

Comparing the Effects of
Traditional Sustained Silent Reading
and Scaffolded Silent Reading
on Reading Comprehension and Disposition

Master's Thesis

Saint Mary's University of Minnesota

Lauren E. Knuttila

April 26, 2014

Table of Contents

Abstract 3

Introduction 4

Review of Literature 8

Methodology 19

Results 24

Discussion 26

References 29

Appendix 33

Abstract

The amount of time that teenagers spend reading for pleasure is on the decline, and educators are looking for ways to motivate their students to read more. One commonly used strategy is that of giving students time to read silently during class. This study compared two strategies that encourage students to read more: Scaffolded Silent Reading and traditional sustained silent reading. All students were given 10 minutes a day to independently read a book of their choice. Students in the treatment group also received instruction on picking out appropriate books and spent time conferencing with the teacher using different comprehension strategies. In the end, there was no statistically significant difference between the control and treatments groups. More research needs to be done on increasing the amount of time actually spent reading and its effect on comprehension.

Introduction

Educators have often likened reading to a skill that needs to be practiced to achieve success, telling students, “The more you practice reading, the better reader you will be.” This mindset has pervaded literacy programs across the country because encouraging students to read more seems to be a common-sense practice. Educators have developed reading strategies that encourage students to read more as reading practice for classroom use. Consequently, when the National Reading Panel (NRP) (NICHD, 2000) concluded in its report on reading research that there was no research-based evidence to support encouraging students to read more, controversy ensued. The NRP determined that most of the research studies done on encouraging students to read more had serious design flaws and did not meet their rigorous experimental research design standards. Because of these gaps in research, the NRP could not support using any strategy that encouraged students to read more (e.g., sustained silent reading) until more rigorous research could be done (NICHD, 2000).

Despite the NRP’s findings, educators cannot seem to give up their efforts to increase the amount of reading for pleasure that students do. The National Endowment for the Arts implied the need for efforts at increasing reading amounts when they published the report *To Read or Not to Read: A Question of National Consequence* (2007) that concluded teens were reading less often and for shorter amounts of time compared to other age groups and teens of the past, while internet use was increasing exponentially – 53 percent between 1997 and 2003. Clearly, the constant presence of media and technology has greatly impacted how youth spend their leisure hours, resulting in young adults who do not choose to spend their free time reading for pleasure.

Since there is a need to increase the amount of time our teens and young adults spend voluntarily reading, educators have not given up on strategies that might encourage students to

read more. In answer to the NRP's call for more rigorous research on the strategy of sustained silent reading, researchers created an updated strategy called Scaffolded Silent Reading (ScSR) (Reutzel, Fawson, & Smith, 2008). This new strategy addressed some of the NRP's concerns about a traditional sustained silent reading strategy. ScSR incorporates teacher conferences and teacher support to help students choose books at their independent level, read a variety of texts in different genres, and set goals for book completion. They found that a carefully designed, executed, and scaffolded silent reading experience can be just as effective as the research-supported strategy of guided, repeated, oral reading at improving students reading fluency and comprehension (Reutzel et al., 2008). However, more research needs to be done on the topic of encouraging students to read more and what specific strategies can make it an effective strategy, if at all.

Purpose

The purpose of this study is to determine the effectiveness of Scaffolded Sustained Silent Reading as compared to Traditional Sustained Silent Reading on 8th grade readers' reading comprehension and reading self-perception.

Justification

Traditional SSR approaches are included in almost every teacher education program and are a widespread practice because of their intuitive appeal. Personally, I have used SSR on an almost daily basis in my classroom in an attempt to foster a literacy-rich environment and a love of reading in my students. I have watched students who have never read a book before find a book that they enjoy and get "hooked" on reading. Additionally, the Common Core ELA Standards (2010) expect students to independently self-select, read, and comprehend a range of texts at their grade complexity level with appropriate scaffolding (Benchmark 8.4.10.10).

However, research, specifically the NRP (2000), has shown a limited effect from using a Traditional SSR strategy to increase fluency, comprehension, or overall reading attitude. In a more recent study done by Reutzel, Fawson, and Smith (2008), a Scaffolded SSR strategy was shown to be just as effective as a Guided Repeated Oral Reading strategy at improving students' fluency and comprehension. The study by Reutzel et al and my own study have important implications for the classroom. If Scaffolded SSR, a whole-group strategy, is as effective as Guided Repeated Oral Reading, a small-group strategy, at improving fluency and comprehension, considerable time (both planning and instructional) can be saved. Along as there are sufficient resources to allow a range of reading (levels and genres), there is no cost to implement.

Research Questions and Hypotheses

Question 1. To what extent will modifying a traditional SSR strategy into a Scaffolded SSR strategy increase the reading comprehension of 8th grade readers as measured by a curriculum-based assessment (maze test)?

