

The Effects of a Mnemonic Map on Eighth Grade Reading Comprehension

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Abstract

The purpose of this study was to determine whether the use of a mnemonic map would positively affect the reading comprehension achievement of students in a selected eighth grade classroom. The Gates-MacGinitie Reading Test was the measurement used for this study. To examine the effectiveness of the mnemonic map on reading comprehension, this study utilized the pre-test/post-test quasi-experimental design. The treatment, use of the mnemonic map “SUPER-G,” took place for a one month period of time. No significant improvement was observed based on the pre- and post-test results; therefore, the hypothesis was rejected. Future research is recommended using a one-on-one instructional approach with a sample of students who are all at the same educational performance level.

CHAPTER I

INTRODUCTION

Because it requires many skills coming together at once, reading comprehension is a process with which many students struggle. For some, the difficulty can be traced to a lack of reading skills. For others, the trouble they experience with comprehension may be due to minimal encouragement at home, poor teaching methods, or a lack of motivation. Since the readability levels of texts become increasingly more complex as students progress in school, students cannot rely on decoding skills alone.

Overview

Alarmingly, the National Center for Educational Statistics reported in 1998 that 66% of eighth graders are reading below the proficiency level (Denti, 2004). In 2003, the National Assessment of Educational Progress determined that 31% of boys and 21% of girls in the eighth grade could not read at the basic literacy level (Calhoon, 2005). These results demonstrate that eighth graders are experiencing a crisis in reading comprehension.

In 2008, 194 students were enrolled in a private Catholic school in Maryland. Of these students, 72 students were in middle school (grades 6-8) and 27 students in eighth grade. In the middle school, 59% of students were female and 41% were male. In terms of racial make-up, 90% were Caucasian, 4% were Asian, 3% were Hispanic, and 3% were African American.

As a child, the researcher was recommended to Child Find for testing because of poor performance in reading comprehension. Though she was never formally diagnosed as having a learning disability, the researcher continued to experience difficulty with

reading comprehension throughout school. As a result, the researcher developed personal strategies in order to understand and recall reading material. In her work now as a reading teacher, the researcher is acutely aware that many students experience some of the same struggles. The idea behind this study, then, was to provide students with a specific strategy, a mnemonic map, which could help them become more successful readers.

Statement of the Problem

The purpose of this study was to determine whether the implementation of a mnemonic device would positively affect the reading comprehension of selected eighth grade students.

Hypothesis

The research of Manset-Williamson and Nelson (2005) and Kim, Vaughn, Wanzek, and Wei (2004) demonstrates that, with the use of mnemonic maps as a specific reading strategy, students make significant gains in reading comprehension.

It is therefore hypothesized that the use of a mnemonic map will have a positive effect on the reading comprehension of eighth graders.

Operational Definitions

The Gates MacGinitie Reading Test (GMRT) measures reading comprehension scores. The Gates MacGinitie Reading Test Fourth Edition was developed by MacGinitie, MacGinitie, Maria, Dreyer, and Hughes (2000) and is published by Riverside Publishing. This 93-question test consists of two portions, the vocabulary test with 45 questions and the comprehension test with 48 questions. It is designed to provide a general assessment of reading achievement. The GMRT level 7/9 form S was used for the pre-test; the GMRT level 7/9 for T was used for the post-test.

Mnemonic Map or device is a memory aid. Many mnemonic maps, such as the one used in this study, provide acronyms or acrostics guiding students to map out what they are going to read, are reading, and have read. At the same time, the use of the acrostic is designed to help the student remember this information. The mnemonic map utilized in this study was SUPER-G: **S**—set goals, **U**—use prior knowledge, **P**—predict what you will be reading in the text, **E**—explain the main idea in your own words, **R**—retell the most important parts of the text, and **G**—give yourself feedback.

CHAPTER II

A REVIEW OF THE LITERATURE

This review of the literature endeavors to explore various interventions used to improve the reading comprehension of students at the intermediate level. Section one provides an overview of comprehension, its relationship to education in general, and its impact on reading specifically. Behaviors and characteristics of students who demonstrate good reading comprehension skills in contrast to students who demonstrate difficulty with reading comprehension and issues affecting comprehension are then discussed in section two. What follows in section three is a description of effective reading instruction. The final section delineates strategies and interventions that have been studied in the hopes of improving reading comprehension.

Definition of Reading Comprehension

Comprehension, an essential tool of reading, is a “complex process” (Pardo, 2004, p. 272) by which one understands text. Manset-Williamson and Nelson (2005) define the relationship of comprehension to reading in short saying, “Comprehension is reading” (p. 61). Reading comprehension involves the arduous task of constructing the meaning of words and features of the text (using semantic memory) with accessing experience (using episodic memory or schema) and the deliberate or automatic use of strategies (Caccamise & Snyder, 2005; Kolić-Vehovec & Bajšanski, 2006). Without comprehension, one is not reading.

There are two phases one goes through as part of the process of comprehending text. The first phase is called the construction phase. In this phase a reader creates a general understanding of text while simultaneously merging that information with prior

knowledge. The second phase, the integration phase, is when extraneous information is discarded by the reader and a clearer picture of the text is formulated. This theory of the phases of comprehension developed by Kintsch (as cited in Caccamise & Snyder, 2005) is a context-sensitive model called the construction-integration (CI) model.

Reading is a necessary part of development, whether it be academic, personal, or social (Hay & Fielding-Barnsley, 2007). As students enter middle school, they begin to encounter increasingly difficult reading text. This text demands more than just reading at a basic level; therefore, as Caccamise and Snyder (2005) describe, “to reach higher levels of academic achievement requiring such abilities as literary criticism and understanding of science and technology, levels of advanced proficiency must be reached” (p. 5). This often poses a problem because at this stage, students have passed the age at which they can easily grasp new reading skills. Fortunately, at the intermediate level, students’ minds are more developed thus enabling them to tap into greater cognitive and metacognitive levels (Manset-Williamson & Nelson, 2005).

Despite the knowledge that “reading comprehension becomes increasingly important” (Hagaman & Reid, 2008, p. 222) as students progress through school, Chall (as cited in Manset-Williamson & Nelson, 2005), Foorman, Francis, Fletcher, Schatschneider, and Mehta (as cited in Manset-Williamson & Nelson), Snow, Burns, and Griffin (as cited in Manset-Williamson & Nelson), and Torgensen, Alexander, Wagner, Rashotte, Voeller, Conway, and Rose (as cited in Manset-Williamson & Nelson) point out that “a significant number of students enter the upper-elementary and middle school grades with significant deficits in their ability to read” (p.59). In fact, Moats (as cited in

Denti, 2004) says that 66% eighth graders in particular are reading below the proficiency level.

