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Gerlinde Grandstaff-Beckers

*Louisiana State University and Agricultural and Mechanical College*

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THE EFFECTS OF A MULTISTRATEGY READING COMPREHENSION  
INTERVENTION ON THE READING SKILLS OF UNIVERSITY ATHLETES  
WITH READING DEFICITS

A Dissertation

Submitted to the Graduate Faculty of the  
Louisiana State University and  
Agricultural and Mechanical College  
In partial fulfillment of the  
requirements for the degree of  
Doctor of Philosophy

In

The Department of Educational Theory, Policy, & Practice

by  
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December 2006

## ACKNOWLEDGMENTS

The research and writing processes of this dissertation have been multifaceted and intricate, tasks that, without the support and guidance of the following people, would not have been possible for me to complete:

First and foremost let me thank my family, starting with Mark Beckers, my husband and best friend, for his unconditional support, encouragement and always being there when I needed him. I must recognize my daughters, Kalie and Emma, for being my motivation, ensuring as any good mentor should, that my homework was always completed as well as giving me the time to complete it, and for giving me strength to fulfill my dreams. I want to thank my parents, Richard and Ej Grandstaff, for their unwavering and unconditional support from the beginning of this process, to the very end; and a very special thank you to my dad for going so far above and beyond your call helping with Kalie, Emma and the horses.

Next, allow me to thank my Committee members: Dr(s) Earl Cheek, Ken Denny, Kristin Gansle, and Paul Hoffman, for their infinite wisdom, patience, and for providing me such a remarkable learning experience. I want to give a special thank you to my Major Professor, Dr. Paul Mooney, for his invaluable guidance, his encouragement and above all his humor.

I must extend thanks to my former colleagues at the Academic Center for Student Athletes: Let me begin by thanking Jeanne Hieronimus, director of directed studies, for making the research study possible, the mentors Jessica Llewellyn, Keith Fernandez, Dejeune Green, Rachel Spear, Ashley Ayo, Lauren

Patton and Jamie McQuarn for their dedication to this experimental research. I must thank Lisa Francis and Anne Marie Egros for their curiosity to learn about experimental research and their dedication to treatment fidelity and interobserver reliability.

Finally, allow me to thank the 2006-2007 freshmen athletes for their instinctive willingness to always “take one for the team!”

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## ABSTRACT

A large number of entering college and university students are unable to derive meaning from print at age-expected levels. The purpose of this study was to determine the effectiveness of *Collaborative Strategic Reading* (CSR; Klingner, Vaughn, Dimino, Schumm, & Bryant, 2001) in improving the reading comprehension skills of underprepared college students. Sixteen (8 experimental and 8 control) first-time male college student athletes entering their freshman year at a research-intensive university in the southeastern United States participated in the study. An experimental design was implemented to address the following research question: What effects does a multistrategy reading comprehension intervention (i.e., CSR) have on the reading comprehension skills of academically underprepared students entering a postsecondary setting? Results showed there were statistically significant findings in favor of the experimental group for an informal dependent measure and non-significant results for a standardized measure. Study implications, limitations, and areas of future research are discussed.

## CHAPTER ONE

### INTRODUCTION

Understanding the written word is the ultimate goal of reading.

Understanding in reading equates to comprehension which Roe, Stoodt-Hill, and Burns (2004) define as a strategic process during which readers simultaneously extract and construct meaning from text. Text comprehension's importance cannot be overstated. The National Reading Panel (NRP; 2000) conducted an evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. The NRP identified comprehension as one of five essential components of effective reading instruction. Deriving meaning from text can be an extremely difficult process for children, adolescents, and adults. The present research focuses on the adult population, specifically academically underprepared college students, meaning students who lack basic skills and prior knowledge and enter postsecondary settings with low-achievement histories (Hock, 1998). This population of students is diverse and includes students from disadvantaged environments and students with learning disabilities.

Available statistics indicate the extent of academic under-preparedness in postsecondary populations is staggering. In 2000, just under 2.4 million freshmen entered degree-granting postsecondary institutions (National Center for Education Statistics; NCES, 2001). Only 51 percent of students who graduated from high school in 2005 met the college readiness benchmark in reading comprehension (ACT, 2005). Moreover, 28 percent of entering freshmen in 2000

enrolled in postsecondary education remedial courses in reading, mathematics, and writing (NCES, 2003a). Of the total freshman population, there were more than 71,000 who reported having a disability, with 40 percent of those reporting having a learning disability (Henderson, 2001). Student-athletes with learning disabilities comprised approximately 2.7% of the total population of student athletes (N4A Committee of Learning Disabilities, 1998).

As mentioned, the number of academically underprepared students is quite large. With such a large population of underprepared college students enrolled in potentially rigorous postsecondary curricula, the likelihood of failure seems high. Yet in spite of this grave mismatch between underprepared students' skill levels and generally demanding curricula, not much research has been published that directly addresses this issue.

The present study builds on a limited literature base in the area of reading comprehension strategy instruction for academically underprepared students entering postsecondary settings. Strategy instruction has been empirically validated to improve the comprehension performance of struggling elementary, middle, and secondary school readers, including students with reading disabilities (e.g., Gersten, Fuchs, Williams, & Baker, 2001). However, the literature has not been extended to postsecondary students in general, and college or university student-athletes in particular.

Research focused on effective reading comprehension strategies for academically underprepared students such as student athletes is critical for three reasons. First, national statistics produced by NCES, ACT, and the National

Assessment of Adult Literacy (NAAL) support the notion that the literacy needs of struggling adolescents and young adults should be addressed. Considerable time and effort has been focused on younger struggling readers in the past decade, with older populations being overlooked. Second, there are two recurring problems in academically underprepared student populations: (a) their under-use of metacognitive skills; and (b) their struggles understanding expository reading materials. Third, although Amey and Long (1998) concluded that early enrollment in developmental courses such as remedial reading increases the likelihood of success for underprepared students, underprepared student athletes who need remediation to develop their basic academic skills have difficulty achieving the degree-percentage requirement mandated by the National Collegiate Athletic Association (NCAA; Meyer, 2005).

Given that Hock and Mellard (2005) have suggested that intervention strategies researched and found effective with younger students can be appropriate for adults with reading deficiencies, the present study was planned and implemented. This pilot study evaluates the effectiveness of a potentially useful tool for college educators charged with addressing the needs of academically underprepared college students. A multistrategy reading comprehension intervention was implemented in a university academic support setting. Sixteen student athletes (8 experimental and 8 control) from a major research extensive university in the southeastern United States were involved in this randomized clinical trial. All student-athletes were attending a tutoring program mandated for freshman scholarship athletes by the NCAA. Consent was

provided for all participants prior to treatment. Participants were randomly assigned to either experimental or control conditions. A pretest-posttest experimental group design was implemented to address the following research question: What effects does a multistrategy reading comprehension intervention, *Collaborative Strategic Reading* (Klingner, Vaughn, Dimino, Schumm, & Bryant, 2001), have on the reading comprehension skills of academically underprepared students entering a postsecondary setting? Dependent measures included one overall reading comprehension score from a standardized instrument (i.e., *Gates-MacGinitie Reading Tests, Adult Reading*, Fourth Edition (MacGinitie, MacGinitie, Maria, & Dreyer, 2000), and one score from an informal reading inventory instrument (i.e., *Qualitative Reading Inventory-4* ; Leslie & Caldwell, 2006).

## CHAPTER TWO

### LITERATURE REVIEW

Reading situations are inescapable. Nearly every aspect of life involves reading. According to the National Research Council (Snow, Burns, & Griffin, 1998), reading is not only a cognitive, psycholinguistic activity, but also a social activity. The ability to read is highly valued and essential for social and economic advancement (Snow et al), and few adults would question the importance of reading in our complex, technological world (Roe, Burns, & Smith, 2005). Reading and reading comprehension are considered to be synonymous because when understanding breaks down, reading actually has not occurred (Roe, Stoodt-Hill, & Burns, 2004).

In schools, reading instruction has become a major priority as a myriad of factors, not the least of which are research (e.g., Adams, 1990), legislation (e.g., No Child Left Behind, 2001), and countless calls for accountability have come together to spotlight what works in public school classrooms. The calls for systematic and explicit instruction in phonemic awareness, phonics, vocabulary, fluency, and text comprehension have been forceful. It would be fair to say that the research community has contributed greatly to our understanding of what is necessary to effectively teach students to read in the primary grades. The same however, cannot be said for reading instruction as students move into the middle grades and beyond. In fact, Roe and colleagues (2004) suggest that systematic approaches to reading instruction often decrease as students enter middle school. Such a reduction in potentially effective reading instruction is unfortunate

given that reading tasks become increasingly more complex as we grow older. Reading success is critical for educational and vocational advancement as well as for the student's psychological well-being (Carnine, Silbert, Kame'enui, & Tarver, 2004).

The National Reading Panel (NRP) was convened in 1997 in response to a congressional directive to review the scientific literature and determine the most effective ways to teach children to read. The NRP identified more than 100,000 reading-related studies and from them selected the experimental and quasi-experimental studies that met rigorous scientific standards for further review. As a result of this investigation, the NRP Report (2000) identified five essential components of effective reading instruction: phonemic awareness; phonics instruction; fluency instruction; vocabulary instruction; and text comprehension instruction. Of those five, text comprehension instruction was described as critically important to the development of students' reading skills, the ability for students to obtain an education, and the ability for persons to learn throughout life (NRP, 2000). Moreover, the NRP Report indicated that comprehension skills should be developed through explicit instruction and practice in comprehension strategies.

Young people should be able to read and write when they graduate from high school. Such skills allow people to continue their education as well as increase the odds that they can earn an adequate salary. Still, there are eight million struggling readers in grades 4-12 in schools across the United States (National Center for Education Statistics; NCES, 2003a). Sixty percent of 12th

graders can be considered to be reading below grade level (Biancarosa & Snow, 2004). The percentage of 12<sup>th</sup> graders reading below grade level has remained remarkably stable over the years. A National Assessment of Educational Progress (NCES, 2000) report entitled, *Trends in Academic Progress: Three Decades of Student Performance*, reported only 37 percent of high school students scored high enough on reading achievement tests to adequately handle college level material, yet almost 70 percent attempt college. An annual report from ACT (2005) analyzing the test scores of 12 million exam takers who graduated from high school in 2005 found only 51 percent of the students met the college readiness benchmarks in reading comprehension. Moreover, 80 percent of college faculty members reported that entering freshmen could not read well enough to do college work (Gray, 1996).