Question 2. To what extent will modifying a traditional SSR strategy into a Scaffolded SSR strategy increase the reading self-perception of 8th grade readers as measured by a reading self-perception scale?

Hypothesis 1. Scaffolded SSR will be significantly more effective at increasing 8th grade students reading achievement as compared to Traditional SSR as measured on a curriculum-based assessment.

Hypothesis 2. Scaffolded SSR will be significantly more effective at increasing 8th grade students reading self-perception as compared to Traditional SSR as measured on a curriculum-based assessment.

Definition of Terms

Disposition. A disposition is a “tendency to exhibit frequently, consciously, and voluntarily a pattern of behavior that is directed to a broad goal” (Katz, 1993, p. 2).

Independent Reading Level. The independent reading level is the level of text that a student can read with very high accuracy (generally 98%) and comprehension.

Maze Test. A maze test is a curriculum-based assessment that measures reading comprehension. It includes a passage of grade-level material, roughly 300 words in length. After the first sentence, every seventh word is deleted and replaced with three alternatives, one correct and two distractors. Students are given three minutes to read the passage and circle the correct option from the given alternatives.

Reading Self-Perception. Reading self-perception is a psychological term that describes how “students feel about themselves as readers” (Henk & Melnick, 1995, p. 471). It includes four domains: progress, observational comparison, social feedback, and physiological states.

Scaffolded Sustained Silent Reading. Scaffolded SSR differs from Traditional SSR in that students are guided in selecting a book at their independent reading level, and teachers conference with students periodically to scaffold comprehension instead of modeling during the independent reading time.

Traditional Sustained Silent Reading. Traditional SSR is considered giving students extended time to read books of their choice independently with no accountability, while a teacher models the practice by reading as well.

Brief Overview of Study

To investigate the question of how effective a Scaffolded SSR approach is compared to the traditional approach, I will first obtain a pre-test maze score and pre-test Reading Self-

Perception score for four eighth grade English classes. The classes will be matched based on the means and standard deviations from the maze pre-test, and then two classes will become the treatment and two classes will become the control. The control will receive 12 weeks of traditional SSR, while the treatment group will receive 12 weeks of Scaffolded SSR. At the conclusion of 12 weeks, I will collect post-test scores on the maze test and the Reading Self-Perception survey to determine if the Scaffolded SSR approach did in fact have a greater impact on eighth graders' reading comprehension and self-perception.

Review of Literature

Traditional Sustained Silent Reading

The strategies that encourage students to read more may have many names (e.g. Sustained Silent Reading (SSR), Drop Everything and Read (DEAR), or Accelerated Reader (AR)), but they all have one goal in mind: allowing students time to read independently to encourage the development of a habit and enjoyment in reading. Getting students, specifically teens, to read more is not easy. One study found that teens and young adults read less often and for shorter amounts of time compared to the average American and past Americans, spending just 7-10 minutes on voluntary reading a day (National Endowment for the Arts, 2007). This lack of reading implies a lack in motivation to read. Lilian Katz calls this a disposition, a "tendency to exhibit frequently, consciously, and voluntarily a pattern on of behavior that is directed to a broad goal" (1993, p. 2). She argues that dispositions should be educational goals. Just because a skill such as reading is taught, learned, or acquired does not mean that it is practiced, used, or applied. Sustained Silent Reading is one educational strategy that attempts to develop a reading disposition in students.

Main components. Traditional sustained silent reading has three main components: self-selection of materials by students, teacher role-modeling, and non-accountability for the students (Yoon, 2002; Manning & Manning, 1984). In traditional SSR, students are encouraged to self-select their reading materials. Allowing students' choice in reading is supported by the self-determination theory (Deci & Ryan, 1985). When students are able to take control of an activity, it increases their intrinsic motivation, which increases their enjoyment and satisfaction of an activity. Another main component of traditional SSR is teacher role-modeling. During the assigned reading time, the teacher is supposed to model interest and enthusiasm for reading by actually reading. Social learning theory supports this idea because humans learn behaviors partly through watching and imitating others (Bandura, 1986). One study found that fourth-graders increased their on-task behaviors 20-30% when a teacher modeled the correct behavior of reading (Wheldall & Entwistle, 1988). The last main component of traditional SSR is non-accountability. Students are not to be held accountable for the material they read; rather, reading should be seen as a leisure activity to help encourage reading as a lifelong activity.