Characteristics of Students with Comprehension Difficulties versus Good Readers

There are many characteristics of “good” readers, the most basic of which is simply knowing what to do in order to understand what is read. As they read, these students use strategies to help them understand what they are reading. For example, they use the strategies of monitoring, predicting, inferring, questioning, connecting, summarizing, visualizing, and organizing (Pardo, 2004). This may mean students are monitoring their reading to make sure it makes sense and, if not, are correcting it to “repair meaning” (Pardo, p. 277). This is what Ketch (2005) refers to as “fix-up strategies” (p. 9). Interestingly, good readers often use more than one strategy at once leading to a complete understanding of the text they read (Ibid).

Students who experience difficulty in reading find reading an effortful experience. They struggle in an effort to eliminate information that is extraneous; this information interrupts their understanding of the text. The basic difference between good readers and poor readers is “the way they construct meaning for words” (Caccamise & Snyder, 2005, p. 14).

For students who experience difficulty with reading comprehension, there is not just one blanket reason why they struggle; there are many reasons. One reason why students have difficulty with reading comprehension at the intermediate level goes all the way back to their childhood. Two groups of researchers, Donahue, Voelkl, Campbell, Mazzeo, and Elley; and Mullis, Martin, Gonzalez, and Kennedy (as cited in Hay & Fielding-Barnsley, 2007), describe the importance of the relationship of parent-child

reading as a determinant of children's later literacy attainment. Background or world knowledge, a crucial aspect of reading, is in part developed at home. In addition, the availability of books and other printed material at home is a predictor of reading comprehension (Caccamise & Snyder, 2005). If there is little parent-child reading, no attention paid to the development of background knowledge, and a lack of books on hand in the home, a child will most likely experience difficulty with reading comprehension.

A student's home can also be a predictor of reading comprehension difficulties because of socio-economic status (SES). Hay & Fielding-Barnsley (2007) describe students who live in homes of a higher SES as having an advantage in later reading achievement scores. This goes back to parent-child involvement, as those students living in higher SES homes often have a higher percentage of parents involved in such activities as shared reading, reading aloud, and reading discussion (Ibid).

In addition to a student's home being a factor in his/her reading achievement, teachers also play a role. It is a fact that reading comprehension strategies should be taught in schools (Hagaman & Reid, 2008). The question remains: are teachers adequately prepared to teach the necessary strategies that help struggling readers? Reid and Lienemann (as cited in Hagaman & Reid) and Williams (as cited in Hagaman & Reid) suggest that "many teachers have not received training on how to effectively implement strategies" (Hagaman & Reid, p. 223). Even more alarming, the National Council for the Accreditation of Teacher Education (as cited in Schorzman & Cheek, 2004) explains that "less than half of the teacher education programs in the United States have certification programs in middle school education" (p. 38). Not only are many

teachers insufficiently prepared to teach reading strategies, many of them may not be satisfactorily prepared to even teach middle school.

Another reason students may struggle with reading comprehension is because of their lack of comprehension skills. For years, researchers believed that if a student's decoding skills were strong, he/she would be able to comprehend text. However, it has been shown that even when decoding skills are developed, some students still experience difficulty with comprehension (Caccamise & Snyder, 2005). Students who can simply identify words within a text are not necessarily able to understand the words' meanings and are not actually comprehending (Manset-Williamson & Nelson, 2005).

A textbook's features and/or its readability level may impact whether or not a student is able to comprehend the text, as well. Pardo (2004) describes some aspects of text that affect a reader's experience, saying, "the content of specific text, the difficulty or readability of it, and even the type font and size are factors of a text that can influence a reader's interaction" (p. 275). Also, at the intermediate level, students begin to encounter more expository text. This type of text is very different from the narrative prose that younger students are used to and is often more difficult to read because of its concentrated vocabulary and varied structure. Gajria, Jitendra, Shood, and Sacks (2007) explain that "many content area textbooks are often written beyond students' grade level reading ability and lack clear organization" (p. 210-211; 216).

Students who experience difficulty with reading comprehension may also suffer from a lack of motivation. Because they find reading complicated, they struggle to muster the motivation to complete assignments that require it. These types of students actually view some academic tasks as "threats" and develop "negative emotions and cognitions

prior to and following an academic task” (Sideridis, Mouzaki, Simos, & Protopapas, 2006, p. 160). Often, teachers try to use competition to motivate students to read, when in fact, competition has the opposite affect “because challenging events trigger a maladaptive set of cognitions directed by the possibility that the person is incapable of performing at adequate or desired levels” (Ibid, p. 174). Even though teachers attempt to aid students in their ability to comprehend by teaching them strategies, unless success is met with immediately, students are unlikely to continue to work on their reading (Manset-Williamson & Nelson, 2005).

The apparent lack of motivation may be an indication of a deeper concern: anxiety and fear of failure. Students who have experienced difficulty in reading comprehension have often suffered with this for years and believe they are incapable of ever achieving positively in the area of reading. According to Walker (2005), “Many struggling readers are not confident and believe they cannot comprehend; they make negative statements about themselves that lower their self-efficacy. Because of repeated failures...instead of learning alternative strategies from their failure, they often give up” (p. 689). These students are difficult to engage and generally reluctant to acknowledge their own positive gains.

Reading Instruction

According to Hagaman and Reid (2008), “Reading achievement is a cause for concern in the United States” (p. 222). Remedial instruction has been taught in school for years in an effort to combat this problem. According to Hanushek, Kain, and Rivkin (as cited in Calhoon 2005), Kavale (as cited in Calhoon), Swanson (as cited in Calhoon), Torgesen, Alexander, Wagner, Rashotte, Voeller, and Conway (as cited in Calhoon), and

Zigmond (as cited in Calhoon), although these remedial programs promote reading growth, there are not significant gains and the reading gap is not closed.

What can be done? Basic reading instruction begins with teaching students strategies. Providing explicit instruction of these strategies to students is effective in helping them to overcome their reading difficulties (Hagaman & Reid, 2008). Most strategies follow a similar pattern of teaching students the best ways to comprehend the text.

Instruction does not end with teaching the strategies; it is a process for which the teachers' deepest motive is for students to take over the use of the strategies on their own. It is essential that teachers initiate the process of teacher-student transfer. Students must begin to adopt the strategies as their own and begin using them without goading. This process begins with teaching the strategy, then modeling it. Next, students use the strategy during collaborative practice. Finally, it is independently practiced which completes the transfer from teacher to student (Manset-Williamson & Nelson, 2005). When this happens, argues Pardo (2004), students take on more responsibility and begin to grow more "confident, knowledgeable, and capable" (p. 278).

Interventions and Strategies for Improving Reading Comprehension

There are many interventions that have been studied and appear to have a positive impact on the achievement of reading comprehension. One such intervention that targets pre-reading is called the Pre-Reading Plan (PreP). This strategy first asks the student to think about what he/she already knows. The teacher then has students discuss their past experiences. Teachers can then "gauge student prior knowledge on a theme or concept

and provide necessary background knowledge to assist and enrich students' experiences prior to reading" (Schorzman & Cheek, 2004, p. 42).