Twenty-eight percent of high school graduates enroll in remedial courses in postsecondary education (NCES, 2003b). In the fall of 2000, 11 percent of entering freshmen were enrolled in remedial reading courses. While several definitions exist, the NCES (2003b) studies provided a definition of postsecondary remedial education as “courses in reading, writing, or mathematics for college-level students lacking those skills necessary to perform college-level work at the level required by the institution” (p.1). In 2005, the National Assessment of Adult Literacy (NAAL) assessed a nationally representative sample of more than 19,000 American adults (people aged 16 years and older living in households or prisons) on measures of English literacy (NCES, 2005). NAAL (2005) defined literacy as “using printed and written



information to function in society, to achieve one's goals and to develop one's knowledge and potential" (p. 2). Prose literacy is the knowledge and skills needed to perform prose tasks (i.e., to search, comprehend, and use information from continuous text). Twenty-three percent of high school graduates and 14 percent of adults aged 16-24 were found to function in the below basic prose literacy level. Below Basic indicates no more than the most simple and concrete literacy skills. The reading capacity of adults at the Below Basic level ranged from being nonliterate in English to having the ability of locating easily identifiable information in short, commonplace text (NCES, 2005). In this context, it makes sense for educational practitioners and researchers to be wholly engaged in ongoing efforts to improve the comprehension skills of academically underprepared students entering postsecondary settings.

Hock (1998) categorized academically underprepared students as students with low-achievement histories, students lacking basic skills and prior knowledge, students from disadvantaged environments, and students with learning disabilities. According to Cukras (2006), these students are not independent, self-regulated learners; therefore, these students are not metacognitively, motivationally, or behaviorally active in their own learning. Grimes (1997) conducted a study on the characteristics, persistence, and academic success of underprepared college students and found that, as a whole, the group demonstrated lower course completion, greater attrition, and more text anxiety than those determined to be college-ready students. Amey and Long (1998) compared successful and unsuccessful underprepared college students

and concluded that the differences in outcomes for the students in the two groups were related to “the actions taken by the students and/or institution while the student was in attendance” (p. 5). Successful underprepared college students had higher high school grade point averages (GPA), enrolled in their first developmental class during the first semester of course work, and were enrolled as full-time students. These students had higher mean college GPAs in their developmental and non-developmental courses. Because of this, these successful students were able to make a transition from developmental to non-developmental courses without adverse affects on their GPAs. Additionally, students in the successful group completed higher levels of developmental coursework in English.

Amey and Long (1998) also indicated that the institution played a role in student success. For example, institutions whose students fared well mandated reading assessment and reading placement for their students as well as the successful completion of a reading course prior to continued enrollment. As a result of these mandates, institutions had a means of quickly identifying students with lower GPAs and intervening with them to avert delays in utilizing the resources available within the college setting. The institution also required mandatory contact with an advisor for all students with low GPAs. Overall, early intervention by an advisor and successful completion of development courses was believed to contribute to persistence and educational goal attainment in the underprepared college students deemed successful.

The present literature review focuses on four areas. First, a recent report outlining reading research and practice implications for underprepared college students will be outlined. Second, two recurring problems in reading comprehension in the areas of metacognition and expository text structures will be addressed. Third, an empirical rationale for the use of reading comprehension strategy instruction for underprepared college students will be provided. Finally, the evidence base related to *Collaborative Strategic Reading* (CSR; Klingner, Vaughn, Dimino, Schumm, & Bryant, 2001) as an intervention for underprepared college students that struggle with reading will be detailed.

#### RESEARCH AND PRACTICE IMPLICATIONS FOR UNDERPREPARED COLLEGE STUDENTS

While statistics (e.g., NCES, 2001; NCES, 2003a,b) and perception (e.g., Gray, 1996) both point to a mismatch between the preparedness of a sizeable percentage of college-bound students and the expectation for independent achievement in the postsecondary environment, there is an alarming lack of empiricism directed at how society addresses this issue. In the past there have been two types of remedial approaches to teaching reading comprehension skills to underprepared college students. The first approach utilized post reading practices where students answered questions after reading. The second practice involved teaching reading comprehension skills as discrete entities (Shenkman & Cukras, 1986). An exhaustive review of the intervention literature on ameliorating the reading deficits of underprepared students uncovered just three intervention related studies. The first study (Cukras, 2006) involved study strategies using expository text. The second study (Taraban & Becton, 1997) incorporated

instructional approaches for preparing students to take standardized reading tests. The third study (Shenkaman & Cukras) investigated explicit metacognitive strategy training.

Cukras (2006)

Cukras (2006) conducted a 13-week study with 19 college students identified as academically at risk. Standardized testing indicated that 95 percent of these students were below college level in one or more basic skills. The students participating in this study were placed in remediation based on the results of the university's mandated basic reading exam. The purpose of the study was to review several strategies and analyze which correlated with test performance. During the first seven weeks extensive training focused on the following study strategies: (a) encoding (extracting); (b) organizing (organizational strategies); (c) monitoring (self-testing) and; (d) employing a study plan. Students applied the strategies to lengthy pieces of college-level expository passages in various academic areas. Textbook chapters from the subjects' core curriculum served as the basis for the ongoing application of the study strategies. Subjects studied the expository chapters that simulated actual learning situations and the investigator collected data during the last three weeks of the study.

Before taking chapter tests, students self-selected the study processes and the associated strategies that they believed would aid them in learning the information from the chapters. When analyzing the relationship between the various study processes and the results on the tests, Cukras (2006) found

monitoring and employment of a study plan were significantly related to the students' test performance. The investigator concluded that monitoring and employing a study plan were the two study processes that were actually statistically and consistently related to test performance. However, no data were provided to support this assertion. In the area of the intercorrelations among the four study processes, Cukras reported that organizing and monitoring were significantly related to the employment of a study plan and extracting was the most frequently used strategy used. Again, however, no data were presented to document these intercorrelations. Cukras stated that study findings supported the notions that the implementation of a study plan plays an important role for the advancement of self-regulated learners and the learning strategy of implementing a study plan does, in fact, facilitate the use of multiple cognitive and metacognitive processes (e.g., planning, selecting, organizing, and monitoring). Taraban and Becton (1997)

Taraban and Becton (1997) conducted a study that compared two instructional approaches for preparing students to take standardized reading tests. Participants (N = 22) were university students who failed a state mandated competency test in reading comprehension. Twenty-nine percent of the students chose a program and the remaining participants were randomly assigned. Students met twice weekly for approximately 80 minutes per session over an eight-week period. A common goal for the programs was to improve students' abilities both to find information in text passages and use that information to answer questions. This goal was pursued using either "lookback" or "annotation"

strategies. Students in the lookback group were taught to look back in the text to confirm their answers to comprehension questions when they were unsure about an answer. Students' instruction consisted primarily of practice opportunities using the lookback strategy in SAT preparation kit reading passages. Throughout the program, students worked individually with a tutor. Tutors for the lookback group were advanced undergraduate psychology majors who participated for research credit.

Students in the annotation group practiced a technique in which they identified key ideas or important points and summarized or paraphrased these in the text margin. This group annotated text and practiced discussing comprehension questions. Materials were selected from a wider corpus of materials than those of the lookback group. Students also spent a significant part of each class involved in free-reading activities. Students worked individually with an instructor and in groups. The instructors for the annotation group were professional staff employed by the university learning center.

A pretest-posttest design was used with 10 reading comprehension passages with corresponding multiple choice questions taken directly from a book of SAT preparation exercises. The 10 passages were divided into two sets with five passages in each set. The purpose for dividing the passages into equivalent sets was to counterbalance the use of each as a pretest and posttest. Data for each group were analyzed separately using paired t-tests for the pretest and posttest data. Alpha was set at 0.05 across three measures: test time, number correct, and number attempted. There were no statistically significant

differences between the pretest and posttest scores in either group. The authors noted several limitations related to the design of this study. This was a comparison of programs, not a pure experiment, and several factors varied simultaneously across the two programs.

Shenkman and Cukras (1986)

Shenkman and Cukras (1986) conducted a study to compare the effectiveness of the LETME (Shenkman, 1986) metacognitive training approach with separate skills training and non-skills comprehension practice in facilitating metacognitive awareness and learning from text. LETME (Shenkman, 1986) is an acronym for an intervention that facilitates explicit strategy instruction centered upon five macrostrategies: Link, Extract, Transform, Monitor, and Extend. Fifty-three college students enrolled in developmental and study skills courses participated in the study. All 53 had standardized reading comprehension scores evidencing significant delays (i.e., 1 to 2 standard deviations below the mean descriptive testing of language skills).

Three reading sections were randomly assigned to one of three treatment groups: Metacognitive training, separate skills training, and comprehension practice. Groups were determined to be equivalent based on ANOVA scores on pretreatment measures of metacognitive awareness, minimal-cued learning performance, and structured-cue learning performance. Treatments were 12 weeks in length and lasted about two hours per week. The same reading selections- expository prose averaging 1,500 words and representing a range of

social studies and science topics were used in each group. Instructors conducted the training and followed uniform grading and attendance procedures.

The experimental treatment group followed the LETME explicit strategy approach which emphasized the metacognitive macrostrategies of Linking, Extracting, Transforming, Monitoring, and Extending. The separate skills treatment group received direct instruction in the study procedures of surveying, identifying the author's cue, underlining, marking, mapping, outlining, summarizing, and critical reading. In the non-skills treatment group, reading selections were followed by class discussions focused on answering researcher developed questions. No direct teaching of comprehension or study strategies occurred in this control group. The dependent measure of structured-cue learning was based on 10 questions designed from information high in text structure from a 1,250-word sociology textbook excerpt. On the minimal-cue test, subjects were asked to explain the major concept of the same selection and were given one point for each of the 10 ideas identified as high in the text structure. Both tests of performance were answered with reference to the text. The dependent measure of metacognition awareness was measured by written self-reports. A coding system was developed to measure responses to the self-reports. Reports were divided into units indicating the completion of a single task. Each unit was classified into a procedural, metacognitive, or non-relevant category. The coding was performed by two raters with an interrater reliability calculated at  $r = .88$ . Separate ANOVAs were computed on the scores obtained from each of the three dependent measures.



Results revealed significant differences among the groups on the minimal-cued performance test scores, the structured-cued performance scores, and self-report scores of metacognition awareness. A Scheffe' analysis of between-groups differences showed that the experimental treatment group was significantly superior ( $p < .01$ ) to the other two groups on the minimal-cued performance test and the metacognition self-report scores. On the structured-cued performance test, the experimental group was significantly superior to the non-skills group ( $p < .01$ ), but not significantly superior ( $p > .05$ ) to the separate skills group. The separate skills group was not found to be significantly superior ( $p > .05$ ) to the non-skills control group on any of the dependent measures. The authors of this investigation suggested that (1) overt strategy instruction training was effective in increasing underprepared college students' awareness of metacognition strategies relevant to learning from expository text; and (2) learning strategies are not intuitively brought into awareness by instruction in study procedures alone.

The previous studies attempted to address the reading skill deficits of underprepared college students through the use of explicit instruction to teach strategies while reading expository materials. Although the methodologies and purposes for conducting each study were different, positive student outcomes were reported in all three studies.