SSR as a fluency strategy. Allowing students the time to read materials of their choice, even without accountability, has been considered good reading practice. Practice time in reading is needed to develop fluency in our readers (Snow, Burns, & Griffin, 1998). The NRP defines fluency as "the ability to read a text quickly, accurately, and with proper expression" (NICHD, 2000, p. 3-5). The logic is that if students practice reading independently during SSR, they will increase the rate at which they can read. Because of this, the NRP included strategies that encourage students to read more (e.g., SSR) in its section on fluency and compared them to repeated oral reading strategies. The NRP was only able to find 14 experimental studies on strategies that encourage students to read more, so they did not conduct a meta-analysis due to

the fact that there were too few studies and many of them did not meet their experimental design standards. Because of the lack of quality research on the topic of encouraging students to read more, the NRP could not determine a benefit of encouraging students to read more and could not recommend its practice until further research could be done (NICHD, 2000).

What was interesting about the 10 SSR studies reviewed by the NRP was that none of them actually measured the effect of encouraging students to read more on fluency. The independent variables measured were reading comprehension, vocabulary, reader's attitude, and/or overall reading ability. Encouraging students to read more was not meant, in these studies, to be a fluency strategy. In five of those 10 SSR studies, there was no significant difference between the effect of SSR and the control group, while in the other five studies, the researchers did find a statistically significant effect from SSR, but it was relatively small; consequently, the statistically significant studies were all seen at the intermediate levels and up (NICHD, 2000). Fifth and sixth graders had an increase in word recognition (Langford & Allen, 1983, as cited in NICHD, 2000). Moreover, seventh and eighth graders had an increase in vocabulary and a higher effect for middle ability students (Holt & O'Tuel, 1989; Davis, 1988, as cited in NICHD, 2000). Finally, high school students had an increase in comprehension (Burley, 1980, as cited in NICHD, 2000). This suggests that SSR could be more effective as students get older and if used for different reading outcomes instead of fluency.

SSR and reading development theory. The fact that SSR might be more effective as students get older reflects reading development theory. There have been many theories purposed about the different stages of reading development (Chall, 1983; Flynn, 1997). The stage theory implies that readers will progress through different stages, wherein a reader will possess different skills, knowledge, or beliefs. Jeanne Chall's research (1983) is the foundation of reading

development theory and describes six stages of reading development, as summarized in Appendix Table 1. Stage 2, with its focus on fluency, is typically developed during grades two and three, when students have started to master decoding words. If SSR was used as a fluency strategy, it would be most appropriate around grades two and three. Stage 3 of reading development is largely focused on comprehension or reading to learn through acquisition of new vocabulary and background knowledge. Stage 3 is developed in grades three through eight, once students are fluent enough to enable easier comprehension. If SSR is used in the intermediate grades, it would make sense if it was seen as a reading comprehension strategy that introduces vocabulary and develops background knowledge through wide reading.

SSR as a vocabulary strategy. Beyond fluency, SSR can be seen as a vocabulary strategy because students are interacting with an unknown set of words. Since our vocabularies are so large, it is impossible that we have been explicitly taught every word that we know. Parts of our vocabulary must be acquired through incidental learning (NICHD, 2000; Swanborn & Glopper, 1999). Therefore, the NRP recommended indirect instruction of vocabulary through wide reading as one of many effective vocabulary strategies (NICHD, 2000). Additionally, a meta-analysis found incidental word learning to be effective (Swanborn & Glopper, 1999). In the study, incidental word learning was defined as “the incidental, as opposed to intentional, derivation and learning of new word meanings by subjects reading under reading circumstances that are familiar to them” (Swanborn & Glopper, 1999, p. 262). The aim with the definition and the study was to mimic real-life reading experiences that did not call attention to the act of learning vocabulary. In the meta-analysis, researchers identified 15 studies involving 20 experiments that met the criteria as measuring incidental word learning by the definition, with a total of 2130 subjects. The research found that the average probability to learn an unknown word

incidentally was 15% (Swanborn & Glopper, 1999). That means, on average, students could learn 15 out of 100 unknown words they encounter during SSR, an encouraging finding for the use of SSR.

Understandably, there are variables that influence the probability that someone will learn an unknown word incidentally. The higher the age and the higher the reading ability resulted in an increased percentage of words learned (Swanborn & Glopper, 1999). Also, repetition, context, and motivation improved the amount of words learned indirectly (NICHD, 2000). It makes sense that age, ability, and context would play a role in incidental word learning. Older students will most likely have a higher reading ability, and students with a higher reading ability will more likely be able to understand the context surrounding an unknown word, allowing for incidental learning. By learning unknown words, students will not only improve their vocabulary, but out of necessity, they will also improve their comprehension of that text.