Another strategy is the use of mnemonic cognitive maps. A mnemonic cognitive map is an acrostic or acronym to help students link new information to prior knowledge (Ehren, 2000). There are several examples of mnemonic maps. One mnemonic map is called RELATE: **R**ead quickly and locate each topic, **E**tch out one circle for each topic, **L**ook for ideas unique to each topic, **A**ncor three unique ideas for each topic in each circle, **T**ie together two or three ideas related to two of the topics, **E**nclose three ideas related to all three topics. A second mnemonic cognitive map similar to RELATE is TRAVEL: **T**opic—write down the topic and circle it, **A**sk—ask what the main idea and three details are and write them down, **V**—verify the main idea by circling it and linking its details, **E**xamine—Examine the next paragraph and ask and verify again, **L**ink—when finished with the story Link all of the circles (Kim, et al., 2004). A third mnemonic organizer is RAP: **R**—Read a paragraph, **A**—Ask myself, "What was the main idea and two details?", and **P**—Put it into my own words (Hagaman & Reid, 2008). Another mnemonic strategy is "'SUPER-G.' This method encourages students to **S**et Goals, **U**se prior knowledge, **P**redict what you think will be in the text, **E**xplain the main idea in your own words, **R**etell the most important parts of the text, and **G**ive yourself feedback" (Manset-Williamson & Nelson, 2005). In a study of the use of cognitive mnemonic maps, students who used them outperformed students who used conventional reading techniques (Kim et al.).

A third strategy for improving reading comprehension is called thinking aloud. This strategy involves the teacher self-verbalizing the regulation of comprehension

strategies in order to lead learners into verbalizing their own cognitive process (Walker, 2005). This is an instructional procedure that has been purported to increase comprehension for all students (Ibid). This strategy, according to Kucan and Beck (as cited in McKeown & Gentilucci, 2007), has a three-fold purpose: 1)to provide a way to understand the cognitive process, 2)to serve as a method of reading instruction, and 3)to allow for social interaction. In essence, students monitor their reading comprehension and make use of strategies that will help them better understand text.

For students to better understand what they read, they must employ the use of comprehension monitoring strategies. Comprehension monitoring while reading requires the student to ask him/herself questions such as:

‘Does the information make sense?’

‘What information is important?’

‘Is there any information that is not important?’ and

‘What is the purpose of the reading?’

According to Kolić-Vehovec & Bajšanski (2006), “Comprehension monitoring is important for the regulation of reading that is manifested in the way how readers plan, monitor, evaluate, and use information available to them as they make sense of what they read” (p. 440).

Another intervention teachers can utilize is the triarchic model which is based on a triarchic theory of human cognition (Sternberg, Grigorenko, & Jarvin, 2001). The three parts are analytical, creative, and practical, and according to Sternberg et al., when applied to reading can help students

capitalize on their strengths and compensate for or correct their weaknesses. Students think analytically when they judge, evaluate, compare and contrast, and

critique. They think creatively when they invent, discover, imagine, and suppose. They think practically when they implement, use, apply, and put into practice what they have learned. (p. 48)

One other way teachers can help students with reading comprehension difficulties is by implementing peer mediation or peer tutoring. According to Fuchs, Fuchs, Mathes, & Simmons (as cited in Mastropieri, Scruggs, Mohler, Beranek, Spencer, Boon, and Talbott, 2001); Fewwnqoos, Catts, Kamps, and Hall (as cited in Mastropieri et al.); Fantuzzo, King, and Heller (as cited in Mastropieri et al.); Maheady, Harper, Mallette, and Winstanley (as cited in Mastropieri et al.); and Maheady, Sacca, and Harper (as cited in Mastropieri et al.) students gain manifold benefits through the use of this strategy, including improved achievement in reading, improved academic self-esteem and social competence, and improved relationships with peers.

One type of peer mediation is classwide peer tutoring (CWPT) in which students are paired together as tutor and tutee. Typically, one student with special learning needs is partnered with a student who has average achievement in reading. The tutoring sessions focus on targeting basic learning skills like phonics, word recognition, and spelling (Mastropieri et al., 2001).

Two other types of peer mediation are PALS and PALS + LST. PALS refers to Peer Assisted Learning Strategies. The addition of LST refers to Linguistics Skills Training (Calhoon, 2005). PALS is program that is actually based on the CWPT model. During PALS, students share in three important parts: 1)partner reading, 2)paragraph shrinking, and 3)prediction relay. Results of studies on PALS reveal a “positive trend for improvements in reading comprehension skills in kindergarten to 12th-grade students” (Ibid, p. 425) and “increased performance on reading comprehension measures”

(Mastropieri et al., 2001, p. 19). The addition of Linguistic Skills Training, which uses linguistic signaling and codes for syllable pattern identification, resulted in “significant gains...in Word Identification and Passage Comprehension” (Calhoon, p. 431).

Another strategy that can help improve reading comprehension achievement is the use of graphic organizers. These are visual and spatial displays that help teaching and learning of textual material through the use of what Darch and Eaves (as cited in Kim et al., 2004) describe as ““lines, arrows, and a spatial arrangement that describe text context, structure, and key conceptual relationships”” (p. 105). The graphic organizers provide students with a way to relate their current knowledge to new learning. According to Griffin, Malone, and Kameenui (as cited in Schorzman & Cheek, 2004), students who received explicit instruction in the use of graphic organizers experienced significant gains in achievement.

Conversation is another intervention that can be used by teachers to help their struggling reading students. Meaningful discussion not only helps students “make sense of their world,” (Ketch, 2005, p. 8), but it also “helps students sort out their ideas of the world and begin to understand how they fit into it. Used as a connection to cognition strategies, conversation fosters comprehension acquisition” (Ibid). There are many ways to implement conversation into the classroom, and Ketch provides some examples including literature circles, book clubs, cross-age conversations, whole-class discussions, think/pair/share, small group discussion, and individual conferences.

Summary

Reading comprehension achievement is a concern for many teachers of middle school students. The intermediate level is of particular concern because of its heavy use

of high level readability expository text. Most students are not quite prepared to deal with this type of text; they lack the proper skills in order to thoroughly and accurately comprehend it. In addition, many teachers also wrestle with how to best meet the needs of their students who struggle with reading comprehension. There are a myriad of strategies that can be put into practice; however, teachers may need more instruction themselves about which strategies would work for their students and how best to implement them.

CHAPTER III

METHODS

This study was conducted to determine the effect of the use of a mnemonic map on the reading comprehension of eighth grade students enrolled in a general education language arts course.

Design

The study used a quasi-experimental design in which there were two groups—a treatment group and a control group—to examine reading comprehension scores before and after the implementation of a mnemonic map. The independent variable for this study was the mnemonic map, and the dependent variable was reading comprehension.

