knowledge and skills necessary to success in the global workforce. These include technological knowledge and skill, superior thinking skills, adaptability, flexibility, and interpersonal collaboration and communication skills (Casner-Lotto & Barrington, 2006).

In order to successfully enter the workforce and demonstrate mastery of such skills, students experience increasing demands as they progress through middle and high school. The curriculum escalates as students advance towards high school graduation, and specifically aims to prepare them with both knowledge and skills that are necessary for success in post-secondary education settings and the workforce via the Common Core State Standards (CCSS) (National Governors Association/Council of Chief State School Officers, 2010). Specifically, the CCSS note the reciprocity of language processes (listening, speaking, reading, and writing) across all content areas with regard to academic success, and the need for all students to be held to high standards for success in collegiate and workforce settings (National Governors Association/Council of Chief State School Officers, 2010).

Considering the relationship between academic achievement (Fisher & Ivey, 2006; National Research Council, 2001; Snow & Biancarosa, 2003) and the increasing demands students experience in high school (Edmonds et al., 2009; Langer, 2001; National Governors Association/Council of Chief State School Officers, 2010) and the workforce (Ehren & Murza, 2010), the need to focus on adolescent literacy is evident. However with only three percent of eighth graders demonstrating advanced, or superior, performance with reading (NCES, 2011), it is clear that the need to address adolescent literacy is warranted as a means to ensure economical stability and growth in a global workforce and economy (Wise, 2009). Preparing students who

are able to read, comprehend, and master more advanced materials will lead to workforce and economic improvements. Thus, supporting continued reading comprehension instruction and intervention with secondary students may be viewed as an effort to improve not only student achievement data, our nation's role in the global economy as well.

Encouraging continued growth with adolescent literacy is supported by the research. Yet students themselves must be motivated to improve and develop their literacy skills, actively engage in classroom instruction, and to learn new facilitative strategies. The review will now address digital literacy, as well as metacognition and reading comprehension with digital texts as a possible means to motivate students to actively and strategically improve academically.

Digital Literacy

Digital literacy is increasingly presented and discussed in various disciplines (e.g., Moran et al., 2008). In order to review the area of digital literacy, one must first consider the area of new literacies, of which digital literacy is a part. While the term "new literacies" is currently a construct differing from one theoretical base to another, there are at minimum four common characteristics to this newly independent theoretical landscape:

1. New literacies require new skills, strategies, and dispositions to be favorably employed by readers;
2. New literacies are at the core of complete civic, economic, and personal contributions in the new global community;

3. New literacies are "deictic" (Leu, 2000), meaning they are constantly changing as technology changes;
4. New literacies are numerous, utilize more than one mode, and contain many aspects or phases (Castek et al., 2005; Leu et al., 2005).

To further define the theoretical basis of new literacies, the following definition from Leu, Kinzer, Coiro, & Cammack (2004) will be used:

> The new literacies of the Internet and other Information Communication Technology (ICT) include the skills, strategies, and dispositions necessary to successfully use and adapt to the rapidly changing information and communication technologies and contexts that continuously emerge in our world and influence all areas of our personal and professional lives. These new literacies allow us to use the Internet and other ICT to identify important questions, locate information, analyze the usefulness of that information, synthesize information to answer those questions, and then communicate the answers to others (p. 1570).

Thus, reading comprehension with regards to new literacies focuses around five central purposes (Castek et al., 2006 p. 39):

1. Identifying important questions;
2. Locating information;
3. Analyzing information;
4. Synthesizing information;
5. Communicating information.

Adding support to the use of, and adaptations that digital literacy may provide, Universal Design for Learning (UDL) (Rose & Meyer, 2000) is a paradigm for professionals to utilize in order to merge diverse learning styles (e.g., multiple intelligences) with assistive technology (AT). They include principles such as 1) representing information in a variety of formats and media, 2) providing various pathways for student expression, and 3) allowing a variety of ways to engage students and promote motivation. The NETP also calls for UDL to be implemented nationwide to allow for accessible and differentiated instruction and student learning (2010). One of the "new literacies" included in the ever-expanding literacy skills for students is that of digital literacy (Edyburn, 2007).

Palincsar & Dalton (2005) note multiple advantages to using digital texts. For example, text size can be manipulated or highlighted; embedded links and videos within texts may aid comprehension, and digital texts may be individualized. Technology has not only changed literacy practices, but now affords educators to further enhance learning via AT. While ICTs are "new literacies" in the realm of research and instruction, it should be noted that adolescent students are digital natives; meaning they were born and raised in the digital age and are accustomed to digital media, perhaps even more so than most adults (Prensky, 2001). A more concentrated focus on the new literacy of digital literacy as it relates to the current study will now be examined.

The literature presents multiple definitions of digital literacy. Eshet-Alkalai and Chajut (2009) define digital literacy as "…the ability to employ a wide range of cognitive and emotional skills in using digital technologies" (p. 713). O'Brian and Scharber (2008) further detail digital literacy with their definition "as socially situated practices supported by skills, strategies, and

stances that enable the representation and understanding of ideas using a range of modalities enabled by digital tools. Digital literacies enable the bridging and complementing of traditional print literacies with other media" (p. 67). Digital literacy includes ICTs (Castek, Coiro, Harman, Henry, Leu, & Zawilinski, 2006) and is widely employed in classrooms today, with students using eText (Anderson-Inman & Horney, 2007), digital textbooks (Boone & Higgins, 2007), and the Internet (Castek, Zawilinski, McVerry, O'Byrne, & Leu, in press). Anderson-Inman and Horney (1997; 1998) describe supported eText as electronic text that is able to do more than traditional printed text. Supported eText may include links, audio, or video files to promote increased comprehension by the reader. While supported eText with graphics aid struggling readers, research has found that it is more beneficial to have no graphics than to have incorrect graphics (Anderson-Inman & Horney, 2007).

Technology has forever changed literacy practices, yet the empirical evidence available to date is limited. Leu (2000) has noted the following three conclusions:

1. Technology is *transformative*, changing the nature of literacy;
2. The relationship between literacy and technology is *transactional* (meaning literacy and technology help transform each other); and
3. Technology is *deictic*, which means that it will change rapidly in response to environmental forces.

Furthermore, Reinking (1994) notes four significant contrasts between traditional paper-based literacy and digital literacy:

1. Digital text is interactive and is able to be manipulated;
2. Comprehension may be encouraged by guided reading;

3. Structure and layout are far different (e.g., hypertext);
4. Digital literacy includes multimedia presentations and/or various icons.

These differences, as well as the constantly present evolution of literacy via technological advances, result in a different approach and method to reading. Compared to static, paper-based text, which readers typically approach with a 'first to last word' mentality, digital texts require readers to strategically move from point to point, integrate information presented with multiple media, and link to other sources via hypertext in order to gain new information (McKenna et al., 1999). These conclusions and processes hold true today with the widespread adoption of digital texts in classrooms.

Mobilizing the movement towards digital literacy are both education and business leaders in the global economy, allowing for cultivation of 21st century business skills as well as knowledge (Partnership for 21st Century Skills, 2003). Although many of the technological advancements are considered AT, they are geared for any student, not only for students who need support to access the general curriculum. In fact, Boone & Higgins (2007) note that supportive digital technologies encourage "access to learning" as compared to "access to print," which is quite essential when working with struggling adolescent readers (p. 136). Thus, AT in literacy is currently much more than simply an alternative form of the original content or literature. It is geared towards providing access to learning for the general student population, including students with reading difficulties (Boone & Higgins, 2007; Castek et al., in press; Edyburn, 2007). What is uncertain, however, is the nature of metacognitive reading comprehension instruction with texts presented digitally, as well as the impact of hypertexts on attention and metacognition (Castek, et al., 2006; Coiro, 2003; Edyburn, 2007; RRSG, 2002).

Metacognitive, Strategic Reading Comprehension Instruction with Digital Literacy

In the most basic format, there is little empirically validated evidence to guide reading comprehension instruction or intervention with digital text, and even less so for adolescent readers who struggle (Castek et al, 2006). The RRSG noted, "[u]sing computers and accessing the Internet make large demands on individuals' literacy skills; in some cases, this new technology requires readers to have novel literacy skills, and little is known about how to analyze or teach those skills" (p. 4). Moreover, the increased demands of digital literacy may not be addressed in schools, as many teachers may assume that online reading, or reading digital text, is congruent with reading paper based texts (Castek et al, 2006; Coiro & Dobler, 2007; Leu et al., 2007). The little research available shows some contrasting results. The common conclusion among these recent studies, however, is that readers must employ new skills and strategies when reading digital texts versus when reading traditional texts (Coiro, 2007; Coiro & Dobler, 2007; Leu et al., 2005). It is noteworthy to add that the above studies were conducted with "skilled" adolescent readers.

Recent research with students who struggle with reading is emerging; however the data are inconsistent at this point. Perhaps Labbo, Reinking, and McKenna (1998) summarized the status of and attention to digital literacy best:

> During the ensuing decades, the importance of aligning digital literacy instruction in the classroom with its eventual applications in the larger society will become ever more imperative. Educators must be aware of key concepts reflecting developing trends and practical applications for this to occur (p. 275).

Digital literacy in the classroom is becoming more common with each passing school year. While data regarding the overall impact on adolescent literacy are yet to be gathered in order to make widespread programmatic adoptions, data are available as to the motivational effects that digital instructional materials may have with secondary students. While those data are also limited, motivational aspects in regard to addressing adolescent literacy are worthy of exploration. Students who are motivated to read will ultimately read more, resulting in greater literacy skills and academic gains, or the "Matthew effect" (Stanovich, 1986).

Finally, considering if whether difficulties with paper-based text transfer to digital text raises the question of whether traditional interventions still prove effective to help struggling readers make adequate gains. Will the simple incorporation of digital text motivate secondary students to approach reading in a strategic or metacognitive manner? The data are not currently able to confirm the effectiveness of traditional, research-validated, paper-based reading comprehension instruction or intervention for adolescent readers when using digital texts, which is the impetus for the current study. Furthermore, there are no data currently available to support the use of such instruction or intervention within an academic content area with digital instructional materials. The review now presents a reading comprehension framework around which the current study is structured.

A Framework for Reading Comprehension

Reflecting upon the previous points that have been reviewed regarding the importance of addressing adolescent literacy, it is clear why adolescents need to be skilled readers. They must

be able to planfully approach a variety of complex texts, integrate information from multiple sources, and interpret information at a rapid pace in their classrooms. The most current national data have proven this is not the case for the majority of secondary students (NCES, 2011). The review will now examine adolescent reading comprehension strategies within the contexts of disciplinary and digital literacy as they relate to the current study.

In order to ground the literature review for adolescent reading comprehension a supporting model will first be presented. As noted in the RRSG (2002) report, reading comprehension is the interaction of the reader, the text, and the comprehension activity, as well as the encompassing socio-cultural context. In order to comprehend, readers must "simultaneously extract and construct meaning" from text (RRSG, 2002, p. 11). The reader influences this process, just as the reader is influenced by it. The reader brings certain individualized aspects to the reading comprehension process, such as cognitive abilities, motivational features (both intrinsic and extrinsic), prior knowledge, and past experiences (Edmonds et al., 2009). The second component, the text, may vary widely, thus impacting comprehension. Additionally, electronic text may hinder or enhance comprehension with its nonlinear features such as hypertext or embedded multimedia files (RRSG, 2002). The final component, the activity, consists of the reader's purpose as well as the outcomes. The encompassing socio-cultural context is of importance in this model because it posits that learning, and ultimately reading comprehension, extends well beyond the school or classroom. Furthermore, reading comprehension is a life-long developmental process (Edmonds et al., 2009; Snow, & Biancarosa, 2003). While decoding and reading fluency are necessary, the act of constructing meaning from text is a process that is developed over many years and does not end

at a specific age or grade. Finally, successful readers recognize breakdowns in comprehension and employ a variety of comprehension strategies to repair breakdowns (Torgesen et al., 2007).

While this model provides a framework for the process of reading comprehension and notes the need for strategy use to repair breakdowns in comprehension, adolescent readers that struggle may be incapable of extracting and constructing new meaning from text. This may be due to a number of reasons, two of which may include difficulties stemming from lack of progression through literacy development stages (Robinson & McKenna, 2008) or escalating demands with academic promotion (RRSG, 2002; Shanahan & Shanahan, 2008). Reading comprehension strategies are critical to students struggling with mastering comprehension, and will be further discussed in another section. As noted in the RRSG reading comprehension model, motivation (intrinsic and extrinsic) impact reading comprehension success. The review will now address motivation in literacy as it relates to adolescents.

Motivation in Literacy

There is a strong empirical research base, which repeatedly documents the reciprocal relationship between student motivation to read and improved literacy skills for adolescent learners (Beers, 2003; Baker & Wigfield, 1995; Guthrie, Wigfield, Metsala, & Cox, 1999; Skinner & Belmont, 1993; Snow, Burns, & Griffin, 1998; Torgesen et al, 2007; Wigfield & Guthrie, 1997). This relationship is so strong in fact, that Torgesen et al. (2007) call for motivation to be included as one of the six necessary demonstrable growth areas of knowledge and skills for students in grades four through twelve. While the majority of students start their

educational careers as motivated, engaged, and optimistic readers, those who struggle with language and literacy in the early grades have a greater probability of developing a poor self-concept as a reader and thereby becoming disengaged and unmotivated (Baker, 2003; Eccles, Wigfield, Harold, & Blumenfeld, 1993; McKenna, Kear, & Ellsworth, 1995; Torgesen et al, 2007). Lyon (2009) notes in his address to the National Institute of Child Health and Human Development that students as young as first grade begin to show decreased motivation and engagement when they identify themselves as struggling readers.

To illustrate this progression, Wigfield and Guthrie (1997) propose a conceptual framework for motivational development in students spanning grade levels. This framework includes eleven areas covering three distinct categories. The categories include: a) competence and efficacy beliefs, b) purposes and goals for reading (intrinsic and extrinsic motivation), and c) social aspects of reading. Beliefs included in the first category, the competency and efficacy beliefs, are self-efficacy beliefs, challenge beliefs, and work-avoidance beliefs. The second category, intrinsic purposes and goals for reading, includes curiosity, involvement, and importance, while the extrinsic purposes and goals for reading include recognition, grades, and competition. The third category, social aspects of reading, includes socialization and compliance. According to Wigfield et al.'s (2008) engagement model of reading development, both motivation and cognitive strategies are equal contributors to reading comprehension success with adolescents.

Adolescents experience two crucial periods of development during which motivation may be either diminished or strengthened. The first period, typically occurring during fourth grade, coincides with the movement from simpler, narrative, storybook-style material to more

advanced, dense, and technical expository texts. This time of growth and challenge is widely referred to as the "fourth grade slump" (e.g., Best, Floyd, & McNamara, 2004; Chall & Jacobs, 2003; Meichenbaum & Biemiller, 1998; Sweet & Snow, 2003). Students experiencing this fourth grade slump often struggle with literacy activities -- even basic literacy skills such as decoding. It is during this period that the height of the "Matthew effect" (Stanovich, 1986) is often experienced: good readers (and those intrinsically motivated) read more, and thus become better readers; whereas struggling readers (typically more extrinsically motivated) read less and thus continue to struggle (e.g., Dalton & Strangman, 2006). It is this imbalance of increased demands, limited success, and declining motivation that becomes a significant juncture for adolescent readers.

The second critical period with regard to student motivation is from sixth to seventh grades (Bempechat, 1999; Kim, 2011). Students who did not recover from the fourth grade slump are now almost exclusively motivated by extrinsic factors such as rewards from teachers and/or parents. Students experiencing the seventh grade slump do not read to learn or simply gain new information by their own determination (Gottfried, 1985; Taboada, Tonks, Wigfield, & Guthrie, 2009). Students in this grade and age range have, however, been found to be extrinsically motivated to participate in learning and literacy tasks by the simple introduction of digital media. The data with adolescent motivation and digital literacy are weak and consisting mainly of descriptive studies (Dalton & Strangman, 2006). The number of reports of positive motivational and engagement results, however, suggest there is a strong link with digital literacy and adolescent readers. Empirical data are available regarding students struggling with literacy.

Reinking and Watkins (2000) found increases in both engagement and reading comprehension when students utilized digital multimedia as part of classroom instruction.

There are limited empirical and descriptive data available noting increased motivation for adolescents with digital instructional materials, and more so for adolescents who may be struggling academically. This study aims to add to that line of research. Secondary students are encountering increasing numbers of digital texts in their content area classrooms. The current study aims to determine if a metacognitive, instructional protocol with digital literacy in a content area classroom results in increased academic gains, metacognitive processes, and reading comprehension gains.

Disciplinary Literacy

This study addresses reading comprehension within eighth grade, standard, social studies classes. While "reading" instruction was not explicitly noted in the teachers' daily instructional plans, the literacy of social studies requires students to approach texts with a certain set of skills and strategies. These skills and strategies vary and differ from those that may be employed in other subjects, such as science (Shanahan & Shanahan, 2008), and contrast even further from the oral language used in everyday conversations (Fang & Schleppegrell, 2010; Fang, Schleppegrell, & Cox, 2006). Lee and Spratley (2010) noted that, "[e]ach academic discipline or content-area presupposes specific kinds of background knowledge about how to read texts in that area, and often requires a particular type of reading" (p. 2). Moreover, disciplinary literacy is considered to be the pinnacle of literacy development, superseding basic and intermediate literacy skills

(Shanahan & Shanahan, 2008). Supported by the NAEP data, most secondary students will attain basic, and perhaps intermediate literacy skills. However, Shanahan and Shanahan (2008) argue that a considerable number of students will never truly master the advanced skills necessary to be proficient readers of challenging texts across content areas.

As previously discussed, the literacy of social studies requires students to approach the text with a specific mindset, as well as a specific set of strategies not necessarily employed in other disciplines. The definition of social studies (National Council for the Social Studies, 1994) clearly notes the diversity within social studies, and that students must be able to assimilate information from a variety of eras, experiences, and sources in order to learn successfully. Yet social studies instruction is well documented to be heavily dependent upon the text, with little to no use of outside resources other than the teacher (Alexander-Shea, 2011); students have extreme difficulty with comprehending these various texts (Massey & Heafner, 2004) as they "lack the reading skills necessary to gain insights from the past, engage in critical thinking, and follow a complex chain of events" (Graves & Avery, 1997, p. 134). The reciprocal nature of domain instruction with literacy instruction and skill is supported in this context. Students must be able to read about, write about, listen to and speak about the various academic domains, or content areas, in the ways experts in those domains would (Jetton & Alexander, 2004).

Disciplinary literacy, as a whole, has recently come into focus as an area of interest as well as intervention with adolescents across disciplines and specialties (e.g., Ehren, Murza, & Malani, 2012; Fang & Schleppegrell, 2010). This is due to the mounting evidence that students not only need to approach texts in various disciplines differently (e.g., consider if the source or time period is significant, as in social studies), but they must use different strategies to aid

comprehension, as not all strategies will work across disciplines (e.g., Heller & Greenleaf, 2007). Furthermore, they should combine various strategies for more efficient learning. Researchers focusing on adolescent reading comprehension must do so in a domain-related manner, as discipline specific literacy is the apex of academic literacy development for students (Shanahan & Shanahan, 2008). General literacy skills and strategies to approach reading comprehension are most definitely important and should not be viewed as irrelevant (Faggella-Luby, Graner, Deshler, & Drew, 2012). However, disciplinary literacy "emphasizes the unique tools that the experts in a discipline use to engage in the work of that discipline" (Shanahan & Shanahan, 2012, p. 8); hence the rationale for the current study being conducted within the context of a specific discipline; i.e. social studies classes.

While the research community notes repeatedly the need for literacy instruction in the content areas, it is still not widely adopted or implemented. From the literacy of social studies, for example, an area of difficulty is achieving "buy in" from content area teachers. The majority of secondary teachers do not view literacy instruction as part of their job responsibilities; focusing instead on their content specific disciplines with little regard for the literacy component (NASSP, 2006; Ness, 2009; Reidel & Draper, 2011) and may be ill-prepared to address such literacy needs (National Association of State Boards of Education [NASBE], 2006). In their adolescent literacy position statement, NASSP (2006) notes that secondary teachers are focused and concerned with their content area instructional information, and do not perceive themselves as needing to instruct students on literacy or strategic learning, and reinforces that even English teachers focus on teaching literature, not necessarily reading, or the strategic reading of literature.

This lack of literacy instruction and the resistance towards such in social studies classrooms may stem from various sources. Hall (2005) reports that the attitudes of student teachers at the university level are influenced with instruction in literacy practices, yet the mindset and practices rarely emerge in the classroom. Teachers themselves may not be fostering energetic and engaged approaches to reading and discipline-specific strategies in the classroom, resulting in minimal effects on students (Applegate & Applegate, 2004; Nathanson, Pruslow, & Levitt, 2008).

With evidence that incorporating and embedding literacy instruction in the content areas improves student performance, why is it not widely accepted and implemented? Simply put, teachers feel they lack both the time and the skills necessary to effectively teach reading strategies and that such tasks would be best suited for literacy specialists (Draper & Siebert, 2010). Strategies are not nearly as effective, however, when presented in an academic vacuum. In order for students to truly learn and internalize discipline-specific approaches and strategies, they must be presented in authentic, content area learning scenarios (Bean, 2001; Harmon & Hedrick, 2000; Shanahan & Shanahan, 2008). Vacca (2002) noted that teachers may choose to embed reading comprehension strategies 'minilessons' within their lessons, which would afford both content area instruction and time allowed for literacy practices to aid disciplinary literacy development.

Given the technical and dense format of secondary texts, and more so for the social studies content area, instructors may find it difficult to motivate secondary students in regard to reading. Teachers who incorporate interactive learning with reading strategies in social studies classrooms will reap the rewards of engaged, motivated, higher achieving students; and will be

targeting content and literacy knowledge and skills simultaneously (Key, Bradley, & Bradley, 2010). The review will now address reading comprehension strategies as they relate to adolescent literacy within the scope of the current study.

Reading Comprehension Strategies

Considering low adolescent literacy proficiency levels, the language and literacy skills necessary to be successful in the workforce, and information available from a variety of sources and formats (e.g., textbooks, computer, or other digital media), adolescent readers must learn to be strategic readers. Strategic readers are able to planfully approach various texts to build meaning and employ a variety of strategies to increase comprehension (Ehren, 2005). A strategy is defined as "a person's approach to learning and using information" (University of Kansas Center for Research and Learning, 2009, p.1) or "an individual's approach to a task…including how a person thinks and acts when planning, executing, and evaluating performance on a task and its subsequent outcomes" (Deshler & Lenz, 1989). Strategies are successful when students are able to internalize and automatize them, as well as to recognize when a particular strategy may not be proving as successful as anticipated and thus alter the strategic approach to the task. Pressley, Borkowski, and Schnieder (1987) note three types of strategies: goal-specific (strategies used to aid comprehension of specific content), monitoring (strategies used to determine if comprehension is present), and higher order sequencing (metacognitive strategies to help with goal-specific and monitoring strategies). It is widely accepted that students who are skilled readers are able to readily employ a variety of reading comprehension strategies, change

strategies when those used are not successful, and package strategies when reading for a more effective and efficient learning experience (Ehren, 2005). Contrastingly, readers who struggle with reading comprehension must be explicitly taught what reading strategies are and how to employ them (Gersten, Fuchs, Williams, & Baker, 2001), and also have difficulty selecting successful strategies, monitoring their use and success, managing strategy employment, and packaging strategies for efficient use during reading tasks (Cox & Fang, 1999; Gersten, et al., 2001; National Reading Panel, 2000). The reading strategies research base is immense and diverse. This study focuses on the metacognitive processes and strategic nature of reading when presented in a digital format in a content area. The review will narrow focus to the relationship of reading comprehension strategies and metacognition (cognitive processes employed to strategically approach reading tasks), as well as the use of reading strategies with digital text and within the social studies content area.

Reading comprehension strategies and metacognition

Across academic tasks, purposes, or disciplines, students must approach reading in a strategic manner. This strategic approach is, by its very nature, a metacognitive task. Metacognition is often very simply and yet broadly defined as "thinking about thinking." It is, however, much more involved. Flavell (1976) first defined metacognition as, "one's knowledge concerning one's own cognitive processes and products or anything related to them" (p. 232). Baker and Brown (1984) expanded the definition to include not only knowledge of cognitive processes and learning, but also the control of said processes and learning, otherwise known as

self-regulation (executive functioning). Flavell's initial definition includes both skill and knowledge (de Jager, Jansen, & Reezigt, 2005) and several researchers since Flavell's introduction consider self-regulation a vital component to successful metacognitive development and success (e.g., Westby, 2006; Wolters & Pintrich, 1998). Flavell (1979) further delineated that metacognition includes knowledge of: a) person variables, or the way one learns and processes new information, b) task variables, or knowledge of the task requirements, and c) strategy variables, or strategies that may be employed to improve comprehension and/or performance (Livingston, 1997; Westby, 2006). Most recently, Pintrich, Wolters, and Baxter (2000) presented a metacognitive framework including the separate but interrelated areas of knowledge, judgment, and monitoring.

Additionally, motivation is interwoven through all metacognitive components. Proficient readers are intrinsically motivated to learn more, to advance their knowledge base for their own benefit (Guthrie & Knowles, 2001). This seamlessly interconnected network of metacognition, self-regulation (executive functioning) and motivation is key to accomplishing successful reading comprehension. This interwoven framework was depicted by Borkowski and Burke (1996) with metacognitive knowledge, motivational beliefs, and self-regulation as subordinate counterparts to executive functioning.

Accounting for the literacy demands currently placed on secondary students (e.g., disciplinary literacy, high-stakes testing), as well as successful transition from secondary education settings to the workforce, the need for well-developed metacognitive skills is without question. Westby (2006) states,

> Skillful literacy in the 21st century involves more than reading the words on a page; it involves the ability to analyze critically and interpret what one reads, and to use the information gathered for effective problem solving. To do this, good readers must know why they are reading; they must be able to recognize if they are achieving their goal in reading, and if they are not, they must be able to implement strategies to remediate comprehension difficulties (p. 398).

Adolescents should approach reading in a strategic manner: planfully and strategically approaching reading tasks, monitoring comprehension, and adjusting strategy use when comprehension is compromised at any time before, during, or after reading (Pressley, 2002; Pressley & Afflerbach, 1995). They must also demonstrate the metacognitive ability to package strategies to increase efficiency during reading tasks and improve learning (Pressley, Borkowski, & Schnieder, 1987). In contrast, adolescent readers who struggle with reading are not strategic, nor are they readily able to monitor comprehension and alter strategy use when understanding or knowledge are compromised at any point during the reading process (Borkowski, 1992; Brown & Campione, 1986). Such readers' metacognitive abilities are not developed, or weak at best (Brown & Campione, 1986). There is ample research to show that most students, even students struggling with reading, can be taught metacognitive skills and strategies (e.g., Brown & Campione, 1986; Mills, 2009; Scammacca et al., 2007; Westby, 2006; 2010). Research shows that when adolescent students, struggling or not, are explicitly taught metacognitive awareness and control, reading comprehension significantly improves (Delicio, 2006).

Motivation, metacognition, and the strategic approach and processes needed to comprehend text are all advanced skills and strategies that must work consistently and

harmoniously for reading comprehension proficiency (Westby, 2006). While research supports the use of metacognition instruction with adolescents struggling with literacy, there are no studies found to date that have investigated the efficacy of specific metacognitive strategies with adolescents when using digital texts. Furthermore, a growing number of school districts and states are reportedly transitioning high-stakes testing (e.g. Florida's FCAT) from paper to digital (online) format each year (Florida Department of Education/Office of Assessment, 2012).

Adolescent readers of all skill levels should approach reading tasks with a strategic plan. They should be metacognitively aware if strategies are succeeding or failing, and aware of when to combine strategies for more efficiency (Pressley et al., 1987; Ehren, 2005; Westby, 2006). The use of reading strategies when reading content area texts is perhaps more necessary (Ehren, 2005). Discipline-specific, texts are traditionally more dense, written at higher language levels, and require the use of discipline-specific strategies versus a "one size fits all" approach (Shanahan & Shanahan, 2012). The present study was conducted during standard social studies classes. The review will now address reading strategies in the context of the social studies content area.

Reading comprehension strategies within social studies

Secondary students encounter new and increasingly complex texts and vocabulary each day. As previously discussed, students are continuously learning to read and may require not only further literacy instruction, but instruction on learning strategies that they may employ in a variety of settings (Biancarosa, 2005; Langer, 2001). The use of reading comprehension

strategies is important when working with adolescent readers, and more so when working with struggling adolescent readers (Edmonds et al., 2009). Strategy use for improving reading comprehension in the content areas may not be best conceptualized as a generic approach, meaning a strategy that works in one discipline may not work for all (Shanahan & Shanahan, 2012). Furthermore, not all strategies will be found useful across disciplines (Ehren, Murza, & Malani, 2012). For example, the discipline of social studies requires students to read texts that employ language for explaining, retelling, and arguing. Strategies used in other disciplines (such as math) would not be useful with social studies texts (Fang, 2012). Reportedly, the most effective strategies to use with social studies texts include use of pre-reading activities (e.g., movies), use of context clues, vocabulary instruction, visualization, and graphic organizers (Key, Bradley, & Bradley, 2010; Lunstrum & Taylor, 1978; Massey & Heafner, 2004; Myers & Savage, 2005).