#### RECURRING DIFFICULTIES IN READING COMPREHENSION: METACOGNITION AND EXPOSITORY TEXT STRUCTURES

Two recurring problems in struggling readers relate to the ineffective application of metacognition and expository text structure (Alexander & Jetton,

2000; Gersten, Fuchs, Williams, & Baker, 2001; Goldman & Rakestraw, 2000; Guthrie & Wigfield, 1999; Pressley, 2000; Saenz & Fuchs, 2002). Metacognition awareness and monitoring processes are often referred to in the literature as metacognition, which is the knowledge of the readers' cognition about reading that readers exercise when monitoring and regulating text comprehension (Mokhtari & Reichard, 2002). The research on metacognition and reading comprehension is extensive (Alexander & Jetton; Guthrie & Wigfield; Pressley). Efficient readers are depicted as strategic or constructively responsive readers who carefully formulate cognitive resources when reading. Researchers investigating reading comprehension monitoring among skilled and unskilled readers have long recognized the importance of metacognitive awareness in reading comprehension because it distinguishes between skilled and unskilled readers (Paris & Jacob, 1984). Skilled readers, according to Snow and colleagues (1998), are good comprehenders. They differ from unskilled readers in "their use of general word knowledge to comprehend text literally as well as to draw inferences from texts, in their comprehension of words, and in their use of comprehension monitoring and repair strategies" (Snow et al., p. 62).

According to Garner (1987), reading strategies, defined as "generally deliberate, planful activities undertaken by active learners, many times to remedy perceived cognitive failure" (p. 50), facilitate reading comprehension and may be teachable. Breakdowns related to comprehension of text occur in the domain of strategic processing and metacognition. Students' awareness of their own reading comprehension processes can be enhanced through systematic, direct

instruction and strategic reading can be taught to students who need it through carefully devised instructional techniques (Brown, Armbruster, & Baker, 1986; Paris & Winograd, 1990). Research has been devoted to instructional approaches that focus on the acquisition, generalization, and monitoring of the cognitive and metacognitive abilities needed for successful reading (Gersten et al., 2001).

The second recurring problem in struggling readers relates to poor understanding of expository text structure. Expository text structure is designed to inform or explain information to help readers learn something new. Students must perform fairly complex cognitive tasks to extract, summarize, and synthesize the content of expository text, as it has a greater variety of text structure and unfamiliar vocabulary (Gersten et al., 2001; Mastropieri, Scruggs, Bakken, & Whedon, 1996; Pressley, 2000; Saenz & Fuchs, 2002). Textbooks, newspapers, magazine articles, and manuals are examples of expository text. Evidence indicates that for most students, expository reading poses a greater challenge than does narrative reading (Berkowitz & Taylor, 1981; Horton & Lovitt, 1994; Saenz & Fuchs; Taylor & Beach, 1984).

Research has established that compared to skilled readers struggling readers have more difficulty with expository reading (Paris & Jacob, 1984; Pressley, 2000; Snow et al., 1998). Although many factors may contribute to the difficulty students experience with expository reading, the four most commonly cited are text structure, conceptual density and familiarity, vocabulary knowledge, and prior knowledge. Englert and Hiebert's (1984) research provides the basis

for three major conclusions concerning text structure and comprehension of expository text: (1) awareness of text structure is acquired developmentally; (2) skill at discerning text structure, and then using it, seems to be important for comprehension of expository text; and (3) some text structures are more obvious and easier for readers to comprehend. Gersten et al. (2001) stated the major method for enhancing student comprehension of expository text is strategy instruction, which is based on the assumption that readers must cope with a broad range of text. The focus of strategy instruction is to improve how students attack expository material to become more deliberate and active in processing it.

#### SUPPORT FOR STRATEGY INSTRUCTION FOR UNDERPREPARED COLLEGE STUDENTS

In working to ameliorate reading comprehension deficits in underprepared college students, there is a limited number of empirically supported potential intervention methods. According to Pressley, Woloshyn, Lysynchuk, Martin, Wood and Willoughby (1990), a strategy is composed of cognitive operations over and above the processes directly involved in carrying out a task.

Underprepared college students are not likely to use strategies that are effective for developing conceptual knowledge without explicit strategy instruction (Grant, 1994). The NRP (2000) analyzed 203 studies of comprehension strategy instruction conducted with students in fourth grade and above and identified seven instructional methods as having a solid scientific basis for improving comprehension skills. The types of instruction were: (1) story structure, where students are taught to use the structure of the story as a means of helping them recall story content in order to answer questions about what they have read; (2)

comprehension monitoring, where readers learn how to be aware of their understanding of the material; (3) cooperative learning, where students learn reading strategies together; (4) use of graphic and semantic organizers (including story maps), where readers make graphic representations of the materials to assist comprehension; (5) question generating, where readers ask themselves questions about various aspects of the story; (6) question answering, where readers answer questions posed by the teacher and receive immediate feedback; and (7) summarization, where readers are taught to integrate ideas and generalize from the text information. Although these types of instruction are helpful when used alone, they are more effective when used as part of a multiple-strategy instructional method (NRP, 2000). Reading comprehension strategy instruction has a strong empirical base to support its use. Based on evidence summarized by Pressley and Wharton-McDonald (1997), strategic readers are highly metacognitive and process before, during, and after reading. This evidence also supports the benefits of teaching explicit comprehension strategies via direct explanation and modeling of strategies to developing readers.

Two groups of underprepared college students as identified by Hock (1998) are those who are low-achievers (LA) and students with learning disabilities (LD). Similarities and differences between students classified as LA and LD have been debated by researchers (Gresham, 2002). These debates have centered on the degree to which LD can be differentiated from LA and the extent to which each groups' intellectual, academic achievement, and behavioral functioning overlap. In 1982, Ysseldyke, Algozzine, Shinn, and McGue

conducted a study where school-identified students with LD were compared to a group of LA children on a variety of psychoeducational measures. Results of the study suggested that LD could not be differentiated from LA, with 96% of the scores on psychoeducational measures being in a common range. Shaywitz, Fletcher, Holahan and Shaywitz (1992) conducted a longitudinal study comparing children with reading disabilities (defined as a 22-point discrepancy between aptitude and reading achievement) with low achievers (defined as children scoring below the 25<sup>th</sup> percentile in reading, but who did not show a 22-point discrepancy (Shaywitz et al., 1992). The study used a variety of child-, teacher-, and parent-based measures. Researchers found more similarities than differences between LD and LA groups. Given this information, it is imperative to examine the results of the following two meta-analyses conducted with students with learning disabilities provide strong support for strategy instruction to improve reading comprehension skills of underprepared college students. Hock and Mellard (2005) stated intervention strategies previously researched and found effective with adolescents may be the most helpful for instructors to use with adults.

Mastropieri, Scruggs, Bakken, and Whedon (1996)

Mastropieri, Scruggs, Bakken, and Whedon (1996) synthesized research using meta-analytic techniques from 82 studies between 1976 and 1994 involving 2,969 students with LD. Each study had the primary purpose of testing the efficacy of an intervention designed to improve the performance of students with LD in the area of reading comprehension or using comprehension instruction

to improve performance in content areas. The overall effect size across all studies was .98, indicating a strong positive effect for interventions designed to increase reading comprehension performance. The strongest effect sizes were obtained in studies classified as employing some type of self-questioning procedures (1.33), followed by those studies employing text enhancement strategies (.92), and finally, those involved in specific skill training (.62). An overwhelming majority of interventions in this meta-analysis involved direct instruction of some type of cognitive or metacognitive strategy. The significant key findings from this meta-analysis support self-questioning, text enhancement strategies, and direct instruction of cognitive or metacognitive strategies.

Swanson, Hosen, and Lee (1999)

Swanson, Hosen, and Lee (1999) conducted a meta-analysis that drew data from the comprehensive experimental intervention literature involving students with LD. The data set included a collection of experimental group design studies (N = 93) published between 1963 and 1997 that focused on interventions for adolescents with LD, ages 12-18. These studies were selected based on a number of criteria, but the emphasis was focused on high methodological quality. The mean effect size of aggregated measures across the 93 studies was .80. The majority of the studies (90%) focused on reading (e.g., comprehension and vocabulary) and cognitive processing (e.g., metacognition and memory). Results indicated two important instructional components (i.e., organization and explicit practice) shared significant variance (16%) with effect size. Another significant

key finding from this meta-analysis was that those studies that emphasized explicit practice yielded higher effect sizes than those that did not.

## COLLABORATIVE STRATEGIC READING

The NRP Report (2000) suggested that teaching a combination or package of reading comprehension strategies has been more effective than teaching isolated strategies. CSR (Klingner et al., 2001) infuses metacognitive instruction into explicit strategy instruction with expository text structures by designing the CSR lessons around four critical questions: 1) what is the strategy?; 2) when is the strategy used?; 3) why is it important to use this strategy?; and 4) how is the strategy performed? CSR was designed to facilitate reading comprehension for students with reading, learning, and behavior problems in grades 3-8 in general classroom settings and grades 9-12 as a reading intervention. CSR is built on the foundations of reciprocal teaching (Palincsar & Brown, 1984) and many of the features previously identified as associated with effective instruction (e.g., collaborative group work, interactive dialogue, and procedural strategies).

The effects of CSR on reading comprehension for students with and without disabilities have been examined in a series of interventions by Vaughn, Klingner, and their colleagues. The first CSR study, a pretest versus posttest design conducted by Klingner and Vaughn (1996) with 26 seventh- and eighth-graders with LD who spoke English as a second language. The purpose of the study was to investigate the effect of two approaches for providing reading strategy instruction on comprehension of English-language text. Students



participated in modified reciprocal teaching sessions for a total of 27 days for 40 minutes per day while reading social studies passages facilitated by the researcher.

The first 15 days, the students received modified reciprocal teaching instruction in groups of six or seven. Once students participated in 15 reciprocal teaching sessions, they were divided into two groups. The first group tutored sixth grade students in comprehension strategies for 12 school days for 35-40 minutes each day. They were directed to teach by modeling all of the strategies on the first and second days. After the first three or four days, tutors and tutees took turns “being the teacher.” The second group implemented the comprehension strategies in cooperative learning groups for 12 school days for 35-40 minutes each day. These students followed the same procedures without the researcher serving as a coach or facilitator. A two-way ANOVA with one between-subjects and one within-subjects factor was applied to answer questions regarding treatment outcomes. Results of the analysis of pretest to posttest gains of the dependent quantitative measure (i.e., *Gates-MacGinitie Reading Comprehension Test [GMRT]*, national percentile scores) suggested that the overall reading comprehension of the subjects in this study showed statistically significant growth, with a mean effect size of .91. Klingner et al. also noted that gains over pretest scores were maintained at 30-day follow-up.

A second experimental study (Klingner, Vaughn, & Schumm, 1998) was reportedly designed to better understand the nature of students’ interactions while using reading comprehension strategies in cooperative learning groups in

social studies. The study involved 141 students from five heterogeneous fourth-grade classrooms in a suburban elementary school. Students in both conditions learned the same content, a unit pertaining to the economy of Florida from a history textbook. The number of instructional sessions (i.e., 11) was held constant across both conditions. Each class session lasted 45 minutes. Students in the intervention condition ( $n = 85$ ) received researcher-facilitated instruction in CSR for three days. From the fourth day on, students worked in heterogeneous groups of five or six to learn textbook content. Students remained in the same groups throughout the study. The researcher monitored the students' groups, providing additional scaffolded instruction when necessary. Fifty-six students in comparison classrooms did not learn the comprehension strategies. Instead, they received teacher-led instruction in the same content for the same amount of time. Content was provided by the researcher who followed the instructional guidelines provided in the teacher's manual for the Florida history textbook.