The study took place over a one month time period, and a pre-test/post-test model was used to determine the effectiveness of the use of a mnemonic map.

Participants

The study took place at a local private Catholic School in Maryland which provides an education for students in grades kindergarten through eight. St. Joan of Arc School is a private Catholic school located in Aberdeen, Maryland and provides an education for students in grades Kindergarten through eight. A school within of the Archdiocese of Baltimore, St. Joan of Arc is one of 96 schools in 9 jurisdictions including schools in Allegany, Baltimore, and Washington counties. With the help of the Sisters of St. Casimir, St. Joan of Arc opened its doors in 1954 and is now under the supervision of Dr. Ronald Valenti, the executive director and superintendent of schools within the archdiocese.

In 2008, 194 students were enrolled in St. Joan of Arc School with 72 students in middle school (grades 6-8) and 27 students in eighth grade. In the middle school, 59% of students were female and 41% were male. In terms of racial make-up, 90% were Caucasian, 4% were Asian, 3% were Hispanic, and 3% were African American.

For this study, participation was limited to fourteen eighth grade students. The sample which was randomly selected using a random selection table of numbers, included five males and nine females of which races there were eleven Caucasian, two African American, and one Hispanic student. Three of the fourteen students have an Individualized Education Program (IEP) for reading. The remaining thirteen students in the class represented the control group. Of these students, five were males and eight were females, and twelve were Caucasian and one was Hispanic.

Instrument

The instrument used for this quasi-experimental pre-test/post-test study was the Gates-MacGinitie Reading Test Fourth Edition Level 7/9 published by Riverside Publishing. Form S was administered as the pre-test in March of 2009, and Form T was administered as the post-test in April of 2009. Riverside Publishing (2006) states that the forms are “for pre- and posttesting, which can be used to measure growth over time or monitor program effectiveness.” The test follows a multiple-choice format and includes 43 vocabulary questions and 48 comprehension questions. The vocabulary portion is a “test of word knowledge in which the student must choose the word or phrase that means most nearly the same as the test word” (MacGinitie, MacGinitie, Maria, & Dryer, 2000, p. 5). “The comprehension portion of the test consists of prose passages selected from

published works. The passages are fiction and non-fiction, from various content areas, and written in a variety of styles” (Ibid); students answer questions based on the readings.

The Gates-MacGinitie Reading Test (GMRT) was utilized as the instrument for two reasons. This test can be given to an entire class at once, rather than testing students individually, such as the QRI-4. In addition, the GMRT was selected since it measures silent reading comprehension, a vital measurement in this particular study.

Procedure

During two class sessions of 45-minutes each, all students in the twenty-seven member eighth grade class were administered the two portions of the GMRT. Next, fourteen students were randomly selected, using a table of random selection numbers, from the class to be the treatment group. This group of students then began receiving training from the instructor on the mnemonic map SUPER-G.

Once the instructor had selected the fourteen students for the treatment group, these students were grouped by random selection, again using a table of random selection numbers, in order to provide the instructor with a smaller group setting. Each of these two groups received the same instruction for the duration of the treatment. During a one month period, the instructor met with each of the groups three times a week for 20 minutes each.

Before implementation of the treatment, the instructor began by providing students with an explanation of the link between a mnemonic map and reading. Then began the actual instruction of use of the mnemonic map; each letter of the map represented one 20-minute session for a total six sessions or two weeks.

Following instruction on how to use each letter of the map and the map as a whole, students were provided with fiction and non-fiction text with which to practice using the map. Students read the text on their own and filled out the map before, during, and after reading as applicable. Following reading, students were given five comprehension questions to answer about the reading.

After one month of instruction, the post-test was administered to all students to determine whether the use of a mnemonic map had a positive effect on reading achievement.

CHAPTER IV

RESULTS

The purpose of this study was to determine the effects of a mnemonic map on the reading comprehension performance of eighth grade students.

Students were randomly selected to form two groups—a treatment and a control group. Both groups were given a pre-test prior to the treatment. The treatment group was instructed using a mnemonic map. Following the treatment, both groups were given a post-test. An independent samples *t*-test analysis of the results was performed. When comparing the means, the results demonstrate no significant differences between the control and treatment groups. Since the hypothesis stated that use of a mnemonic map would improve the reading comprehension scores of students, the hypothesis was not supported as there was no significant difference in the results of the two groups.

Table 1 shows the results of the vocabulary portion of the pre- and post-tests.

Table 1
Group Statistics Vocabulary

Student		N	Mean	Std. Deviation	Std. Error Mean	t	Sig. (2-tailed)
Pre-Test Vocabulary	Treatment	14	26.0000	8.73543	2.33464	-1.574	.128
	Control	13	30.8462	7.10453	1.97044	-1.586	.125
Post-Test Vocabulary	Treatment	14	28.0714	8.69539	2.32394	-1.346	.190
	Control	13	32.2308	7.22442	2.00369	-1.356	.188

Table 2 shows the results of comprehension portion of the pre- and post-tests.

Table 2
Group Statistics Comprehension

Student		N	Mean	Std. Deviation	Std. Error Mean	t	Sig. (2-tailed)
Pre-Test Comprehension	Treatment	14	28.0000	7.40062	1.97790	-.900	.377
	Control	13	31.5385	12.56062	3.48369	-.883	.388
Post-Test Comprehension	Treatment	14	30.2857	8.17528	2.18493	-1.338	.193
	Control	13	35.1538	10.65243	2.95445	-1.325	.199

Table 3 shows the results of overall scores of the pre- and post-tests.

Table 3
Group Statistics Overall

Student		N	Mean	Std. Deviation	Std. Error Mean	t	Sig. (2-tailed)
Pre-Test Overall	Treatment	14	54.0000	15.32218	4.09503	-.912	.370
	Control	13	60.7692	22.78213	6.31863	-.899	.379
Post-Test Overall	Treatment	14	58.3571	16.11310	4.30641	-1.405	.172
	Control	13	67.3846	17.28457	4.79388	-1.401	.174

Figure 1 shows the raw scores for the vocabulary portion of both the pre- and post-tests of the treatment group.