Perhaps just as important as the use of reading comprehension strategies is the timing of their use. Students (and possibly some teachers) should recognize that reading strategies be employed before, during, and after reading in order to be most effective. Strategies employed within the content areas should also follow this progressive sequence. Possible strategies to be employed before reading social studies material may include previewing the content for unknown vocabulary (Beck, McKeown, & Kucan, 2002), activate prior knowledge and predict future content (Fordham, Wellman, & Sandmann, 2002; Hairrell et al., 2010), and identify visuals (Myers & Savage, 2005). Reading strategies used during reading may include confirming predictions (Wood & Endres, 2004) and using context clues (Baumann, Edwards, Boland, Olejnik, & Kame'enui, 2003). Finally, students should learn that strategic reading does

not end with the conclusion of the reading passage. Reading strategies used after reading found to be effective with social studies include vocabulary maps, chapter overviews, prediction confirmation or correction, and practice activities (e.g., journals) to summarize and amalgamate information (Hairrell et al., 2010).

While the presence of reading comprehension strategy instruction may not be prevalent in social studies classes, this does not detract from its importance. In fact, the need to address it is strengthened based on current research with discipline-specific strategy instruction (Fang, 2012; Shanahan & Shanahan, 2012). Key, Bradley, and Bradley (2010) claim that literacy and social studies may be considered reciprocal processes. They argue that social studies instruction is enhanced when provided in conjunction with literacy instruction. Considering the technical nature of the social studies discipline, teachers may find it beneficial to include reading strategy instruction within their instructional content. Perhaps one of the most versatile ways to include such strategic instruction within social studies would be with digital text. With increasingly widespread adoption of such texts (e.g., Bailey, 2011; Hill, 2010; Toppo, 2012), and the accessibility to use them in the classroom (Dalton & Grisham, 2011) the review will now focus on current literature pertaining to strategic reading instruction when using digital texts with adolescent students.

Reading comprehension strategies with digital text

Reading comprehension strategies are discussed at length in the literature of several disciplines, the evidence supporting use of paper-based reading comprehension strategies with

digital texts is limited. There are simply not enough data available to make decisions regarding reading comprehension instruction and/or intervention with the use of digital texts (Leu, 2006; Moran, Ferdig, Pearson, Wardrop, & Blomeyer, 2008; Pearson, Ferdig, Blomeyer, & Moran, 2005). While digital literacy is not necessarily new, research regarding interventions with reading comprehension and digital text presentation is. In fact, most research focused on digital reading comprehension is in the area of how students read and process digital text (e.g., nonlinearly), and how digital text may be used to support different learners (e.g., Moran et al., 2008). Furthermore, the majority of current research emerging with regard to digital literacy and reading instruction investigates use of digital media with younger (elementary) students, and in the context of learning programs or websites. These digital environments are used much differently in classrooms with younger students (Palincsar & Dalton, 2005). Digital storybooks, for example, are a common tool utilized to help teach decoding, and to foster motivation (Doty, Popplewell, & Byers, 2001). Educational websites are also highly popular with elementary classroom teachers to help encourage phonics skills, decoding, reading fluency, and reading comprehension (Moran et al., 2008). Moreover, educational websites or learning software may be utilized as a means to reward students in class, not necessarily as a direct instructional method.

The use of digital media in secondary settings, however, is more focused on comprehension, with little research supporting its use for motivational purposes; despite evidence that digital media itself inherently motivates secondary students (Moran et al., 2008). The majority of experimental research conducted with adolescents and digital literacy investigate the effects of commercially available software (e.g., Dalton, Pisha, Eagleton, Coyne, & Deysher,

2002), computer mediated texts (e.g., Reinking, 1988; Reinking & Rickman, 1990), or use of the Internet to encourage classroom discussion and participation (e.g., Alfassi, 2000).

While data are available to support the use of digital texts to encourage reading comprehension development with adolescents, markedly absent from the research is the utilization of evidence-based, metacognitive, reading comprehension strategies with digital texts. Though the literature repeatedly notes the deictic and reciprocal nature of literacy and technology, do effective and efficient reading comprehension interventions remain as effective and efficient when used with digital presentations? As Dalton and Strangmann (2006) note, there is a high probability that students struggling in any fashion with paper-based texts will also demonstrate difficulty with digital texts, and such difficulties may increase with digital texts. This is due to the requirements digital text present to search and evaluate information, as well as integrate information across sources and formats.

If difficulties with paper-based text transfer to digital text, a question is whether instructional protocols used with paper texts will prove effective in helping all students, even students who may struggle academically, improve their reading comprehension of digital text. Research has not yet shed light on that question which is the impetus for the current study.

Summary

Adolescent literacy is an important area of research focus for several reasons. Developing strong literacy skills and strategies during the secondary years paves the way for success in post-secondary and workforce settings. Ensuring success in colleges and the global

workforce will ultimately benefit not only the individual students, but also the national economy. Some of the most promising ways to address the adolescent literacy crisis are with specific instructional protocols that develop reading comprehension strategies and metacognition. Focus on these may lead to improvements in content area domains as well as overall reading comprehension gains, in whatever format the text is presented. Metacognition is a crucial area when working with adolescent literacy. Data are lacking regarding the use of reading comprehension strategies and metacognitive instruction and intervention with secondary students using digital texts. It is not clear which instructional methods or strategies work best, if at all, with digital text, or if certain strategies are more suited for discipline-specific areas.

Additionally, adolescents perform better with reading tasks when they are motivated and engaged to do so. Possibly one of the best ways to motivate adolescents with reading is with digital text (Dressman et al, 2009; Moje 2009; Moje, Overby, Tysvaer, & Morris, 2008). Dressman and colleagues write "…when literacy is digitized and made personally and socially empowering, adolescents become highly engaged and excel as readers and writers across a broad range of print- and image-based formats" (p. 345). Despite the many discussions in the literature regarding increased motivation for adolescent readers when presented with digital texts, there are limited data to support this claim. As reported in both Pearson et al. (2005) and Moran et al. (2008), very few data with regard to this claim have been empirically validated.

Disciplinary literacy, the literacy skills and strategies used within a specific content discipline, is critical. As students progress through the middle and high school grades, they are held to Common Core State Standards. These standards place value on literacy within the

disciplines, as well as on the reciprocity of language processes. When examining and researching adolescent literacy, it is imperative that it be done so in a discipline-specific context.

Finally, despite the lack of data, several states have adopted electronic instructional materials for classroom use. The gap between the empirical data to support classroom instructional practices with digital text and the adoption of such digital materials is widening. The literature is clear that more research is needed to determine best practices to instruct and also support secondary students with strategic, metacognitive, reading practices with digital text. It is unclear at this time if traditional reading comprehension strategies that work with paper-based texts will demonstrate similar success with digital texts. This study aims to lend empirical support to the use of a metacognitive, reading comprehension, instructional protocol with adolescent readers using digital texts, and more specifically, to determine the effects on reading comprehension, classroom unit test scores, and metacognitive, strategic reading processes.

CHAPTER THREE: METHODS

This study investigated the reading comprehension, metacognition, and knowledge acquisition effects of a strategic reading instructional procedure with adolescents when working with digital, social studies text. This study was conducted early in the school year, beginning during the fourth week of student attendance. The methods employed in the study will be reported as follows: (a) research design, (b) participants, (c) demographics, (d) groups, (e) randomization, (f) setting, (g) instrumentation (h) procedures, and (i) fidelity of implementation.

Research Design

This study employed a randomized controlled design. This design is the highest quality design for education in the social sciences, as well as the most methodologically sound (Campbell & Stanley, 1963; Torgerson & Torgerson, 2008). Randomized controlled designs assign participants to one treatment condition (e.g., control, comparison, experimental) in random order to study the effects of a particular intervention. Due to random assignment to a group, the results may be assumed to be due to the intervention and not the cause of other external factors (Torgerson & Torgerson, 2008).

The current study examined the effects of a metacognitive, reading comprehension, instructional protocol on subject knowledge, reading comprehension, strategy use, and use of

self-questioning prompts with eighth grade students in standard, social studies classes. Six classes, across four teachers, participated. The control group received typical academic instruction. The comparison group received typical academic instruction, with a paper-based textbook, and also received instruction with the SYR instructional protocol during class. The experimental group received typical academic instruction, with a digital textbook, and also received instruction with the SYR instructional protocol during class.

Setting

This study took place in a middle school (grades 6-8) in Central Florida. Participating classes were standard, eighth grade, social studies classes. Standard classes, as determined by the district, consist of students of various cognitive and skill levels, and are not constructed with opt in or test placement methods, as with advanced/honors or gifted/talented classes. Comparison classes were taught and received intervention in their assigned classroom during regularly scheduled classes on the school campus. Experimental classes were taught and received intervention in a computer lab during regularly scheduled classes on the school campus. All testing was conducted in a quiet classroom environment, also on the school campus, during regularly scheduled, class time. No intervention or assessment took place outside of the school day or off the school campus.

District demographics

Most recent district demographic data (2011) include a population of 64,335 students in grades PK-12. Approximately 51.4% of all students in the district were male and 48.6% of all students in the district were female. The majority of students enrolled in the district identify as Caucasian (56.1%). Approximately 22.2% identify as Hispanic, 13.8% identify as African American, and 7.9% identify as 'other'. As a district, approximately 18.5% of students were enrolled in some type of Exceptional Student Education (ESE) program, and approximately 40.6% of students were noted to participate in the free or reduced lunch program (Florida Department of Education [FLDOE], 2012).

School demographics

Most recent school demographics (2011) include an estimated population of 1,387 students in grades six through eight. A total of 456 (32.9%) sixth graders (217 male [47.6%], 239 female [52.4%]), 445 (32.1%) seventh graders (230 male [51.7%], 215 female [48.3%]) and 486 (35%) eighth graders (242 male [49.8%], 244 female [50.2%]) attended the school in 2011. Approximately 766 (55.2%) of the students identify as Caucasian, approximately 394 (28.4%) identify as Hispanic, approximately 128 (9.2%) identify as African American, and approximately 53 (3.8%) identify as Asian/Pacific Islander across all three grades. Approximately 167 (11.3%) of students across grades reported to be enrolled in an ESE program, and approximately 598

(40.4%) of the students across grades note participation in the free or reduced lunch program. Detailed school demographics (2011 data) are presented in Table 1 (FLDOE, 2012).

Table 1: *School Demographic Data (2011)*
(Frequencies and Percentages)

Grade	Gender		Caucasian	Asian/ Pacific Islander	African American	Hispanic	ESE	Free/ Reduced Lunch
	Male	Female						
6	217 (47.6%)	239 (52.4%)	250 (54.8%)	15 (3.3%)	35 (7.7%)	139 (30.5%)	63 (13.8%)	195 (42.8%)
7	230 (51.7%)	215 (48.3%)	249 (56%)	16 (3.6%)	37 (8.3%)	128 (28.8%)	56 (12.6%)	195 (43.8%)
8	242 (49.8%)	244 (50.2%)	267 (55%)	22 (4.5%)	56 (11.5%)	127 (26.1%)	48 (9.9%)	208 (42.8%)

Study Participants

Participants were enrolled in the participating middle school. The population consisted of a total of eight, standard, social studies classes with a combined total of 171 students. The randomly selected sample consisted of a total of six social studies classes (75% of total eighth grade population) with a sample population of 126 students (73.7% of total population) who were enrolled in the study to start. Due to state class size restrictions (Florida's 2002 approved amendment that limits the number of students in a content area class in public schools), movement of students into different classes occurred to maintain the required class size maximums. One student moved into a control class, and one student moved into an experimental class after the start of the study and completed post-testing measures. Two students moved from a comparison class to an experimental class after the completion of the first instructional unit.

Finally, one student in a comparison class, as well as one student in an experimental class, relocated to another school after the start of the study. Considering these changes, there was a final total sample of 124 students (98.4% of original sample; 72.5% of total population). Of the 124 students, 10 students (8.1%) across conditions (3 experimental, 3 comparison, 4 control) did not complete all pretesting measures. Additionally, 24 students (19.4%) across conditions (4 experimental, 8 comparison, 12 control) did not complete all post-testing measures. Considering attrition, mobility, and students that did not complete all pre- or post-testing measures, a final total of 90 students (72.6%) across conditions completed the study and all pre- and post-testing measures.

Teachers

All participating teachers were employed as full-time social studies teachers with at least two eighth grade standard social studies classes on their teaching schedules. Four eighth grade social studies teachers meeting these criteria were randomly selected and agreed to participate. Teachers were then paired by: (a) number of years teaching, (b) number of years teaching social studies, and (c) number of years at the participating school. Two teachers composed the control group and the other two teachers composed the comparison and experimental groups. This pairing also allowed for variable nesting with the hierarchical ANCOVA for class/teacher across conditions, and aims to reduce teacher influence on post-testing measures across conditions.

Students

All students were enrolled as eighth grade students in the participating classes at the participating school. They ranged in age from 12 to 16 years old, and represented a cross-section of students with a variety of cognitive abilities (e.g., one student in a comparison class presents with Down syndrome), language needs (e.g., English Language Learners [ELL]) and socioeconomic levels. Due to the randomized design, it is assumed that all classes are composed of a heterogeneous population of students. Specific exceptional student diagnoses across conditions and classes included: 1) speech impaired, 2) language impaired, 3) specific learning disabled, 4) other health impaired, and 5) autism spectrum disorder. Overall demographic data are presented in the following chapter.

Experimental Group

This study had one experimental group consisting of two eighth grade social studies classes ($N = 38$). One class had 18 students while the other had 20. Two different teachers taught these classes. The experimental group received typical social studies instruction as well as the SYR instructional protocol while utilizing a digital textbook. The digital textbook employed during the course of the study was identical to the paper-based text, and was not able to be manipulated (e.g., edited), nor navigated away from (as a traditional website is able to be). Further description of the digital text is provided in the Instrumentation section, below.

Comparison Group

This study had one comparison group consisting of two eighth grade social studies classes ($N = 43$). One class had 21 students and the other had 22 students. The same teachers randomly assigned an experimental class also taught these classes. The comparison group received typical social studies instruction as well as the SYR intervention. The comparison group utilized a traditional paper-based textbook.

A comparison group was necessary as part of the controlled research design in order to determine differences in intervention effectiveness across paper and digital environments. It may be assumed that the intervention alone, regardless of text presentation (digital or paper) would result in gains when compared to a control group alone, as evidenced in a two-year study of the effects of the SYR intervention in middle school (Ehren, 2007). However, given the transition to electronic instructional materials, data are needed now more than ever to investigate the reading comprehension strategies, as well as the instructional methods that are utilized to teach the targeted strategies, that are effective with digital text.

Control Group

This study had one control group consisting of two eighth grade social studies classes ($N = 43$). One class had 20 students and the other had 23 students. Two different teachers taught these classes, and neither of these teachers taught comparison or experimental classes. The control group received social studies instruction as typically provided (including any reading comprehension instruction), with a paper-based textbook.

Randomization

Student participants were randomly assigned to standard social studies classes by the school's electronic scheduling software prior to the start of the school year. The random assignment of students to standard social studies classes prior to the start of the study increases the methodological quality of this study in that it creates the best possible chance that students across classes will be of equal ability and skill sets. It was confirmed with the school administration that class assignment was electronically randomized without the influence of required classes (e.g., intensive support classes) or student electives. Furthermore, any class leveling of student counts was also done at random by the same scheduling software and not influenced by the administration.

Four participating teachers were then randomly selected from the population of eighth grade social studies teachers at the participating school. Once randomly identified, teachers were matched in pairs based on the following criteria: (a) number of years teaching, (b) number of years teaching social studies, and (c) number of years at the participating school. This allowed for two similar teachers within the control group (1 class each), and two similar teachers across comparison and experimental groups (1 class in each condition for a total of two classes each). Control teachers did not have any classes that received any intervention; their classes only participated in pre- and post-assessments. Teachers in the comparison and experimental groups had one class in each condition and no control classes. Ultimately, each teacher in the control condition had one class, and each teacher in the treatment condition had one comparison class

and one experimental class. This allowed for a total of six participating classes and four participating teachers.

After the teachers had been paired, the specific standard social studies classes they taught were randomly assigned to a study condition. Each teacher had at least two standard social studies classes on their teaching schedule, therefore allowing control conditions to also be assigned at random. Control classes were assigned using a random numbers table. Teachers that had been assigned treatment classes were then assigned conditions to each class via a random numbers table as well.

Instrumentation

Instructional Materials

Materials utilized during this study included the STRUCTURE Your Reading strategic reading instructional protocol (Ehren, 2008) and the *Call to Freedom: Beginnings to 1877* (Stuckey & Salvucci, 2005) textbook in paper and digital formats.

STRUCTURE Your Reading

STRUCTURE Your Reading is an explicit reading comprehension strateroutine, described as a "strategy" for students. It is a tool in the Strategic Instruction Model of the University of Kansas Center for Research in Learning (Ehren, 2008). It provides a means for students to combine previously learned, individual reading strategies (e.g., predicting, self-

questioning) before, during, and after reading. It is also called a "packaging strategy" because it focuses on students taking control of metacognitive processes before, during and after reading (e.g., "Why am I reading this text?"). Precisely outlined steps and self-prompts follow a scaffolding continuum, with students assuming control of the strategic processes involved. While SYR has recommended implementation procedures, it was designed to be flexible for both teacher and student needs. Additionally, content area teachers may find it beneficial to use SYR to aid content area language and literacy instruction (e.g., social studies). SYR is comprised of nine steps, each step with an associated prompt. The first letter of each step constructs the word, "STRUCTURE".

The initial letter, "S", stands for "Set a purpose for reading". During this step students ask questions such as "Why am I reading this?" in order to identify the significance of the reading material. The "T" stands for "Think about the topic". Students then activate any prior knowledge they have on the reading topic. "R" corresponds with "Run through to preview". This crucial step includes a series of sub-steps in which the student 1) identifies organizational clues, 2) predicts content, 3) notes reader's aides, and 4) finds important words. The preceding "STR" comprises the "get in gear" component of SYR and these steps are all completed before reading.

The following section, or the "go" section of SYR (what students do while they are reading), the step corresponding to the letter "U" stands for "Use strategies while reading." Students may employ any reading comprehension strategies they have found successful in the past. These may include visualizing, summarizing, predicting, etc. The next step, "C" stands for three sub-steps: check comprehension, clarify confusing parts, and confirm predictions. While

reading students should monitor comprehension, solve ambiguous information, and reflect upon the accuracy of their initial predictions.

The final section of SYR addresses what students do after they read. "T" relates to "Tell your personal reaction" – or share your reaction to what was just read. Students are also encouraged to utilize the reading material to support their reactions. "Uncover critical content", the final "U" in the mnemonic, is the step during which students identify the critical products and information. The final "R" stands for "Review the reactions of others". It is during this section that students may be able to effectively make social connections with the reading. For example, students may ask, "What does she think and feel?". The final step, "E", relates to students "explaining their success". Upon completion of the reading, students need to quietly reflect on the effectiveness of the strategies they used and make note of their progress.

The SYR protocol is being revised to incorporate more discipline specific components. The intervention protocol used in this study included social studies specific elements under the "Use strategies while reading" step. Specifically, strategies such as questioning authorship, examining source information, use of visual and graphic organizers (e.g., maps) were used extensively in both comparison and experimental conditions. See Appendix D for the protocol.

Digital Textbook

The adopted textbook used in the school district in which the study took place is *Call to freedom: Beginnings to 1877.*

The paper-based text is the Florida version, while the digital text is a national version. The only difference in content between the paper-based and digital texts is that the paper-based Florida version has side notes specific to Florida's Sunshine State Standards (Holt, Rinehart and Winston, personal communication). While the digital text chapter content is word for word and picture for picture identical with the paper-based text, the digital text does contain interactive features (e.g., homework practice and interactive graphic organizers) that may be chosen to enhance student engagement and learning (Stuckey & Salvucci, 2005). None of these interactive features were incorporated during classroom instruction, nor were they shown or demonstrated for any of the students. This was done in order to keep the presentation of the digital text as similar as possible to the paper text, as these interactive features were not included with the paper text.

Noteworthy features of the digital text include the ability to enlarge pictures and figures (e.g., maps) and clickable chapter vocabulary terms (students were provided with an immediate definition of publisher-selected vocabulary terms). The paper-based text simply provided those same vocabulary terms in boldface type with the definitions at the start of the chapter. Finally, students using the digital text had the ability to use the digital notebook or digital note-taking format. This allowed students to make notes in the margins of the text and save those for future reference. This feature was not explicitly highlighted to students, and only four students across experimental classes used this feature.

Assessment Measures

Assessment measures utilized during this study include publisher-made pre- and post-social studies unit tests (Stuckey & Salvucci, 2005), the *Degrees of Reading* Power (DRP) (Questar Assessment, 2008), and the *Metacognition in Reading Inventory* (MIRI) (Ehren, 2008).

Publisher-made pre- and post-unit test

The measurement of student learning for content within the social studies class was gathered with a publisher-made test. According to the school district (Risner, personal communication), there is not a standard district-wide test used for social studies units. All six participating classes took the same publisher-made pre- and post-unit tests. The pre-test was simply the post-unit test administered to students prior to the commencement of the unit. The publisher created forms (A and B) for the unit test were agreed upon by all participating teachers and consisted of a variety of questions (e.g., multiple choice, fill in the blank, matching, and short answer). Reliability, validity, and evidence of technical adequacy were not available, as this measure is a publisher-made test, specific to the instructional unit. Such data were sought and requested from the publisher. It was reported that there is no information available for public distribution regarding those areas. Additionally, no external reviews of content validity were located with an electronic search.

Degrees of Reading Power (DRP)

The DRP is an untimed, holistic, standardized, and criterion-referenced test that assesses reading comprehension for students in kindergarten through twelfth grade. Raw scores, stanines, national percentiles, and normal curve equivalents may be calculated. For this study, raw scores, stanines, national percentiles, and normal curve equivalents were computed with the DRP. The DRP consists of 63 total items and offers two different forms for test/retest reliability. The test is comprised of expository passages and measures a student's ability to gather meaning from text over time. For example, key words in passages are omitted in order to measure the student's ability to select an appropriate response for the corresponding omission (modified cloze technique). Further, students are not required to have any knowledge of the test subject matter; all the information necessary to complete the test is present in the passages. It has been found to have high test-retest reliability (r = .95), as well as construct and criterion-related validity (Koslin, Zeno, & Koslin, 1987).

Metacognition in Reading Inventory (MIRI)

The MIRI is an informal assessment of students self- reported use of (1) self-talk (questions) before, during, and after reading and (2) strategies use before, during, and after reading. It consists of two, 400-word expository grade-level text passages with specific scoring criteria. The students are instructed to read the passages, and record any strategies they use, as well as any questions they ask themselves. The students record this information before they read the passages, while they are reading the passages, and after they have finished reading the

passages. Scoring instructions (Appendix K) allow for one or two points per strategy or self-questioning prompt recorded. The MIRI has been tested during pilot studies and has strong inter-rater reliability (.90) (Ehren, 2007). The scoring procedures are standardized in pilot studies (Appendix K) (Ehren, 2007). Validity coefficients are not available at this time. For this study, the eighth grade passages were administered and scored for both pre- and post-testing. While a norm-referenced measure to assess metacognition with reading would have been ideal, a comprehensive review of the literature indicated that there is no such known measure. Assessment and measurement of reading comprehension strategies and self-questioning procedures rely on instruments utilizing self-report (Pereira-Laird & Deane, 1997), surveys (Schmitt, 1990), rating scales (Mokhtari & Reichard, 2002) or open-ended questions, such as the MIRI. Based on the successful use of the MIRI with previous SYR studies, and the lack of a universally accepted, norm-referenced measure, the MIRI was used in this study.

The MIRI has detailed and specific scoring instructions, and inter-rater reliability was necessary for reliable scoring. All research assistants (four) were explicitly trained how to correctly score the MIRI, via modeling by the researcher. Sample MIRI assessments were used for this purpose. Eighth grade students (four total) that were accessible by the researcher in personal and community contexts volunteered to complete MIRI assessments with their own social studies texts. None of the volunteer students attended the participating school. Sample MIRI assessments were independently scored by all research assistants and the researcher. Any discrepancies were discussed. Inter-rater reliability was 100% with all sample MIRI assessments.

Social validity survey for teachers

The teacher survey (Appendix J) consisted of eight open-ended questions. Survey items aimed to solicit feedback regarding their impressions, likelihood of subsequent use of the SYR instructional protocol in their classes, and likelihood of recommending this SYR instructional protocol to their colleagues.

Student Satisfaction Survey

The Student Satisfaction Survey (Appendix F) consisted of fifteen items that asked students to rate on a likert satisfaction scale of 1 – 7 their satisfaction of the SYR protocol (Ehren, 2008). The Student Satisfaction Survey was created as part of the initial development of the SYR instructional protocol (Ehren, 2008) and used as a social validity tool for the purposes of this study. Response ratings range from '1' being 'completely dissatisfied' to '7' being 'completely satisfied'. Questions targeted their overall satisfaction, impressions, importance, pertinence, and comprehension of the SYR instructional protocol. For example, the first question asks, "How satisfied are you that the STRUCTURE Your Reading strategy helped you to understand what strategic reading is all about?". Similarly, question seven asks, "How satisfied are you that the STRUCTURE Your Reading strategy made sense to you?".

Procedures

The following section details the study procedures with participants across all phases. Over the course of the study there were two teacher instructional phases, two assessment phases (one pre-testing and one post-testing), eight instructional phases, and one satisfaction measurement phase.

Interventionist

To control for intervener effects, all intervention sessions for all comparison and experimental classes were conducted by the researcher, an ASHA certified and state licensed speech-language pathologist. The researcher has also received professional development in SYR.

Teacher Instructional Sessions

At the start of the study and upon completion of random assignment, all teachers attended an orientation session. This session served as an opportunity for professional development with respect to the purpose of the study, the need for the study, agreement to collaborate for unit test administration, and collection of demographic data. Additionally, participating teachers randomly assigned as comparison or experimental group teachers attended an orientation specific to SYR and the digital textbook. Upon study completion, all participating teachers reconvened for a culminating session during which a study recapitulation and discussion for SYR

maintenance and generalization to other content classes was discussed. At that time, teachers in the control group opted not to receive SYR instruction from the researcher, but expressed possible future interest.

Assessment Phases

Pre-testing and post-testing for all participating classes were conducted over the course of two days, also during social studies classes. Post-unit testing with the publisher-made test for all classes was conducted over the course of only one class period. All pre- and post-testing was administered and overseen by the researcher and the classroom teacher.

Pre-testing

All students across participating classes that were present during pre-testing dates completed the pre-testing assessment measures. Pre-testing dates were agreed upon with all teachers prior to the start of the study. The first day of pre-testing included administration of the publisher-created unit test and the MIRI. Students were permitted to use the entire class period (48 minutes) to complete the assessments. The second day of pre-testing included administration of the DRP. Students were permitted to use the entire class period (48 minutes) to complete. Pre-testing days fell on a Thursday and Friday, respectively.

Post-testing

All students across participating classes that were present during post-testing dates completed the post-testing assessment measures. The post-testing date for the DRP was agreed upon with all teachers once comparison and experimental classes concluded the second instructional unit. All classes took the DRP on the same agreed upon date, which fell on a Thursday. Students were permitted to use the entire class period to complete the assessment. The second day of post-testing for comparison and experimental classes included administration of the publisher-created unit test and the MIRI, and immediately followed the first day of post-testing on a Friday. Students were permitted to use the entire class period to complete. Students in the control classes also completed the MIRI on the same day as the comparison and experimental classes, but did not complete the publisher-created unit post-test at that time. Control classes completed the publisher-created post-test upon their completion of the second instructional unit, the following week. Students that were not present for any of the three post-testing measures ($N = 21$, [16.9%]) were asked to complete them before or after school during a time that was convenient for them. No students were able to complete post-testing measures at these times.

Instructional Phases

All instructional sessions for the comparison and experimental groups were conducted during their regularly scheduled social studies classes. No instructional phases were completed with either of the control classes. The researcher was present for all instructional sessions with

experimental and comparison groups over the course of seven weeks. The time frame for the study was designed to last as long as it would take to complete two units in the social studies curriculum. Classroom instructional content was used to demonstrate all SYR instructional phases. The first instructional unit allowed students to begin to learn the SYR instructional protocol and how to approach reading strategically and metacognitively. The second instructional unit, in the latter intervention phases, allowed for more in-depth analysis of the classroom text and internalization of the SYR instructional protocol.

Prior to the start of the study four weeks of intervention were targeted; however, due to school activities (e.g., picture day), assemblies (e.g., high school information day), and school-wide remembrances (e.g. September 11, 2011 day), the study ultimately concluded after seven weeks. The total treatment hours over the duration of the study were 13.83 hours. This total does not include time spent with pre- or post-testing. The actual total treatment hours (13.83 or 13 hours and 50 minutes) and the pre-study estimated total treatment hours (13.66 or 13 hours and 40 minutes) differed by only .17 additional hours (10 minutes). The SYR instructional protocol is designed to be implemented in a variety of configurations and timeframes. The iteration used in this study was considered a judicious use of instructional time within the delivery of a social studies curriculum spanning only two consecutive instructional units.