A posttest X treatment analysis of covariance using raw scores from the GMRT as the dependent measure and pretest scores as the covariate indicated that main effects were statistically significant,  $F(1, 38) = 10.68, p = .001$ , with an effect size of .44. For the intervention condition, the pretest ( $M = 21.68, SD = 8.87$ ) to posttest ( $M = 24.66, SD = 8.36$ ) change was 2.98. For the control condition, the pretest ( $M = 20.79, SD = 7.76$ ) to posttest ( $M = 21.23, SD = 7.25$ ) change was .44. According to Klingner et al. (1998), the CSR-delivered approach to comprehension strategy instruction appeared to be feasible for heterogeneous populations in general education classrooms.

In 2000, Bryant, Vaughn, Linan-Thompson, Ugel, Hamff, and Hougen conducted a pretest - posttest study to determine the effects of a multicomponent reading intervention consisting of three research-based reading interventions (i.e., Word Identification, Partner Reading, and CSR) implemented by teacher teams on the reading outcomes of students with reading disabilities as well as low and average-achieving students in content area classes. A total of 60 sixth-grade students at a middle school in a large metropolitan school district in the southwestern United States participated in the four-month study. A block schedule was employed to permit more daily instructional time per content area. Ninety minutes were allocated for each instructional time block.

Implementation procedures for teaching each strategy included: (1) pretesting; (2) describing and modeling the strategy; (3) having students practice the strategy's steps; and (4) having students apply the strategy to narrative and expository text. The reading comprehension measure consisted of expository text on the sixth-grade reading level from timed reading materials. Each 400-word reading passage contained five recall and five inference comprehension questions targeting facts, main ideas, summary statements, and / or vocabulary. A percentage correct score was obtained for each reading passage. For each outcome variable three hypotheses were tested: (1) achievement level main effect; (2) time main effect; and (3) achievement level-by-time interaction effect. Results indicated differences among the three achievement levels on the basis of comprehension were statistically significant,  $F(2, 56) = 23.29, p < .001$ , effect size = .45, power = 1.00. The highest comprehension scores belonged to

average achievers, followed by low achievers and students with reading disabilities. The time main effect and the achievement level-by-time interaction effect were not statistically significant. The authors noted that the students were taught the comprehension strategies within highly dense and vocabulary-rich texts which were challenging for average to high-achieving students and virtually unreadable by most low-achieving students and students with LD (Bryant et al., 2000).

A year-long, quasi-experimental pretest - posttest design was conducted (Klingner, Vaughn, Arguelles, Hughes, & Leftwich, 2004) to determine (1) the relative effectiveness of CSR in comparison with no CSR implementation for enhancing the reading comprehension of students with LD, average, high-achieving, and low-achieving students; (2) the strategic knowledge acquired by students with LD in CSR classes compared with students with LD in control classrooms; (3) teachers' implementation of CSR given the real world challenges they faced; and (4) the way in which teacher characteristics influenced their learning and use of a complex set of comprehension strategies. Two hundred and eleven fourth-grade students from a large metropolitan school district in the southeastern United States participated in this study. Intervention teachers implemented CSR twice a week, whereas control teachers taught as they normally would with whatever materials and resources were available to them. To be consistent with prior research the *Gates McGinitie Reading Test* (Level 4), alternating forms pretest and posttest was used as a comprehension measure. Results indicated students who received CSR showed greater improvement in

reading comprehension skills than students who did not receive CSR. On the GMRT, posttest differences were statistically significant in favor of CSR.

When compared by achievement level and conditions, students who received CSR demonstrated higher gains, although only those gains made by the high/average-achieving group were different at a statistically significant level. The authors noted this was the first study where CSR was implemented by classroom teachers with minimal assistance from researchers other than initial training and ongoing monitoring. There were also various uncontrolled factors that may have influenced the outcomes of this study. For example, little was known about what transpired during reading instruction or at other times during the day, according to Klingner et al. (2004).

CSR is an explicit instructional strategy approach. Based on the foundations of reciprocal teaching and features previously identified with effective instruction before, during, and after reading, CSR helps students learn specific strategies associated with effective reading comprehension. CSR has produced positive outcomes in comprehension with elementary and middle school students using expository text which are supported by empirical research.

#### PROBLEM STATEMENT

Large percentages of college students enter postsecondary institutions underprepared in reading comprehension, and, therefore, at risk for failure (ACT, 2005; Biancarosa & Snow, 2004; Gray, 1996; NCES, 2001, NCES, 2003a; NCES, 2003b; NCES, 2005). University coursework requires underprepared students to independently comprehend an enormous amount of expository

reading material and be critical and responsive constructors of meaning (Applegate, Quinn, & Applegate, 1994). Institutions need a means of quickly identifying and connecting with underprepared students to avert any delay in utilizing the resources available within the university setting (Amey & Long, 1998). To date only three studies have investigated the use of interventions designed to improve the reading performance of underprepared college students. There exists a strong research base that supports the use of explicit reading comprehension strategy instruction with school-aged struggling readers. Efforts to use explicit comprehension strategy instruction proven to work with school-aged students to improve the reading skills of underprepared college readers has potential (Hock & Mellard, 2005).

## PURPOSE

The purpose of this study was to determine the effectiveness of CSR in improving the reading comprehension skills of underprepared college students. Because most reading beyond primary grades involves expository text, it is critical that struggling readers' comprehension of expository text be improved (Gersten et al., 2001). Potential benefits of this study include: (1) further validating a multi-strategy reading comprehension intervention; (2) providing academic centers and developmental program personnel with an effective strategy intervention tool that can be utilized with future underprepared college students; and (3) maximizing the academic performance of student-athletes

attending a National Collegiate Athletic Association (NCAA) Division I university who are underprepared and mandated by the NCAA to receive academic tutoring.

## CHAPTER THREE

### METHOD

#### DEFINITIONS

- Academically underprepared college students comprise a diverse population of students, including those with low-achievement histories, students lacking basic skills and prior knowledge, students from disadvantaged environments, and students with learning disabilities (Hock, 1998).
- Reading comprehension is defined as a strategic process during which readers simultaneously extract and construct meaning from text (Roe, Stoodt-Hill, & Burns, 2004).
- Reading strategies are generally deliberate, planful activities undertaken by active learners, many times to remedy perceived cognitive failure (Garner, 1987).
- Strategic readers are those persons who, when interacting with text, are highly metacognitive and process before, during, and after reading (Pressley & Wharton-McDonald, 1997).
- Metacognition is knowledge of the readers' cognition about reading they exercise when monitoring and regulating text comprehension (Mokhtari & Reichard, 2002).
- Metacognitive strategies are techniques for thinking about and monitoring one's own thought processes (Burns, Roe, & Smith, 2005).
- Expository text is nonfiction text written in a precise, factual writing style designed to inform or explain information (Burns et al., 2005).



## PARTICIPANTS

Participants were 16 male college students entering their freshman year at a research extensive university in the southeastern United States. Each participant was attending the university in part due to an athletic scholarship. First-year scholarship athletes receive academic support as the result of a National Collegiate Athletic Association (NCAA) mandate. A stand-alone academic support center for student athletes provided academic tutoring and counseling over the course of this study.

Table 1 includes detailed participant demographic information. The average age of the male participants was 18.6 years (SD = .74). The majority of the students were African American (81%). All participants spoke English as their first language. Twenty-five percent of the entering freshmen had verified disabilities and were receiving accommodations through the university's Office of Disabilities Services. The mean IQ of the participants was 93.8 (SD = 9.5). The mean high school grade point average (GPA) was 3.0 (SD = .53) on a 4-point scale. The mean ACT score was 17.4 (SD = 3.4).

Demographic Variable	Condition							
	Experimental				Control			
	N	%	M	SD	N	%	M	SD
Age			18.6	.7			18.6	.8
Ethnicity								
White-Non Hispanic	2	25			2	25		

Table 1  
Characteristics of Participants by Experimental and Control Conditions

African American	6	75	6	75
Disability Status	3	38	1	13
GPA		3.0	.6	2.9 .5
ACT		16	3.1	18 3.7
IQ		90	8.8	97 9.4

Table 1 continued

## DESIGN

A pretest-posttest experimental group design was used to determine the effects of *Collaborative Strategic Reading* (CSR; Klingner, Vaughn, Dimino, Schumm, & Bryant, 2001) on the comprehension skills of underprepared college student athletes. Participants were assigned randomly to an experimental or control condition. Independent t tests were performed on the pretreatment measures of age,  $t(14) = .07, p = .95$ , IQ,  $t(14) = 1.48, p = .16$ , ACT composite scores,  $t(14) = 1.78, p = .26$ , and high school GPA,  $t(14) = -.56, p = .59$ . Results determined the groups to be statistically equivalent across all pretreatment measures. Students in the experimental group received CSR instruction in addition to the standard study skills enhancement as directed in the *Academic Mentor Handbook* in the academic center. The control group received the standard study skills enhancement as directed in the *Academic Mentor Handbook* in the academic center.

## CONDITIONS

As previously noted, there were two conditions incorporated into this study. Descriptions of the experimental and control conditions follow.

Experimental Group. Two hours were allocated for this condition. Students in the experimental group received approximately 75 minutes of study skills enhancement and 45 minutes of CSR instruction 4 days a week for 5 weeks during the university's summer academic session. The mentors implemented the 17 scripted lessons provided in the CSR manual using expository text. The scripted lessons included how to (a) "preview" (prior to reading a passage, read the title and headings, predict what the passage might be about, and brainstorm what they already knew about the topic); (b) "click and clunk" (monitor comprehension during reading by identifying difficult words and concepts in the passage and using fix-up strategies when the text did not make sense; (c) "get the gist" (restate the most important idea in a paragraph); and (d) "wrap up" (after reading, summarize what has been learned and ask questions that an instructor might ask on a test). CSR lessons incorporated reading comprehension strategies based on three phases of scaffolded instruction: (1) teacher modeling; (2) teacher assists students; and (3) students complete independently. The mentor first models the thinking process by actually thinking aloud and demonstrating each facet of a strategy. During the mentor assisted phase, the mentor becomes more of a facilitator as students develop mastery in implementing the strategy. When students reach the independent phase, they are expected to complete the strategy automatically with minimal guidance from the mentor. CSR is designed to promote a strategic approach to student reading of expository text. Students are taught to engage in activities before, during, and after expository text reading activities. For example, Preview is only used before

reading the entire text for that lesson, while Wrap Up is used after reading the entire text for the lesson. The other two strategies (i.e., Click and Clunk and Get the Gist) are used many times while reading the text, including after each paragraph during difficult to comprehend text (Klingner & Vaughn, 1998).