Figure 1

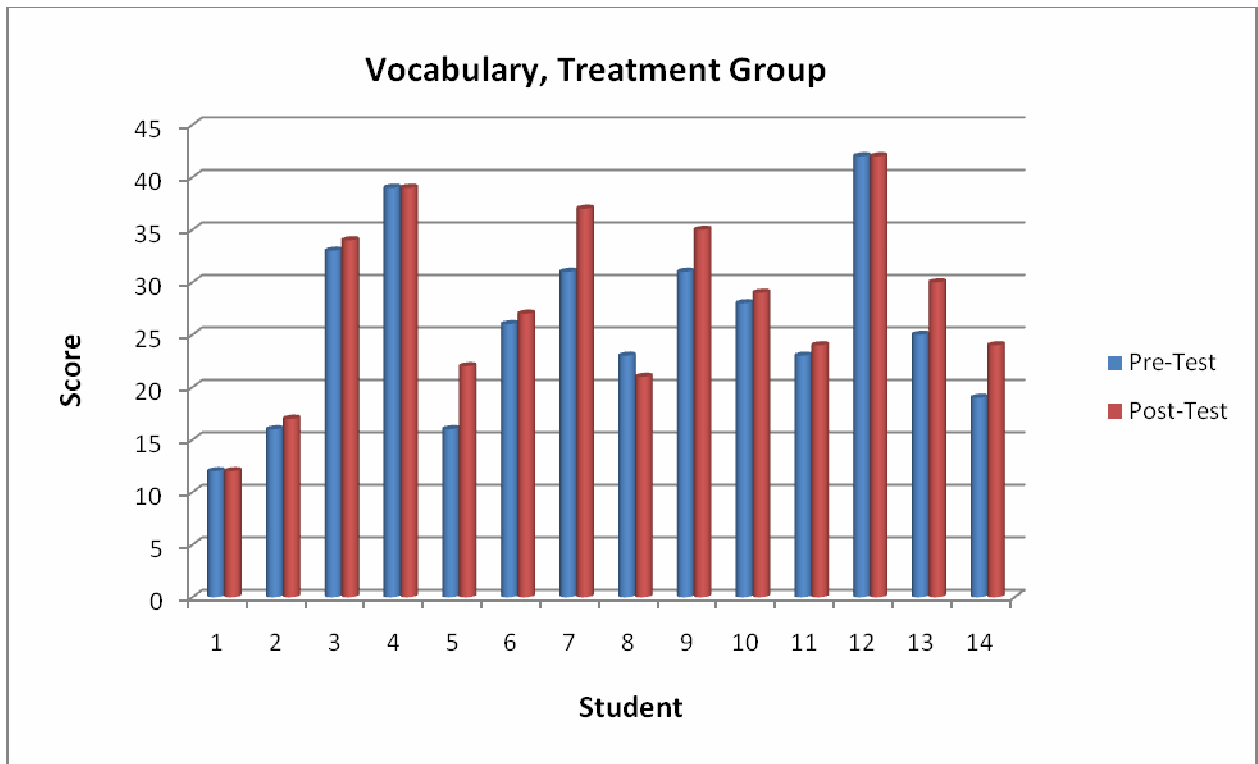


Figure 2 shows the raw scores for the vocabulary portion of both the pre- and post-tests of the control group.

Figure 2

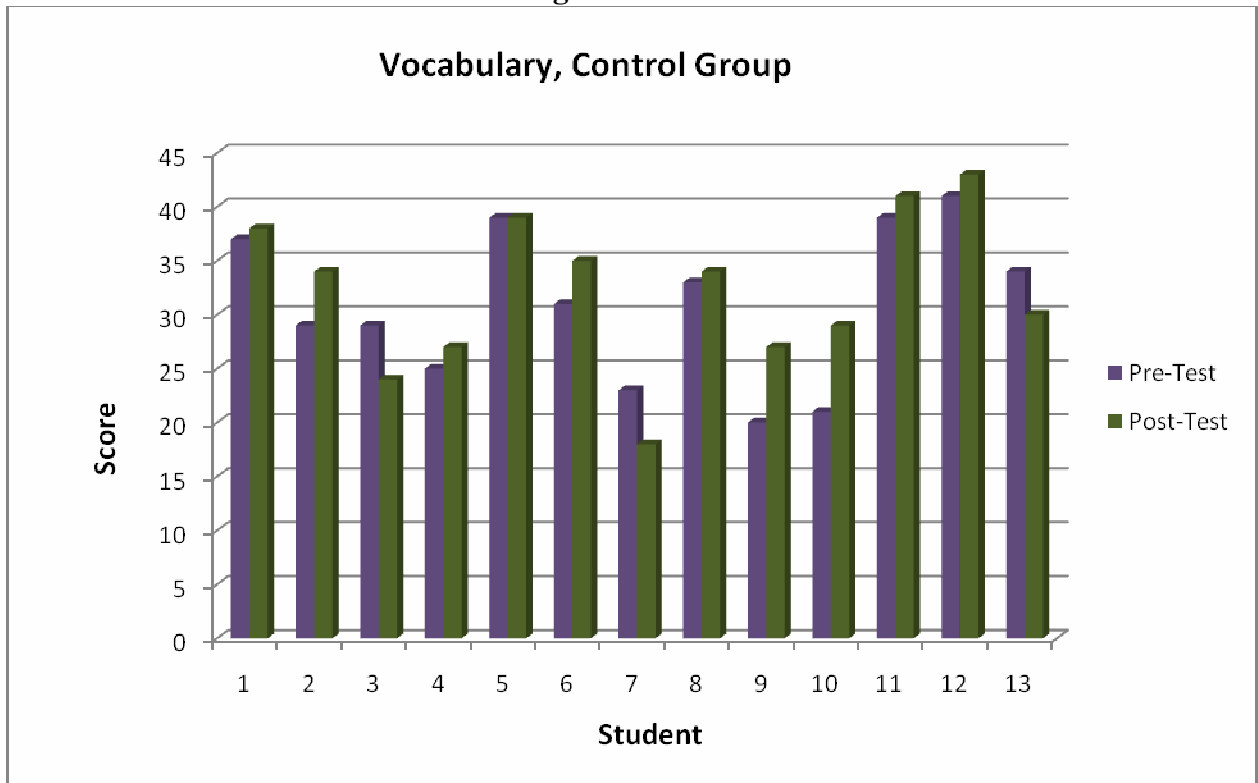


Figure 3 shows the raw scores for the comprehension portion of the pre- and post-tests of the treatment group.