Instructional phases were discussed with teachers prior to lesson planning. Instructional phases and processes were embedded within the social studies lessons utilizing collaborative efforts with the teachers. This collaboration allowed the phase timing to be adjusted for student or teacher need as necessary (e.g., adjusting for student holidays or teacher workdays). For all instructional phases, the format of "cue, do, and review" was utilized to promote explicit

instruction and allow for clear continuity from one class session to another. Detailed "cue, do, and review" procedures for each instructional phase are included in Appendix D.

Instructional Phase 1

This instructional phase (20 minutes/.33 hours) was completed during one class period (48 minutes), during Unit one. During this phase the concept of strategic learning was introduced and discussed with the students. The researcher reviewed the purpose of the pre-testing measures and the premise of improving their content mastery. Students were engaged in group discussions about learning strategies and participated in a short exercise to model the use of different strategic approaches to complete the exercise. The researcher then led the classes in group discussions about what they learned as a result of that activity. A short review was then conducted, and the next day's lesson was briefly introduced to allow for connectivity between instructional phases.

Instructional Phase 2

This phase (20 minutes/.33 hours) was completed during one class period and introduced structured strategic reading, during Unit one. A bicycle-riding metaphor was used to illustrate the concept to students (e.g., "get in gear, go, look back"). References to past strategies students may be familiar with were made. The discussion then oriented students to the SYR approach. This approach would allow students to "package" such strategies, as well as new strategies, to allow for more efficient and effective learning. A short reading passage (fewer than 400 words)

from their social studies text was selected to model the process of strategic reading using a think-aloud approach. No references were made to the SYR mnemonic during the model, nor were the SYR Worksheet or SYR Prompt Guides used. Upon completion of the model process, students were provided with a copy of the SYR Student Prompt Guide (Appendix L) to reference during the explanation of the individual steps. The researcher then engaged the students in a group discussion about how these steps and questions allowed for simpler and easier learning of the text material.

Students were then provided with individual folders to organize all SYR Worksheets and paperwork included in the SYR instructional protocol. They were instructed to put their names on the folders. Last, the researcher distributed the SYR Learning Contract (Appendix M), explained the importance of the commitment, and asked students to file their signed SYR Contracts in their SYR folders. After the SYR Contracts had been appropriately filed, a short review was then conducted, and the next day's lesson was briefly introduced to allow for connectivity between instructional phases.

Instructional Phase 3

During this phase (80 minutes/1.33 hours) the SYR Student Worksheet (Appendix N) was introduced, discussed, and completed over the course of two class periods, during Unit one. The same reading passage that was used in Phase 2 was used during the first day of Phase 3 to model use of the SYR Worksheet. A short passage from a recent reading was used for modeling the SYR Worksheet during the second day of Phase 3. On both days, students were asked to find

their SYR folders and retrieve the SYR Prompt Guide that was provided to them during the last class. The researcher then led students through a brief review of the SYR Prompt Guide components, and reminded students of the importance of thinking to themselves and asking questions internally before, during, and after they read.

The SYR Worksheet was then displayed on the white board via the classroom projection unit for all students to see. The researcher then modeled how to use the worksheet for recording strategic processes while the students watched on the projection. Students were instructed to "record" the process in their minds. Students did not to write anything down on the SYR Prompt Guide or any papers during the model. During this phase, the strategic use of underlining was modeled as the example for the *Use strategies while reading* step. A brief discussion about the use of the SYR Worksheet was held after each section of the SYR Worksheet was filled in.

The Student Goal Sheet (Appendix O) was introduced during this phase. The items on the SYR Goal Sheet were briefly reviewed by the researcher to forecast what the students would be achieving over the course of the study. Students were then asked to check off and date the first item of the Goal Sheet and file in their SYR folders. A short review was then conducted, and the next day's lesson was briefly introduced to allow for connectivity between instructional phases.

Instructional Phase 4

This phase engaged students in using the SYR Worksheet with a pre-selected short reading passage from their social studies text with significant support from the researcher. This

phase (80 minutes/1.33 hours) spanned two class periods, during Unit one. Students were initially engaged in a recall discussion about what they remembered when observing the researcher think about the SYR steps and fill in the SYR Worksheet. Students were then told they would be filling in the SYR Worksheet with the help of the researcher, and this would be done as a group. A short section in the daily lesson's text was selected as the passage for the SYR Worksheet. A choral reading format was employed for reading of this passage. Students were provided copies of the SYR Worksheet, thought about each step, and completed their copy as the researcher completed a copy on the classroom projection screen. For the *Use strategies while reading* step during reading, the underlining strategy was used, as it was in the previous phase. Students in the comparison classes were permitted to lightly underline the sample text in their books during this step. The markings were then erased at the end of the class. A model summary statement was provided for each passage for the students to transfer to their individual SYR Worksheets. After the SYR Worksheet was finished each day, students were engaged in a discussion about what aspects of the SYR Worksheet they found to be simple, as well as those they found to be more challenging. Students completed their SYR Goal Sheets and filed both the daily worksheet and goal sheet in their SYR folders. A short review was then conducted, and the next day's lesson was briefly introduced to allow for connectivity between instructional phases. Each day the researcher collected the SYR folders and provided individual written feedback to students on their SYR Worksheet .

Instructional Phase 5

This phase engaged students in using the SYR Worksheet with a pre-selected short reading passage from their social studies text with lessons support from the researcher. This phase (50 minutes/83 hours total) spanned two class periods, during Unit one. Students were initially engaged in a recall discussion about what they remembered from the past two class periods when filling in the SYR Worksheet with help from the researcher. Students were then told they would be finishing the SYR Worksheet with their own responses, with support from the researcher as necessary. A short section in the daily lesson's text was selected as the passage for applying the SYR Worksheet. A choral reading format was employed for reading of this passage. Students were provided copies of the SYR Worksheet and constructed their copy with individual responses. The researcher observed student responses and provided individual feedback as necessary. When students worked with the *Use strategies while reading* step, they were instructed to use the underlining strategy. Students in the comparison classes were permitted to lightly underline the sample text in their books during this step. The markings were then erased at the end of the class. As with past SYR Worksheets, students were instructed to create a summary statement for the *Uncovering critical content* step. The researcher also modeled this on the classroom projector with encouragement to students to write their own summary on their SYR Worksheet. Furthermore, students asked neighboring classmates for their reactions to the passages and recorded on the SYR Worksheets accordingly. After the SYR Worksheet was completely filled in each day, students were engaged in a discussion about what aspects of the SYR Worksheet they found to be simple, as well as those they found to be more challenging, and how they felt the process differed from the group worksheet activity. Students

finished their SYR Goal Sheets and filed both the SYR Worksheet and SYR Goal Sheet in their SYR folders. A short review was then conducted, and the next day's lesson was briefly introduced to allow for connectivity between instructional phases. Each day the researcher collected the SYR folders and provided individual written feedback to students on their SYR Worksheet.

Instructional Phase 6

This phase focused on conducting guided practice with the social studies text (including partner practice) and began more targeted work on vocabulary for unknown words. This phase (120 minutes/2 hours total) spanned 4 class periods, during Units one (three days) and two (one day). Each class began with a brief review of the immediately preceding class session's events. Students were instructed that they would be thinking about and filling in the SYR Worksheet without the researcher's model, but would receive necessary support to practice the SYR Prompting Steps and answer questions. Students finished the SYR Worksheet with a pre-selected passage that was agreed upon by the researcher and classroom teacher. During the *Use strategies while reading* step, students selected their own strategies. Most students did not require any recommendations from the researcher, and some chose to use strategies other than underlining (as had been used in past phases). Students were observed to use highlighting, rereading, and making notes in the margins of the text. Students were also paired with a classmate to complete the SYR Worksheet and receive/provide reactions and responses to the passages. After the SYR Worksheet was filled in each day, students were engaged in a

discussion about what aspects of the SYR Worksheet they found to be simple, as well as those they found to be more challenging, and how they felt the process differed from SYR Worksheet completion with researcher support. Students noted progress their SYR Goal Sheets and filed both the daily SYR Worksheet and SYR Goal Sheet in their SYR folders. A short review was then conducted, and the next day's lesson was briefly introduced to allow for connectivity between instructional phases.

Each day the researcher collected the SYR folders and provided individual written feedback to students on their SYR Worksheet. Students were informed of their mastery level, as they were striving for a minimum of 80% mastery on the SYR Worksheet. The following class period students received their previous day's SYR Worksheet and were asked to chart their progress on the provided copy of the Worksheet Mastery Chart (Appendix P). Students across classes progressed at various rates, but all students were ready to move to Phase 7 at the end of four class periods.

Instructional Phase 7

Similar to Phase 6, this phase allowed for continued guided practice with the social studies text (including partner practice), continued targeted work on vocabulary for unknown words, and ensured students knew and understood the Prompting Steps and Prompting Questions. This phase (120 minutes/2 hours total) spanned 3 class periods, during Unit two. Each class began with a brief review of the immediately preceding class session's events. Students were instructed that they would be thinking about and filling in the SYR Worksheet

without the researcher's model, but would receive necessary support to practice the SYR prompt steps and answer questions. Students finished the SYR Worksheet with a pre-selected passage that was agreed upon by the researcher and classroom teacher. If necessary, students were paired with a classmate to work on various steps of the SYR Worksheet and receive/provide reactions and responses to the passages. This was not typically required during this phase, but a small number of dyads still required pairing. After the SYR Worksheet was finished each day, students were engaged in a discussion about what aspects of the SYR Worksheet they found to be simple, as well as those they found to be more challenging. Discussions also focused on ensuring mastery of the Prompting Steps and Prompting Questions. Students noted progress on their SYR Goal Sheets and filed both the daily SYR Worksheet and SYR Goal Sheet in their SYR folders. A short review was then conducted, and the next day's lesson was briefly introduced to allow for connectivity between instructional phases.

Each day the researcher collected the SYR folders and provided individual written feedback to students on their SYR Worksheet. Students were informed of their mastery level, as they were striving for a minimum of 80% mastery on the SYR Worksheet. The following class period students received their previous day's SYR Worksheet and were asked to chart their progress on the provided copy of the Worksheet Mastery Chart (Appendix P). Students across classes progressed at various rates, but all students were demonstrating at least 80% mastery of individually completed SYR Worksheets and mastery of Prompting Steps and Prompting Questions at then end of three class periods.

Instructional Phase 8

The final instructional phase focused on independent practice with the social studies text and fading the worksheet and prompt guide. This phase (340 minutes/5.66 hours) spanned eight class periods, during Unit two. Each class began with a brief review of the immediately preceding class session's events. Generalization and maintenance of SYR skills and strategies were reinforced daily during this phase. As with all other phases, readings were from the classroom social studies text, and daily lessons were agreed upon in advance by the researcher and classroom teachers.

This phase focused on internalization of the SYR prompts and questions. Students were to practice Prompting Steps and Prompting Questions silently and independently while participating in class readings. Mastery of Prompting Steps and Prompting Questions was examined via the SYR Worksheet in the previous state, thus internalization was assessed during this stage. Internalization was checked each class period by the researcher walking around the room during the lesson and asking students what they were thinking and what questions had they asked themselves. Students progressed through this phase at various rates, and some students required various methods of worksheet fading (e.g., review of prompt guide prior to lesson, reference to section(s) of prompt guide during class periods). All students were demonstrating mastery of internalization of the SYR protocol by the end of the eighth class period. At the end of each class period, students were engaged in a discussion about what aspects of the internalization process and lack of the SYR Worksheet they found to be simple, as well as those they found to be more challenging. Discussions also included ways to generalize and maintain the SYR Prompts and Questions. Students completed the provided SYR Self-Check Without the

Worksheet (Appendix Q) and their SYR Goal Sheets daily. Both were then filed their SYR folders. A short review was then conducted, and the next day's lesson was briefly introduced to allow for connectivity between instructional phases. The final day of this phase also included a brief conversation about the post-testing measures.

Satisfaction Measurement Phase

To measure student and teacher satisfaction, as well as social validity, with the SYR instructional protocol, as well as the impact on learning, both teachers and students in the comparison and experimental classes were asked to complete a satisfaction measure. Teachers were asked to complete the researcher-created Social Validity Survey for Teacher Participants (Appendix J) after study completion. Students were also asked to complete a satisfaction measure. Upon completion of the second post-unit test, students were provided with a copy of the Student Satisfaction Survey (Appendix F) and asked to complete.

Participant Compensation

Participating teachers and students were not compensated in any manner for participating in this study. The participating school and school district were also not compensated in any way for agreeing to participate.

Data Analysis

Data were analyzed with statistical software, SPSS v 19.0.

Research Questions

1. Does STRUCTURE Your Reading (SYR) with digital, eighth grade, social studies texts produce greater social studies unit comprehension scores than SYR with paper-based social studies texts or typical social studies instruction alone?

A hierarchical ANCOVA was calculated with the independent variable being group assignment and covariate being pretest score for the unit test.

2. Does STRUCTURE Your Reading (SYR) with digital, eighth grade, social studies text produce greater use of before, during, and after reading comprehension strategies than SYR with paper-based social studies texts or typical social studies instruction alone?

A hierarchical ANCOVA was calculated with the independent variable being group assignment and covariate being pretest score for strategy use with the MIRI.

3. Does STRUCTURE Your Reading (SYR) with digital, eighth grade, social studies text produce greater use of before, during and after reading self-questioning prompts than SYR with paper-based texts or typical social studies instruction alone?

A hierarchical ANCOVA was calculated with the independent variable being group assignment and covariate being pretest score for self-questioning prompt use with the MIRI.

4. Does STRUCTURE Your Reading (SYR) with digital, eighth grade, social studies text produce greater overall reading comprehension gains as measured on a standardized measure than SYR with paper-based texts or typical social studies instruction alone?

A hierarchical ANCOVA was calculated with the independent variable being group assignment and covariate being pretest score for the DRP.

Fidelity of Implementation

Fidelity of implementation was monitored and assessed using fidelity checklists created from an Innovation Configuration Map (Ehren, 2008; Hall & Hord, 2006) constructed for the SYR instructional protocol (Appendix E). A random sample of 20% of intervention class dates was selected for a total of five and one half days (22 sessions) over the course of the study.

One of two trained graduate research assistants, as well as a trained educational professional, were present during all randomly, preselected intervention sessions and used the corresponding daily fidelity checklist to determine fidelity of implementation. Of the five and one half dates (22 sessions) observed for fidelity, the researched adhered to the intervention protocol 100% of the time, with slight modifications made for individual students that were progressing at a more rapid pace (e.g., construction of Summary Statement individually rather than in a group), or class time constraints (e.g., oral summary statement with researcher writing on board rather than students copying summary statement). See Table 2 for a summary of dates and corresponding fidelity percentages.

Table 2: *Fidelity of Implementation*

Day of Observation	Classes Observed	Percentage of "Present features": Rater 1	Percentage of "Present features": Rater 2
4	4	100%	100%
9	4	100%	100%
11	4	100%	100%
18	4	100%	100%
21	4	100%	100%
25	2	100%	100%

Control classes were observed in person by the researcher to ensure control conditions were upheld. Since this study was completed at a local school, with all participating classes and teachers on the same campus, it was necessary to ensure there were no aspects of the SYR intervention program in the control classes. While the researcher served as the interventionist for the comparison and experimental classes to control for intervener effects, the participating teachers were part of the same professional learning community (PLC) so possibility of discussion of the intervention was present during professional development time when the researcher was not present. All four participating teachers were asked to not discuss the study, nor the SYR instructional protocol or lesson planning components with each other. Twenty

percent of control classes (10 classes) were selected at random and observed by the researcher with all classes having zero percent occurrence of any SYR intervention aspects in those classes.

Summary

This chapter presented and reviewed the methodology for the current study. The study employed a randomized controlled design to answer the noted four research questions. The setting along with the various participants and groups were discussed. The measures used over the course of the study were presented and the data analytic procedures for each of the research questions were noted.

CHAPTER FOUR: RESULTS

This study investigated the effects of a strategic, reading comprehension, instructional protocol within the context of eighth grade, social studies classes when using digital text. This chapter explores the results of the analyses used to answer the proposed research questions. This study employed a randomized controlled design. The research questions were answered with the use of hierarchical analysis of covariance (ANCOVA). This chapter begins by describing the participants, presenting descriptive data, and discussing inter-rater reliability. The chapter then presents the assumptions of ANCOVA and results relating to the research questions as analyzed using hierarchical ANCOVA. The chapter concludes with a discussion of social validity of the SYR intervention protocol and summary.

Participants

A total of 124 eighth grade students at the participating school and classes took part in the study. Students had been randomly assigned to classes over the summer break by the school system's electronic scheduling software. At the beginning of the school year, and prior to the start of the study, six standard, eighth grade, social studies classes were randomly selected by the school administration and researcher via a random numbers generator to participate in the study (two control, two comparison, and two experimental). Upon random selection, the participating

classes were randomly assigned to experimental conditions (control, comparison, or experimental), also by random number generator. Students were not aware of condition assignments during the course of the study; however students may have been able to infer condition assignments based on the absence of the researcher in their classes, or the change in class location to the computer lab.

All six classes were of similar size. Experimental classes had a total of 18 and 20 students, comparison classes totaled 21 and 22 students, and control classes totaled 20 and 23 students, respectively. Due to randomization at both the student and teacher levels, it is likely that each class represents a heterogeneous sample, representative of the population. It should be noted, however, despite randomized and similar sized groups, Florida Comprehensive Assessment Testing (FCAT) reading levels were not equal across groups. Comparison and control groups had significantly more students reading at Level 1 (lowest level), and significantly fewer students reading at Level 5 (highest level) than the experimental group. Students reading at Levels 2, 3, and 4 were not significantly different across conditions. Table 3 presents the FCAT Reading levels and of each group,.

Table 3: *FCAT Reading Levels (2011) for Participants*

	Control (n = 42)		Comparison (n = 39)		Experimental (n = 35)	
2011 FCAT Reading Level	*n*	%	*n*	%	*n*	%
1	7	16.7%	4	10.3%	1	2.9%
2	10	23.8%	8	20.5%	8	22.9%
3	15	35.7%	15	38.5%	11	31.4%
4	9	21.4%	10	25.6%	8	22.9%
5	1	2.4%	2	5.1%	7	20%

Figure 1 below represents the frequencies for each condition.

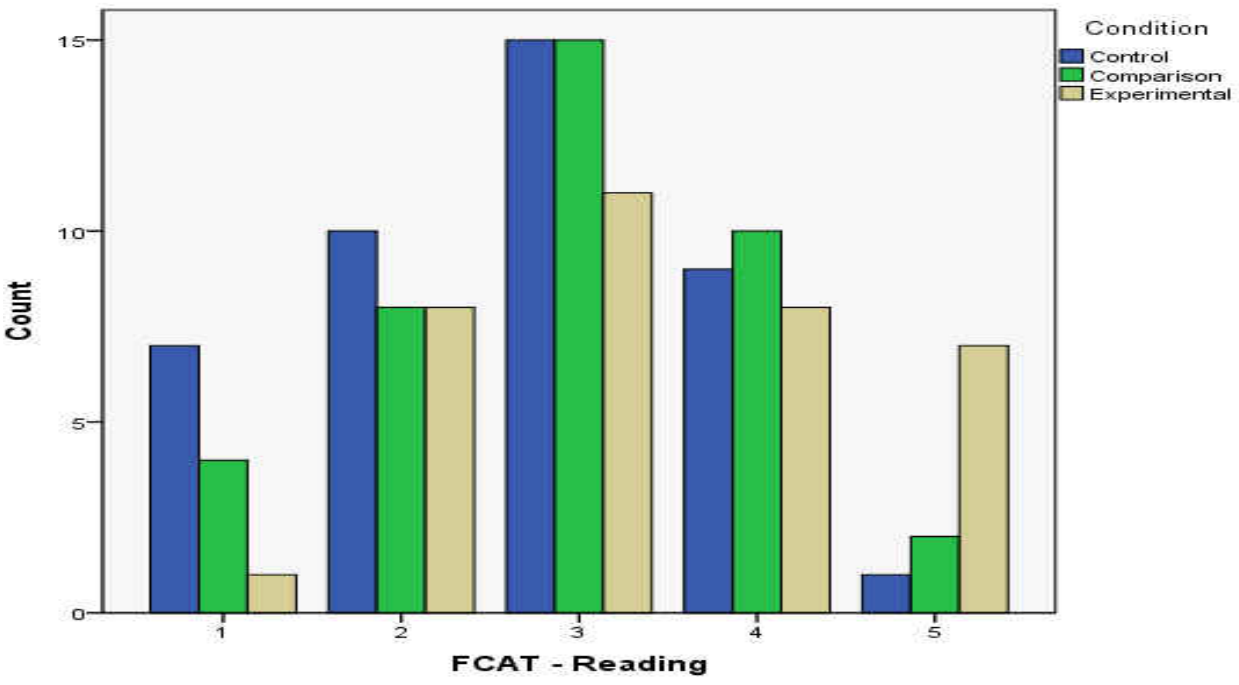

Figure 1: *FCAT Reading Levels (2011) Frequencies per Condition*

Demographic data were collected for all participating students. Gender across all conditions did not differ significantly, with all conditions presenting with more males than females. The majority of students across conditions identified as 13 years of age (58.9%), with 14 years of age being second most (31.5%). There were seven students identifying at 15 years of age (5.6%), four students identifying at 12 years of age (3.2%), and one student identifying at 16 years of age (0.8%). The control group presents with the largest number of students participating in the free or reduced lunch program (69.8%), however the majority of the comparison (62.8%) and experimental (57.9%) groups also present with the majority of students participating in the free or reduced lunch program. The control group also has the largest number of ELL students (18.6%), whereas the comparison group only has 9.3% and experimental has none. Finally, the control group presents with the most ESE students (32.6%), while the experimental (21.1%) and comparison (20.9%) present with very similar percentages, and less, ESE students. Table 4 presents the demographic data for all students across conditions.

Table 4: *Demographic Characteristics for Participants*

Variable	Control Group (*n*=43)		Comparison Group (*n*=43)		Experimental Group (*n*=38)		Total Sample (*n*=124)	
	n	%	*n*	%	*n*	%	*n*	%
Gender								
Male	26	60.5	23	53.5	22	57.9	71	57.3
Female	17	39.5	20	46.5	16	42.1	53	42.7
Age								
12	3	7.0	1	2.4	0	0	4	3.2
13	20	46.5	29	67.4	24	63.2	73	58.9
14	15	34.9	11	25.6	13	34.2	39	31.5
15	4	9.3	2	4.7	1	2.6	7	5.6
16	1	2.4	0	0	0	0	1	0.8
Socioeconomic Status								
No free or reduced lunch	13	30.2	16	37.2	16	42.1	45	36.3
Free or reduced lunch	30	69.8	27	62.8	22	57.9	79	63.7
English Language Learner	8	18.6	4	9.3	0	0	12	9.7
Exceptional Student Education	14	32.6	9	20.9	8	21.1	31	25

Participant Attendance

While students were encouraged to attend all social studies classes over the duration of the study, not all students were present each day. A total of 13.83 instructional hours (13 hours and 50 minutes over 25 total classes) were spent with the students in the comparison and experimental classes during the study (not including pre- or post-testing time). The average number of treatment hours received across both conditions was approximately 13 (94%). A total of 32 (39.5%) students across comparison and experimental classes were present for each class during the study. The range of absences for students enrolled in comparison and experimental classes for the entire duration of the study (all 25 classes) is a minimum of zero (missed 0% of total treatment) to a maximum of seven (missed 28% of total treatment). The average number of classes missed was 1.36 (5%). While control group participants did not receive any treatment, attendance data were collected. A total of 12 students (27.91%) were present for each class during the study. As with the other groups, the range of absences is a minimum of zero to a maximum of seven. The average number of classes missed was 1.79 (7%) for the control group. For students that were not enrolled for the duration of the study, but did receive some of the SYR intervention protocol and participated in pre- or post-testing measures, the minimum number of treatment hours for the comparison group was 3.33 (24.1%) for one student and 4.61 (33.3%) for two students in the experimental group. Again, these drastic minimums are due to students moving in (1 student) or out (1 student) of treatment conditions due to schedule changes, or attrition due to relocation (1 student). The Intent to Treat (ITT) analyses call for all participants to be included in analyses as they were assigned at time of

randomization. Thus, students that moved out of comparison and experimental conditions, for any reason, were still included in analyses, hence the low minimum number of treatment hours. Table 5 presents the treatment hours data for each group.

Table 5: *Total treatment hours*

	Comparison (n = 43)		Experimental (n = 38)	
	M	*SD*	*M*	*SD*
Treatment Hours	12.96 (12 hours, 58 minutes)	1.67	12.91 (12 hours, 55 minutes)	1.63
Minimum	3.33 (3 hours, 20 minutes)		4.61 (4 hours, 37 minutes)	
Maximum	13.83 (13 hours, 50 minutes)		13.83 (13 hours, 50 minutes)	
Range	10.50 (10 hours, 30 minutes)		9.22 (9 hours, 13 minutes)	

Figures 2 and 3 depict the total treatment hours for the comparison and experimental groups, respectively.

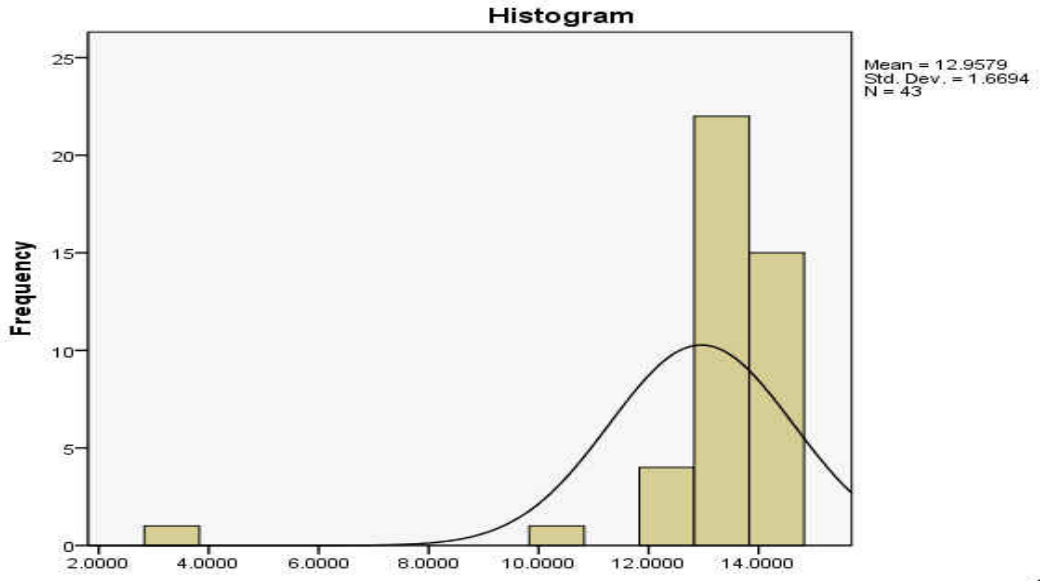

Figure 2: *Histogram for Total Treatment Hours – Comparison Group*

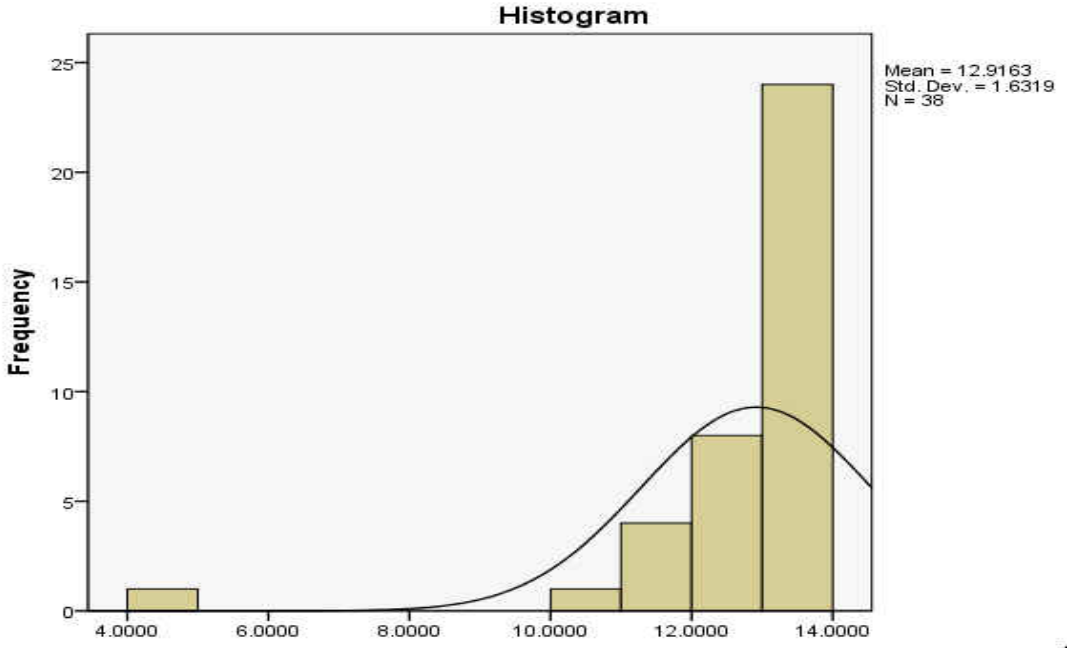

Figure 3: *Histogram for Total Treatment Hours – Experimental Group*

Inter-rater Reliability

Prior to the start of the study, four research assistants were trained how to score the MIRI. All research assistants demonstrated correct scoring of the MIRI prior to scoring pre- or post-test measurements. This was done with sample MIRI instruments completed by four eighth grade students that were not part of the study, and accessible by the researcher in a personal context, outside of the participating school. Research assistants demonstrated at least 90% accuracy with five separate MIRI protocols. The MIRI was the only assessment measure utilized in the study that was scored subjectively. Since the MIRI is a measure of metacognition, the same version was administered for both pre- and post-testing and the same scoring criteria were used for both administrations. The researcher than scored all MIRI assessments independently from the research assistants. A total of 13 discrepancies across conditions and classes were found. Such scoring discrepancies were discussed until consensus was reached.