Control Group. Two hours were allocated for this condition. Students in the control group received the standard study skills enhancement for approximately 120 minutes, 4 days a week for 5 weeks during the university's summer academic session as directed in the center's *Academic Mentor Handbook*. Study skills content included assistance in developing note taking, reading, writing, research, and testing skills. Each mentor received a copy of the *Academic Mentor Handbook* to use as a resource and training manual. Students in the control condition were not taught CSR.

## DEPENDENT MEASURES

Two dependent measures were used in this study. The first was a formal measure; the second was informal. The comprehension subtest of the *Gates-MacGinitie Reading Test - Adult Reading 4<sup>th</sup> edition (GMRT-4)*; (MacGinitie, MacGinitie, Maria, & Dreyer, 2000) was administered at the beginning and end of the intervention to students in both conditions. Form S was administered at pretest and Form T was administered at posttest. This measure was selected because it had been used in previous strategy instruction research (i.e., Klingner & Vaughn, 1996; Klingner, Vaughn, Arguelles, Hughes, & Leftwich, 2004; Klingner, Vaughn, & Schumm, 1998). The GMRT-4 is group administered.

Students were required to answer 48 comprehension questions. Comprehension passages/items covered a wide range of content (e.g., fiction, science, humanities) and types of writing (e.g., narrative, expository) (Johnson, 2004). The GMRT-4 is a well-developed and reliable, norm-referenced reading achievement test that includes subtests for assessing literacy skills based on current research from kindergarten through post high school levels (Johnson). The GMRT-4, Adult Reading Level comprehension test has a .89 reliability and has established validity with completion rates, ceiling and floor data, question difficulty, and cultural diversity (MacGinitie, MacGinitie, Maria, & Dreyer, 2000).

*Qualitative Reading Inventory-4* (QRI-4; Leslie & Caldwell, 2006). The QRI-4 is an individually administered instrument which uses expository text to determine instructional reading levels (pretest and posttest) with alternate forms. Leslie and Caldwell (2006) determined passage readability by using the *Dale-Chall* formula and *Fry Readability Graph* through the use of the computer program *Readability Estimator*. The *Harris-Jacobson* readability was also used but it was calculated by hand. Agreement on two of the three formulas was used to estimate passage level. QRI-4 has an alternate form reliability for instructional-level of .80 (Leslie & Caldwell, 2006). The instrument was selected based on research indicating that the QRI-4 had the greatest number and proportion of inferential questions in its passages (Applegate, Quinn, & Applegate, 2002). Inferential items call for the reader to link experience with the text and draw logical conclusions. Answers to these items require significantly more complex thinking than lower-level recall (Applegate et al., 2002). McCabe, Margolis, and

Barenbaum (2001) conducted a correlation analysis between the *Qualitative Reading Inventory II* (QRI-II) and the reading subtest of the *Woodcock-Johnson Psycho-Educational Battery-Revised* (WJ-R). WJ-R reading scores and QRI-II oral instructional levels were moderately and significantly related as determined by the results of the Spearman rank order correlation coefficients. Fifty percent of the students achieved identical instructional levels on the WJ-R and QRI-II. For the students who achieved different WJ-R and QRI-II instructional levels, WJ-R levels exceeded QRI-II levels 92 percent of the time (McCabe et al., 2001).

#### TREATMENT FIDELITY

A direct observation measure was used to assess treatment fidelity across the experimental condition and control conditions. Implementation fidelity checklists adapted from Klingner et al. (2004) were used to conduct two observations per week to provide an objective assessment of CSR implementation. The fidelity procedure involved the direct observation of the mentor implementation procedures by a trained observer and completed and evaluation checklist (see Appendix A: CSR Fidelity Evaluation; Appendix B: Control Mentor Fidelity Evaluation). Mentors were observed twice a week (N = 10) during the implementation of CSR. Interobserver reliability was assessed on one of the two direct observations per week (N = 5). It was noted if each component was implemented, modified, or not observed. Components of the strategy focused on student behaviors, mentor behaviors, and the setting. Open-ended questions at the end of the protocol prompted observers to provide details about any adaptations observed and describe overall impressions.

## SOCIAL VALIDITY

Social validity measures were used to evaluate the acceptability and / or viability of the intervention. Participants and CSR intervention mentors were asked to complete a questionnaire providing their opinions on the program's goals, instructional strategies, and outcomes.

## CONSENT PROCEDURES

Consent procedures used to obtain informed consent were approved and accepted by the Institutional Review Board (IRB) of a university located in the southeastern United States. The collection of informed consents with the mentors and data collectors began the first day of training. The collection of informed consents with the students began on the first day of the summer school session. The researcher explained the purpose of the study and the items detailed in the approved informed consent letter. Consent was obtained for all participants in the study (see Appendices C, D, and E). Fifteen of the 16 participants provided informed consent. One participant who was 17 years of age at the time of the study provided student assent. His mother provided informed consent.

## TRAINING PROCEDURES

Mentor participants (N = 7) were recruited from the academic center mentoring staff. Mentors were full-time college students enrolled in their senior year of study or post-graduate programs of study from a variety of disciplines (e.g., education, psychology, marketing, English). All academic mentors received two hours of mentor training in study skills enhancement using the academic

center's mentor curriculum handbook, *Academic Mentor Handbook*, prior to their inclusion in the study. Mentors were randomly assigned to either the experimental (n = 4) or comparison (n = 3) group. In addition to the prior training, mentors passed a three-step strategy training process prior to implementing CSR. The goal of the training was two-fold: (a) learning how to implement CSR; and (b) developing an understanding of the underlying theoretical rationale for each of the comprehension strategies and cooperative learning components that make up CSR. Mentors were assessed prior to the CSR presentation and immediately following the CSR presentation. They had to meet a minimum criterion of 90% accuracy on the CSR training post-assessment (See Appendix F) in order to be involved in the study.

Mentors implemented CSR 45 minutes a day, four days a week for a minimum of 17 sessions. All necessary materials were provided. Ongoing support was provided to the mentors by the primary investigator and academic center staff. In addition, mentors, the principal investigator, and center staff met weekly to discuss issues regarding implementation. The principal investigator and academic center staff observed mentors' implementation of CSR twice weekly, using implementation fidelity checklists, and provided constructive feedback regarding the extent to which mentors implemented the practices' critical components. Control group mentors were recruited from the academic center for student athletes mentoring staff. Mentors were full-time college students enrolled in their senior year of study or post-graduate programs of study from a variety of disciplines. Control group mentors received two hours of mentor



training in study skills enhancement using the academic centers' training manual, the *Academic Mentor Handbook*. Observations were conducted twice weekly using a fidelity checklist (see Appendix B) to ensure the comparison group mentors were: (a) was following the guidelines stipulated in their mentor handbook; and (b) not implementing CSR.

Data Collectors (N = 2) also were recruited for the study. The first data collector was a graduate student in the College of Education receiving credit for a research course. Her primary responsibilities included administering the QRI-4, interrater reliability calculations for the QRI-4, and fidelity observations of both the experimental and control mentors. The second data collector was an undergraduate student in the field of kinesiology who had prior athletic mentoring experience. Her primary responsibilities were interrater reliability scoring of the QRI-4 and fidelity observations of both experimental mentors and control mentors. The data collectors participated in the same process of implementation training of CSR provided by the study's principal investigator and described previously. In short, data collectors received a presentation on the theory and rationale for CSR. Data collectors were assessed prior to the CSR presentation and immediately following the CSR presentation. They had to meet a minimum criterion of 90% accuracy on the post-assessment. Additionally, CSR strategies were modeled by the researchers.

Following the initial training data collectors were required to practice implementing CSR with the mentors in groups of 3 and 4. During the second training period the researcher observed the data collectors in two practices of

implementing CSR strategies prior to conducting the actual CSR fidelity observations. Each data collector had to meet a minimum criterion of 90% as documented on an implementation fidelity checklists (see Appendix A). Finally, the data collectors used the fidelity checklists to observe and score observed simulations of CSR provided by the mentor practice groups for interobserver reliability and to become familiar with the assessment tool used for data collection.

Additionally, the two data collectors were trained in the administration and scoring of the QRI-4. They were first provided with a presentation by the primary investigator on the theory and rationale for QRI-4. The investigator modeled implementing QRI-4 with a fifth grade student as well as passage scoring procedures. The first data collector practiced administering the QRI-4 with the same student and the second data collector scored the responses. The researcher observed two practices of QRI-4 administration and scoring. The data collectors then used the QRI-4 recorded answers and scored pages of observed simulations of QRI-4 for interrater scoring reliability. A minimum criterion of 90% on passage administration and scoring as evidenced on the QRI-4 score sheet document (see Appendix G) was reached prior to the actual administration and scoring of QRI-4 protocols.

## HYPOTHESES

For each outcome variable, three hypotheses were tested (a) time main effect; (b) group main effects; and (c) group-by-time interaction effect. In all cases, the alpha level was set at 0.05.

*Gates-MacGinitie Reading Test – 4<sup>th</sup> edition (GMRT- 4)*

H<sub>0</sub>: There will not be statistically significant differences on the GMRT- 4 from pre to post test.

H<sub>0</sub>: There will not be statistically significant differences between the groups on the GMRT- 4, collapsing over time.

H<sub>0</sub>: There will not be a statistically significant interaction between the group and time on the GMRT- 4.

*Qualitative Reading Inventory - 4 (QRI – 4)*

H<sub>0</sub>: There will not be statistically significant differences on the QRI- 4 from pre to post test.

H<sub>0</sub>: There will not be statistically significant differences between the groups on the QRI-4, collapsing over time.

H<sub>0</sub>: There will not be a statistically significant interaction between the group and time on the QRI-4.

## CHAPTER 4

### RESULTS

#### TREATMENT FIDELITY

A direct observation measure was used to assess treatment fidelity across the experimental condition [i.e., *Collaborative Strategic Reading* (CSR; Klingner, et al., 2001)] and control condition (i.e., study skills enhancement as directed by the *Academic Mentor Handbook*). The measures assessed the total number of program components implemented correctly. Overall, 10 direct observations were completed for each of the experimental and control group mentors to determine the total percentage of program components implemented correctly. The overall mean percentage of program components correctly implemented for the experimental group was 97.5% (range 85 - 100%). The overall mean percentage of program components correctly implemented for the control group was 95.6% (range 80 - 100%).

Interobserver reliability measures were conducted on five of the treatment fidelity measures for each group. Interobserver reliability was calculated by dividing the smaller score by the larger score and multiplying the coefficient by 100 (Alberto & Troutman, 2003). The mean percentage of interobserver reliability of program components implemented correctly for the experimental group was 96% (range 89 - 100%). The mean percentage of interobserver reliability of program components implemented correctly for the control group was 97.8% (range 88.8 - 100%). Treatment fidelity observations also indicated that the control mentors were not implementing CSR.