Figure 3

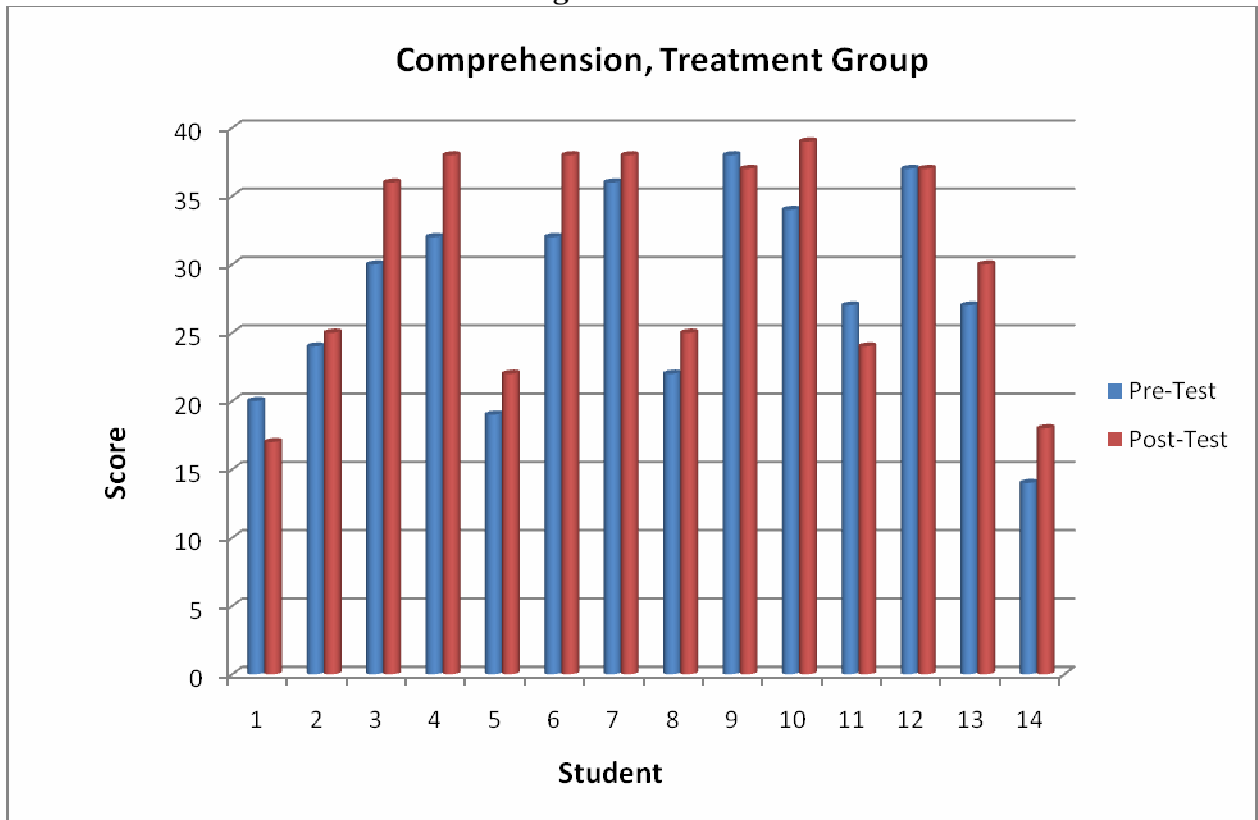


Figure 4 shows the raw scores for the comprehension portion of the pre- and post-tests of the control group.

Figure 4

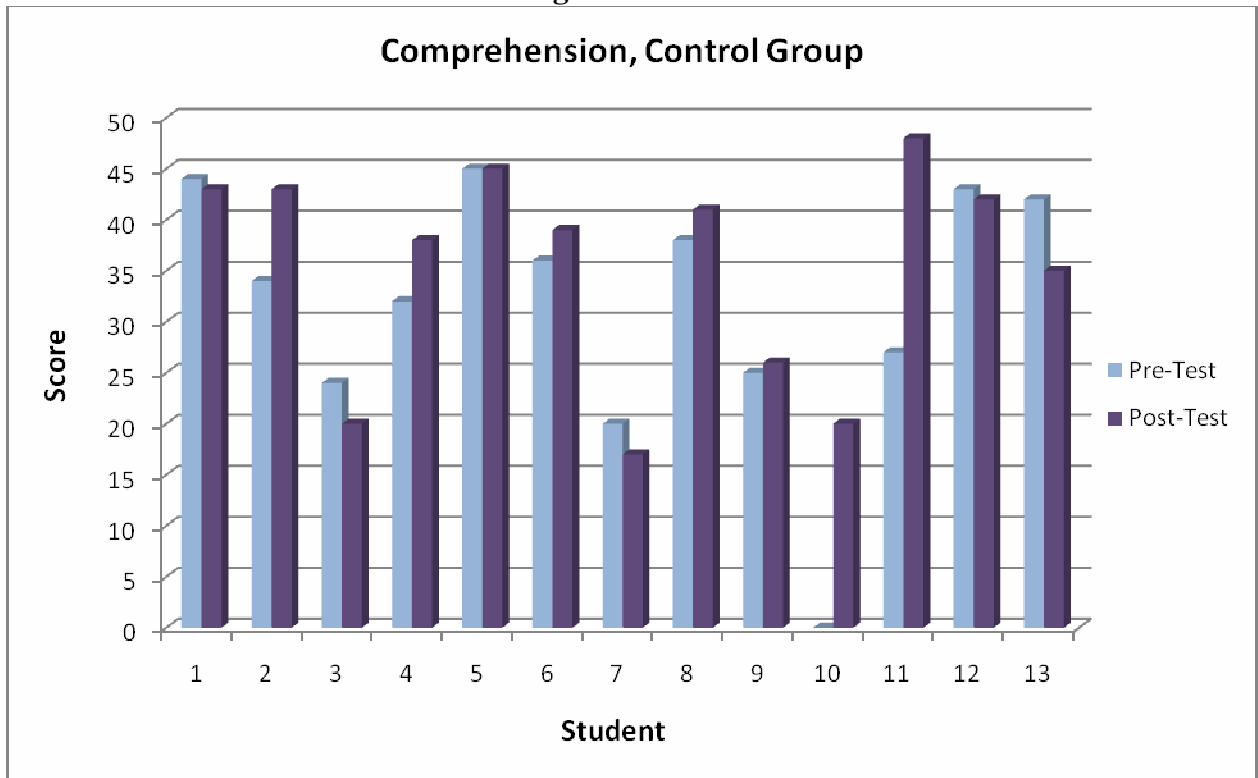


Figure 5 shows the overall raw scores of the pre- and post-tests for the treatment group.