Results of Data Analysis

Hierarchical ANCOVA statistics were used to test all research questions. Post-test measures were the dependent variables, the experimental condition was a fixed factor and classroom (or teacher) was listed as the random factor. Pre-test measures were covariates for all analyses. Missing data points, as well as all ANCOVA assumptions, will be discussed further.

Missing Data

As noted in the previous chapter, not all participants completed all assessment measures.

Intent to treat (ITT)

Due to attrition, ITT analysis was applied to all analyses. ITT analysis is the process of utilizing participant data for the duration of the study as the participants were assigned during randomization. Thus, data for any students that moved from one condition to another (e.g., moving from a comparison class to an experimental class) were analyzed as part of the group to which the student was originally randomly assigned. Moreover, attrition was accounted for via the ITT analysis. Rather than completing analyses with partial or missing data, or disregarding those students' data altogether, ITT analysis allows the use of pre-test measurement scores as post-test scores. This allows greater confidence with analyses due to complete data sets and is also considered to be the most conservative methodology with regards to attrition (Hollis & Campbell, 1999; Torgerson & Torgerson, 2008). A total of 21 (16.94%) students across all classes and conditions required ITT analysis for use of pre-test scores as post-test scores. Two students (1.61%) received schedule changes during the course of the study that moved them from a comparison condition to an experimental condition. These students' data were analyzed as part of the comparison group, as they were originally, randomly assigned. Finally, two students, one in a comparison class and one in a control class (1.61%), relocated during the course of the study and did not complete post-testing. The remaining 17 students (13.71%) were absent during post-testing (6 students in control group, 5 students in comparison group, and 6 students in experimental group).

Missing pre-test data

Likewise when pre-assessment measures were missing, the mean of nearby points replacement method was employed to generate pre-assessment data for those students. This is recognized as a cautionary method; however, when used within conditions and randomized assignments, the generated means are hypothesized to be more representative scores (Acock, 2005). Moreover, this is preferred over case deletion due to missing data (Acock, 2005: Schafer & Graham, 2002). Pre-assessment measures were scheduled in advance with the participating teachers to allow for the greatest possible attendance and participation. Despite such precautions, a total of 15 students (12.10%) across all classes and conditions did not complete all pre-testing measures. In order to allow for the most robust analyses possible, missing pre-assessment data were replaced with the mean of nearby points method (Hahs-Vaughn, personal communication). The largest range possible within the condition and class was utilized for this generation in order to best represent the mean. For example, missing data points at either the top or bottom of the data set were moved to the center of the set. This allowed for a wide range of points both above and below the missing data point to generate the missing score. While this replacement method is not considered ideal, it is preferred over case deletion, or conducting analyses with missing data points (Acock, 2005; Schafer & Graham, 2002).

Assumption Testing

As previously noted, hierarchical ANCOVA statistics were utilized to answer all research questions. All questions were examined with an alpha level of .05. The use of hierarchical

ANCOVA required the testing of eight assumptions (Lomax & Hahs-Vaughn, 2012). These assumptions include (1) independence of observations, (2) homogeneity of variance, (3) normality, (4) linearity, (5) fixed independent variable, (6) independence of the covariate and the independent variable, (7) covariate measured without error, and (8) homogeneity of regression slopes. These assumptions will be briefly discussed as it relates to the current study.

Independence of Observations

This study utilized hierarchical ANCOVA statistics for analyses, which are highly sensitive to violations of independence (Lomax & Hahs-Vaughn, 2012). This sensitivity may result in Type I and/or Type II errors. The assumption of independence is typically met, however, when randomization is present (Lomax, 2007). This is due to random sampling from the population and independent observations within and across groups. This study employed a randomized design with independent and separate measures. Therefore, the assumption of independence of observations has been met and will not be tested or discussed further.

Homogeneity of Variance

Violations of the homogeneity of variance, or assuming the variances of each population are the same, may result in bias in the SS_{with}term and possibly Type I and/or Type II errors (Lomax, 2007). However violations of this assumption may be trivial if sample sizes are similar across groups (Lomax & Hahs-Vaughn, 2012). This study employed groups of equal and nearly equal sizes (control $n = 43$, comparison $n = 43$, experimental $n = 38$), therefore any violations are

thought to be inconsequential. This assumption was tested with Levene's test and will be reported and discussed for each research question and dependent measure.

Normality

The assumption of normality assumes that each of the sample populations follow the normal distribution (Lomax, 2007). Additionally the *F* test is fairly robust to *Y* distributions that do not adhere to normal distribution. This assumption is tested by frequency distributions, normal probability plots, and normality tests such as Shapiro-Wilk test. Normality testing results will be reported and discussed for each research question and dependent measure.

Linearity

The assumption of linearity states that the regression of the dependent variable on the covariate is linear. If this assumption were violated, ANCOVA would not be an appropriate measure (Lomax, 2007) as group effect estimates may be biased, resulting in smaller SS_{within} and $SS_{between}$ (Lomax & Hahs-Vaughn, 2012). Scatterplots were reviewed to test this assumption and will be reported and presented for each research question and dependent measure.

Fixed Independent Variable

The groups in this study were fixed by the researcher. Therefore the assumption of a fixed independent variable has been met and will not be tested or discussed further.

Independence of the Covariate and the Independent Variable

Independence of the covariate and the independent variable is a requirement, rather than an assumption, for ANCOVA (Lomax, 2007). This requirement ensures that the independent variable does not influence the covariate. This study employed a randomized design with pre-test scores as the covariate. Since the covariate was obtained prior to the intervention protocol implementation, this requirement has been met and will not be tested or discussed further.

Covariate Measured Without Error

This assumption is noteworthy as variables measured with considerable measurement error may have a significant impact on the ANCOVA statistics (Lomax, 2007). The within groups regression slope from the regression of the dependent variable on the covariate (b_w) will be underestimated, thus resulting in smaller adjustments (Lomax & Hahs-Vaughn, 2012). Additionally, the *F* test will be less powerful as a result of the unexplained reduction in variation, and there is a lessened possibility of a Type I error. This assumption can be met by using reliable covariate measures (Lomax & Hahs-Vaughn, 2012). While one measure (DRP) in this study has reliability data, two measures (publisher-created test and MIRI) have minimal and limited reliability data. With such limited data for two of the covariate measures, it is not clear if this assumption has been met.

Homogeneity of Regression Slopes

The final assumption states that the regression line between the dependent variable and the covariate are the same across groups (Lomax, 2007). This is necessary to test for group intercept differences. Violations of this assumption can result in modest effects with studies of unequal *n*'s. Since this study does not have equal *n*'s, this assumption was tested by a review of scatterplots by covariates and dependent variables by group and with an ANCOVA procedure to determine interaction of the covariate and independent variable. It can be assumed this assumption was met with the presence of a non-significant interaction effect. Results for this assumption will be reported and discussed for each research question and dependent measure.

Descriptive Data

Descriptive data for all dependent measures are presented in Table 6. Means, standard deviations, standard error of the mean, and the maximum score possible are presented for all post-measures. The comparison and experimental groups scored higher, on average, than the control group on all dependent measures. The comparison group scored higher, on average, than the experimental group on the following post-measures: Before Reading Asking Questions, Before Reading Strategy Use, During Reading Strategy Use, After Reading Asking Questions, and After Reading Strategy Use. The experimental group scored higher, on average, than the comparison group on the following measures: DRP Raw Score, During Reading Asking Questions, Unit 1 Chapter Test, and Unit 2 Chapter Test.

Table 6: *Descriptive Statistics*

Dependent Measure	Control Group (n = 43)			Comparison Group (n = 43)			Experimental Group (n = 38)			
	M	*SD*	*SE*	*M*	*SD*	*SE*	*M*	*SD*	*SE*	Maximum score
DRP Raw Score	26.70	12.50	1.91	32.23	12.06	1.84	38.24	13.55	2.19	63
Before Reading: Asking Questions	1.12	1.22	.19	3.05	1.85	.28	2.76	1.68	.27	unlimited
Before Reading: Strategy Use	.09	.29	.05	1.72	1.26	.19	1.58	1.29	.21	unlimited
During Reading: Asking Questions	1.79	1.70	.26	4.51	2.60	.40	5.74	3.00	.49	unlimited
During Reading: Strategy Use	.44	.80	.12	4.21	2.75	.42	3.66	2.17	.35	unlimited
After Reading: Asking Questions	.51	1.03	.16	1.51	1.24	.19	1.45	1.41	.23	unlimited
After Reading: Strategy Use	.23	.48	.07	1.09	.95	.14	.79	.91	.18	unlimited
Unit 1 Chapter Test	14.40	5.32	.81	17.24	5.83	.89	18.09	4.80	.78	27
Unit 2 Chapter Test	15.14	4.82	.74	19.23	3.49	.53	19.66	4.21	.68	27

Testing the Research Question

Research Question One

Question 1: Does STRUCTURE Your Reading (SYR) with digital, eighth grade, social studies texts produce greater social studies unit comprehension scores than SYR with paper-based social studies texts or typical social studies instruction alone?

Two separate hierarchical ANCOVA models were generated to answer this question: one for each unit test. The independent variable was study condition (control, comparison, or experimental), the dependent variable was unit post-test score, the hierarchical factor was classroom (teacher) and the covariate was the pre-test for the corresponding unit test. Two unit post-tests were analyzed, as it was hypothesized that greater gains would be present with the second unit post-test after students had completed the instructional protocol in its entirety. Each unit post-test will be discussed separately, beginning with the first unit post-test.

Publisher-created Unit Test One

A hierarchical ANCOVA was conducted to determine if the mean scores on the publisher-created unit post-test (first unit) differed based on condition (control, comparison, or experimental) when controlling for the pre-test and nesting for the classroom (teacher). The first instructional unit content included early colonial life, pilgrims, and American Indians. The assumption of normality was satisfied with examination of the residuals in all areas except the

Shapiro-Wilk test for normality ($SW = .968$, $df = 124$, $p = .005$). Skewness (-.535) and kurtosis (-.272) statistics suggest the assumption of normality was met. Visual examination of the histogram, boxplot, and Q-Q plot also suggest normal distribution with no outliers. Considering the evidence suggesting normal distribution, it is reasonable to conclude that the assumption of normality was met. Table 7 presents the data testing for ANCOVA assumptions.

Table 7: *Results of Assumptions Testing for the Publisher-Created Post-Test: Unit One*

Assumption	Test	Evidence	Assumption Satisfied?
Homogeneity of Variance	Levene's Test	F (5,118) = 1.158, p = .334	Yes
Normality	Shapiro-Wilk	SW = .968, df = 124, p = .005	No
	Boxplot/Histogram	Relatively normal distributional shape	Yes
	Skewness	-.535	Yes
	Kurtosis	-.272	Yes
Linearity	Scatterplots	Positive linear relationship	Yes
Homogeneity of Regression Slopes	Interaction of Covariate and Independent Variable	F (2,118) = 1.423, p = .245	Yes

As shown in Table 8, the hierarchical ANCOVA results suggest a significant effect of the covariate, publisher-created post-test for the first unit, on the dependent variable, publisher-created post-test for the first unit ($F_{pretest} = 28.098$; $df = 1, 88$; $p = .00$). Statistically significant effects for condition ($F_{condition} = 1.914$; $df = 2, 3$; $p = .291$) or classroom ($F_{classroom} = 2.207$; $df = 3, 117$; $p = .091$) were not found. There was a moderate effect and strong power (partial $\eta^2_{condition} =$

.560, observed power = .999) as determined by Cohen (1988). This translates to approximately 56% of the variance in unit one post-test scores can be accounted for when controlling the covariate. These data show there was not a significant difference between conditions on the publisher-created post-test for the first unit, when controlling for the pre-test.

Table 8: *Hierarchical ANCOVA Results for the Publisher-Created Post-Test Unit One*

Hierarchical ANCOVA: Test of Between-Subjects Effects								
Source		Type I Sum of Squares	df	Mean Square	*F*	Sig	Partial Eta Squared	Observed Power
Intercept	Hypothesis	33825.032	1	33825.032	651.603	.000	.995	.792
	Error	153.230	2.952	51.911				
Unit 1 Pre-Test	Hypothesis	700.341	1	700.341	28.098	.000	.243	1.000
	Error	2187.051	87.746	24.925				
Condition	Hypothesis	196.533	2	98.267	1.914	.291	.560	.999
	Error	154.309	3.005	51.348				
Classroom (Condition)	Hypothesis	154.204	3	51.401	2.207	.091	.054	.069
	Error	2725.390	117	23.294				

Publisher-created Unit Test Two

A hierarchical ANCOVA was conducted to determine if the mean scores on the publisher-created unit post-test (second unit) differed based on condition (control, comparison, or experimental) when controlling for the pre-test and nesting for the classroom (teacher). The second instructional unit content included information specific to the northern, middle, and southern colonies as well as important historical figures from those areas and times. The assumption of homogeneity of variances was not met. However, this study has groups with equal and almost equal *n*'s (control $n = 43$; comparison $n = 43$; experimental $n = 38$), which results in a negligible violation effect. Table 9 presents the data testing for ANCOVA assumptions.

Table 9: *Results of Assumptions Testing for the Publisher-Created Post-Test: Unit Two*

Assumption	Test	Evidence	Assumption Satisfied?
Homogeneity of Variance	Levene's Test	F (5,118) = 2.482, p = .036	No
Normality	Shapiro-Wilk	SW = .983, df = 124, p = .130	Yes
	Boxplot/Histogram	Relatively normal distributional shape	Yes
	Skewness	-.434	Yes
	Kurtosis	.300	Yes
Linearity	Scatterplots	Positive linear relationship	Yes
Homogeneity of Regression Slopes	Interaction of Covariate and Independent Variable	F (2,118) = 1.130, p = .326	Yes

As noted in Table 10 below, the ANCOVA suggests a significant effect of the covariate, publisher-created unit two post-test (F_{pretest} = 62.272; df = 1, 118; p = .000). There was also a statistically significant difference between conditions on the mean score of the publisher-created post-unit test two ($F_{\text{condition}}$ = 49.279; df = 2, 4; p = .003) when controlling for the pre-test. More specifically, there was a significant difference between the control group (*Adj. M* = 16.191, *SD* = 4.82) and the comparison (*Adj. M* = 18.858; *SD* = 3.49; p = .013) and experimental (*Adj. M* = 18.906; *SD* = 4.21; p = .019) groups. There was not a significant difference in mean scores of the second unit post-test between the comparison and experimental groups (p = 1.000). There was not an overall significant difference between classes within conditions ($F_{\text{classroom}}$ = .105; df = 3, 117; p = .957) when controlling for the pre-test. There was a large effect and strong power (partial $\eta^2_{\text{condition}}$ = .965, observed power = .999) as determined by Cohen (1988). This translates

to almost 97% of the variance in unit two post-test scores can be accounted for when controlling the covariate. These data show there was a significant difference between conditions on the publisher-created post-test for the second unit, when controlling for the pre-test.

Table 10: *Hierarchical ANCOVA Results for the Publisher-Created Post-Test Unit Two*

Hierarchical ANCOVA: Test of Between-Subjects Effects								
Source		Type I Sum of Squares	df	Mean Square	*F*	Sig	Partial Eta Squared	Observed Power
Intercept	Hypothesis	39924.395	1	39924.395	57365.832	.046	1.000	.792
	Error	.334	.480	.696				
Unit 2 Pre-Test	Hypothesis	687.358	1	687.358	62.272	.000	.346	1.000
	Error	1299.989	117.775	11.038				
Condition	Hypothesis	171.866	2	85.933	49.279	.003	.965	.999
	Error	6.150	3.526	1.744				
Classroom (Condition)	Hypothesis	4.868	3	1.623	.105	.957	.003	.069
	Error	1800.513	117	15.389				

Research Question Two

Question 2: Does STRUCTURE Your Reading (SYR) with digital, eighth grade, social studies text produce greater use of reading comprehension strategies before, during, and after reading than SYR with paper-based social studies texts or typical social studies instruction alone?

This research question was explored with the MIRI. The MIRI is a single instrument that asks students to report their use of both strategies and self-questioning prompts at three separate times (before reading, during reading, and after reading) with two short (400 words) grade level passages. The MIRI measures the use of strategies and self-questioning prompts at various times and phases of the reading process (before, during, and after reading a short passage), but does so in a single administration. Three ANCOVA models (one for each phase of strategic reading: before, during, and after) were generated to determine if the mean number of strategies used on the MIRI in each reading phase differed based on study condition. The independent variable was group (control, comparison, or experimental), the dependent variable was MIRI post-test score, the hierarchical factor was classroom (teacher), and the covariate was the MIRI pre-test. Each reading phase (before, during, and after) will be presented and discussed separately, beginning with the before reading phase.

MIRI: Before Reading Strategies

A hierarchical ANCOVA was conducted to determine if the mean scores on the MIRI post-test for before reading strategy use differed based on condition (control, comparison, or experimental) when controlling for the pre-test and nesting for the classroom (teacher). The assumption of homogeneity of variance was not met with Levene's test. However, with equal and almost equal *n*'s across groups, the effects of this violation is negligible. The assumption of normality was satisfied with examination of the residuals in all areas except the Shapiro-Wilk test for normality ($SW = .939$, $df = 124$, $p = .000$). Skewness (.888) and kurtosis (1.175) statistics suggest the assumption of normality was met. Visual examination of the histogram, boxplot, and Q-Q plot also suggest normal distribution with no outliers. Considering the evidence suggesting normal distribution, it is reasonable to conclude that the assumption of normality was met. Table 11 presents the data testing for ANCOVA assumptions.

Table 11: *Results of Assumptions Testing for the MIRI Post-Test Before Reading Strategies*

Assumption	Test	Evidence	Assumption Satisfied?
Homogeneity of Variance	Levene's Test	F (5,118) = 11.898, p = .000	No
Normality	Shapiro-Wilk	SW = .919, df = 124, p = .000	No
	Boxplot/Histogram	Relatively normal distributional shape	Yes
	Skewness	.767	Yes
	Kurtosis	1.195	Yes
Linearity	Scatterplots	Positive linear relationship	Yes
Homogeneity of Regression Slopes	Interaction of Covariate and Independent Variable	F (2,116) = .113, p = .893	Yes

The ANCOVA generated found a nonsignificant effect of the covariate, the MIRI pre-test for before reading strategy use, on the dependent variable, the MIRI post-test for before reading strategy use (F_{pretest} = .303; df = 1, 119; p = .583). Due to the covariate being nonsignificant, the analysis was rerun without the covariate included (now a hierarchical factorial ANOVA). As noted in Table 12, there was a significant effect for condition on the mean scores of the MIRI post-test for before reading strategy use ($F_{\text{condition}}$ = 91.917; df = 2, 3; p = .002). More specifically, there was a significant difference between the control group (*Adj. M* = .093; *SD* = .294) and the comparison (*Adj. M* = 1.718; *SD* = 1.260; p = .000) and experimental (*Adj. M* = 1.575; *SD* = 1.287; p = .000) groups. There was not a significant difference in mean scores of the MIRI post-test for before reading strategy use between the comparison and experimental

groups (p = 1.000). There was not an overall significant difference between classes within conditions ($F_{classroom}$ = .342; df = 3, 118; p = .795). There was a large effect and strong power (partial $\eta^2_{condition}$ = .984, observed power = 1.000) as determined by Cohen (1988). This translates to approximately 98% of the variance in MIRI before reading strategy use post-test scores can be accounted for by condition. These data show there was a significant difference between conditions on the MIRI post-test for before reading strategies, when controlling for the pre-test.

Table 12: *Hierarchical Factorial ANOVA Results for the MIRI Post-Test for Before Reading Strategies*

Hierarchical Factorial ANOVA: Test of Between-Subjects Effects								
Source		Type I Sum of Squares	df	Mean Square	*F*	Sig	Partial Eta Squared	Observed Power
Intercept	Hypothesis	153.581	1	153.581	413.846	.000	.993	1.000
	Error	1.058	2.850	.371				
Condition	Hypothesis	68.877	2	34.439	91.917	.002	.984	1.000
	Error	1.099	2.933	.375				
Classroom (Condition)	Hypothesis	1.132	3	.377	.342	.795	.009	.115
	Error	130.410	118	1.105				

MIRI: During Reading Strategies

A hierarchical ANCOVA was conducted to determine if the mean scores on the MIRI post-test for during reading strategy use differed based on condition (control, comparison, or experimental) when controlling for the pre-test and nesting for the classroom (teacher). The assumption of homogeneity of variances was not met. However, this study has groups with equal and almost equal *n*'s (control $n = 43$; comparison $n = 43$; experimental $n = 38$), which results in a negligible violation effect. The assumption of normality was satisfied with examination of the residuals in all areas except the Shapiro-Wilk test for normality ($SW = .948$, $df = 124$, $p = .000$). Skewness (.573) and kurtosis (1.149) statistics suggest the assumption of normality was met. Visual examination of the histogram, boxplot, and Q-Q plot also suggest normal distribution with no outliers. Considering the evidence suggesting normal distribution, it is reasonable to conclude that the assumption of normality was met. Table 13 presents the data testing for ANCOVA assumptions.

Table 13: *Results of Assumptions Testing for the MIRI Post-Test During Reading Strategies*

Assumption	Test	Evidence	Assumption Satisfied?
Homogeneity of Variance	Levene's Test	F (5,118) = 7.757, p = .000	No
Normality	Shapiro-Wilk	SW = .948, df = 124, p = .000	No
	Boxplot/Histogram	Relatively normal distributional shape	Yes
	Skewness	.573	Yes
	Kurtosis	1.149	Yes
Linearity	Scatterplots	Positive linear relationship	Yes
Homogeneity of Regression Slopes	Interaction of Covariate and Independent Variable	F (2,116) = .145, p = .865	Yes

The ANCOVA generated found a nonsignficant effect of the covariate, the MIRI pre-test for during reading strategy use, on the dependent variable, the MIRI post-test for during reading strategy use (F_{pretest} = 2.773; df = 1, 72; p = .100). Due to the covariate being nonsignificant, the analysis was rerun without the covariate included (now a hierarchical factorial ANOVA). As noted in Table 14, there was a significant effect for condition on the mean scores of the MIRI post-test for during reading strategy use ($F_{\text{condition}}$ = 46.333 df = 2, 3; p = .006). More specifically, there was a significant difference between the control group (*Adj. M* = .452; *SD* = .796) and the comparison (*Adj. M* = 4.211; *SD* = 2.748; p = .000) and experimental (*Adj. M* = 3.631; *SD* = 2.172; p = .000) groups. There was not a significant difference in mean scores of the MIRI post-test for during reading strategy use between the comparison and experimental

groups (p = .634). There was not an overall significant difference between classes within conditions ($F_{classroom}$ = .885; df = 3, 118; p = .451). There was a large effect and strong power (partial $\eta^2_{condition}$ = .969, observed power = .995) as determined by Cohen (1988). This translates to approximately 97% of the variance in MIRI during reading strategy use post-test scores can be accounted for by condition. These data show there was a significant difference between conditions on the MIRI post-test for during reading strategies, when controlling for the pre-test.

Table 14: *Hierarchical Factorial ANOVA Results for the MIRI Post-Test for During Reading Strategies*

Hierarchical Factorial ANOVA: Test of Between-Subjects Effects								
Source		Type I Sum of Squares	df	Mean Square	*F*	Sig	Partial Eta Squared	Observed Power
Intercept	Hypothesis	926.782	1	926.782	244.177	.001	.988	1.000
	Error	11.165	2.942	3.796				
Condition	Hypothesis	351.944	2	175.972	46.333	.006	.969	.995
	Error	11.296	2.974	3.798				
Classroom (Condition)	Hypothesis	11.400	3	3.800	.885	.451	.022	.239
	Error	506.874	118	4.296				

MIRI: After Reading Strategies

A hierarchical ANCOVA was conducted to determine if the mean scores on the MIRI post-test for after reading strategy use differed based on condition (control, comparison, or experimental) when controlling for the pre-test and nesting for the classroom (teacher). The assumption of homogeneity of variance was not met with Levene's test. However, with equal and almost equal *n*'s across groups, the effects of this violation is negligible. The assumption of normality was satisfied with examination of the residuals in all areas except the Shapiro-Wilk test for normality ($SW = .927$, $df = 124$, $p = .000$). Skewness (.613) and kurtosis (-.255) statistics suggest the assumption of normality was met. Visual examination of the histogram, boxplot, and Q-Q plot also suggest normal distribution with no outliers. Considering the evidence suggesting normal distribution, it is reasonable to conclude that the assumption of normality was met. Table 15 presents the data testing for ANCOVA assumptions.

Table 15: *Results of Assumptions Testing for the MIRI Post-Test After Reading Strategies*

Assumption	Test	Evidence	Assumption Satisfied?
Homogeneity of Variance	Levene's Test	F (5,118) = 7.203, p = .000	No
Normality	Shapiro-Wilk	SW = .927, df = 124, p = .000	No
	Boxplot/Histogram	Relatively normal distributional shape	Yes
	Skewness	.613	Yes
	Kurtosis	-.255	Yes
Linearity	Scatterplots	Positive linear relationship	Yes
Homogeneity of Regression Slopes	Interaction of Covariate and Independent Variable	F (2,116) = .755, p = .472	Yes

The ANCOVA generated found a nonsignficant effect of the covariate, the MIRI pre-test for after reading strategy use, on the dependent variable, the MIRI post-test for after reading strategy use (F_{pretest} = 1.843; df = 1, 118; p = .177). Due to the covariate being nonsignificant, the analysis was rerun without the covariate included (now a hierarchical factorial ANOVA). As noted in Table 16, there was a significant effect for condition on the mean scores of the MIRI post-test for after reading strategy use ($F_{\text{condition}}$ = 106.840 df = 2, 3; p = .002). More specifically, there was a significant difference between the control group (*Adj. M* = .237; *SD* = .480) and the comparison (*Adj. M* = 1.093; *SD* = .947; p = .000) and experimental (*Adj. M* = .792; *SD* = .905; p = .008) groups. There was not a significant difference in mean scores of the MIRI post-test for after reading strategy use between the comparison and experimental groups (p = .293). There

was not an overall significant difference between classes within conditions ($F_{classroom} = .120$; $df = 3, 118$; $p = .948$). There was a large effect and strong power (partial $\eta^2_{condition} = .987$, observed power = 1.000) as determined by Cohen (1988). This translates to approximately 98% of the variance in MIRI after reading strategy use post-test scores can be accounted for by condition. These data show there was a significant difference between conditions on the MIRI post-test for after reading strategies, when controlling for the pre-test.

Table 16: *Hierarchical Factorial ANOVA Results for the MIRI Post-Test for After Reading Strategies*

Hierarchical Factorial ANOVA: Test of Between-Subjects Effects								
Source		Type I Sum of Squares	df	Mean Square	*F*	Sig	Partial Eta Squared	Observed Power
Intercept	Hypothesis	61.040	1	61.040	828.808	.001	.997	1.000
	Error	.190	2.582	.074				
Condition	Hypothesis	16.342	2	8.171	106.840	.006	.987	1.000
	Error	.215	2.812	.076				
Classroom (Condition)	Hypothesis	.236	3	.079	.120	.451	.003	.071
	Error	77.382	118	.656				

Research Question Three

Question 3: Does STRUCTURE Your Reading (SYR) with digital, eighth grade, social studies text produce greater use of self-questioning prompts before, during and after reading than SYR with paper-based texts or typical social studies instruction alone?

This research question was explored with the MIRI. The MIRI is a single instrument that asks students to report their use of both strategies and self-questioning prompts at three separate times (before reading, during reading, and after reading) with two short (400 words) grade level passages. The MIRI measures the use of strategies and self-questioning prompts at various times and phases of the reading process, but does so in a single administration. Three ANCOVA models (one for each phase of strategic reading: before, during, and after) were generated to determine if the mean number of self-questioning prompts used on the MIRI in each reading phase differed based on study condition. The independent variable was group (control, comparison, or experimental), the dependent variable was MIRI post-test score, the hierarchical factor was classroom (teacher), and the covariate was the MIRI pre-test. Each reading phase (before, during, and after) will be presented and discussed separately, beginning with the before reading phase.

MIRI: Before Reading Self-questioning Prompts

A hierarchical ANCOVA was conducted to determine if the mean scores on the MIRI post-test for before reading self-questioning prompts differed based on condition (control,

comparison, or experimental) when controlling for the MIRI pre-test for before reading self-questioning prompts and nesting for the classroom (teacher). The assumption of homogeneity of variance was not met with Levene's test. However, with equal and almost equal *n*'s across groups, the effects of this violation is negligible. The assumption of normality was satisfied with examination of the residuals in all areas except the Shapiro-Wilk test for normality (*SW* = .959, *df* = 124, *p* = .001). Skewness (.778) and kurtosis (1.483) statistics suggest the assumption of normality was met. Visual examination of the histogram, boxplot, and Q-Q plot also suggest normal distribution with no outliers. Considering the evidence suggesting normal distribution, it is reasonable to conclude that the assumption of normality was met. Table 17 presents the data testing for ANCOVA assumptions.