## INTERVENTION

Results are presented comparing CSR intervention and the control group on reading comprehension performance. A series of two (CSR vs. control) by two (pretest vs. posttest) repeated measures ANOVAs were performed to compare the CSR and control groups on two reading comprehension variables measured by the *Gates-MacGinitie Reading Test – 4<sup>th</sup> Edition* (GMRT - 4) and the *Qualitative Reading Inventory-4* (QRI - 4). On both variables three effects were tested: Group main effects (control vs. experimental) and the interaction effects (CSR vs. control). Eta squared, a measure of explained variance, was employed to describe the effect size. Cohen (1988), with a range from 0 to 1, describes  $\eta^2 = .01$  as small,  $\eta^2 = .06$  as medium, and  $\eta^2 = .14$  as large.

Table 2 presents the pre- and posttest means and standard deviations by CSR and control group for both variables. No statistically significant time main effect,  $F(1, 14) = 1.34, p = .266, \eta^2 = .08$ , or group main effect,  $F(1, 14) = .029, p = .867$ , or group-by-time interaction effect,  $F(1,14) = 1.34, p = .266, \eta^2 = .08, \eta^2 = .001$ , were observed for the GMRT- 4. Figure 1 displays the interaction effects of the pre- and posttest means of the CSR and control groups on the GMRT-4 reading comprehension measure. Although there was no statistical significance plotting the mean suggests that there is an interaction effect between the CSR intervention on the posttest scores compared to the control group which displayed no change.

A statistically significant time main effect,  $F(1, 14) = 29.30, p < .001, \eta^2 = .524$ , and interaction group-by-time effect,  $F(1, 14) = 12.526, p = .003, \eta^2 = .224$ ,

were observed on the QRI-4 reading comprehension measure. The group main effect was not statistically significant for QRI-4 measure,  $F(1, 14) = .018, p = .897, \eta^2 = .000$ . Figure 2 displays the interaction effect comparing the pre-and posttest means of the two groups on the QRI-4 measure.

Test	CSR				Control			
	Pretest		Posttest		Pretest		Posttest	
	M	SD	M	SD	M	SD	M	SD
GMRT-4	27.25	8.99	30.25	6.45	29.50	9.04	29.50	11.39
QRI-4	6.13	2.46	8.81	3.10	7.00	2.82	7.56	3.14

Table 2. Means and Standard Deviations for CSR and Control Groups

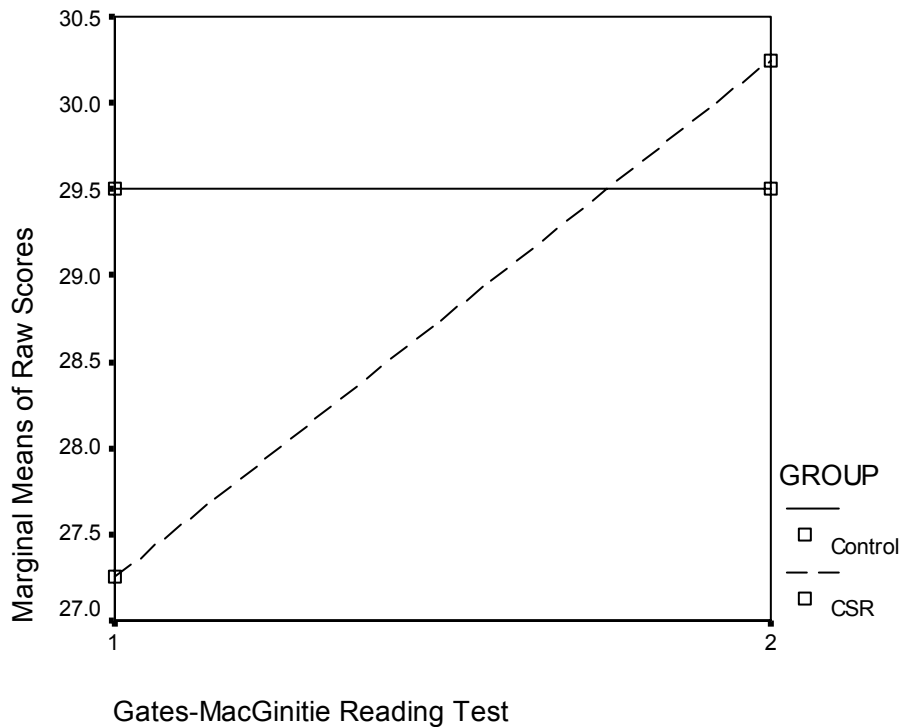


Figure 1 - Graph of Interaction Effects of the GMRT-4

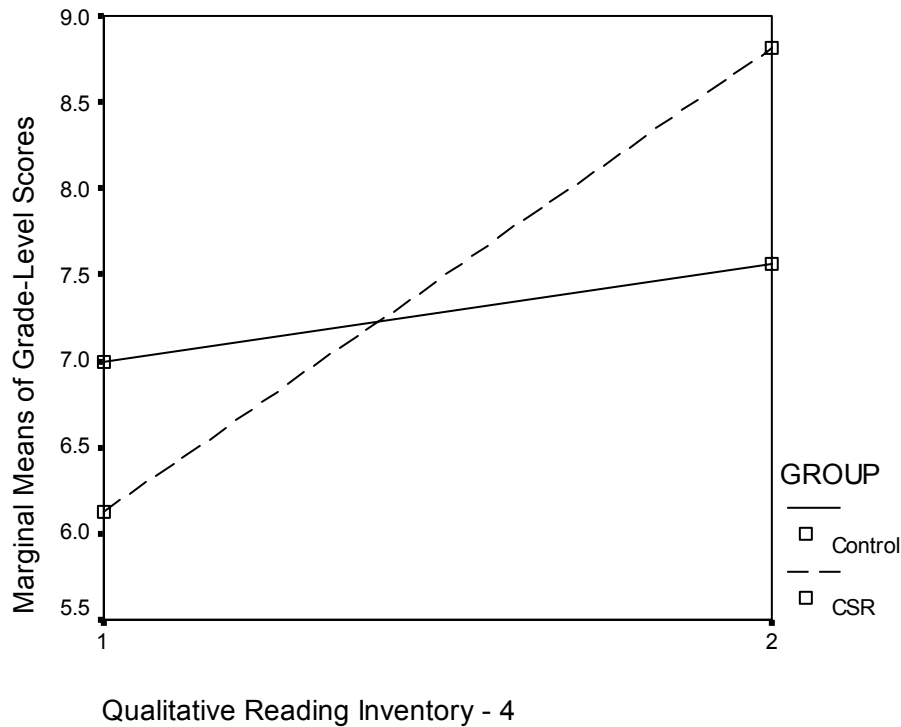


Figure 2 - Graph of Interaction Effects of the QRI-4

### SOCIAL VALIDITY

A social validity measure was completed by participants in the experimental condition. Statements were rated on a five-point scale ranging from 1 = Not At All to 5 = Extremely. Results revealed that all participants found the CSR strategies easy to use and appeared satisfied with CSR. Moreover, almost all experimental group members (i.e., 7 of 8) found the CSR strategies useful and practical in addressing a reading assignment. One-half of the participants said they would be likely to use the CSR strategies in the future. Table 3 presents the

questions along with the range, mean, and standard deviation results for the social validity student survey.

The CSR mentors completed a social validity survey adapted from Martens, Witt, Elliott, and Darveaux (1985) using a 6-point rating scale with 1 = strongly disagree and 6 = strongly agree. Results indicated that all of the mentors agreed that CSR was an acceptable intervention for the student’s academic behavior and the student’s academic behavior was severe enough to warrant use of the CSR intervention. Moreover, mentors indicated that CSR should prove effective in improving a student’s academic behavior. Additionally, all agreed the CSR intervention was beneficial for the students and most (i.e., 75 %) liked procedures used in CSR. Table 4 displays the questions along with the range, mean, and standard deviation results of the social validity mentor survey.

Question	N	Range	Mean	SD
1. How useful are the CSR strategies in addressing a reading assignment?	8	2-5	3.38	.92
2. How practical are the CSR strategies in addressing a reading assignment?	8	1-5	3.5	1.31
3. Do you feel the CSR Learning Log would provide you with study materials appropriate for your class reading assignments?	8	1-5	3.5	1.20
4. How easy was it for you to use the CSR strategies	8	3-5	4.38	.92
5. How satisfied are you with the CSR program?	8	3-5	4.0	.92
6. How likely are you to use the CSR strategies in the future?	8	1-5	3.13	1.36

Table 3 – CSR Student Social Validity Results



Question	N	Range	Mean	SD
1. This would be an acceptable intervention for a student's academic behavior.	4	5-6	5.5	.58
2. This intervention should prove effective in changing a student's academic behavior.	4	4-5	4.25	.50
3. The student's academic behavior is severe enough to warrant use of this intervention.	4	4-5	4.5	.58
4. This intervention would <i>not</i> result in negative side-effects for the student.	4	3-6	4.5	1.73
5. This intervention would be appropriate for a variety of students.	4	4-6	5.0	.82
6. The intervention was a fair way to handle the student's academic behavior.	4	4-6	5.0	.82
7. This intervention is reasonable for the academic behavior described.	4	4-5	4.75	.50
8. I liked the procedures used in the intervention.	4	4-6	5.0	.82
9. This intervention is a good way to handle the student's academic behavior.	4	4-6	5.0	.82
10. Overall, this intervention would be beneficial for a student.	4	3-6	5.0	1.41

Table 4 - CSR Mentor Social Validity Results

## CHAPTER 5

### DISCUSSION

Hock (1998) defined academically underprepared college students as students with low-achievement histories, students lacking basic skills and prior knowledge, students from disadvantaged environments, and students with learning disabilities (LD). These individuals enter postsecondary settings faced with vast amounts of expository reading materials. Oftentimes, this population of students is ill-equipped to handle this role. The purpose of this study was to determine the effects of a reading comprehension strategy instruction intervention on the reading outcomes of academically underprepared college students.

The null hypotheses in the present study indicated that there would be no statistically significant differences across conditions (i.e., experimental and control) at post-testing on scores of two dependent measures. The null hypothesis was rejected in one of the two cases. Specifically, students in the *Collaborative Strategic Reading* (CSR; Klingner, Vaughn, Dimino, Schumm, & Bryant, 2001) condition showed statistically significant gains over the control students on the *Qualitative Reading Inventory-4* (QRI-4; Leslie & Caldwell, 2006), an informal reading inventory measure of expository text comprehension. The overall effect size calculated using eta squared was large (.224; Cohen, 1988). There were no statistically significant differences between the CSR group and control groups on the *Gates-MacGinitie Reading Test-4* (GMRT- 4; MacGinitie, MacGinitie, Maria, & Dreyer, 2000), a standardized measure of reading

comprehension. However, the effect size for the GMRT-4 was moderate (.08; Cohen, 1988), plotting the means suggests that there is an interaction effect, and that with an increase in power in a future investigation, it is possible that the interaction effect on that measure might be significant.