Figure 5

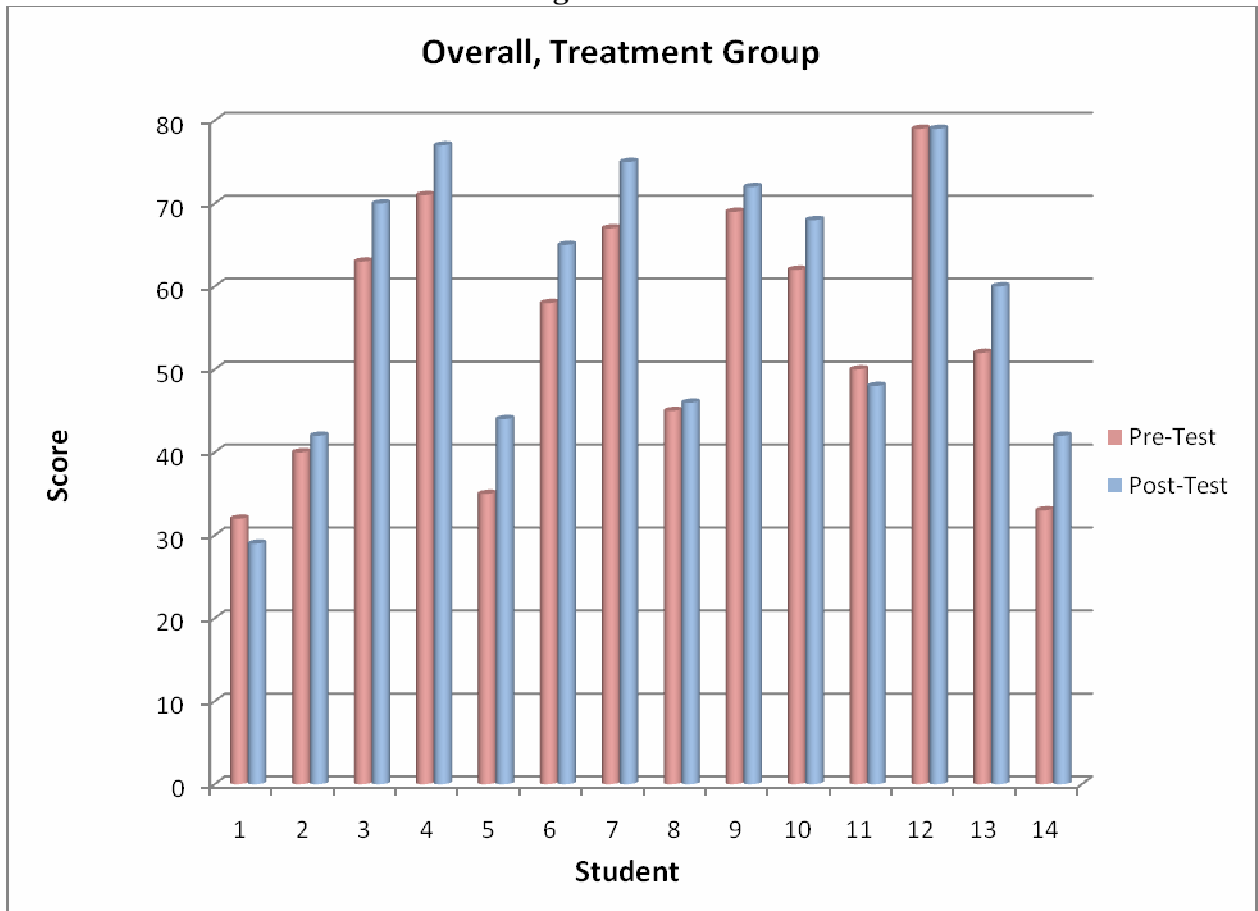
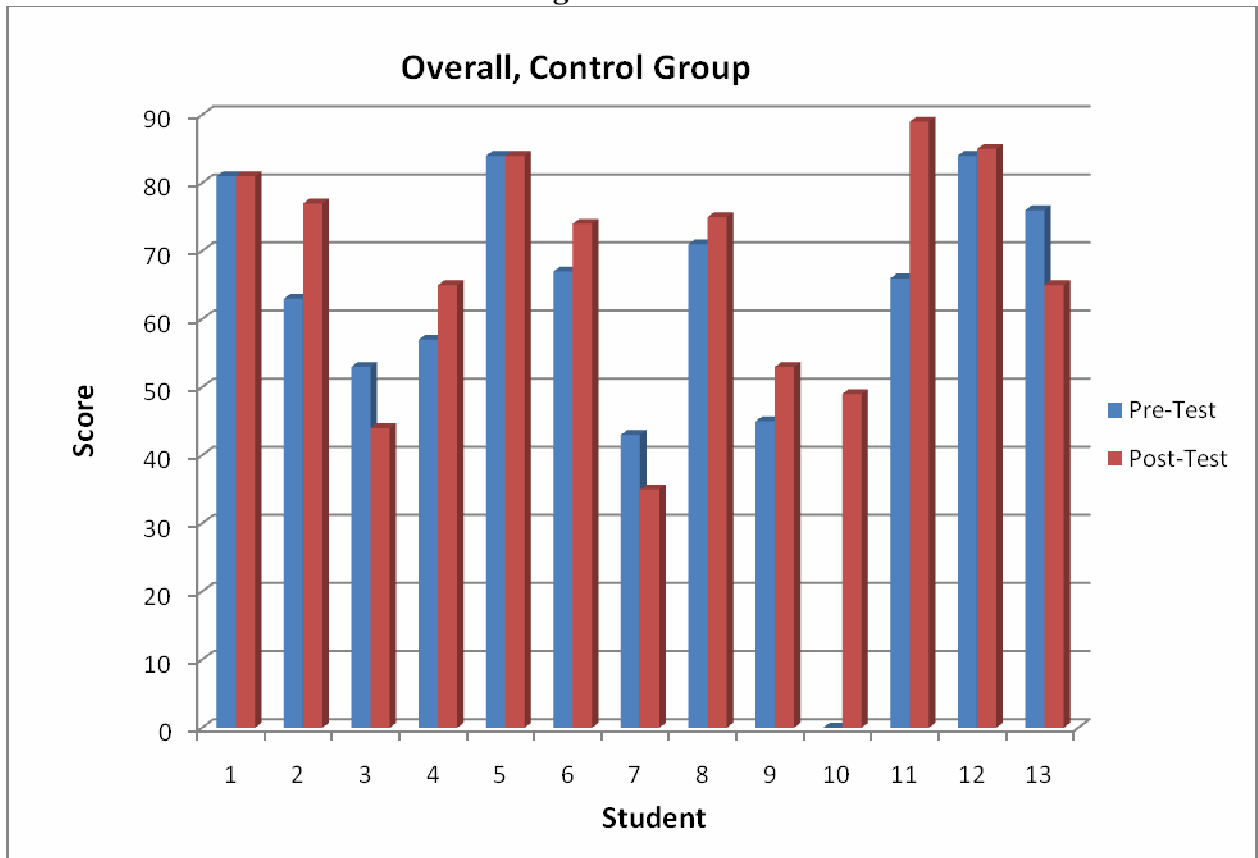


Figure 6 shows the overall raw scores of the pre- and post-tests for the control group.

Figure 6



CHAPTER V

DISCUSSION

The results of this study did not support the original hypothesis that a mnemonic map would positively affect the reading comprehension of eighth grade students. The results of the pre- and post-tests reveal that students in the treatment group did not make significant improvement from the pre-test to the post-test when compared to students in the control group. In addition, there was no significant statistical difference between the results of the treatment and the control group. As a result, the hypothesis must be rejected.