Table 17: *Results of Assumptions Testing for MIRI Post-Test Before Reading Self-Questioning*

Assumption	Test	Evidence	Assumption Satisfied?
Homogeneity of Variance	Levene's Test	F (5,118) = 3.273, p = .008	No
Normality	Shapiro-Wilk	SW = .959, df = 124, p = .001	No
	Boxplot/Histogram	Relatively normal distributional shape	Yes
	Skewness	.778	Yes
	Kurtosis	1.483	Yes
Linearity	Scatterplots	Positive linear relationship	Yes
Homogeneity of Regression Slopes	Interaction of Covariate and Independent Variable	F (2,116) = .290, p = .749	Yes

As shown in Table 18, the hierarchical ANCOVA results suggest a significant effect of the covariate, MIRI pre-test for before reading self-questioning prompts, on the dependent variable MIRI post-test for before reading self-questioning prompts ($F_{pretest} = 7.574$; $df = 1, 120$; $p = .007$). There was not a significant effect for condition on the mean scores of the MIRI post-test for before reading self-questioning prompt use ($F_{condition} = 6.678$; $df = 2, 3$; $p = .079$). A statistically significant effect was found for classes ($F_{classroom} = 2.777$; $df = 3, 117$; $p = .044$). More specifically, there was a significant difference between the control group classes and comparison classes ($p = .000$) and experimental classes ($p = .000$). There was no difference found between comparison and experimental classes (p = .453). There was a large effect and moderate power (partial $\eta^2_{condition} = .817$, observed power = .474) as determined by Cohen (1988). This translates to approximately 82% of the variance in before reading self-questioning prompts as measured by the MIRI post-test scores can be accounted for when controlling the covariate. Table 19 outlines the differences found between classes on the MIRI post-test for before reading self-questioning prompts.

Table 18: *Hierarchical ANCOVA Results for the MIRI Post-Test for Before Reading Self-Questioning Prompts*

Hierarchical ANCOVA: Test of Between-Subjects Effects								
Source		Type I Sum of Squares	df	Mean Square	*F*	Sig	Partial Eta Squared	Observed Power
Intercept	Hypothesis	650.452	1	650.452	98.113	.002	.971	1.000
	Error	19.729	2.976	6.630				
MIRI Pre-Test Before Reading Questions	Hypothesis	18.342	1	18.342	7.574	.007	.060	.779
	Error	289.798	119.658	2.422				
Condition	Hypothesis	88.146	2	44.073	6.678	.079	.817	.474
	Error	19.739	2.991	6.599				
Classroom (Condition)	Hypothesis	19.746	3	6.582	2.777	.044	.066	.658
	Error	277.314	117	2.370				

Table 19: *Pairwise Comparisons for Class Differences for MIRI Post-Test Before Reading Self-Questioning Prompts*

Class	Class	Mean Difference	Standard Error	Sig
1	2	.615	.343	.453
	3	2.247	.404	.000
	4	1.808	.424	.000
2	1	-.615	.343	.453
	3	1.632	.401	.001
	4	1.193	.422	.033
3	1	-2.247	.404	.000
	2	-1.632	.401	.001
	4	-.439	.472	1.000
4	1	-1.808	.424	.000
	2	-1.193	.422	.033
	3	.439	.472	1.000

MIRI: During Reading Self-questioning Prompts

A hierarchical ANCOVA was conducted to determine if the mean scores on the MIRI post-test for during reading self-questioning prompts differed based on condition (control, comparison, or experimental) when controlling for the MIRI pre-test and nesting for the classroom (teacher). The assumption of normality was satisfied with examination of the residuals in all areas except the Shapiro-Wilk test for normality ($SW = .962$, $df = 124$, $p = .002$). Skewness (.738) and kurtosis (1.980) statistics suggest the assumption of normality was met. Visual examination of the histogram, boxplot, and Q-Q plot also suggest normal distribution with no outliers. Considering the evidence suggesting normal distribution, it is reasonable to conclude that the assumption of normality was met. Table 20 presents the data testing for ANCOVA assumptions.

Table 20: *Results of Assumptions Testing for MIRI Post-Test During Reading Self-Questioning*

Assumption	Test	Evidence	Assumption Satisfied?
Homogeneity of Variance	Levene's Test	F (5,118) = 2.240, p = .055	Yes
Normality	Shapiro-Wilk	SW = .962, df = 124, p = .002	No
	Boxplot/Histogram	Relatively normal distributional shape	Yes
	Skewness	.738	Yes
	Kurtosis	1.980	Yes
Linearity	Scatterplots	Positive linear relationship	Yes
Homogeneity of Regression Slopes	Interaction of Covariate and Independent Variable	F (2,116) = .888, p = .414	Yes

As shown in Table 21, the hierarchical ANCOVA results suggest a significant effect of the covariate, MIRI pre-test for during reading self-questioning prompts, on the dependent variable MIRI post-test for during reading self-questioning prompts (F_{pretest} = 32.499; df = 1, 119; p = .000). There was a significant effect for condition on the mean scores of the MIRI post-test for during reading self-questioning prompt use ($F_{\text{condition}}$ = 54.751; df = 2, 3; p = .004). More specifically, there was a significant difference between the control group (*Adj. M* = 1.833; *SD* = 1.698) and the comparison (*Adj. M* = 4.619; *SD* = 2.604; p = .000) and experimental (*Adj. M* = 5.557; *SD* = 3.002; p = .000) groups. There was not a significant difference in mean scores of the MIRI post-test for during reading self-questioning prompt use between the comparison and experimental groups (p = .193). There was not an overall significant difference between classes

within conditions ($F_{classroom}$ = .571; *df* = 3, 117; *p* = .635). There was a large effect and strong power (partial $\eta^2_{condition}$ = .973, observed power = .998) as determined by Cohen (1988). This translates to approximately 97% of the variance in MIRI during reading strategy use post-test scores can be accounted for by condition.

Table 21: *Hierarchical ANCOVA Results for the MIRI Post-Test for During Reading Self-Questioning Prompts*

Hierarchical ANCOVA: Test of Between-Subjects Effects								
Source		Type I Sum of Squares	df	Mean Square	*F*	Sig	Partial Eta Squared	Observed Power
Intercept	Hypothesis	1928.395	1	1928.395	676.523	.000	.996	1.000
	Error	8.264	2.899	2.850				
MIRI Pre-Test During Reading Questions	Hypothesis	162.622	1	162.622	32.499	.000	.215	1.000
	Error	593.184	118.545	5.004				
Condition	Hypothesis	314.521	2	157.261	54.751	.004	.973	.998
	Error	8.628	3.004	2.872				
Classroom (Condition)	Hypothesis	8.615	3	2.872	.571	.635	1.712	.165
	Error	588.847	117	5.033				

MIRI: After Reading Self-questioning Prompts

A hierarchical ANCOVA was conducted to determine if the mean scores on the MIRI post-test for after reading self-questioning prompts differed based on condition (control, comparison, or experimental) when controlling for the pre-test and nesting for the classroom (teacher). The assumption of normality was satisfied with examination of the residuals in all areas except the Shapiro-Wilk test for normality ($SW = .910$, $df = 124$, $p = .000$). Skewness (1.139) and kurtosis (1.181) statistics suggest the assumption of normality was met. Visual examination of the histogram, boxplot, and Q-Q plot also suggest normal distribution with no outliers. Considering the evidence suggesting normal distribution, it is reasonable to conclude that the assumption of normality was met. Table 22 presents the data testing for ANCOVA assumptions.

Table 22: *Results of Assumptions Testing for MIRI Post-Test After Reading Self-Questioning*

Assumption	Test	Evidence	Assumption Satisfied?
Homogeneity of Variance	Levene's Test	F (5,118) = 1.345, p = .250	Yes
Normality	Shapiro-Wilk	SW = .910, df = 124, p = .000	No
	Boxplot/Histogram	Relatively normal distributional shape	Yes
	Skewness	1.139	Yes
	Kurtosis	1.181	Yes
Linearity	Scatterplots	Positive linear relationship	Yes
Homogeneity of Regression Slopes	Interaction of Covariate and Independent Variable	F (2,116) = .919, p = .402	Yes

As shown in Table 23, the hierarchical ANCOVA results suggest a significant effect of the covariate, MIRI pre-test for after reading self-questioning prompts, on the dependent variable MIRI post-test for after reading self-questioning prompts (F_{pretest} = 16.687; df = 1, 109; p = .000). There was not a significant difference in mean scores on the MIRI post-test for after reading self-questioning prompts between conditions ($F_{\text{condition}}$ = 8.732; df = 2, 3; p = .060) or classes ($F_{\text{classroom}}$ = 1.138; df = 3, 117; p = .337). There was a large effect and moderate power (partial $\eta^2_{\text{condition}}$ = .859, observed power = .555) as determined by Cohen (1988). This translates to approximately 86% of the variance in MIRI after reading self-questing prompts post-test scores can be accounted for when controlling the covariate.

Table 23: *Hierarchical ANCOVA Results for the MIRI Post-Test for After Reading Self-Questioning Prompts*

Hierarchical ANCOVA: Test of Between-Subjects Effects								
Source		Type I Sum of Squares	df	Mean Square	*F*	Sig	Partial Eta Squared	Observed Power
Intercept	Hypothesis	162.613	1	162.613	106.883	.002	.974	1.000
	Error	4.329	2.845	1.521				
MIRI Pre-Test After Reading Questions	Hypothesis	22.431	1	22.431	16.687	.000	.133	.982
	Error	146.576	109.039	1.344				
Condition	Hypothesis	26.552	2	13.276	8.732	.060	.859	.555
	Error	4.366	2.872	1.520				
Classroom (Condition)	Hypothesis	4.547	3	1.516	1.138	.337	.028	.300
	Error	155.857	117	1.322				

Research Question Four

Question 4: Does STRUCTURE Your Reading (SYR) with digital, eighth grade social studies text produce greater overall reading comprehension gains as measured on a standardized measure than SYR with paper-based texts or typical social studies instruction alone?

A hierarchical ANCOVA model was generated to determine if the mean raw score achieved on the DRP differed based on study condition. The independent variable was group (control, comparison, or experimental), the dependent variable was DRP post-test raw score, the hierarchical factor was classroom (teacher), and the covariate was the DRP pre-test raw score. The DRP does not report overall standard scores. Raw scores were used for analysis as they are more appropriate than stanines or percentile scores for ANCOVA. Table 24 presents the data testing for ANCOVA assumptions.

Table 24: *Results of Assumptions Testing for the DRP Post-Test Raw Score*

Assumption	Test	Evidence	Assumption Satisfied?
Homogeneity of Variance	Levene's Test	F (5,118) = .620, p = .685	Yes
Normality	Shapiro-Wilk	SW = .991, df = 124, p = .622	Yes
	Boxplot/Histogram	Relatively normal distributional shape	Yes
	Skewness	.235	Yes
	Kurtosis	.008	Yes
Linearity	Scatterplots	Positive linear relationship	Yes
Homogeneity of Regression Slopes	Interaction of Covariate and Independent Variable	F (2,116) = .168, p = .845	Yes

As noted in Table 25, the ANCOVA results indicate a statistically significant effect of the covariate, DRP pre-test raw score, on the dependent variable, DRP post-test raw score (F_{pretest} = 215.442; df = 1, 19; p = .000). However a statistically significant effect was not found for the condition ($F_{\text{condition}}$ = .948; df = 2, 3; p = .480). A statistically significant effect was found for classes ($F_{\text{classroom}}$ = 3.588; df =3, 117; p = .016). More specifically, there was a significant difference between one control group class and comparison classes (p = .045) and experimental classes (p = .001). There was no difference found between the two control classes (p = .052). There was no difference found between comparison and experimental classes (p = .736). Finally, there was no difference between the other control group class and the comparison classes (p = 1.000) or the experimental classes (p = 1.000). There was a small effect and weak power (partial $\eta^2_{\text{condition}}$ = .387, observed power = .113) as determined by Cohen (1988). This

translates to approximately 38% of the variance in DRP post-test raw scores can be accounted for when controlling the covariate. Table 26 outlines the differences found between classes on the DRP post-test raw score.

Table 25: *Hierarchical ANCOVA Results for the DRP Post-Test Raw Score*

Hierarchical ANCOVA: Test of Between-Subjects Effects								
Source		Type I Sum of Squares	df	Mean Square	*F*	Sig	Partial Eta Squared	Observed Power
Intercept	Hypothesis	128194.911	1	128194.911	678.643	.000	.996	1.000
	Error	555.608	2.941	188.899				
DRP Pre Raw Score	Hypothesis	15259.370	1	15259.370	215.442	.000	.918	1.000
	Error	1362.580	19.238	70.828				
Condition	Hypothesis	348.803	2	174.401	.948	.480	.387	.113
	Error	552.077	3.001	183.958				
Classroom (Condition)	Hypothesis	552.137	3	184.046	3.588	.016	.084	.779
	Error	6001.778	117	51.297				

Table 26: *Pairwise Comparisons for Class Differences for DRP Post-Test Raw Score*

Class	Class	Mean Difference	Standard Error	Sig
1	2	2.491	1.602	.736
	3	2.139	1.879	1.000
	4	8.092	2.029	.001
2	1	-2.491	1.602	.736
	3	-.352	1.877	1.000
	4	5.602	2.056	.045
3	1	-2.139	1.879	1.000
	2	.352	1.877	1.000
	4	5.954	2.233	.052
4	1	-8.092	2.029	.001
	2	-5.602	2.056	.045
	3	-5.954	2.233	.052

Social Validity

To ensure the social validity of the SYR instructional protocol, surveys were given to the comparison and experimental condition teachers and students. Overall both teachers and students were satisfied with the SYR instructional protocol. Feedback for both measures will be presented separately.

Teacher Survey

Both teachers across comparison and experimental classes completed the Social Validity Survey for Teacher Participants. Responses were very similar for all questions. Teachers felt the SYR protocol was very beneficial and had a positive impact on the students. They noted improved test scores, even for students in the lowest percentiles of the classes, and students with classroom motivation and engagement challenges. Both teachers felt it would have been even more beneficial if the SYR instructional protocol had been introduced and implemented at the start of the school year (this study was implemented during the fourth week of the school year). Additionally, both teachers reported satisfaction with the increased use of metacognitive questions and strategies by students in the participating classes. Finally, both teachers felt that the SYR instructional protocol was effective and would recommend to their colleagues. They did not feel the use of the protocol within their content area class detracted from their instructional time or goals. One teacher noted that the use of the protocol allowed for more efficient and independent student work.

Student Satisfaction Survey

All students in the comparison and experimental classes (n = 81) completed the Student Satisfaction Survey. The Survey asked students to rate on a likert satisfaction scale of 1 (completely dissatisfied) to 7 (completely satisfied) their satisfaction with the SYR instructional protocol. The Survey is not anonymous, and students are asked to put their name as well as teacher on the Survey. The majority of students reported being completely or almost completely (56% in comparison group, 70% in experimental group) satisfied with the SYR instructional protocol allowing them to understand how to be a strategic reader. Students also overall rated the SYR instructional protocol as an effective means of improving their class grades (65% in comparison group, 74% in experimental group) and assignments (70% in comparison group, 74% in experimental group) with satisfied or completely satisfied ratings. Feedback regarding the time and effort to learn the SYR instructional protocol ranged from completely dissatisfied (9% in comparison group, 10% in experimental group) to completely satisfied (46% in comparison group, 50% in experimental group) as reported on the survey. It should be noted that the overwhelming majority of students that rated dissatisfaction were 1) English language learners, 2) Exceptional education students, or 3) male. Feedback from the students given in class to the researcher was more positive in nature. Finally, students were satisfied with the SYR instructional protocol's effectiveness for helping to increase metacognitive questions (63% comparison group, 72% experimental group) and strategies before, during, and after reading (60% comparison group, 80% experimental group). Reliability was calculated and determined to be very high (r = .938). Table 27 reports the specific ratings for the comparison and experimental groups, respectively.

Table 27: *STRUCTURE Your Reading Student Satisfaction Survey*

	Ratings*						
	1	2	3	4	5	6	7
1. How satisfied are you that the STRUCTURE Your Reading strategy helped you to understand what strategic reading is all about?							
Comparison Group	0	0	5 (11.6%)	14 (32.6%)	11 (25.6%)	6 (14%)	7 (16.3%)
Experimental Group	0	1 (2.6%)	1 (2.6%)	9 (23.7%)	14 (36.8%)	8 (21.1%)	5 (13.2%)
2. How satisfied are you that the STRUCTURE Your Reading strategy helped you to do what you are supposed to do **before** reading?							
Comparison Group	1 (2.3%)	2 (2.7%)	3 (7%)	11 (25.6%)	10 (23.3%)	12 (27.9%)	4 (9.3%)
Experimental Group	0	0	2 (5.3%)	5 (13.2%)	8 (21.1%)	14 (36.8%)	9 (23.7%)
3. How satisfied are you that the STRUCTURE Your Reading strategy helped you to do what you are supposed to do **during** reading?							
Comparison Group	1 (2.3%)	0	4 (9.3%)	10 (23.3%)	10 (23.3%)	9 (20.9%)	9 (20.9%)
Experimental Group	1 (2.6%)	0	1 (2.6%)	3 (7.9%)	12 (31.6%)	10 (26.3%)	11 (28.9%)

Table 27: *STRUCTURE Your Reading Student Satisfaction Survey Continued*

4. How satisfied are you that the STRUCTURE Your Reading strategy helped you to do what you are supposed to do **after** reading?

Comparison Group	0	1 (2.3%)	4 (9.3%)	12 (27.9%)	7 (16.3%)	13 (30.2%)	6 (14%)
Experimental Group	0	1 (2.6%)	2 (5.3%)	5 (13.2%)	9 (23.7%)	14 (36.8%)	7 (18.4%)

5. How satisfied are you that the STRUCTURE Your Reading strategy helped you to understand material that you read?

Comparison Group	0	2 (4.7%)	5 (11.6%)	6 (14%)	8 (18.6%)	10 (23.3%)	12 (27.9%)
Experimental Group	0	1 (2.6%)	1 (2.6%)	3 (7.9%)	7 (18.4%)	11 (28.9%)	15 (39.5%)

6. How satisfied are you that the STRUCTURE Your Reading strategy helped you to ask yourself questions before, during, and after reading?

Comparison Group	2 (4.7%)	2 (4.7%)	4 (9.3%)	8 (18.6%)	10 (23.3%)	7 (16.3%)	10 (23.3%)
Experimental Group	0	0	4 (10.5%)	7 (18.4%)	9 (23.7%)	7 (18.4%)	11 (29.9%)

7. How satisfied are you that the STRUCTURE Your Reading strategy made sense to you?

Comparison Group	1 (2.3%)	3 (7%)	4 (10.5%)	10 (23.3%)	2 (4.7%)	14 (32.6%)	9 (20.9%)
Experimental Group	0	3 (7.9%)	1 (2.6%)	5 (13.2%)	3 (7.9%)	15 (39.5%)	11 (28.9%)

Table 27: *STRUCTURE Your Reading Student Satisfaction Survey, Continued*

8. How satisfied are you that the STRUCTURE Your Reading strategy sound like good questions?

Comparison Group	1 (2.3%)	3 (7%)	3 (7%)	11 (25.6%)	9 (20.9%)	10 (23.3%)	6 (14%)
Experimental Group	1 (2.6%)	1 (2.6%)	2 (5.3%)	9 (23.7%)	13 (34.2%)	5 (13.2%)	7 (18.4%)

9. How satisfied are you that the STRUCTURE Your Reading strategy helped focus your attention on what was important to do in strategic reading?

Comparison Group	1 (2.3%)	1 (2.3%)	5 (11.6%)	9 (20.9%)	6 (14%)	12 (27.9%)	9 (20.9%)
Experimental Group	0	0	1 (2.6%)	5 (13.3%)	10 (26.3%)	8 (21.1%)	14 (36.8%)

10. How satisfied are you that the STRUCTURE Your Reading Prompt Guide helped you remember what questions to ask yourself when reading strategically?

Comparison Group	1 (2.3%)	4 (9.3%)	5 (11.6%)	7 (16.3%)	8 (18.6%)	11 (25.6%)	7 (16.3%)
Experimental Group	0	2 (5.3%)	2 (5.3%)	7 (18.4%)	12 (31.6%)	9 (23.7%)	6 (15.8%)

11. How satisfied are you with this new way of reading as compared to when your teacher didn't use it?

Comparison Group	1 (2.3%)	2 (4.7%)	5 (11.6%)	7 (16.3%)	9 (20.9%)	10 (23.3%)	9 (20.9%)
Experimental Group	1 (2.6%)	1 (2.6%)	3 (7.9%)	9 (23.7%)	7 (18.4%)	7 (18.4%)	10 (26.3%)

Table 27: *STRUCTURE Your Reading Student Satisfaction Survey, Continued*

12. How satisfied are you that the STRUCTURE Your Reading strategy helped you read you class assignments better?							
Comparison Group	1 (2.3%)	0	3 (7%)	9 (20.9%)	8 (18.6%)	16 (37.2%)	6 (14%)
Experimental Group	1 (2.6%)	0	2 (5.3%)	7 (18.4%)	12 (31.6%)	9 (23.7%)	7 (18.4%)
13. How satisfied are you that the STRUCTURE Your Reading strategy helped you to improve your grades?							
Comparison Group	0	3 (7%)	2 (4.7%)	10 (23.3%)	9 (20.9%)	11 (25.6%)	8 (18.6%)
Experimental Group	1 (2.6%)	1 (2.6%)	3 (7.9%)	7 (18.4%)	8 (21.1%)	9 (23.7%)	9 (23.7%)
14. How satisfied are you that the STRUCTURE Your Reading strategy is worth the time and effort to learn?							
Comparison Group	2 (4.7%)	2 (4.7%)	3 (7%)	9 (20.9%)	8 (18.6%)	12 (27.9%)	7 (16.3%)
Experimental Group	1 (2.6%)	3 (7.9%)	2 (5.3%)	7 (18.4%)	6 (15.8%)	10 (26.3%)	9 (23.7%)
15. How satisfied are you that the STRUCTURE Your Reading strategy will be useful whenever you read?							
Comparison Group	2 (4.7%)	3 (7%)	2 (4.7%)	7 (16.3%)	7 (16.3%)	10 (23.3%)	12 (27.9%)
Experimental Group	0	1 (2.6%)	2 (5.3%)	4 (10.5%)	9 (23.7%)	8 (21.1%)	14 (36.8%)

*Where 1 = completely dissatisfied; 4 = neither satisfied nor dissatisfied; 7 = completely satisfied

Note: Comparison group $n = 43$; treatment group $n = 38$

Summary

In this chapter, the results of the study were presented. Results from the first research question found statistically significance differences between conditions on the publisher-created post-test for the second instructional unit. A difference was found between the control group and the comparison and experimental groups. No difference was found between the comparison and experimental groups. Results from the second research question found statistically significant differences between conditions in all reading phases (before, during, and after) for strategy use. A difference was found between the control group and the comparison and experimental groups. No difference was found between the comparison and experimental groups. Results from the third research question found a statistically significant difference between classes with the use of self-questioning prompts before reading. An overall difference for before reading self-questioning prompts was not found based on condition. A statistically significant difference was found for during reading self-questioning prompts between conditions. A difference was found between the control group and the comparison and experimental groups. No difference was found between the comparison and experimental groups. No statistically significant difference was found between conditions or classes for use of self-questioning prompts after reading. Finally, the results from the fourth question found a statistically significant difference between classes for the DRP raw score. A significant difference was found between one of the control classes and the comparison and experimental classes, but not the second control class. The other control class, however, was found to be not significantly different from any of the other classes

with DRP raw scores. The comparison and experimental classes were not found to be significantly different from each other with DRP raw scores.

Social validity measures showed that teachers and students in both the comparison and experimental conditions felt the SYR instructional protocol was beneficial to improving student work, grades, and overall reading and metacognitive skills.

The final chapter will present a discussion of findings and results. Conclusions drawn based on the data obtained during this study will be presented. Practical implications and future research directions will also be explored.

CHAPTER FIVE: DISCUSSION

The purpose of this study was to determine the effects of a metacognitive, strategic reading, instructional protocol (SYR) on the social studies content mastery, metacognitive abilities, and reading comprehension abilities of eighth grade students with digital texts. The results of the generated hierarchical ANCOVA and factorial ANOVA analyses found the instructional protocol to be significantly effective in the areas of classroom social studies unit test scores, strategy use before, during, and after reading, as well as self-questioning prompt use before and during reading. Statistically significant differences were not found between conditions or classes for self-questioning prompt use after reading or reading comprehension scores. While statistically significant differences were not found in all areas tested, this may be due in large part to the degree of conservatism with the analyses. All students were included in the analyses via use of the ITT analysis. Thus, students that received only a small amount of treatment (less than 30%) with the SYR instructional protocol remained included for analyses. Had students been excluded from analyses for a myriad of reasons (e.g., minimum amount of treatment, maximum amount of absences, minimum FCAT score, exceptional diagnoses, English language learner), the results may have been found to be significant, or more pronounced. However, exclusions such as these do not allow for true representation of the sample population, nor generalization to other similar populations. This chapter will discuss the overall conclusions

as outlined via the findings of each research question, as well as social validity, fidelity of implementation, limitations, practical implications, and recommendations for future research.

Discussion of the Findings

Research Question One

Does STRUCTURE Your Reading (SYR) with digital, eighth grade, social studies texts produce greater social studies unit comprehension scores than SYR with paper-based social studies texts or typical social studies instruction alone?

This research question was examined with the use of two publisher-created unit post-tests. Results from the first instructional unit post-test did not indicate any significant or positive differences between conditions or classes. However, this result was expected as the SYR instructional protocol is designed to allow for student mastery of the protocol in the earlier phases, while the latter phases allow for internalization and use of the newly learned skills, strategies, and questions. Results from the second instructional unit post-test, however did indicate a statistically significant and positive intervention effect between conditions. Although there were no statistically significant differences between the comparison and experimental groups on the second post-test scores, both the comparison and experimental groups performed significantly better on the second unit post-test as compared to the control group. This is critical, as the comparison group used only paper text and the experimental group only digital

text. Thus, it appears that the SYR instructional protocol may be as effective with increasing academic gains when students use digital text as when they use paper text.

While there is previous research supporting the use of SYR with secondary students (Ehren, 2007), that study did not examine gain scores in a subject area. Thus, this study is the first to investigate the effects of the SYR instructional protocol with subject area gains, in this case social studies. This is important for two reasons. The first is to note the effectiveness with both conditions. While digital textbooks in classrooms are becoming more commonplace (Hill, 2010), their use is not universal. Adding support to the use of specific instructional protocols (SYR in particular) to encourage strategic reading and metacognition with digital text (especially those similar to the type used in the current study, containing linear and static features) is pertinent to their expected increased presence in classrooms.

Second, while the SYR instructional protocol is designed to teach students to read strategically and employ metacognitive processes before, during, and after reading, it does not explicitly teach instructional content. Content area success (in this case social studies) and literacy skills are tightly interwoven. The better students are able to read (as well as discuss and write) within a domain, their content area knowledge expands (Jetton & Alexander, 2004). Thus, the use of the SYR instructional protocol within a content area is crucial for gains in both domain knowledge and strategic reading practices. With students in both comparison and experimental classes demonstrating significantly better post-test scores compared to the control group, it can be reasonably concluded that the protocol's effectiveness transfers to classroom performance gains.

Research Question Two

Does STRUCTURE Your Reading (SYR) with digital, eighth grade, social studies text produce greater use of reading comprehension strategies before, during, and after reading than SYR with paper-based social studies texts or typical social studies instruction alone?

This research question was examined with the use of the MIRI. When studying metacognition, and how adolescents activate metacognition, two areas are investigated: the use of self-questioning prompts and the use of strategies (step by step action oriented procedures). To date, it is unclear if focusing on one over the other results in greater gains for metacognition for adolescents. For the purposes of this study, both self-questioning prompts and strategies were focused on equally in delivery of instruction. The strategies modeled and discussed during the instructional phases were both general (e.g., underlining), and domain-specific (e.g., authorship, source, historical context).

The findings of the current study differ from the previous study with the SYR instructional protocol and strategy use. During a study conducted over the course of a school year, with treatment time totaling 20.3 hours, eighth grade students were found to have no significant difference in strategy use when compared to a control group (Ehren, 2007). The current study, with treatment time totaling 6.47 hours less than the prior study, found significant and positive differences between the comparison and experimental groups with strategy use before, during, and after reading when compared to a control group. It is not yet clear, based on the research available, if a larger dosage over a longer duration yields better results than a smaller, intensive dose over a more concentrated duration (e.g., Wanzek & Vaughn, 2008). Further in the Ehren study, unlike the present study, fidelity of treatment was an issue.