## RELATIONSHIP TO PREVIOUS RESEARCH

The present findings expand a relatively small body of research with academically underprepared college students indicating that strategy instruction can improve reading skills. Findings in this study are consistent with the positive findings of Cukras's (2006) study with 19 academically at-risk college students who learned specific study strategies, encoding (extracting), organizing, monitoring (self-testing), and employing a study plan, then applied the strategies to lengthy pieces of college-level expository passage in various academic areas. Results indicated that monitoring (self-testing) and employing a study plan were the two study strategies that were statistically and consistently related to test performance, according to Cukras. Additionally, findings of the present study are similar to the results of Shenkman and Cukras's (1986) study with 53 underprepared college students which compared explicit metacognitive strategy instruction to separate skills training and comprehension practice. In that study, data indicated that overt metacognitive strategy instruction was effective in increasing underprepared college students' learning from expository text. Overall, results of the present and past studies indicate that overt, explicit strategy instruction improved the reading comprehension skills of underprepared college students while reading expository text.

There are mixed results when comparing the present study involving underprepared college students and previous studies implementing CSR with school-aged students with and without disabilities. In terms of similarities, the statistical significance determined on the informal QRI-4 expository reading passages, an informal measure, within groups was consistent with findings of Bryant, Vaughn, Linan-Thompson, Ugel, Hamff, and Hougén (2000). In that study, CSR was implemented with 60 sixth-grade students with and without reading disabilities in a pretest versus posttest design. Researchers used informal expository reading materials and generated questions to measure reading comprehension growth. The differences among achievement levels (average achievers, low achievers, and students with reading disabilities) on the basis of comprehension were statistically significant. The present study's findings were also consistent with the results of Klingner and Vaughn's (1996) pretest versus posttest design implementing CSR for 27 days with 26 seventh- and eighth-grade students LD who spoke English as a Second Language. Findings indicated the overall difference in growth between groups was not statistically significant, but the analysis of pre-posttest gains on the dependent measures of the GMRT suggested that the overall reading comprehension of the subjects in the experimental group showed growth.

In terms of differences, results of two previous CSR studies with school-aged students using the GMRT as a dependent measure of reading comprehension found the posttest differences to be statistically significant in favor of the CSR intervention whereas the present study did not. In one study,

Klingner, Vaughn, and Schumm (1998) implemented a treatment vs. control design implementing CSR for 11 sessions with 141 fourth-grade students from five heterogeneous classrooms. In another study, Klingner, Vaughn, Arguelles, Hughes, and Leftwich (2004) implemented CSR in a year-long, quasi-experimental pretest vs. posttest design with 211 fourth-grade students with and without disabilities. The inconsistencies of the findings between the previous studies and the present study may in part be attributed to design limitations which will be discussed in the limitations section.

## IMPLICATIONS

There are four implications for practitioners and researchers to consider when addressing the reading comprehension skills of underprepared college students. The first is that there continues to be a dearth of experimental research directed at improving reading comprehension outcomes for underprepared college students. This situation exists in spite of statistics produced by the National Center for Educational Statistics (e.g., 2001; 2003a, 2003b, 2005), and the ACT (2005) that clearly demonstrate there is a need for intervention research aimed at ameliorating reading deficits. The present study is believed to be the first of its kind to incorporate a randomized clinical trial of CSR with underprepared college students. Preliminary results of this experimental study suggest that there was an interaction effect between the students who received CSR on both the *GMRT- 4* and the *QRI - 4*. With respect to the informal measure, *QRI-4*, meaningful differences were determined from pretest to posttest that can be associated with the experimental group in spite of a small sample

size. With respect to the standardized measure, GMRT-4, post hoc analyses indicated that if the group sample sizes were increased to 24 that statistically significant differences would have been determined on this measure as well. A great deal of empirical evidence already exists supporting the value and effectiveness of explicit comprehension strategy instruction with school-aged students with and without disabilities (e.g., Gersten, Fuchs, Williams, & Baker, 2001; National Reading Panel, 2000). However, there continues to be a paucity of intervention research targeted at postsecondary student populations (Curkas, 2006; Taraban & Becton, 1997; Shenkman & Curkas, 1986).

The second implication is that CSR appears to be a potential intervention instrument for developmental program personnel and academic support center staff to use in providing academic support to underprepared college students. The ability to activate one's prior knowledge before reading, self-question, identify main ideas during reading, paraphrase, and summarize after reading is critical to effective reading comprehension development at all age levels. It is not surprising that underprepared college students have difficulty comprehending expository materials. Thus, these students can benefit from strategy instruction on when and how to use strategies to monitor comprehension of expository text so that they can fix comprehension problems. CSR infuses metacognitive instruction into explicit strategy instruction with expository text structures. CSR has received attention in the professional literature through empirically based studies and appears to be a widely accepted and effective support for students in the elementary and middle school grades with and without disabilities.

Academic support is the most important service that a college or university can provide to underprepared students (Amey & Long, 1998), especially those with learning disabilities (LD) (Clark & Parette, 2002). Forty percent of college freshman in 2000 reported having LD (Henderson, 2001) and student athletes with learning disabilities comprised approximately 2.7 percent of the total population of student athletes (N4A Committee of Learning Disabilities, 1998). Academic counselors at academic support centers are aware that some students have specific instructional needs. Support personnel are challenged in how to provide the explicit instruction that struggling students need at a post-secondary level in a timely manner. Yet even less is understood about the feasibility and fit of a new practice with curricular and other demands in a postsecondary setting.

Athletic programs nationally have begun to employ learning skills specialists to assist student athletes in developing appropriate study and academic skill with the expressed goal of increasing success in the classroom (Gaston-Gayles, 2004). Given that the NCAA altered admission requirements enabling student-athletes with disabilities to participate in college sports greater numbers of these students may be anticipated in higher education settings than in previous years (National Collegiate Athletic Association, 2001; U.S. Department of Justice, 1998). Further research in multi-strategy reading comprehension strategy intervention with underprepared college students would help identify an effective as well as accepted method of intervention at the postsecondary level.

Academic advisors should familiarize themselves with the CSR strategies to efficiently advise underprepared college students and to effectively work with other personnel having contact with these students to help students increase their academic motivation with a goal of improving their overall academic performance in college-level expository materials. Likewise, colleges of education could collaborate with academic support centers as well as offices of disabilities services to establish uniform procedures for implementing the CSR strategies within the content of required coursework which would encourage a generalization of strategy use by students. Academic support centers, offices of disabilities services and athletic support programs for student athletes might consider including CSR in its remedial work with the underprepared populations of students they regularly serve.

The third implication relates to the use of peer mentors to implement the strategic interventions in postsecondary settings. Peer tutoring programs such as *Peer Assisted Learning Strategies* (Fuchs, Fuchs, & Burish, 2000) and *ClassWide Peer Tutoring* (Delquadri, Greenwood, Whorton, Carta, & Hall, 1986) have been researched extensively with elementary through secondary level students with and without disabilities. Empirical findings have concluded that peer tutoring improves students' engagement in academic tasks, increases academic achievement gain, and enhances peer relations (Mercer & Mercer, 2005). The mentors in this study were explicitly taught the CSR strategies and in turn they explicitly modeled and taught underprepared college student peers to use strategies while they were engaged with expository text. In addition, mentors



were able to provide explanations and provide corrective feedback of appropriate strategy use. Thus, it could be concluded that peer implementation of CSR provides a viable and socially acceptable strategy delivery method in a postsecondary setting. Peer mediated instruction appears to be an effective intervention tool for providing remediation and support to underprepared college students.

The fourth implication relates to motivation and its relationship between reading comprehension and maximizing the academic performance of underprepared college students. Student motivation to participate and learn is essential to the success of any intervention program (Guthrie & Wigfield, 1999). Guthrie and Wigfield define reading motivation as the individual's goals and beliefs with regard to reading. Reading motivation then influences the individual's activities, interactions, and learning from text. Wigfield (1997) posited that behavioral indicators of motivation include choice of which activities to do, persistence at these activities, and the level of effort expended. Based on previous studies, Guthrie, Wigfield, Humenick, Perencevich, Taboada, and Barbosa (2006) identified seven instructional practices that have increased motivation for reading and reading comprehension with elementary and secondary students. Four of these practices were included as part of the present study and warrant consideration in future research and practices with underprepared college students. The four strategies include: (1) using content goals for reading instruction (Grolnick & Ryan, 1987); (2) affording students choices in the text they read, the tasks they perform with text, and their partners

during instruction (Reynolds & Symons, 2001); (3) implementing social goals and utilizing cooperative-learning structures in reading activities structures (Isaac, Sansone, & Smith, 1999); and (4) encouraging teacher involvement, which refers to the student's perception that the teacher understands them and cares about their progress (Skinner, Wellborn, & Connell, 1990; Wentzel, 1993). The population served in the present study was limited to underprepared college student athletes participating in NCAA Division I mandated academic tutoring. Academic motivation refers to a student's desire to excel in academic-related tasks whereas athletic motivation refers to a student's desire to excel in athletic-related tasks (Gaston-Gales, 2004). The demands placed upon Division I athletes in regards to class, tutoring, practice, and training play a large role in their academic focus which influences their academic motivation which ultimately has an impact on their academic success.

## LIMITATIONS

There were three limitations that should be considered regarding the present study that relate to sample size, length of the study and participants. The primary limitation relates to sample size. The current study was limited to the incoming freshman athletes attending NCAA mandated tutoring. Although the differences between the mean change scores between the CSR and control groups on the GMRT-4 were not statistically significant, data suggests by plotting the means there is an interaction effect between the posttest mean scores of the participants who received the CSR intervention compared to control group members who, as a whole, showed no growth. As indicated earlier, that with an

increase in power in a future investigation, it is possible that the interaction effect on the GMRT-4 might be statistically significant. Further research should explore the effectiveness of CSR strategies with underprepared college students utilizing more appropriate sample sizes for clinical trials.

A second limitation relates to the short time frame in which the CSR strategies were implemented. The study took place over a period of 20 days during a seven-week summer session. Comprehension strategy training takes time for both mentors and students. Moreover, students require assistance in applying strategies with expository text which also takes time. In the present study, 45 minutes was allocated to CSR intervention per day, but actual mean engaged time was only 37 minutes per day. Engaged time is the time students actually spend performing a task. Engaged time may be particularly challenging with respect to implementing multi-component comprehension strategies like CSR in a postsecondary academic tutoring setting during a seven-week summer session. This time frame did not provide opportunities for maintenance or generalization of the CSR strategies. There was just enough time to teach the 17 prescribed lessons. Implementation of CSR in a fall and / or spring academic session warrants further research.

Finally, the participants in this study consisted of entering freshman male athletes participating in a high visibility sport. This poses a threat to the external validity of the findings reported herein. Creswell (2002) describe threats to external validity as problems that threaten drawing correct inferences from the sample data to other settings, past and future situations and / or persons. Thus,

the present study is limited in its ability to generalize beyond the group described in the experiment in the areas of gender and specific characteristics of the underprepared student athlete compared to the underprepared college student. The initial results of this study support further research with a sample representative of the target population of underprepared college students in order to draw more generalizable conclusions.