Table 1 in chapter four demonstrates a two point positive increase in the pre- and post-test means of the vocabulary portions of the data for both the treatment and control groups. Despite the two point increase, the difference is not significant. Table 2 also shows a slight positive increase between the means of the pre- and post-test results of the comprehension portion for both the treatment and control groups. However, again, the gain is not significant. Table 3 represents the overall results of both portions of the test; no significant gains are displayed.

Figures 1-6 display the raw scores of the treatment and control groups on the vocabulary and comprehension portions as well as overall. Each figure demonstrates that some students had a slight increase in scores while a few students experienced a slight decrease in scores. No significant difference can be noted from the raw scores of the pre- and post-tests on the vocabulary portion, the comprehension portion, or overall.

Implications of the Study

Though the hypothesis was not supported by significant results, the findings did indicate a slight increase in scores. Using the mnemonic map provides a way for students to connect their experience and prior knowledge to new learning; had students been given a greater amount of time to receive instruction about the mnemonic map and additional opportunities to apply it to their learning, the results may have been more positive. It may also be the case that applying the treatment of a mnemonic map on other groups of students would reveal a more positive outcome.

Threats to Validity

There are several factors that pose a threat to the validity of this study. Although students in the treatment group were provided with a graphic organizer to guide each letter representing the mnemonic map and encouraged to fill each letter out, not all of the students made use of the organizer. Students who did not use the graphic organizer may have not fully understood each element of the map. Although a student could use the mnemonic map mentally, not using the tangible map (i.e. graphic organizer) may have hindered him/her from using the mnemonic map at all.

In addition, the GMRT is a timed test, and students were unable to use the mnemonic map graphic organizer during testing. Because some students were accustomed to using the graphic organizer during reading, not being able to use the organizer during testing may have impacted their results. Using a test that is not timed may have provided more reliable results.

Also, because this study was conducted over only a one-month period, time did not necessarily allow for significant improvement. Therefore, continued explicit

instruction and independent use of the mnemonic map for a period longer than one month may provide different results.

Finally, it is important to note that three of the students in the treatment group have an Individualized Education Program (IEP) in reading. This may have impacted the results for several reasons. Since none of the students in the control group have IEPs, the two groups did not represent equal ability levels. For students with an IEP in reading, learning how to use a mnemonic map may work best in a one-on-one setting. Although the students were instructed in small groups, a one-on-one approach may have worked better because it allows the instructor to customize the instruction to students' needs and abilities. In addition, it may take students with IEPs a greater length of time to feel confident in their independent use of the map.

Comparison to Findings in Previous Research

How to improve students' comprehension in reading has been a topic of extensive research for decades. There are a myriad of strategies and specialized reading programs that have been implemented and tested in the hopes of improving reading comprehension. One such study focused on whether explicit teaching of comprehension strategies has a significant positive effect on the reading comprehension of middle school students. In their study, Manset-Williamson and Nelson (2005) created two treatment groups which both received comprehension strategy instruction. In one treatment group, the students were provided with explicit instruction, while in the other students were exposed to the strategies and it was assumed that students would "naturally begin to use the strategies independently" (p. 66). The results of the testing revealed that students in the group in which strategies were explicitly taught, made greater gains than those in the group in

which strategies were introduced but not taught directly. Manset-Williamson and Nelson's conclusion is that "the more explicit the comprehension strategy and self-regulatory instruction, the higher the likelihood that older children with RD (reading difficulties) will make significant gains in reading" (p. 71).

The present study does not support the findings of Manset-Williamson and Nelson (2005); however, there remain significant differences between the ways in which the studies were conducted. Students in the Manset-Williamson and Nelson study were provided with one-on-one instruction one hour per day, four days a week for five weeks during the summer. Students in the present study were provided with small group instruction for twenty minutes three times a week for one month during the school year. Also, the tutors providing the instruction in the Manset-Williamson and Nelson study had completed 14 hours of direct training on implementation of the treatment. In addition, they were formally observed during the treatment process and provided with corrective feedback when necessary. The researcher of this study had no formal training on the implementation of the specific treatment.

Students participating in the Manset-Williamson and Nelson (2005) study were not only provided with a mnemonic map to aid in comprehension, they were also taught decoding strategies and training in phonological awareness and reading fluency. Also, the tutors were able to select reading texts based on the individual reading and interest levels of each student. Students in the present study were provided with instruction on the use of the mnemonic map alone, and all students in the treatment group read the same texts.

Because of the differences between the two studies, the results of the present study do not support the finding in the Manset-Williamson and Nelson (2005) study.

Many other studies have focused on other strategies in the hopes of improving reading comprehension. Some of the strategies include paraphrasing, graphic organizers, and peer tutoring. Hagaman and Reid (2008), whose study included three students who were at risk of failing reading, found that using a specific paraphrasing strategy increased the students' reading comprehension scores. Kim et al. (2004) reviewed the research of previous studies on the use of graphic organizers and found that graphic organizers were associated with immediate gains in reading comprehension based on post-tests results. These gains, however, were not found on transfer testing as "students did not transfer their skills to novel reading situations" (p. 115). Kim et al.'s research found some studies with positive results and some with no significant results. Mastropieri et al. (2001) determined that peer tutoring "yielded significant performance advantages" (p. 18) on performance on reading comprehension tests.

Implications for Further Research

The conclusions of previous studies indicate that it is possible that one-on-one instruction is necessary in order for this kind of treatment to have a positive effect. One-on-one instruction allows the instructor to customize the instruction to each student's needs. Because the present study used a small group instructional approach, the results may not have been as positive as they would have been with the use of one-on-one instruction. A future study using one-on-one instruction would likely be costly and more time consuming, but based on earlier research, students who are taught one-on-one will have a greater opportunity to grasp the explicit instruction and use the mnemonic map independently.

In addition to one-on-one instruction being vital, teaching other reading interventions such as decoding and fluency strategies may be necessary. The use of a mnemonic map alone, as applied in the present study, may not be sufficient to improve reading comprehension. Further research needs to be conducted in order to determine the effectiveness of a mnemonic map on reading comprehension.

Another factor to take into consideration in future research is the educational performance level of the subjects used in the study. Previous studies have been conducted using subjects who have the same educational background. For example, in the Manset-Williamson and Nelson (2005) study, the subjects all read “at least two years below their expected grade-level achievement” and were “confirmed to have significant difficulties with reading” (p 62). Only students who demonstrated difficulty with reading were included in the study. Subjects in the present study had varying performance levels in reading. It may be important to the results of any future study to include students of similar abilities.

Conclusion

This study was an attempt to determine the effectiveness of the use of a mnemonic map on reading comprehension. The results of the current study do not support the findings of Manset-Williamson and Nelson (2005); however, there were considerable differences in the subjects used for the studies and the method by which the treatment was administered. Based on the results of this study, further research should be conducted using a one-on-one instructional approach with subjects with similar educational performance levels to examine whether the use of a mnemonic map improves reading comprehension.

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