Additionally, the current study did not find differences between the comparison and experimental conditions. This allows for conclusions regarding the effectiveness of the SYR instructional protocol with digital texts for increasing strategy use before, during, and after reading. More specifically, the SYR instructional protocol is an effective method to develop students' metacognitive use of reading strategies at all phases of reading, regardless of the text presentation in a content area classroom with expository text. This finding also adds to the line of research noting that students are able to increase strategy use when explicitly taught how to use strategies when reading (e.g., Brown & Campione, 1986; Gersten et al., 2001; Mills, 2009; National Reading Panel, 2000; Pressley, Borkowski, & Schneider, 1987; Scammacca et al., 2007 Westby, 2006; 2010). However this study is one of the first to examine the effects of strategy instruction with digital texts. While shown to be effective with digital texts, it is worthy to note again that the digital text used in this study was not a non-linear, interactive text. To allow for equitable comparison between the treatment groups, the digital text used in this study was static, and identical to the paper textbook (except for the specific state standards listed at the start of the text, which students in either condition did not utilize). The results allow for reasonable conclusions that students are able to increase strategy use before, during, and after reading, regardless of text modality, when explicitly taught using the SYR instructional protocol.

Support for these conclusions was noted as students in comparison and experimental groups used strategies that they noted using in each phase of reading (before, during, and after). Strategies such as underlining, highlighting, taking notes, and identifying organizational supports (e.g., headings and titles) were present on the students' MIRI post-tests. Such examples were not present for students in the control group. It is also worthy to note that while significant and

positive differences were found between conditions for strategy use, given the limited time frame of the current study the "zoom in" component of SYR was not implemented. This portion of the SYR protocol allows for intensive and individualized work with various skills and strategies, as students may need. This exclusion limits the robustness of the full SYR instructional protocol. It should be noted that differences between conditions might have been more significant had the "zoom in" phases been able to be included.

Additionally, qualitative observations made during instructional class time revealed that students in the experimental group used such strategies consistently when reading the digital textbook. Students in the experimental group had the opportunity to highlight and underline text, enlarge pictures, make notes in margins, and note text organizational supports (e.g., headings) with highlighting as well. Students in the comparison group were not able to do the same as they were using classroom copies of the paper textbook and prohibited from marking in the textbook. While this limitation for the comparison group did not statistically impact the results, it is noteworthy, as perhaps the ability to do so would then generalize to other classes and readings (as noted with the experimental group generalizing such strategies to other paper-based tasks in the classroom).

Research Question Three

Does STRUCTURE Your Reading (SYR) with digital, eighth grade, social studies text produce greater use of self-questioning prompts before, during and after reading than SYR with paper-based texts or typical social studies instruction alone?

This research question was examined with the use of the MIRI. As noted with the previous research question, the use of self-questioning prompts and strategies both activate metacognition, but it is not clearly understood if one is more beneficial for adolescents. Both self-questioning prompt use and strategy use require metacognitive self-prompting, just in a different form. The current study focused on both areas equally. Furthermore, both generic self-questioning prompts (e.g., "Why am I reading this?") and domain-specific self-questioning prompts (e.g., "What influence does this historical document have on society today?") were employed during the course of the study.

Various results were found for each phase of reading (before, during, and after). Results for use of self-questioning prompts before reading was not found to be significantly different between conditions. However, significant differences were found between classes (teachers). The classes for teacher 1 (experimental and comparison conditions) were found to be significantly and positively different from classes for teachers 3 and 4 (both control), but not from the classes for teacher 2 (experimental and comparison conditions). The classes for teacher 2 were also found to be significantly and positively different from classes for teachers 3 and 4 (both control) but not from the class for teacher 1. The class for teacher 3 was found to be significantly different from classes 1 and 2 (experimental and comparison) but not at all different from the class for teacher 4 (control). Finally, the class for teacher 4 (control) was found to be significantly different from classes for teachers 1 and 2 (experimental and comparison) but not at all different from class 3 (control). Thus, even with statistical significance not being found across conditions, there was significance between classes (teachers) across conditions.

The conclusion that classes differed in their self-questioning prompt use supports findings in the previous study (Ehren, 2007) that also found a significant difference in eighth graders use of before reading self-questioning prompts when compared to a control group. Additionally, this adds support to the line of research that students in classes that are taught how to approach reading tasks in a metacognitive fashion are able to use self-questioning prompts with a greater frequency than students that are not explicitly taught that type of approach (e.g., Fordham, 2006; Scammacca et al., 2007; Wilson & Smetana, 2011). Furthermore, students in the comparison and experimental classes were found to ask questions that demonstrated a strategic approach to reading more than students in the control classes. For example, the question "Why am I reading this?" in order to help set a purpose for reading, was asked more in the comparison and experimental classes than in the control classes. This is important to note for practical implications, demonstrating students in treatment groups (regardless of text presentation) approached the use of self-questioning prompts in a more strategic fashion, rather than, for example, asking "Why do I have to do this?".

The second phase of reading, during reading, found a significant difference between conditions for self-questioning prompt use. These findings are in agreement with findings from the previous study with SYR examining the use of self-questioning prompts during reading with eighth grade students. The current study also found a large intervention effect and strong power for self-questioning prompt use during reading. Additionally, the current study did not find differences between the comparison and experimental conditions. This allows for conclusions regarding the effectiveness of the SYR instructional protocol with digital texts for increasing self-questioning prompt use during reading. This finding also adds to the line of research noting

that students are able to increase self-questioning prompt use when explicitly taught how to ask such questions when reading (e.g., Brown & Campione, 1986; Mills, 2009; Westby, 2006; 2010). However this study is one of the first to examine the effects of self-questioning prompt instruction with digital texts. The results allow for reasonable conclusions that students are able to increase their use of self-questioning prompts during reading, regardless of text modality, when explicitly taught.

The last phase of reading, after reading use self-questioning prompts, was not found to be statistically different across conditions or classes. This finding was not expected, as the previous study (Ehren, 2007) found a significant difference with a large effect size. However, the current study had 6.47 hours less than the previous study, and only spanned two instructional units over 25 days of instruction. The previous study spanned a school year, thus allowing for more repeated and long-term exposure to the use of self-questioning prompts after reading. As noted previously, it is not yet clear if increased dosage over an extended duration is more favorable than a more intensely concentrated but smaller dosage over a shorter duration (e.g., Wanzek & Vaughn, 2008). It should be noted, however, that a significant difference of self-questioning prompt use after reading across classes was not found; thus allowing for interpretation that students in the experimental classes using digital texts did not differ significantly from their peers in the comparison classes with the same teacher. Based on this, it may be hypothesized that students receiving the SYR instructional protocol used similar amounts of self-questioning prompts after reading regardless of text presentation. Finally, students in the comparison and experimental classes did use significantly more strategies after reading, and while the use of strategies and self-questioning prompts are related, that relationship is currently unclear.

Although students did not ask more self-questions either before or after reading, they did employ more strategies. An empirical question is whether both types of metacognitive engagement are needed for planful, strategic reading.

Research Question Four

Does STRUCTURE Your Reading (SYR) with digital, eighth grade, social studies text produce greater overall reading comprehension gains as measured on a standardized measure than SYR with paper-based texts or typical social studies instruction alone?

This research question was examined with the use of the DRP, a standardized reading comprehension measure. The DRP utilizes a modified cloze technique to assess reading comprehension. Passages included in the DRP are organized by grade level. The students in this study were all enrolled in eighth grade, thus the eighth grade DRP was administered. There was no significant difference found between conditions with reading comprehension as measured by the DRP raw scores. There was a significant difference for DRP raw scores found between classes (teachers). This result was not expected, yet not entirely surprising. This study included 13.83 hours of instruction for comparison and experimental groups on how to be metacognitive and strategic readers. Yet, the use of a modified cloze technique may not be sensitive to metacognitive or strategic reading processes in terms of the level of processing tapped. As Carlisle and Rice (2004) have noted, cloze procedures may not reliably assess all the processes involved with reading comprehension. Cloze procedures instead may only identify students' lexical knowledge, restrictions with sentence construction, and local knowledge (Snyder,

Caccamise, & Wise, 2005). Carlisle and Rice (2004) further note that higher-level reading comprehension skills (e.g., inferencing) may not be assessed with cloze techniques. Moreover, it is widely reported that the most accurate assessments of reading comprehension involved multiple and varied assessments (e.g., Carlisle & Rice, 2004; Fletcher et al., 2002; Keenan, Betjemann, & Olson, 2008; Snyder, Caccamise & Wise, 2005;) and that determining ability scores with standardized measures may be difficult to ascertain (Fletcher et al., 2002). The time limitations of the current study did not allow for multiple assessments, nor use of in-depth criterion referenced measures. Therefore, these results should be interpreted conservatively.

Additionally, this result may be due to grade-level vocabulary deficits. While the SYR instructional protocol allows for explicit teaching of vocabulary and vocabulary learning strategies (e.g., the "zoom in" component), an extensive amount of time was not allotted for these purposes within the bounds of this study. Yet the relationship of reading comprehension and vocabulary knowledge is a very intricate and robust one (Stahl, 2003). Considering the DRP utilizes grade-level passages, students that may not possess a large or diverse vocabulary (e.g., students with learning disabilities, English language learners) may not perform well on a measure such as the DRP (Carlisle & Rice, 2004; Snyder, Caccamise, & Wise, 2005). Twenty five percent of the sample population identify as exceptional students, and almost 10% identify as English language learners. With a combined total of almost 35% of the sample population across conditions identifying as exceptional and English-learning students, it is not clear whether this number of students impacted results, or if vocabulary is a factor for all students. Furthermore, the majority of ELL and ESE students were in the control group, also making a clear conclusion with reading comprehension on a single measure difficult. While the majority

of ELL and ESE students were in the control group, all students across conditions had comparable pre-test scores. Therefore, based on pre-test scores, it is reasonable to assume the groups were similar in makeup and ability; thus rendering the majority of ELL and ESE students in the control group less of a valid concern. It is clear, however, that vocabulary knowledge is a critical component with successful reading comprehension.

Despite not finding statically significant differences in reading comprehension between conditions, there were practically significant qualitative observations. Students in the comparison and experimental groups were observed to use newly learned strategies and self-questioning prompts during the administration of the DRP. Such observations were made by the researcher during the DRP administration (e.g., students employing quiet self-talk), as well as written observations on the DRP student workbook (e.g., underlining, highlighting, circled words, and notes and questions written in the workbook margins). Students in the control group were not observed to do this. Additionally, when comparing mean raw scores, the comparison (M = 32.49) and experimental (M = 34.50) groups performed with higher mean scores than the control (M = 29.63) group did. Perhaps specific instruction is needed for students to transfer strategic approaches to reading comprehension to assessment measures.

Social Validity

This area was explored with the use of surveys for both teachers and students in the comparison and experimental groups. The social validity of the SYR instructional protocol was necessary to measure for both teachers and students in order to determine 1) if the protocol was

accepted and valued by the participants, and 2) the social importance of the instructional protocol to the participants (Foster & Mash, 1999). Both participating teachers in the comparison and experimental groups found the SYR instructional protocol to be accepted and valued, as well as noted to be continued after the study commenced, regardless of text presentation format. Both teachers also confirmed the SYR instructional protocol was socially important (e.g., resulted in performance improvements with participating classes; resulted in test score gains) and felt it had a positive impact on participating classes, regardless of text presentation format.

Likewise, student participants in both comparison and experimental conditions felt the SYR instructional protocol was accepted, valued, and socially important. Students noted they felt the protocol was "boring" and "took a lot of time" in the beginning phases, yet they recognized they preferred using the protocol to not using it because it enabled them to work more efficiently, and they earned better test grades. Student responses such as this are expected, as it is not unusual for adolescents to note dissatisfaction with additional school tasks until they are able to see the value and efficacy with less time spent on classwork and increased academic success. With these reports it is reasonable to conclude that the SYR instructional protocol is a socially valid protocol for increasing students' metacognitive and strategic approach to reading tasks, regardless of text presentation format.

Fidelity of Implementation

As noted in Table 3, the researcher followed and adhered to the instructional protocol with a high degree of fidelity (100% of randomly selected dates). Therefore it may be concluded

that the SYR instructional protocol as designed for this study can be implemented with fidelity within the confines of a content area classroom, while embedded within content area instruction.

Limitations

This study presents with the following limitations. First, due to the small sample size for participating teachers, it should be noted that randomization might not have prevented bias. Regardless of matching teachers, it was not possible to match on all factors that may have been related to instruction. Second, student familiarity with the technology and interaction with the digital text were not found to be distractions to learning, and no instruction was necessary for students to learn how to use the computers or navigate the digital textbook. Additionally, the demographic makeup of the participating students across conditions was diverse, thereby allowing for reasonable generalization of findings to other geographical locations.

The researcher was present in all comparison and experimental classes for the duration of the study, yet this presence did not detract from student learning. It should be noted that with the researcher present, the classroom teachers were able to attend to student needs and questions as well. In this sense, the presence of the researcher may have added to the students' instructional experience. Furthermore, with experimental classes being conducted in a computer lab, and not in their typical classrooms, student engagement during instructional time may have been reduced. While this was not directly observed, layout of the computer lab differed from the layout of their typical classroom, and may have precluded group discussions and learning. Additionally, the researcher provided extensive written feedback to the students. Such feedback

provided by teachers utilizing the protocol in an independent manner during class times may not be as extensive. Finally, unlike the prior study utilizing the SYR instructional protocol (Ehren, 2007), the customized and condensed instructional protocol used in this study may not allow for direct comparisons of results (e.g., lacking the "zoom in" phase), and the robustness of the protocol utilized in the current study may be limited.

Implications for Practice

This study has many practical implications. The use of digital textbooks in schools is on the rise nationwide (Toppo, 2012). This study adds to the empirical database demonstrating an effective and efficient instructional method with secondary students to increase metacognitive, strategic reading with digital text. It also adds to the research base regarding which reading strategies are successful with adolescents, when using digital texts (e.g., underlining, highlighting, notations). With increasing numbers of students utilizing digital text both in and outside of the classroom, these data support the use of a research-based instructional protocol as an effective means to improve academic performance and promote metacognition with digital literacy.

Content area texts become increasingly complex as students advance through the middle and high school grades, yet explicit and strategic instruction typically decreases (Jetton & Alexander, 2004). The findings of this study add further support to continued instruction with literacy practices, reading comprehension strategies, and metacognitive processes with advanced domain knowledge. Furthermore, research notes that students read non-linear, transformative

digital texts differently from static paper texts (e.g., McKenna et al., 1999). Perhaps one of the primary reasons that positive gains in all areas were seen for the comparison and experimental groups in the current study is that the digital text used was not robust with non-linear, transformational features. It was comparable, interactively speaking, to the paper-based text, and the students could not navigate away from the text to other outside websites.

Additionally, with a maximum of 13.83 total treatment hours spent teaching students the SYR instructional protocol within their social studies class, these data add further empirical support to the efficacy of this protocol for improving academic performance and application of metacognitive reading skills in a content area class, regardless of text presentation format. Specific literacy skills, requirements, and strategies in the various content areas and metacognition skills are shown to be necessary as an instructional component in content areas, yet teachers may not incorporate with instruction due to the belief that doing so is both time and labor intensive (Draper & Siebert, 2010; NASSP, 2006). These data prove otherwise, and support the findings that not only do students make gains with academic material; they also learn to approach higher-level content area texts in a strategic fashion.

Moreover, the data also support Vacca's (2002) recommendation of "minilessons" embedded within daily academic instruction. Meaning, content area teachers can successfully embed strategic and metacognitive literacy instruction within their instructional lessons without detracting from the necessary academic content. The SYR instructional protocol is designed to be individualized to each teacher, classroom, context, etc. Therefore, teachers may design a similar instructional protocol to allow for literacy or metacognitive, strategic "minilessons" during daily instruction, as they see the need. Additionally, the "zoom in" component of the

SYR instructional protocol allows interventionists (e.g., support teachers, speech-language pathologists) to focus intensively and specifically on areas in which the student needs further instruction. Such areas may include skills (e.g., main idea, predicting, or inferencing), goal specific strategies (e.g., paraphrasing), further explicit vocabulary instruction, and higher-level cognitive tasks (e.g., constructing graphic organizers and written responses). Furthermore, the SYR instructional protocol allows for collaboration among professionals, so more intensive focus may be provided both in and out of the classroom (with a special education teacher, speech-language pathologist, literacy coach, etc.). Time constraints with the current study did not allow for the "zoom in" component, thus it is expected that those providing such "zoom in" would experience even greater gains in all areas measured.

Finally, this study aims to answer the underlying question of what supports (e.g., instructional practices and interventions by teachers and other professionals) are necessary to help students, including students that struggle with learning in any capacity, as well as those challenged with digital texts. The researcher is a practicing speech-language pathologist (SLP) and supports Halliday's (2004) assertion that language drives learning (Ehren, Murza, & Malani, 2012). The American Speech-Language Hearing Association (ASHA) has declared that SLPs scope of practice includes curricular issues with adolescents, including disciplinary and digital literacies (2010). The increasing language and literacy demands that adolescents encounter in secondary education calls for further research with areas that support the needs of all students. Certainly an SLP may provide substantive contributions by supporting teachers and students directly when language underlies the difficulties students may experience with disciplinary literacy. SLPs approach language and literacy tasks (e.g. listening, speaking, reading and

writing) with a specialized, expert, language knowledge base. SLPs should be considered a crucial and integral collaborator in secondary education settings for this very reason; not to be secluded to an itinerant resource room to focus solely on students' speech production. Collaborating with teachers to focus on language features (or "underpinnings") with disciplinary and digital texts, jointly creating lesson plans to target domain knowledge as well as highlight discipline specific features, and providing direct intervention services with students, are some of the most important and influential services SLPs can provide.

Recommendations for Future Research

This study is the first to examine the use of the SYR instructional protocol with digital texts. Additionally, it is the first study known to examine a strategic reading protocol of any kind with secondary students using digital texts. Therefore, there are several recommendations for future research.

This study found no significant differences between the comparison (paper-based text) and experimental conditions (digital text). However the digital text was not substantially different from the paper text, and presented on a desktop computer with a sizeable screen (15"). The text was not "live" – meaning the students were not able to navigate away from the text to other websites. Furthermore, there were no embedded visual supports (e.g., movies) or supporting content (e.g., audio files or text to speech capabilities). Future research should explore the use of the SYR instructional protocol with more complex digital texts that have such capabilities and features. Moreover, future research may consider examining the use of the

protocol with other digital mediums, such as eReaders, iPads, or laptop computers with smaller screens.

Additionally, the researcher was the interventionist for the duration of this study. The previous study with SYR did not use this design, but rather had teachers attend professional development sessions and carry out the instructional protocol in their classes themselves. However, the total number of instructional hours in the previous study was greater than the current study, and over an entire school year versus two instructional units. Future research should investigate the efficacy and gains of the SYR instructional protocol when teachers are taught how to use the protocol in their classes, yet held to the same total instructional hours as the current study (13.83 hours).

The dosage for the current study was planned prior to the start of the study with the input of others (e.g., researchers, teachers, school administration). Perhaps a smaller dosage of time would still result in significant gains. Future research should examine if there is a minimum dosage required in order for students to show significant gains in academic performance and metacognition, when compared to a control group.

This study was contextualized within standard, eighth grade social studies classes. Standard classes, for the current study site, consisted of students of a range of cognitive abilities, skills, and development, including students with exceptional diagnoses, and students that may struggle with learning tasks. It is reasonable to assume that students in these classes are representative of a typically developing and performing student, with most students falling within one standard deviation of the mean. Academic gains, as well as strategic and metacognitive gains were found with this sample population. Future research should examine

the effectiveness of the SYR instructional protocol with students struggling with literacy and/or academics, as an exclusive study population. Furthermore, while this study was conducted with only social studies classes, future research should investigate the generalization of newly learned metacognitive skills and strategies to other content area classes, albeit with recognition of discipline specific strategies.

The relationship of self-questioning prompts and strategy use with metacognition is not fully understood. This study examined and employed both self-questioning prompts and strategies equally within a content area. Future research should empirically examine if one approach results in greater metacognitive gains with adolescents, or with digital texts.

Finally, this study was limited to eighth grade students. Future research directions may consider including students in earlier grades, perhaps students in the upper elementary grades. With research demonstrating two crucial periods of motivational development or decline at fourth and seventh grades, it would be beneficial to examine the effects of the protocol with students during or shortly after those periods.

Conclusions

The findings of this study revealed a significant improvement in the areas of academic performance and metacognition when students were taught the SYR instructional protocol with digital text. The experimental group did not differ significantly from the comparison group that also received instruction with the SYR instructional protocol, but used paper text. These findings are crucial as they add empirical data supporting the use of a strategic instructional

protocol with secondary students using digital texts. There was not a statistically significant difference found between conditions for reading comprehension. This finding should be interpreted with caution. A single reading comprehension measure was administered (DRP) which utilizes a modified cloze-procedure to assess comprehension. Perhaps a measure utilizing a different approach to assess reading comprehension would result in significant differences. Likewise, a variety of assessments may also show significant differences. Administration of multiple measures was not possible within the confines of this study. Further research is suggested and warranted to continue to investigate the effects of the SYR instructional protocol with a variety of students and digital texts. Considering the national movement towards the use of digital text in the classroom, this study lends support to the use of a research-based instructional protocol as an effective method to improve academic performance and metacognition with digital literacy.

APPENDIX A: INSTITUTIONAL REVEW BOARD APPROVAL LETTER

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **Melissa Malani**

Date: **August 03, 2011**

Dear Researcher:

On 8/3/2011, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review:	Exempt Determination
Project Title:	Effects of a Reading Comprehension Strategy with Digital Social Studies Texts for Eighth Grade Students
Investigator:	Melissa Malani
IRB Number:	SBE-11-07791
Funding Agency:	
Grant Title:	
Research ID:	N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Kendra Dimond Campbell, MA, JD, UCF IRB Interim Chair, this letter is signed by:

Signature applied by Joanne Muratori on 08/03/2011 02:21:01 PM EDT

Joanne Muratori

IRB Coordinator

APPENDIX B: INFORMED CONSENT DOCUMENT

Effects of a Reading Comprehension Strategy with Digital Social Studies Texts for Eighth Grade Students

Informed Consent for an Adult in a Non-Exempt Non-medical Research Study

Principal Investigator(s): Melissa Malani, M.A., CCC-SLP
Faculty Supervisor: Barbara J. Ehren, Ed.D., CCC-SLP

Investigational Site(s): "Local Public School District"
"Local Middle School"

Introduction: You are being invited to take part in a research study with eighth grade Social Studies instruction at "Local Middle School". You have been asked to take part in this research study because you are an eighth grade Social Studies teacher at "Local Middle School". You must be 18 years of age or older to be included in the research study and sign this form.

The person doing this research is Melissa Malani, M.A., CCC-SLP of UCF's Communication Sciences and Disorders Department. Because the researcher is a doctoral student, she is being guided by Dr. Barbara Ehren, a UCF faculty supervisor and Interim Co-Chair in the Communication Sciences and Disorders Department.

What you should know about a research study:

- Someone will explain this research study to you.
- A research study is something you volunteer for.
- Whether or not you take part is up to you.
- You should take part in this study only because you want to.
- You can choose not to take part in the research study.
- You can agree to take part now and later change your mind.
- Whatever you decide it will not be held against you.
- Feel free to ask all the questions you want before you decide.

Purpose of the research study: The purpose of this study is to investigate the effects of a research validated, paper-based reading comprehension strategy with adolescent students using digital texts. The use of electronic or digital text is increasing within school systems. Research shows students employ different reading processes to aid with comprehension of digital text, yet, there are very few data to support the use of traditional reading comprehension strategies with digital text. This study aims to explore the effects of a research validated reading comprehension strategy with adolescents using digital textbooks in a Social Studies class.

What you will be asked to do in the study: Depending on random assignment, you may be asked to provide your typical instruction and simply allow your students to participate in reading assessments. Or, you may be asked to use a research validated reading comprehension strategy in your Social Studies class(es) and allow your students to participate in reading assessments. Finally, you may be asked to

incorporate digital textbooks within the school computer lab, instead of using a paper textbook, use a research validated reading comprehension strategy in your Social Studies class(es) and allow your students to participate in reading assessments. You will be asked to participate in high quality professional development in order to learn the reading comprehension strategy, and collaborate with the principal researcher to deliver the strategy within the context of your Social Studies class(es). You will interact with your own students, you not be asked to instruct students that are not your own. The research study will take place during regular school hours, and you will not be asked to give of your personal time. You may be asked (depending on randomization) to incorporate the use of worksheets and prompt sheets as part of the reading comprehension strategy, as well as collect and maintain these worksheets for researcher pick-up.

Location: The research study will be conducted at "Local Middle School", during school hours, during your regularly scheduled instructional time.

Time required: We expect that you will be in this research study for approximately 6 weeks. All research activities will be conducted during regularly scheduled school hours. You will not be required to spend time outside of school on this research study.

Audio or video taping: You may audio or video taped during this study for fidelity of implementation reliability checks only. The audio or videotapes will be privy only to the researchers and research assistants. They will be kept in a locked cabinet in the primary researcher's office on UCF campus.

Risks: There are no reasonably foreseeable risks or discomforts involved for taking part in this study. Your participation in this study is completely voluntary and will NOT in any way affect your professional review with your administrators.

Benefits: As a research participant you will not benefit directly from this research, besides learning more about how research is conducted. However, the information we gather from this study may be used to help further the research base about reading comprehension strategies and processes for adolescent students utilizing digital texts.

Compensation or payment: There is no compensation, payment or professional development hours for taking part in this study.

Confidentiality: We will limit your personal data collected in this study to people who have a need to review this information. We cannot promise complete secrecy. Organizations that may inspect and copy your information include the IRB and other representatives of TMS and/or UCF.

Study contact for questions about the study or to report a problem: If you have questions, concerns, or complaints, or think the research has hurt you, talk to Melissa Malani, Doctoral Student, Communication Sciences and Disorders Track, College of Education, (407) 340-4167 or by email at MMalani@knights.ucf.edu or Dr. Barbara Ehren, Interim Co-Chair, Department of Communication Sciences and Disorders at (407) 823-4798 or by email at behren@mail.ucf.edu.

IRB contact about your rights in the study or to report a complaint: Research with the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB. For information about the

rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901. You may also talk to them for any of the following:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You want to get information or provide input about this research.

Withdrawing from the study:
If you decide to leave the study, contact the investigator so that the investigator can recruit another participant.

APPENDIX C: INTERVENTION PROTOCOL SUMMARY OUTLINE

Day	SYR Phase
1	Phase 1: MIRI pre-test & unit pre-test
2	Phase 1: DRP pre-test
3	Phase 2: Introduce strategic learning
4	Phase 3: Introduce structured strategic reading
5	Phase 4: Describe & model w/ visual device
6	Phase 4: Describe & model w/ visual device
7	Phase 5: Engage students in using worksheet to STRUCTURE their reading
8	Phase 5: Engage students in using worksheet to STRUCTURE their reading
9	Phase 6: Guide students to respond personally in structuring their reading
10	Phase 6: Guide students to respond personally in structuring their reading
11	Phase 7: Conduct guided practice with social studies text (including partner practice) & begin more targeted work on vocabulary for unknown words and continue throughout
12	Phase 7: Conduct guided practice with social studies text (including partner practice) & begin more targeted work on vocabulary for unknown words and continue throughout
13	Phase 7: Conduct guided practice with social studies text (including partner practice) & begin more targeted work on vocabulary for unknown words and continue throughout
14	Phase 7: Conduct guided practice with social studies text (including partner practice) & begin more targeted work on vocabulary for unknown words and continue throughout
15	Phase 7: Conduct guided practice with social studies text (including partner practice) & begin more targeted work on vocabulary for unknown words and continue throughout
16	Phase 8: Continue guided practice with social studies text (including partner practice) & ensure students know and understand the self prompts
17	Phase 8: Continue guided practice with social studies text (including partner practice) & ensure students know and understand the self prompts
18	Phase 8: Continue guided practice with social studies text (including partner practice) & ensure students know and understand the self prompts *Unit post-test
19	Phase 8: Continue guided practice with social studies text (including partner practice) & ensure students know and understand the self prompts *Unit pre-test
20	Phase 8: Continue guided practice with social studies text (including partner practice) & ensure students know and understand the self prompts
21	Phase 9: Provide independent practice with social studies text & fade the worksheet
22	Phase 9: Provide independent practice with social studies text & fade the worksheet
23	Phase 9: Provide independent practice with social studies text & fade the worksheet
24	Phase 9: Provide independent practice with social studies text & fade the worksheet
25	Phase 9: Provide independent practice with social studies text & fade the worksheet
26	Phase 11: Post assessment (MIRI & Unit Post-Test)
27	Phase 11: Post assessment (DRP)

APPENDIX D: STRUCTURE YOUR READING INSTRUCTIONAL PROCEDURES

STRUCTURE Your Reading Instructional Procedures

1. PRE ASSESS

Outcome: Students demonstrate their current approach to strategic reading and their reading proficiency.

Metacognition in Reading Inventory (MIRI)

Materials	**Cue**	**Do**	**Review**
MIRI protocols for students	Tell students that this is an assessment that will give you information about the way they read and help you to help them be better readers and thinkers. Explain that it is important to do their best so that you can get an accurate picture of what they are good at and where they might need help Reassure them that this test will not affect their grades.	Administer the Metacognition in Reading Inventory, following the instructions in the packet. **Administration Instructions** Distribute the MIRI. Say to students, "The purpose of this activity is to identify what you do to help yourself understand what you read. In the middle column write the questions you ask yourself. In the last column write the strategies you use. Make entries for what you do to help yourself before, during and after reading." (Point out the 3 different sections.) Tell them to ignore the boxes at the bottom of pages 3 and 5. Do **not** remind them of any strategies they have been learning. Give them as much time as they need. Do not prompt them further if they fail to write in the columns.	Today's activity is part of a new program to help you identify effective ways of helping them improve their reading and critical thinking abilities. This test will <u>not</u> affect their grades. Forecast the next assessment activity-the comprehension assessment.