#### FUTURE RESEARCH

In addition to the future research avenues previously addressed, there are four more areas of study that seem worthy of consideration. First, the reading comprehension intervention chosen was a multi-component strategy intervention, with the four strategies included in the treatment evaluated as a whole. Given the fact that it might be time consuming for mentors and / or instructors to implement multi-component interventions in total, it would be interesting to evaluate the added effects of the previewing, main idea, and summarization strategies, for example, to determine if one was more effective - that is, more important to be implemented - than the others. Moreover, it would be interesting to ascertain if single- and multi-component strategy interventions lend themselves better to some subject areas than others.

Second, given the need for college and university students to be self-motivated, regulated, and determined, it would be interesting to follow postsecondary students over time to determine what factors facilitate or hinder use of a more strategic approach to learning. Additionally, given the fact that Amy and Long (1998) suggest that student and institutional factors contribute to student

success, it would be equally interesting to ascertain what institutional actions serve as facilitators or barriers to student success related to the implementation of explicit interventions such as CSR. Finally, the instructional practices used to increase motivation in the effort to maximize the reading comprehension performance of underprepared college students warrants future research.

## CONCLUSION

Underprepared college students often lack skills necessary to successfully comprehend expository text demanded at the college level. There is very limited research exploring effective empirically based practices with underprepared college students. That research base supports the use of strategy instruction with this population. Findings from the present study add additional support to a continued exploration of strategy instruction and more specifically reading comprehension strategy instruction in postsecondary settings. Because understanding the written word is such a critical skill to succeed in school and life, it seems logical to expand reading improvement strategy application and research in postsecondary settings with academically underprepared students. Additional application of CSR and other peer-mediated reading interventions may be a viable place to start.

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APPENDIX A  
COLLABORATIVE STRATEGIC READING (CSR) FIDELITY EVALUATION

**Mentor:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Topic:** \_\_\_\_\_

Descriptors	Observed and done well (2)	Observed but not done well (1)	Not Observed (0)
Before Reading.			
1. Students preview text			
2. Student brainstorm what they already know			
3. Student predict what they will learn			
During Reading			
1. Students identify clunks as they read.			
2. Students utilize "fix-up" strategies as needed.			
3. Students state the who or what about the paragraph read and the important thing about who or what. (Getting the Gist)			
4. Students practice writing the gist (10 words or less)			
After Reading			
1. The students generate wrap-up questions.			
2. Students review what they learned.			
3. Mentor conducts a whole group wrap-up.			
4. The students complete their learning log.			

OTHER:

11. Was this group managed effectively?

**0 Not Effective                      1 Moderately Effective                      2 Highly Effective**

12. How well did students appear to be engaged?

**0 Not Engaged                      1 Moderately Engaged                      2 Highly Engaged**

**Total:** \_\_\_\_\_/26 possible      \_\_\_\_\_%

**ADDITIONAL COMMENTS:**

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APPENDIX B  
CONTROL MENTOR FIDELITY EVALUATION

**Mentor:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Topic:** \_\_\_\_\_

Descriptors	Observed and done well (2)	Observed but not done well (1)	Not Observed (0)
Mentor models academic expectations (e.g. is prepared, stays on task)			
Students are engaged in homework and / or classwork assignments			
Mentor and students complete daily / weekly task sheets			
Mentor and student check and update Semester Book, Blackboard, E-mail for class assignments and / or documents			
Mentor managed the group effectively			

**Total:** \_\_\_\_\_/10 possible      \_\_\_\_\_%

**ADDITIONAL COMMENTS:**

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APPENDIX C  
CONSENT FORM FOR STUDENT PARTICIPATION  
IRB# 3340

Title: The effects of a reading comprehension strategy intervention on the reading skills of university student athletes with reading deficits

Project Director: Gerlinde Beckers, available: 8 a.m.-5 p.m.

Purpose: The present study aims to examine the effectiveness of reading comprehension strategy interventions with university students with reading deficits.

Research Procedures: A trained person will teach you a reading comprehension strategy intervention and track your learning and strategy use over time.

Potential Risks: There are no apparent risks to any participants.

Potential Benefits: The main benefit to you will be the chance to improve your reading skills.

Participation: You are free to choose to participate in the study. Also, you can quit the study at any time without penalty. Your relationship with the investigator or Louisiana State University will not be damaged in anyway if you choose not to participate in the study or if you decide at any time to quit.

Confidentiality: The confidentiality of your reply will be ensured. Names will only be released to research team members (i.e., investigators). Data will be kept in a locked file cabinet when not being gathered.

Signature: "I have been fully informed of the above-described procedure, its possible benefits and risks, and I am willing to participate in this study."

\_\_\_\_\_  
Student's Signature

\_\_\_\_\_  
Name (Please Print)

\_\_\_\_\_  
Date



APPENDIX D  
MENTOR CONSENT FORM FOR PARTICIPATION  
IRB# 3340

Title: The effects of a reading comprehension strategy intervention on the reading skills of university student athletes with reading deficits

Project Director: Gerlinde Beckers, available: 8 a.m.-5 p.m.

Purpose: The present study aims to examine the effectiveness of reading comprehension strategy interventions with university students with reading deficits.

Research Procedures: You will be trained by the researcher to teach a reading comprehension strategy intervention to university students with reading deficits and track their learning and strategy use over time.

Potential Risks: There are no apparent risks to any participants.

Potential Benefits: The main benefit to you is to increase your knowledge of strategy instruction and there will be the chance to improve reading skills of university students with reading deficits.

Participation: You are free to choose not to participate in the study. Also, you can quit the study at any time without penalty. Your relationship with the investigator or Louisiana State University will not be damaged in anyway if you choose not to participate in the study or if you decide at any time to quit.

Confidentiality: The confidentiality of your reply will be ensured. Names will only be released to research team members (i.e., investigators). Data will be kept in a locked file cabinet when not being gathered.

Signature: "I have been fully informed of the above-described procedure, its possible benefits and risks, and I am willing to participate in this study."

\_\_\_\_\_  
Mentor's Signature

\_\_\_\_\_  
Date

APPENDIX E  
DATA COLLECTOR  
CONSENT FORM FOR PARTICIPATION  
IRB# 3340

Title: The effects of a reading comprehension strategy intervention on the reading skills of university student athletes with reading deficits

Project Director: Gerlinde Beckers, available: 8 a.m.-5 p.m.

Purpose: The present study aims to examine the effectiveness of reading comprehension strategy interventions with university students with reading deficits.

Research Procedures: You will be trained by the researcher to conduct reading assessments procedures, fidelity checks, and teach a reading comprehension strategy intervention to university students with reading deficits and track their learning and strategy use over time.

Potential Risks: There are no apparent risks to any participants.

Potential Benefits: The main benefit to you is to increase your knowledge of research, assessment, and strategy instruction and there will be the chance to improve reading skills of university students with reading deficits.

Participation: You are free to choose not to participate in the study. Also, you can quit the study at any time without penalty. Your relationship with the investigator or Louisiana State University will not be damaged in anyway if you choose not to participate in the study or if you decide at any time to quit.

Confidentiality: The confidentiality of your reply will be ensured. Names will only be released to research team members (i.e., investigators). Data will be kept in a locked file cabinet when not being gathered.

Signature: "I have been fully informed of the above-described procedure, its possible benefits and risks, and I am willing to participate in this study."

\_\_\_\_\_  
Mentor's Signature

\_\_\_\_\_  
Date

APPENDIX F  
COLLABORATIVE STRATEGIC READING (CSR) TRAINING  
POST-ASSESSMENT

1. What is reading comprehension?
2. What is reading metacognition?
3. List 3 strategies good readers use to comprehend.
4. What are the four key components of reading comprehension?
5. What are CSR 's 4 reading strategies?
6. List and describe the 3 phases of scaffolded CSR instruction.
7. What are the four critical questions of teaching metacognition?
8. What are the 4 "clunk" fix-up strategies?
9. What are the 3 types of questions used in CSR?
10. What is a learning log?

**APPENDIX G**  
**QRI-4 SCORE SHEET**

Directions: Mark (+) for correct answer **OR** (-) for incorrect answer

Whales and Fish	Where do People Live?	Early Railroads	Farming on the Great Plains
1.	1.	1.	1.
2.	2.	2.	2.
3.	3.	3.	3.
4.	4.	4.	4.
5.	5.	5.	5.
6.	6.	6.	6.
7.	7.	7.	7.
8.	8.	8.	8.
<b>With Look-Backs</b>	<b>With Look-Backs</b>	<b>With Look-Backs</b>	<b>With Look-Backs</b>
Number Correct Explicit:	Number Correct Explicit:	Number Correct Explicit:	Number Correct Explicit:
Number Correct Implicit:	Number Correct Implicit:	Number Correct Implicit:	Number Correct Implicit:
<b>Total:</b>	<b>Total:</b>	<b>Total:</b>	<b>Total:</b>
___Independent 8 correct	___Independent 8 correct	___Independent 8 correct	___Independent 8 correct
___Instructional 6-7 correct	___Instructional 6-7 correct	___Instructional 6-7 correct	___Instructional 6-7 correct
___Frustration 0-5 correct	___Frustration 0-5 correct	___Frustration 0-5 correct	___Frustration 0-5 correct

Temperature and Humidity	Life Cycles of Stars – Part I	World War I- Part I
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.
5.	5.	5.
6.	6.	6.
7.	7.	7.
8.	8.	8.
9.	9.	9.
10.	10.	10.
<b>With Look-Backs</b>	<b>With Look-Backs</b>	<b>With Look-Backs</b>
Number Correct Explicit:	Number Correct Explicit:	Number Correct Explicit:
Number Correct Implicit:	Number Correct Implicit:	Number Correct Implicit:
<b>Total:</b>	<b>Total:</b>	<b>Total:</b>
___Independent 8 correct	___Independent 9-10 correct	___Independent 9-10 correct
___Instructional 6-7 correct	___Instructional 7-8 correct	___Instructional 7-8 correct
___Frustration 0-5 correct	___Frustration 0-6 correct	___Frustration 0-6 correct

## VITA

Gerlinde Grandstaff-Beckers has been involved with teaching, at various levels, since 1986. Her research interests are struggling adolescent readers, adolescents with reading disabilities, and teacher preparation. She has 11 years of public school teaching experience and four years of experience in higher education as an instructor and two years as a grant coordinator. Grandstaff-Beckers received an educational specialist degree the Louisiana State University College of Education in August 2006. She attended Southeastern Louisiana University, graduating Magna Cum Laude with a bachelor's in education also earning a master's in education with an additional 30 hours of coursework in administration and supervision of instruction at Southeastern Louisiana University.

Grandstaff-Beckers is a member of the Council for Exceptional Children; the Association for Supervision and Curriculum Development, Phi Kappa Phi, Kappa Delta Phi, and Gamma Beta Phi. She has publications in *Principal Leadership* and the ERIC online database. In addition she has presented on the local, state, and national levels.

Ms. Grandstaff-Beckers was the 2006 recipient of the American Association for University Women scholarship, the 2004 Theta Phi Alpha Faculty Member of the Year and a 1998 recipient of the Shaklee National Teacher of the Year Award for Improving Special Education.