Standardized Comprehension Measure (DRP)

Materials	Cue	Do	Review
Standardized test materials	Tell students that this is an assessment that will give you information about the way they read and help you to help them be better readers and thinkers. Explain that it is important to do their best so that you can get an accurate picture of what they are good at and where they might need help Reassure them that this test will not affect their grades.	Administer the test according to publisher's directions. Will read administration instructions directly from publisher test materials. (Do not read this to students as an accommodation)	Today's activity is part of a new program to help you identify effective ways of helping them improve their reading and critical thinking abilities. This test will <u>not</u> affect their grades. Forecast the next assessment activity. You are going to introduce them to the idea of being strategic learners.

Unit Pre-Test

Materials	Cue	Do	Review
Unit Pre-Test Materials	Tell students that this is an assessment that will give you information about what they already know (background knowledge) about the upcoming unit. Explain that it is important to do their best so that you can get an accurate picture of what they already know and what the teachers need to focus on during the unit. Reassure them that this test will not affect their grades.	Distribute pre-test to all students	Today's activity is part of a new program to help you identify effective ways of helping them improve their reading and critical thinking abilities, as well as assess prior knowledge about the upcoming instructional unit. This test will <u>not</u> affect their grades. Forecast the next activity. You are going to introduce them to the idea of being strategic learners.

2. INTRODUCE STRATEGIC LEARNING

Outcome: Students understand the meaning of strategies and what it means to be strategic.

Materials	Cue	Do	Review
Paper and pencil for students	Review what you did last time in assessment and in general discuss the idea of improving learning. Tell students you are going to introduce them to a way to approach learning that helps guarantee success – success not just for this class, but also for other classes now and in the future. Say that you expect them to participate actively by doing the activity and answering questions when you ask them.	Introduce the idea of strategies and being strategic. Engage them in conversation about sports they may know – highlight the role of strategies in winning the game. Do the "states activity." Give them 60 seconds to write as many of the states as they can. Have them count how many they wrote. Engage them in conversation about how they went about trying to do the task. How many used abbreviations? What else did you do to get a lot written down in 1 minute? Discuss the variety of approaches people used. Call the approach you used to help yourself be successful – a strategy. Discuss whether they switched strategies when one didn't work. Talk about that as an element of being strategic. Tell them the Chinese proverb: If you give a person a fish you feed him for a day. If you teach him to fish you feed him for a lifetime. Tell them you want to teach them to fish. That is you want to help them become strategic learners and doers so that they can be successful when "helpers" are not around. Learning to be strategic when they are reading will be an emphasis in this class. Being strategic means: Planning Thinking about what you are thinking and doing Getting better grades in school Becoming an independent learner Becoming a lifelong learner	Ask students to recap what some of the strategies they used to do the states activity. Review what they learned about being strategic from that activity. Discuss why it is important to be a strategic learner and doer. Forecast the next phase of learning a particular strategy to help them be better readers.

3. INTRODUCE STRUCTURED STRATEGIC READING

Outcome: Students and teacher commit to learn/teach the strategy.

Materials	Cue	Do	Review
Short reading passage for you to use to demonstrate strategic reading Student Prompt Guides Transparencies or PowerPoint of SYR Prompting Steps and Prompting Questions SYR Contract Student folders	Review what students learned last time regarding strategies. Allude to the pre assessment results in general without going into individual scores. Tell students you have a way to help them understand more of what they read. Reading better will help them get better grades and do better on important tests. Say that you expect them to participate actively by watching carefully what you will demonstrate and by answering questions when you ask them.	Introduce strategic reading, using the bicycle metaphor. Acknowledge that some of them may know some strategies but not know how to put them together. Present SYR as a way to package reading strategies. *How many of you have or have had a bicycle? How many of those bikes have gears? Picture yourself on your bike with gears. Grab the gearshift and put it in neutral. Now pedal as fast as you can. How far do you get? That's right you don't move at all. Why? Because you are in neutral. (You can get off your bike now.) Now think about reading. How many of you have ever read a story or a section of a textbook, gotten to the end, but have had no idea of what you read? Well, that's because your brain was in neutral. It wasn't in gear, just like the bike pedaling you just visualized. When your brain is not in gear, meaning you aren't using it actively, (or thinking) you aren't going to get very far with understanding what you have read. How many of you would like to be more successful when you read? What will help you is learning how to activate your thinking when you read before, during and after reading. I have a way to approach reading material that will help you get and keep your brain in gear- to structure your reading in a way that helps you understand. We call this strategic reading*. Link this to other strategies they have learned. Indicate that much of this strategy will be familiar to them. What is new is the way this strategy is put together to help them package what they know into an overall approach to reading. Explain strategic reading by talking about the questions strategic readers ask themselves before, during and after reading. Introduce SYR as a strategy to help them be strategic readers. Show them the Steps and Questions of STRUCTURE. Use the prompt questions of the steps without focusing on the steps per se.	Ask students to recap what they have learned about structuring their reading from the bicycle metaphor and from your demonstration. Discuss what they have learned about strategic reading. Highlight processes before, during and after reading. What students saw you demonstrate and later explain was an approach to strategic reading called STRUCTURE Your Reading. Students will be working in this class to learn this strategy and use it in their other classes as well.

Materials	**Cue**	Do	**Review**
		Model strategic reading with a short reading passage. **Do not use the worksheet or any written materials at this point.** After introducing the strategy using a "think aloud" approach to demonstrate how you use strategic reading. Do not explicitly reference the Steps with the mnemonic at this point; just demonstrate your use of them. For uncovering critical content, summarize the key information orally. For reviewing the reactions of others say something like, "I'm going to check with my friend who also read this piece to see what her reaction was." After modeling, then distribute the Student Prompt Guide and describe explicitly the Prompting Steps and Prompting Questions you used in your model. Use the transparencies or a PowerPoint to name the STRUCTURE Your Reading strategy (use this term with students) and engage students in a discussion of what they saw you do. Inform them that much of this is not brand new to them. They have been taught reading comprehension strategies before. What is unique about this is the way it puts together some of what they know into a package to make it easier to read strategically, like a road map. If students respond that they do not have trouble reading and comprehending, discuss how this will help them when they encounter more difficult text (e.g., high school, technical materials [drivers manual], and college). Obtain a commitment from them to learn the strategy and offer your commitment to teach them in the best way you know and help each one learn the strategy using the contract in Student Materials. Have students put the contract in their folders along with the Student Prompt Guide.	Forecast the next phase when you will describe the strategy with specific steps using a visual device (a worksheet).

4. DESCRIBE AND MODEL WITH THE VISUAL DEVICE

Outcome: Students answer questions about strategic processes before, during and after reading.

Materials	Cue	Do	Review
Student Prompt Guides in their folders Same reading passage in previous lesson. Have it on a transparency or displayed on a computer where you can highlight parts. Transparencies or PowerPoint of SYR Prompting Steps and Prompting Questions SYR Worksheet Transparencies Student Goal Sheet	Tell students that yesterday they were introduced to STRUCTURE Your Reading and they committed to learning it. Today they will be introduced to a visual tool (a worksheet) to help them learn the strategy. Their job is to videotape your demonstration in their heads and to answer questions about what you did.	Review Cluster/Steps/Questions with the Student Prompt Guide. Tell them that a key idea in this strategy is to ask themselves these questions before, during and after reading. Introduce the SYR Worksheet and explain it as a companion piece to the Student Prompt Guide (like peanut butter and jelly; quarterback and star receiver; front wheel and back wheel of a bike) to help them learn the strategic reading package. Explain that the SYR Worksheet and Student Prompt Guide are helpers to teach them to say and do what they need to in order to be strategic readers and get the results they want. They are both meant to be obsolete (a teachable vocabulary moment!) like training wheels on a bike. Remind them that last time, in the first demonstration you did, you did not use any papers. The strategy was in your head. That's their goal as well. <u>Model</u> the process of using the worksheet on an overhead with the previously used reading piece. Instruct students to videotape your performance in their minds and be prepared to answer questions about what you did. Engage students in a dialogue about the way you used the worksheet after each step of your demonstration. For the *Use strategies while reading* Step select one strategy that all the students know. (You may use underlining as a placeholder if they don't know any other strategies.) For the *Uncover critical content* Step list as the product a "Summary Statement." Model the development of this summary on another overhead. Introduce the Student Goal Sheet and help students to complete the first item (since they already made a commitment) and then plan the first few goals.	Today they observed how to use the SYR Worksheet to help them learn to be strategic readers. The idea is that this tool will help them learn how to structure their reading. Later on, they will structure their reading without the help of the worksheet. Review the specific points they made when they played back their mental videotape of your model. Forecast the next phase when they will complete a worksheet while you do one on the overhead.

5. ENGAGE STUDENTS IN USING THE WORKSHEET TO STRUCTURE THEIR READING

Outcome: Students complete a worksheet as a group with teacher direction.

This phase may involve more than one lesson. You will want to engage in this type of activity until students can complete a worksheet with the responses that you have modeled with 80% accuracy.

Materials	Cue	Do	Review
SYR Worksheets for students Student Prompt Guides in their folders Short reading passage (approximately 400 words). SYR Worksheet Overhead Student Goal Sheet	Tell students that yesterday they watched you use the SYR Worksheet to structure your reading. They made a mental videotape of the way you did it. Ask for specific memories of what they observed. Today you will read a passage strategically with the help of the worksheet that you will complete together. You will give examples of specific responses to go in the spaces of the worksheet. For now students can copy your examples. Eventually when they use the worksheets they will write their own ideas.	*Have students read the selection. If there are students who cannot read the passage independently, engage the students in a choral or echo reading.* <u>Model with student enlistment</u> use of the SYR Worksheet with Student Prompt Guide. Students complete their own worksheet as you complete the overhead version. You are still doing most of the work. All together you and the students ask the Prompting Questions out loud. For the *Use strategies while reading* Step select one strategy that all the students know. For the *Uncover critical content* Step list as the product a "Summary Statement." Model the development of this summary on another overhead. Have students copy the summary on the back of their worksheet. ASSESSMENT: Collect worksheets and provide feedback to students on the their responses. At this point just focus on the pieces they have completed and point out what is missing that they need to include. *HINT: Don't get bogged down in any one step. The important thing at this point is to give students a feel for the entire process of strategic reading. Selecting a short passage is crucial!*	Today they took more of an active role in filling out the worksheet with a lot of guidance from you. In fact, you gave them specific responses to write in the spaces. What parts of the process did they find easiest? Most difficult? Forecast the next phase of learning when they will write their own responses on a worksheet that you will do together or set the stage for more work at this phase.

6. GUIDE STUDENTS TO RESPOND PERSONALLY IN STRUCTURING THEIR READING

Outcome: Students complete a worksheet with individualized responses with guidance from the teacher.

This phase will involve more than one lesson. You will want to engage in this type of activity until students can complete a worksheet with their own responses with 80% accuracy.

Materials	Cue	Do	Review
SYR Worksheets for students Student Prompt Guides in their folders Short reading passage (approximately 400 words). SYR Worksheet Overhead Student Goal Sheet Worksheet Mastery Chart	Tell students that previously they took an active role in completing the SYR worksheet with a lot of guidance from you. In fact, you gave them specific responses to write in the spaces. Today you will read a new passage together and you will lead them through strategic reading using the worksheet. Encourage students to write their own words in the response sections of the worksheet.	Have students read a passage. If there are students who cannot read the passage independently, engage the students in choral or echo reading. Guide the students in using the Prompt Steps and Prompting Questions with worksheet <u>(Guided Practice)</u>. Use choral response (all together), to ask the Prompting Questions out loud before they approach the corresponding section of the worksheet. Elicit from students examples of what to write on the worksheet. Instruct them to write more personal responses, different content in some cases, or different wording from your model on the overhead. In the *Run through to preview Step*, they should write at least one vocabulary word they personally do not know. For the *Use strategies while reading* Step select one strategy that all students know or allow them to write one they know that they will use. For the *Uncover critical content* Step list as the product a "Summary Statement." Guide students in the development of this summary. As you are writing it on another overhead, they are writing their own version on the back of their worksheet. For the *Review the reactions of others* Step elicit reactions from students and write 3 examples on the overhead. Tell them to use of one of those examples on their worksheet. ASSESSMENT: Collect worksheets and provide feedback to students on the quality of their responses. Use Worksheet Scoring Guide to score and provide informative and corrective feedback to students.	Today you guided them through strategic reading using the worksheet. What was different about today is that students were trying to word their own responses on the worksheet, even though you were doing it together. Ask what they found to be easy and what was more difficult? Set the stage for more work at this phase. or When students are ready to move on, forecast the next phase of learning when they will structure their reading using a worksheet with help from you.

		PROGRESS MONITORING: Have students begin charting their progress toward mastery of the strategic reading process using the worksheet. Have students keep up with goal sheet completion. *HINT: Again, don't get bogged down in any one step. The important thing at this point is to give students a feel for the entire process of strategic reading. Selecting a short passage is crucial!*	

7. a. CONDUCT GUIDED PRACTICE WITH SOCIAL STUDIES TEXT (Including Partner Practice)

Outcome: Students use the process of structured strategic reading with social studies text, saying self-prompts with help from the teacher.

This phase will involve more than one lesson. You will want to engage in this type of activity until students can complete a worksheet with social studies text with 80% accuracy with your help.

Materials	Cue	Do	Review
SYR Worksheets for students Student Prompt Guides in their folders Short reading passages from the social studies text SYR Worksheet Transparencies (only as needed to clarify) Worksheet Mastery Chart Student Goal Sheet SYR Steps and Questions Check Sheet	Tell students that in the previous phase they worded their own responses on the worksheet, even though you were doing it together. Today you will read a new passage and guide them in completing the worksheet without your model.	Lead students in practicing the Prompting Steps and Prompting Questions associated with each cluster. Have students read a passage. Guide the students in using the Prompting Steps and Prompting Questions with the worksheet (Guided Practice). Instead of responding all together, instruct students to ask the Prompting Questions out load before they approach the corresponding section of the worksheet. Walk around the room to assist students and provide feedback. Only use the overhead as necessary to help students over rough spots. For the ***U****se strategies while reading* Step help students to select strategies that they know. Pair students for the Look Back Cluster (students who are reading the same material). For the ***U****ncover critical content* Step list as the product a "Summary Statement." Guide students in the development of this summary that they can write together with a partner. This same pair can review each other's reactions and write the other's view in Section 8. Instruct them to explain to their partner their success that they will write in Section 9. If students have not done paired work you will have to instruct them in how to do it. Provide and explain rules: • Both contribute. No one person does all the work. • Respect each other's view. • Talk politely (Appropriate word choice, tone of voice, etc.)	This is the first time students used the worksheet without your model. What parts did they find easy? Hard? Did they remember to ask themselves the questions at each step? Review Prompting Steps and Prompting Questions. Summarize your observations of their work. State positives first; then make suggestions on how to improve performance. Do not single out specific students.

Materials	Cue	Do	Review
SYR Self-Check with the Worksheet		Instruct students on how to use the SYR Self-Check with the Worksheet form to monitor their use of the worksheet as a tool. ***HINT: Still keep the passages short so that students can get through the entire process!*** **ASSESSMENT:** • Use Worksheet Scoring Guide to score worksheets and provide informative and corrective feedback to students. • Conduct self-prompt checks periodically in this phase. Use the SYR Steps and Questions Check Sheet to track progress. **PROGRESS MONITORING:** • Have students continue charting their progress toward mastery of the strategic reading process using the worksheet. • Direct students to keep up with goal sheet completion.	Elicit student reactions to paired work. Make specific comments: What was productive? What aspects need to be refined? Set the stage for more work at this phase. or When a student is ready to move on, forecast the next phase when s/he will use a worksheet to structure reading without help from you. At that point s/he will be asked to practice self-prompts silently.

b. BEGIN MORE TARGETED WORK ON VOCABULARY FOR UNKNOWN WORDS AND CONTINUE THROUGHOUT.

Outcome: Students learn unknown vocabulary words.

This process will now become an essential part of your approach to strategic reading.

Materials	Cue	Do	Review
Selected unknown vocabulary words identified in readings	Tell students that they will begin paying attention to words they are reading that they don't know and specific work on vocabulary will become an important part of becoming a strategic reader.	Utilize direct vocabulary instruction and teach vocabulary acquisition strategies. (See Resource Materials for the Vocabulary Scenario Technique and Vocabulary Comprehension Monitoring sheet.) Utilize this technique to teach targeted words. Conduct work regularly with targeted words. **ASSESSMENT:** Administer tests periodically to assess mastery of unknown words.	Keep reminding students of the role vocabulary plays in reading comprehension.

8. a. CONTINUE GUIDED PRACTICE AT WITH SOCIAL STUDIES TEXT (Including Partner Practice)
Outcome: Students use the process of structured strategic reading with social studies text, saying self-prompts with help from the teacher.
This phase will involve more than one lesson. You will want to engage in this type of activity until students can complete a worksheet with materials at their grade level with 80% accuracy with your help.

Materials	Cue	Do	Review
SYR Worksheets for students Student Prompt Guides in their folders Reading passage at the student's grade level (longer than in previous phases) Varied critical content product depending on instruction in Phase 10. Worksheet Mastery Chart Student Goal Sheet SYR Steps and Questions Check sheet SYR Self-Check with the Worksheet	Review work from the previous phases where they learned other skills and strategies to use in strategic reading. Tell students that now is the time for them to apply additional skills and strategies they have learned to more difficult reading. They will work with a partner to read strategically but you will be available to guide them.	Have students practice saying Prompting Steps and Prompting Questions silently. Say the name of the cluster and instruct students to look at their Student Prompt Guide and say the steps and questions in their heads. Do a mastery check for Steps and Questions and record results on the SYR Steps and Questions Check sheet. Have students read a passage. Instruct students to say the self-prompts in their heads before they approach the corresponding section of the worksheet. Encourage students to use any new strategies they learned in Phase #9. Pair weaker and stronger readers for the Look Back Cluster Give as the assignment for Step #7 one of the alternative products you have been working on in Phase #10. Have students use the SYR Self-Check with the Worksheet form to monitor their use of the worksheet as a tool. ASSESSMENT: Use Worksheet Scoring Guide to score worksheets and provide informative and corrective feedback to students. Conduct Self-Prompt checks periodically in this phase. Use the SYR Steps and Questions Check Sheet to track progress. PROGRESS MONITORING: Have students chart their progress toward mastery of the strategic reading process using the worksheet. Prompt students to keep up with goal sheet completion.	They are now working with harder material. Is it more difficult to be strategic when the reading is harder? Elicit specific aspects that they found difficult/ Review prompting questions. Summarize your observations of their work. State positives first; then make suggestions on how to improve performance. Do not single out specific students. Set the stage for more work at this phase. or When a student is ready to move on, forecast the next phase when s/he will work independently.

b. ENSURE THAT STUDENTS KNOW AND UNDERSTAND THE SELF-PROMPTS

Outcome: Students can say the Prompting Steps and Prompting Questions from memory and explain their meaning within strategic reading.

This phase will involve more than one lesson. You will want to engage in this type of activity until students can recall and explain Prompting Steps and Questions with 80% accuracy.

Materials	Cue	Do	Review
SYR Steps and Questions Check Sheet Student Goal Sheet	Review work from previous phase. Tell students that they have been working with SYR for quite a while now. They have had a lot of practice with the process of strategic reading. They have learned a series of Prompting Steps and Prompting Questions. In order to "take the show on the road" to other classes they need to know the process by heart.	(Note: Verbal practice of the Prompting Steps and Questions has been a part of other phases.) Continue to provide verbal practice until they achieve mastery. **ASSESSMENT:** Quiz students orally and in writing to see if they know the steps and prompts. **PROGRESS MONITORING:** Direct students to keep up with goal sheet completion	Set the stage for more work at this phase. Or When a student is ready to move on, forecast the next phase when s/he will work to structure reading without a worksheet. Or Use the worksheet in another class to structure reading in material s/he has to read for that class.

9. a. PROVIDE INDEPENDENT PRACTICE WITH SOCIAL STUDIES TEXT

Outcome: Students use the process of structured strategic reading, saying self-prompts without help from the teacher.

This phase will involve more than one lesson. You will want to engage in this type of activity until students can complete a worksheet with materials at their grade level with 80% accuracy without your help.

Materials	Cue	Do	Review
SYR Worksheets for students Student Prompt Guides in their folders Reading passage at the student's grade level (longer than in previous phases). Include textbook reading. Varied critical content product depending on instruction in Phase 10. SYR Self-Check with the Worksheet	Review work from the previous phase in which they received help from you to read more difficult material strategically with the worksheet as an aid. Tell students that now is the time for them to apply on their own what they have learned. They will work with a partner to read strategically and you will not help them because they need to begin using SYR on their own in other classes and this is a step in that direction.	Have students practice saying Prompting Steps and Prompting Questions silently. Say the name of the cluster and instruct students to look at their Student Prompt Guide and say the steps and questions in their heads. Have students read a passage. Instruct students to say the self-prompts in their heads before they approach the corresponding section of the worksheet. Encourage students to use any new strategies they learned in Phase #9. Pair weaker and stronger readers for the Look Back Cluster. Give as the assignment for Step #7 one of the alternative products you have been working on in Phase #10. Walk around the room and query students as to what is going on in their heads. Have students use the SYR Self-Check with the Worksheet form to monitor their use of the worksheet as a tool.	Did they remember to ask themselves the questions at each stage? Was it harder to say the questions in their heads? Review prompting questions. Summarize your observations of their work. State positives first; then make suggestions on how to improve performance. Do not single out specific students. Ask how the paired work went. What was productive; what aspects need to be refined? Set the stage for more work at this phase. or When a student is ready to move on, forecast the next phase when s/he will demonstrate understanding of SYR and recall of the Prompting Steps and Questions.

		ASSESSMENT: Use Worksheet Scoring Guide to score worksheets and provide informative and corrective feedback to students. Conduct Self-Prompt checks periodically in this phase. Use the SYR Steps and Questions Check Sheet to track progress. PROGRESS MONITORING: Have students chart their progress toward mastery of the strategic reading process using the worksheet. Direct students to keep up with goal sheet completion	

b. FADE THE WORKSHEET

Outcome: Students use Prompting Steps or Prompting Questions while reading without the worksheet in the initiating class.

This phase will involve more than one lesson. You will want to engage in this type of activity until students can explain to you how they engage in the SYR process.

Materials	Cue	Do	Review
Student Prompt Guide Grade level reading material SYR Self-Check without the Worksheet Student Goal Sheet	Review work from the previous phases. Now that they know the Prompting Steps and Questions by heart and have had lots of practice with the SYR process using the worksheet, they should try to be strategic readers without the help of the worksheet. They will try several different ways to fade the worksheet. Tell them that the proof of their success will be on reading comprehension tasks.	Have students read a selection using the Student Prompt Guide to help them structure their reading. You might provide a link by asking them at several stages "What would you be doing now if you were using the worksheet?" As you move around the room, have students explain to you what they are thinking and doing at the point you encounter them. After completing the reading, have students complete the SYR Self-Check without the Worksheet. Pair students and have them explain to each other what they did to structure their reading. You might also consider fading one page of the worksheet first, then the other. Move to having the students write STRUCTURE at the top of their paper and reading without using the Student Prompt Guide. When students are successful you might celebrate with a ceremony to retire the worksheet. **ASSESSMENT:** Use comprehension checks with the material read and provide informative and corrective feedback to students. **PROGRESS MONITORING:** Direct students to keep up with goal sheet completion.	Did they remember to ask themselves the questions at each stage? Was it harder to be strategic without the worksheet? Summarize your observations of their work. State positives first; then make suggestions on how to improve performance. Set the stage for more work at this phase. or When a student is ready to move on, forecast the next phase when s/he will apply SYR in other classes.

10. GENERALIZE SYR TO FUTURE SOCIAL STUDIES UNITS

Outcome: Students use Prompting Steps or Prompting Questions while reading their social studies material.

Will be checked after study completion via future unit test scores.

Materials	Cue	Do	Review
SYR Worksheet SYR Self-Check with the Worksheet Student Goal Sheet	Students have faded the worksheet in this class. They have hit the big time! They are now ready to take the show on the road without the worksheet.	Prearrange with classroom teacher to have students have an assigned social studies reading which will be followed by the SYR Self-Check with the with the teacher interviewing the student about the self-check. Possibly provide the teacher with a SYR Worksheet poster so that the teacher can refer to it in setting the stage for use in his classroom. **ASSESSMENT:** Use comprehension checks with the material read and provide informative and corrective feedback to students. **PROGRESS MONITORING:** Direct students to keep up with goal sheet completion.	Set the stage for more work at this phase. or When a student is ready to move on, forecast the next phase when s/he will fade the worksheet in your class then move back to other classrooms without the worksheet.

11. POST ASSESS
Metacognition in Reading Inventory (MIRI)

Materials	Cue	Do	Review
MIRI protocols for students	Summarize students' work with SYR. Tell students that this assessment will prove how hard they have worked. Explain that it is important to do their best so that you can get an accurate picture of their strategic reading. Reassure them that this test will not affect their grades.	Administer the Metacognition in Reading Inventory, following the instructions in the packet.	Today's activity was an opportunity for students to show how strategic they are in reading. You will also learn whether they need some fine-tuning. Remind them that this test will <u>not</u> affect their grades.

Standardized Comprehension Measure (DRP)

Materials	Cue	Do	Review
Standardized test materials	Summarize students' work with SYR. Tell students that this assessment will prove how hard they have worked. Explain that it is important to do their best so that you can get an accurate picture of their strategic reading. Reassure them that this test will not affect their grades.	Administer the test according to publisher's directions. (Do not read this to students as an accommodation)	Today's activity was an opportunity for students to show how strategic they are in reading. You will also learn whether they need some fine-tuning. Remind them that this test will <u>not</u> affect their grades.

Unit Post-Test

Materials	Cue	Do	Review
Unit Post-Test Materials	Tell students that this is an assessment that will give you information about what they learned from the past social studies unit. Explain that it is important to do their best so that you can get an accurate picture of what they already know and what the teachers need to focus on during the unit. Remind them that this is a unit test **will** affect their grades.	Distribute post-test to all students	Today's activity is part of a new program to help you identify effective ways of helping them improve their reading and critical thinking abilities, as well as assess content learning with use of the new strategy program. This test **will** affect their grades. Forecast the next activity. You are going to ask them for feedback regarding SYR.

12. SATISFACTION SURVEY (see Appendix I)

Students provide feedback regarding SYR processes and impact on learning.

APPENDIX E: FIDELITY OF IMPLEMENTATION CHECKLIST

Interventionist Fidelity Daily Checklist – STRUCTURE Your Reading

Date:_____ Class:_____

Please mark the following key elements as either present (observed) or absent (not observed).

Days 1 & 2	Phase 1: MIRI pre-test & unit pre-test Phase 1: DRP pre-test

Key Elements	**Present**	**Absent**
Establishes baseline levels of reading comprehension, unit knowledge, and strategy use. 1. Tells students this is an assessment that will give information about the way they read and help to be better readers and thinkers 2. Explains importance of doing best work. 3. Reassures will not affect their grades.		
Uses individual student data to make decisions about instruction. **This may have been done outside of class – examine for evidence of this being done.*		
Employs Cue/Do/Review procedures correctly throughout instruction.		
Has students consistently engaged in strategic reading work.		

Interventionist Fidelity Daily Checklist – STRUCTURE Your Reading

Date:_____ Class:_____

Please mark the following key elements as either present (observed) or absent (not observed).

Day 3	Phase 2: Introduce strategic learning

Key Elements	**Present**	**Absent**
Introduces ideas of strategies and being strategic. 1. Uses conversations about sports and "States Activity" 2. Discusses the Chinese proverb about fish and how relates to strategic reading. 3. Reviews what being strategic means 4. Reviews covered material		
Uses individual student data to make decisions about instruction. **This may have been done outside of class – examine for evidence of this being done.*		
Works to promote generalization and conducts maintenance probes.		
Employs Cue/Do/Review procedures correctly throughout instruction.		
Requires students to demonstrate understanding of the concepts of strategic behavior in general and strategic reading specifically.		
Has students consistently engaged in strategic reading work.		
Guides students sufficiently and fades guidance to promote independence in the process of strategic reading.		

Interventionist Fidelity Daily Checklist – STRUCTURE Your Reading

Date:_____ Class:_____

Please mark the following key elements as either present (observed) or absent (not observed). Please watch the video of the complete class session to ensure accurate recording.

Day 4	Phase 3: Introduce structured strategic reading

Key Elements	**Present**	**Absent**
Introduces structured strategic reading. 1. Discusses bicycle metaphor 2. Discusses packaging strategy 3. Relates to past learned strategies 4. Shows prompt questions 5. Models strategic reading via think aloud. 6. Distributes prompt guide after think aloud 7. Engages students in conversation about think aloud 8. Reiterates packaging 9. Obtains a commitment from students 10. Reviews covered material		
Uses individual student data to make decisions about instruction. **This may have been done outside of class – examine for evidence of this being done*		
Works to promote generalization and conducts maintenance probes.		
Employs Cue/Do/Review procedures correctly throughout instruction.		
Requires students to demonstrate understanding of the concepts of strategic behavior in general and strategic reading specifically.		
Has students consistently engaged in strategic reading work.		
Guides students sufficiently and fades guidance to promote independence in the process of strategic reading.		

Interventionist Fidelity Daily Checklist – STRUCTURE Your Reading

Date:_____ Class:_____

Please mark the following key elements as either present (observed) or absent (not observed).

Days 5 & 6	Phase 4: Describe & model w/ visual device

Key Elements	**Present**	**Absent**
Describes and models with visuals 1. Reviews commitment 2. Introduces worksheet as a learning tool 3. Instructs students to "videotape" in their minds and think of questions. 4. Reviews cluster/steps/questions with prompt guide. 5. Introduces worksheet as a companion to prompt guide 6. Discusses goal of worksheet is to internalize and not use for written purposes. 7. Models use of worksheet 8. Engages students in dialogue about how worksheet was used. 9. Selects one common strategy to discuss for strategy use. 10. Discusses "summary statement" for uncovering critical content and models. 11. Introduces goal sheet and plans first goals 12. Reviews covered material		

Uses individual student data to make decisions about instruction. **This may have been done outside of class – examine for evidence of this being done.*		
Works to promote generalization and conducts maintenance probes.		
Employs Cue/Do/Review procedures correctly throughout instruction.		
Requires students to demonstrate understanding of the concepts of strategic behavior in general and strategic reading specifically.		
Has students consistently engaged in strategic reading work.		
Guides students sufficiently and fades guidance to promote independence in the process of strategic reading.		

Interventionist Fidelity Daily Checklist – STRUCTURE Your Reading

Date:_____ Class:_____

Please mark the following key elements as either present (observed) or absent (not observed).

Days 7 & 8	Phase 5: Engage students in using worksheet to STRUCTURE their reading

Key Elements	**Present**	**Absent**
Engages students in worksheet use. 1. Review past class sessions with modeling of worksheet. 2. Ask for recall of what they observed. 3. Provides cueing for reading strategically with the worksheet. 4. Uses choral reading for selected passage. 5. Models with student enlistment of worksheet with prompt guide. 6. Asks prompt questions out loud 7. Selects one common strategy to discuss for strategy use. 8. Discusses "summary statement" for uncovering critical content and models. 9. Models summary statement development 10. Has students copy summary statement. 11. Reviews covered material		
Uses individual student data to make decisions about instruction. **This may have been done outside of class – examine for evidence of this being done.*		
Works to promote generalization and conducts maintenance probes.		
Employs Cue/Do/Review procedures correctly throughout instruction.		
Requires students to demonstrate understanding of the concepts of strategic behavior in general and strategic reading specifically.		
Has students consistently engaged in strategic reading work.		
Guides students sufficiently and fades guidance to promote independence in the process of strategic reading.		

Interventionist Fidelity Daily Checklist – STRUCTURE Your Reading

Date:_____ Class:_____

Please mark the following key elements as either present (observed) or absent (not observed).

Days 9 & 10	Phase 6: Guide students to respond personally in structuring their reading

Key Elements	Present	Absent
Guides personal responses 1. Engages in recall from past lesson with help from teacher 2. Introduces new passage 3. Discusses how teacher will lead how to complete the worksheet 4. Encourages students to respond in their own words. 5. Uses choral reading for selected passage. 6. Asks prompt questions out loud 7. Encourages personal responses 8. Discusses "summary statement" for uncovering critical content and models. 9. Guides summary statement development 10. Encourages gathering of other student reactions 11. Reviews covered material		
Uses individual student data to make decisions about instruction. **This may have been done outside of class – examine for evidence of this being done.*		
Works to promote generalization and conducts maintenance probes.		
Employs Cue/Do/Review procedures correctly throughout instruction.		
Requires students to demonstrate understanding of the concepts of strategic behavior in general and strategic reading specifically.		
Has students consistently engaged in strategic reading work.		
Guides students sufficiently and fades guidance to promote independence in the process of strategic reading.		

Interventionist Fidelity Daily Checklist – STRUCTURE Your Reading

Date:_____ Class:_____

Please mark the following key elements as either present (observed) or absent (not observed).

Days 11- 20	Phase 7: Conduct guided practice with social studies text (including partner practice) & begin more targeted work on vocabulary for unknown words and continue throughout Phase 8: Continue guided practice with social studies text (including partner practice) & ensure students know and understand the self prompts

Key Elements	**Present**	**Absent**
Conducts guided practice with social studies text 1. Review previous lesson 2. Today will complete worksheet w/o teacher model 3. Guide students in practicing prompt steps and questions with each cluster. 4. Walks around room to assist students, ensures engagement 5. Helps students select known strategies 6. Pairs students and guides "summary statement" for uncovering critical content and models 7. If students have not done paired work, teacher provides explicit instructions how to do so: a. Both contribute b. Respect views c. Pragmatics 8. Conducts mastery checks and records results 9. Has students chart progress 10. Has students complete goal sheet 11. Reviews covered material 12. Uses Cue/Do/Review procedures		
Provides targeted work on vocabulary for unknown words 1. Cues to attention to vocabulary 2. Uses variety of direct vocabulary instruction 3. Assesses student learning of new vocabulary terms		
Ensures students know and understand the steps and question prompts of SYR with at least 80% accuracy. **This may have been done outside of class – examine for evidence of this being done.*		
Monitors progress on the process of strategic reading by scoring all worksheets and providing informative and corrective feedback. **This may have been done outside of class – examine for evidence of this being done.*		

Interventionist Fidelity Daily Checklist – STRUCTURE Your Reading

Date:_____ Class:_____

Please mark the following key elements as either present (observed) or absent (not observed).

Days 21-25	Phase 9: Provide independent practice with social studies text & fade the worksheet

Key Elements	**Present**	**Absent**
Provides independent practice with social studies text 1. Reviews guided practice 2. Cues that will not be helping and students will be working on their own with partners 3. Uses Cue/Do/Review procedures 4. Provides rationale for independent work a. Generalization to other classes b. Maintenance c. Internalizing worksheet 5. Prompts students to practice prompt questions and steps silently 6. Pairs weaker readers with stronger 7. Walks around room and asks students what they are thinking 8. Has students engaged in strategic reading work 9. Has students complete self-check worksheet 10. Reviews covered material		
Fades worksheet as students progress 1. Uses variety of methods to fade worksheet 2. Fades sections of worksheet if necessary 3. Reminds students of worksheet components during fading exercises 4. Uses only prompt guide during fading process 5. Has students write 'STRUCTURE' at top of paper w/o using prompt guide 6. Reviews covered material		
Monitors progress on the process of strategic reading by scoring all worksheets and providing informative and corrective feedback. **This may have been done outside of class – examine for evidence of this being done.*		

Interventionist Fidelity Daily Checklist – STRUCTURE Your Reading

Date:_____ Class:_____

Please mark the following key elements as either present (observed) or absent (not observed).

Days 26-28	Phase 11: Post assessment (MIRI, Unit Post-Test, DRP)

Key Elements	**Present**	**Absent**
Conducts post-testing measures: 1. Tells students this is an assessment that will give information about the way they read and help to be better readers and thinkers 2. Explains importance of doing best work. 3. Reminds the unit post-test will affect their grades. 4. Reassures the MIRI and DRP will not affect their grades.		
Uses individual student data to make decisions about instruction. **This may have been done outside of class – examine for evidence of this being done.*		
Works to promote generalization and conducts maintenance probes.		
Employs Cue/Do/Review procedures correctly throughout instruction.		
Requires students to demonstrate understanding of the concepts of strategic behavior in general and strategic reading specifically.		
Has students consistently engaged in strategic reading work.		

APPENDIX F: STUDENT SATISFACTION SURVEY

STRUCTURE Your Reading
Student Satisfaction Survey

Please indicate how satisfied you were with STRUCTURE Your Reading as a way to help you learn to be a strategic reader. Answer each of the following questions by circling the number that best describes how satisfied you were with the devices. A response of **1** says that you were very **dissatisfied**; a response of **7** says that you were very **satisfied**.

	completely dissatisfied			**Neither satisfied nor dissatisfied**			**completely satisfied**
1. How satisfied are you that the STRUCTURE Your Reading strategy helped you to understand what strategic reading is all about?	1	2	3	4	5	6	7
2. How satisfied are you that the STRUCTURE Your Reading strategy helped you to do what you are supposed to do **before** reading?	1	2	3	4	5	6	7
3. How satisfied are you that the STRUCTURE Your Reading strategy helped you to do what you are supposed to do **during** reading?	1	2	3	4	5	6	7
4. How satisfied are you that the STRUCTURE Your Reading strategy helped you to do what you are supposed to do **after** reading?	1	2	3	4	5	6	7
5. How satisfied are you that the STRUCTURE Your Reading strategy helped you to understand material that you read?	1	2	3	4	5	6	7
6. How satisfied are you that the STRUCTURE Your Reading strategy helped you to ask yourself questions before, during, and after reading?	1	2	3	4	5	6	7
7. How satisfied are you that the STRUCTURE Your Reading strategy made sense to you?	1	2	3	4	5	6	7
8. How satisfied are you that the STRUCTURE Your Reading strategy sound like good questions?	1	2	3	4	5	6	7
9. How satisfied are you that the STRUCTURE Your Reading strategy	1	2	3	4	5	6	7

helped focus your attention on what was important to do in strategic reading?							
10. How satisfied are you that the STRUCTURE Your Reading Prompt Guide helped you remember what questions to ask yourself when reading strategically?	1	2	3	4	5	6	7
11. How satisfied are you with this new way of reading as compared to when your teacher didn't use it?	1	2	3	4	5	6	7
12. How satisfied are you that the STRUCTURE Your Reading strategy helped you read your class assignments better?	1	2	3	4	5	6	7
13. How satisfied are you that the STRUCTURE Your Reading strategy helped you to improve your grades?	1	2	3	4	5	6	7
14. How satisfied are you that the STRUCTURE Your Reading strategy is worth the time and effort to learn?	1	2	3	4	5	6	7
15. How satisfied are you that the STRUCTURE Your Reading strategy will be useful whenever you read?	1	2	3	4	5	6	7

Student's Name: _____

Teacher's Name: _____

Class Period/Hour: _____

Grade (circle one): 6 7 8 9 10 11 12

APPENDIX G: INTERRATER RELIABILITY FORM FOR MIRI SCORING

Inter-rater Reliability Form for MIRI Scoring

INTER-RATER RELIABILITY SCORES FOR MIRI							
(Scorers – MDM & 2 research assistants)							
	STUDENT NAME	**BQ**	**BS**	**DQ**	**DS**	**AQ**	**AS**
1	Sample, John Q.						
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
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21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

APPENDIX H: INTERRATER RELIABILITY FORM FOR FIDELITY OF IMPLEMENTATION

Inter-rater Reliability Check for Implementation Fidelity

	Date of Sample & class	**RA 1**	**RA 2**	**Reliability %**
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
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23				
24				
25				
26				
27				
28				
29				
30				

APPENDIX I: STRUCTURE YOUR READING TEACHING SCOPE AND SEQUENCE PLAN

Teacher(s):_____ School:_____

SYR Teaching Scope and Sequence Plan

Comparison group using paper-based textbook. Experimental group using digital textbook.

Attendance to be taken every day in all 6 participating classes.

	PHASE	OUTCOME	ANTICIPATED DATE/TIME	NOTES
1	PRE ASSESSSING MIRI – Pre Standardized comprehension measure (DRP) Unit pre-test	*Students demonstrate their current approach to strategic reading and their reading proficiency.*	MIRI & Unit pre-test: DRP:	*Dates listed here are tentative. Final protocol dates will be decided upon with SS teachers. Dates provided here are approximations to when implementation is anticipated. Times will be decided when final SS class schedule and participating teachers are confirmed
2	INTRODUCING STRATEGIC LEARNING	*Students understand the meaning of strategies and what it means to be strategic*	(~20-30 min)	

3	INTRODUCING STRUCTURED STRATEGIC READING	*Students and teachers commit to learn/teach the strategy.*	(~ 20 min)	
4	DESCRIBE AND MODEL WITH THE VISUAL DEVICE	*Students answer questions about strategic processes before, during, and after reading.*	(~20-30 min)	
5	ENGAGE STUDENTS IN USING THE WORKSHEET TO STRUCTURE THEIR READING	*Students complete an SYR Worksheet as a group with teacher direction.*	(~20-30 min)	
6	GUIDE STUDENTS TO RESPOND PERSONALLY IN STRUCTURING THEIR READING	*Students complete a worksheet with individualized responses with guidance from the teacher.*	(~30-40 min)	
7	CONDUCT GUIDED PRACTICE WITH SOCIAL STUDIES TEXT (INCLUDING PARTNER PRACTICE) BEGIN MORE TARGETED WORK ON VOCABULARY FOR UNKNOWN WORDS AND CONTINUE IT THROUGHOUT	Students use the process of structured strategic reading with course textbook material, saying self-prompts with help from the teacher. Students learn unknown vocabulary words encountered in reading.	(embedded during course instruction)	
8	CONTINUE GUIDED PRACTICE WITH SOCIAL STUDIES TEXT (INCLUDING PARTNER	Students use the process of structured strategic reading with course		**Unit post-test at end of week (Unit 4).**

	PRACTICE) ENSURE THAT STUDENTS KNOW AND UNDERSTAND THE SELF PROMPTS	textbook material, saying self-prompts with help from the teacher. Students can say the Prompting Steps and Prompting Questions and explain their meaning within strategic reading.	(embedded during course instruction)	
9	PROVIDE INDEPENDENT PRACTICE WITH SOCIAL STUDIES TEXT a. FADE THE WORKSHEET	Students use the process of structured strategic reading with more difficult material, saying self-prompts without help from the teacher. Students use Prompting Steps or Prompting Questions while reading without the worksheet in the initiating class. or Students use the SYR worksheet in other classes.	(embedded during course instruction)	**Unit pre-test at beginning of week.**
10	**POST ASSESSSING** MIRI – Post Post-unit testing Standardized comprehension measure	*Students demonstrate that they approaching reading strategically.*	**MIRI:** Unit test: DRP:	*2nd post-unit test (Unit 5)
11	**GENERALIZING SYR TO THE REST OF THE SOCIAL STUDIES	***Students use the structured strategic***	**Will be checked**	**Acquisition of following unit**

	UNITS **Entering maintenance phase of study**	***reading Question Prompts while reading their other social studies material***	**approximately 3 weeks post study completion**	**(Unit 4) pre – and post-test scores will allow for maintenance check.**
12	**SATISFACTION SURVEY**	***Students provide feedback regarding SYR process and impact on learning.***	**Done via student survey at end of study**	**Students will complete Student Satisfaction Survey**

APPENDIX J: VALIDITY SURVEY FOR TEACHERS

Social Validity Survey for Teacher Participants

1. What are your overall impressions of the STRUCTURE Your Reading (SYR) strategy?

2. Do you think use of SYR in your social studies class had a positive impact on student unit test scores? Why or why not?

3. Do you think use of SYR in your social studies class had a positive impact on student metacognition (self-questioning) while reading social studies material? Why or why not?

4. 4. Do you think use of SYR in your social studies class had a positive impact on student strategy use while reading social studies material? Why or why not?

5. Do you think students maintained use of SYR past the study timeline? Why or why not?

6. What are your thoughts regarding the amount of time SYR required in your social studies class?

7. How likely are you to use SYR again in future units? Why or why not?

8. How likely are you to recommend SYR to colleagues within your content area? Within other content areas?

APPENDIX K: MIRI SCORING INSTRUCTIONS

MIRI – Scoring Instructions

Scoring Directions:

- We are trying to capture how well the students help themselves understand what they read.
- We look at 7 specific measures:

  - Number of questions they ask themselves before reading
  - Number of questions they ask themselves during reading
  - Number of questions they ask themselves after reading

  } Self-Prompting Questions

  - Number of strategies they use before reading
  - Number of strategies they use during reading
  - Number of strategies they use after reading

  } Strategies

- There is no ceiling for question or strategy points.
- If a strategy is written in a question box or vice versa, or an appropriate response is outside the boxes, credit is still awarded.
- To be credited a response must be pertain to those questions and strategies appropriate to the section; i.e., before, during and after reading. It is possible that a response can be appropriate in more than one section. For example, "Did I remember all the important information?" is a question that might be asked at the very end of the selection <u>during</u> reading; it might also be appropriate to ask that question <u>after</u> reading. In such a case, however, it is only credited once.
- Especially <u>during</u> reading a student may ask an appropriate metacognitive question or use a strategy twice. Award credit for each instance if responses appear next to a different section of the text.
- If "highlighting" or "underlining" is indicated as a strategy, highlighted or underlined text must be present on the paper to award credit.
- If the text is highlighted or underlined, but no explicit statement is made regarding the use of this strategy, do not award credited.
- Responses do not have to be in complete sentences.
- Grammar and spelling errors are ignored.

Point Values:

	What do you ask yourself?	What strategies do you use?
Before Reading	2 points for a question that reflects a strategic approach to reading. 1 point for a specific question about the content of the reading.	1 point for an appropriate strategy.
During Reading	2 points for a question that reflects a strategic approach to reading. (Questions may be repeated for additional credit it they appear in a different section of the text) **1 point for a specific question about the content of the reading.**	1 point for an appropriate strategy.
After Reading	2 points for a question that reflects a strategic approach to reading. 1 point for a specific question about the content of the reading.	1 point for an appropriate strategy.

Examples

Self-Prompt Questions - What do you ask yourself?

	2 points	1 point	0 points
Before Reading	Why am I reading this? What is this about? What is this about (2) and what for (2)? Will I like this? Is this article gonna be interesting? Why is it so important? What kind of things do I look for? Is this fact or fiction? Can it help me? Will I learn or will I read it for fun?	Who wrote this? What kind of bees are killer bees?	Why do I have to do this?
During Reading	How does this apply to me? Do I understand what I'm reading? Why am I reading? What is that word (2); what does it mean (2)? What do these words mean: originated, unwarranted, sub species? Where can I learn more? Is it going to talk about somebody dying? Why did the author talk about snakes?	How big are these bees? What kind of poison do they have? How many guys are in a pit crew (1) and how many pit stops are in a race? (1) What is okay to eat and what isn't? Why are some bees gentle? What is the record for pit stops? I ask myself what kind of cars they drive in NASCAR What the heck is a catchcan?	What is this? I don't understand.
After Reading	What did I just read? What is it about? Did I learn anything? Did I understand? Do I want more information about this?	Could I be on a pit crew?	They are really alike.

Strategies – What strategies do you use?

		1 point	0 points
Before Reading		I read the title (1) and bold words (1) I clear my mind. Hypothesis: I think it's about insects and people. Read the titles. Get in gear. Reading headings (1) and titles (1). Ask questions. Think about the topic. Use skills learned in STRUCTURE Your Reading. Go through quickly; see what it is going to talk about.	I don't know.
During Reading		Make a mental note of the last sentence of the first paragraph and read the next paragraph. Think about things in my life that relate.. Look up words I don't know. Highlight Picture it in my mind. Re-read Look for the answers to my questions. Take notes. I underline the words I don't know (1) and I look them up in the dictionary (1). Look for what's important. Read slowly and pay attention. Look up other information. Skip what's not important and stick to what's important. Ask questions to help me understand. Reading more articles about vitamins.	Remember all the information. Learn from what it teaches. I follow the directions about the vitamins. Just read. Knowing that I will need to know this in the long run.

		1 point	0 points
After Reading		Write a conclusion. I just ignore the words that aren't important. Review what I read (1) and think about it (1)? Go over my notes; make sure I can pass a test. I'll just have to read it again. I like to discuss what we read about. Think about it for a while to see if you learned something.	Take my GED so I can move on to the next level of education. It was interesting. I feel it is good to avoid bees I enjoyed the article. I know more about NASCAR now.

APPENDIX L: STUDENT PROMPT GUIDE

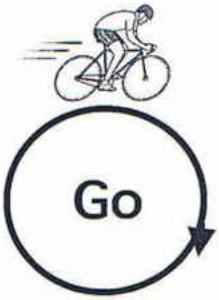
STRUCTURE Your Reading — Student Prompt Guide

Get in gear

S **Set a purpose.**
Why am I reading this?

T **Think about the topic.**
What do I know about the topic?
- From school, other reading, movies, TV
- From personal experience

R **Run through to preview.**
What's coming?
- Identify organizational clues
- Predict content
- Note reader's aids
- Find new words



U **Use strategies while reading.**
What tools will help me?
- Visual Imagery
- Self-questioning
- Paraphrasing
- Summarizing
- Questioning the author
- Making more predictions
- Identifying patterns in text
- Making connections
- Using visual aids
- Using organizers
- Rereading
- Underlining/highlightin

C **Check comprehension.**
Do I understand?
Clarify confusing parts.
How can I figure it out?
Confirm predictions.
Are my guesses right?

Look back

T **Tell your personal reaction.**
What do I think and feel?

U **Uncover critical content.**
What are the key ideas?

R **Review the reactions of others.**
What do others think and feel?

E **Explain your success!**
How did strategies help me?

APPENDIX M: STUDENT LEARNING CONTRACT

STRUCTURE Your Reading
Learning/Teaching Contract

I will do my best to learn the STRUCTURE Your Reading strategy.

Student Signature

Date

I will do my best to teach the STRUCTURE Your Reading strategy.

Teacher Signature

Date

APPENDIX N: SYR STUDENT WORKSHEET

Name:_____ Date:_____Code:_____

STRUCTURE Your Reading Worksheet

GET IN GEAR

GO

LOOK BACK

GET IN GEAR

1. Set a purpose for reading. *Why am I reading this?* **(2)**

Assignment:

Other reason:

2. Think about the topic. *What do I know about the topic?* **(4)**

3. Run through to preview. *What's coming?*

Identify organizational clues **(4)**	Predict content **(4)**
Note reader's aids **(2)**	Find new words **(6)**

Name:_____

STRUCTURE Your Reading

GET IN GEAR

GO

LOOK BACK

4. Use strategies while reading. *What tools will help me?* **(3)**

GO

5. Check comprehension. **(1)** *Do I understand?*

Clarify confusing parts. **(1)** *How can I figure it out?*

Confirm predictions. **(1)** *Are my guesses right?*

LOOK BACK

6. Tell your personal reaction. *What do I think and feel?* **(2)**

7. Uncover critical content. **(15)** **(2)**

What are the key ideas?

What else do I want to know?

Complete assignment

8. Review the reactions of others. *What do others think and feel?* **(2)**

9. Explain your success. *How did strategies help me?* **(1)**

Score: /50

APPENDIX O: STUDENT GOAL SHEET

STRUCTURE Your Reading
Student Goal Sheet - Setting and Reaching Goals

Name:_____ Class:_____

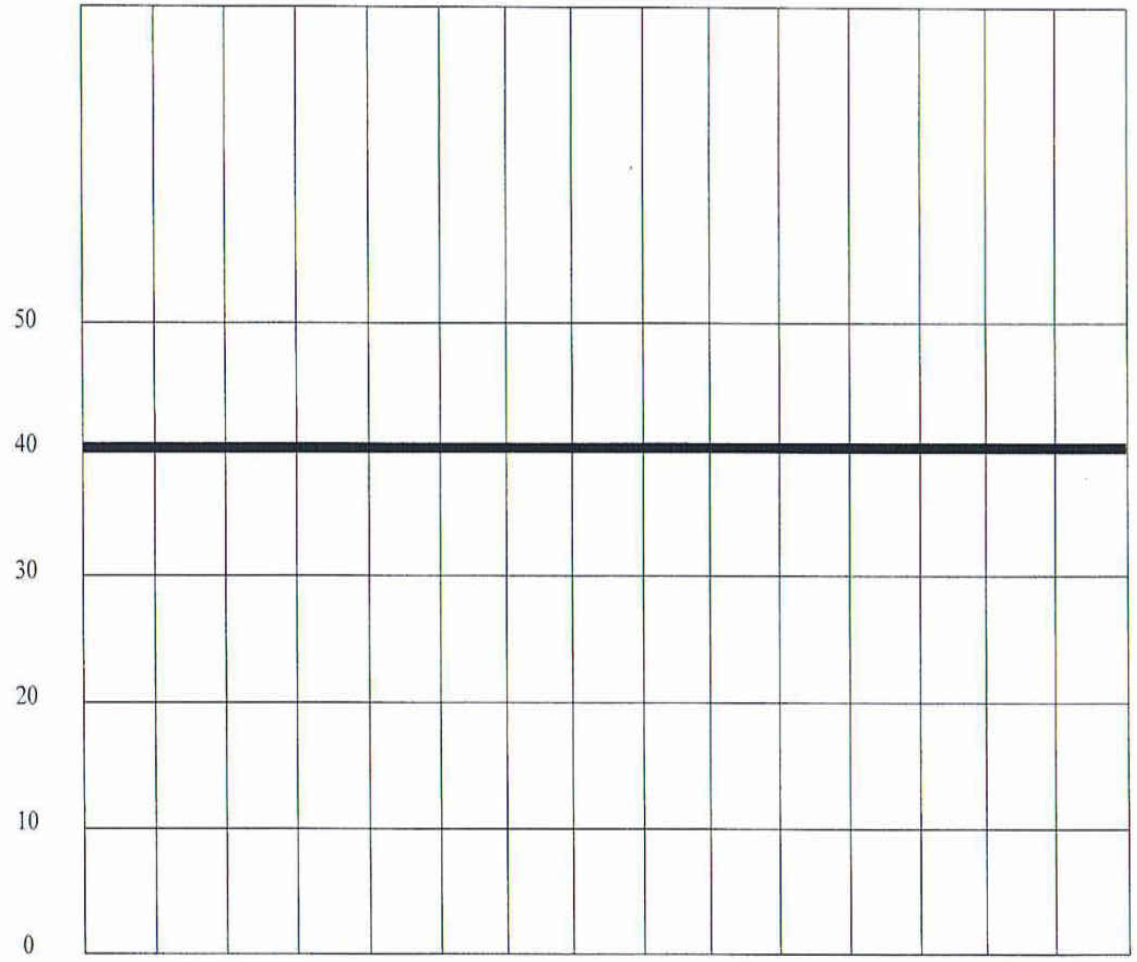
Goal	Date Planned	Date Met	How hard was it?*
I have committed to learning the STRUCTURE Your Reading strategy.			
I can complete an SYR worksheet as a group with teacher direction. (80% accuracy)			
I can complete an SYR worksheet with my own responses with help from the teacher. (80% accuracy)			
I can complete an SYR worksheet with my own responses with help from the teacher with easier readings. (80% accuracy)			
I can complete an SYR worksheet with my own responses without help from the teacher with easier readings. (80% accuracy)			
I can complete an SYR worksheet with my own responses with help from the teacher with harder readings. (80% accuracy)			
I can complete an SYR worksheet with my own responses without help from the teacher with harder readings. (80% accuracy)			
I can say the steps or ask all the questions for Get in Gear, Go and Look Back.			
I can say the steps or ask all the prompt questions for Get in Gear, Go and Look Back in my head.			
I can use the STRUCTURE Your Reading strategy without the worksheet during this class.			
I can use the STRUCTURE Your Reading strategy in my_____ class (with or without) the worksheet.			
I can use the STRUCTURE Your Reading strategy in my_____ class (with or without) the worksheet.			
I can use the STRUCTURE Your Reading strategy in my_____ class (with or without) the worksheet.			
I can use the STRUCTURE Your Reading Strategy outside of school.			
I can use the _____ Strategy during reading.			
I can use the _____ Strategy during reading.			
I can use the _____ Strategy during reading.			
I keep using STRUCTURE Your Reading in my classes. (Probe 1)			
I keep using STRUCTURE Your Reading in my classes. (Probe 2)			
I keep using STRUCTURE Your Reading in my classes. (Probe 3)			

*** 1=Very easy (a no-brainer) 2=Easy 3= In between hard and easy 4=Pretty hard 5=Very hard**

APPENDIX P: WORKSHEET MASTERY SHEET

STRUCTURE Your Reading
Worksheet Mastery

Name:_____ Class:_____



May be reproduced for students.

APPENDIX Q: SELF-CHECK WITHOUT WORKSHEET

SYR Self-Check without the Worksheet

Get in Gear	S		I set a purpose for reading by:
			* asking the prompt question
			* thinking about the assignment and my personal reason for reading the material
	T		I think about the topic by:
			* asking the prompt question
			* thinking about some things I know about the topic or personal experiences I have had.
	R		I run through to preview by:
			* identifying organizational clues (major heading/subheading)
			* predicting content (by identifying specific subtopics I think I will learn about)
			* noting reader's aids (identify the charts, maps, diagrams and other aids)
			* finding new words (looking over the new vocabulary for the material, and finding other words I don't know)
Go	U		I use strategies while I read by:
			* asking the prompt question
			* identifying some best bet strategies I will use and actually using them
	C		I check for comprehension, clarify confusing parts and confirm predictions by:
			* asking the prompt questions
			* acting on my responses (like switching strategies if needed)
Look Back	T		I tell my personal reaction to the reading by:
			* asking the prompt question
			* thinking about at least one feeling, opinion or interpretation that is my own.
	U		I uncover critical content by:
			* asking the prompt question
			* doing the assignment and identifying key ideas
			* thinking about what else I want to know
	R		I review the reactions of others by:
			* asking the prompt question
			* talking with others who have read what I have read and asking what they think and feel
	E		I explain my success by:
			* asking the prompt question
			* saying at least 1 affirmation statement

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