SSR as a comprehension strategy. Using SSR as a vocabulary strategy is connected to using it as a comprehension strategy. In order to comprehend a text as a whole, a reader needs to comprehend the individual words. In fact, comprehension has been defined as having two important components: word knowledge (vocabulary) and reasoning (Davis, 1942). Vocabulary is the first step in overall comprehension of a passage. Consequently, McKeown, Beck, Omanson, and Perfetti (1983) found that vocabulary instruction enhances text comprehension. Students in the study instructed on the specific words had an increased amount of recall of the story, an increased quality in the recall of the story, and an increased amount of correct answers on a multiple-choice test of the story's content (McKeown et al., 1983). Students can learn some words incidentally through SSR, so theoretically, they should be improving their comprehension at the same time.

Another factor that supports the use of SSR as a comprehension strategy is the fact that students read silently. Educators used to think that oral reading practice would translate over to increased silent reading rates and comprehension; however, Valencia et al. (2010) found that there is a developmental difference in the relationship between oral reading fluency and comprehension, specifically a lowered correlation as students get older, from .55 in grade two to .48 in grade six. This lowered correlation is most likely because as students get older they become more concerned with reading correctly and how their classmates will perceive them rather than comprehension (Valencia et al., 2010). Therefore, an oral reading rate may not be an accurate predictor of a student's comprehension or an effective strategy to increase comprehension. Conversely, silent reading rates are, by necessity, based on comprehension, and therefore, should be emphasized more as students get older (Hiebert, Samuels, & Rasinski, 2012). Increasing a student's silent reading rate and comprehension level is becoming increasingly important as students must take standardized reading tests silently. A study done recently looked at the Reading Plus program, a computer-based program aimed at developing silent reading fluency rates by increasing the rates passages are presented based on students' comprehension abilities, and found that students who had more lessons in Reading Plus had statistically significant gains over the control group in comprehension scores on a standardized test (Rasinski, Samuels, Hiebert, Petscher, & Feller, 2011). Increasing students' silent reading rates can have an effect on their comprehension; however, it is not clear if silent reading alone can affect it or if a program is needed to push students to read faster. Either way, silent reading is a struggle for many students because they lack external motivators to continue reading and monitor their comprehension (Hiebert et al., 2012). It is important to give students time to

practice silent reading and support their development of motivators and comprehension monitoring strategies.

SSR as an attitude strategy. One solution to students who lack external motivators could be improving their attitude towards reading. Although the NRP (NICHD, 2000) could not conclusively suggest SSR as an effective strategy for fluency, recent research has suggested that it could be effective at improving students' attitudes towards reading (Yoon, 2002; Chua, 2008). A meta-analysis of SSR studies with students ranging from second grade through college showed a statistically significant, although small, effect size of .12 on students' attitudes (Yoon, 2002). In a field where there is little conclusive evidence, even a small effect size can be notable. However, SSR was more effective for students below third grade as opposed to students in fourth grade and up (Yoon, 2002). Conversely, a different study of students age 13 found that SSR increased students' affective appreciation of reading, but it did not increase their time spent reading outside of school (Chua, 2008). It seems that SSR can improve how students view reading, but it does not necessarily increase the amount of reading they do, especially as they get older. Unfortunately, teenagers and young adults are the age group that lacks the disposition to read the most and where intervention is most needed.

Research on traditional Sustained Silent Reading, with its main components of self-selection, role-modeling, and non-accountability, has been inconclusive on the effectiveness of the strategy, most often viewed as a fluency-builder. Even if you view SSR more appropriately in light of reading development theory as a comprehension, vocabulary, or attitude strategy, the research still doesn't show significant results of its effectiveness, so one must consider that due to the lack of results, an important component is missing.

Additional Strategies to Improve the Effectiveness of Sustained Silent Reading

There are some concerns about the use of traditional SSR, beyond the inconclusive research behind it. The first concern is whether students will pick appropriate books to read if given free choice. Conventional wisdom says that since students are reading independently, they should choose a book at their independent level, traditionally viewed as a text that a student can read with 98% accuracy and excellent comprehension (Fountas & Pinnell, 2009; Leslie & Schudt Caldwell, 2011). By using a book at the independent level, students will learn unknown vocabulary words at a higher rate because a higher reading ability allows them to understand the context surrounding the unknown word. A second concern with traditional SSR centers on the absence of the teacher. If a teacher is modeling reading during SSR, they are not engaged with students and are not monitoring students' reading. It is worth investigating the effects of SSR if these concerns are addressed.

Scaffolded SSR. Research is in the beginning stages on strategies that would effectively address the concerns of traditional SSR. Two studies looked at adding support to a traditional SSR program through peer or teacher scaffolding. The first study, an experimental study by Manning and Manning (1984), compared the effects of four groups on students' reading attitude and overall reading achievement: control, traditional SSR, peer-interaction with SSR, and individual student-teacher conferences with SSR. Traditional SSR had no statistically significant effect over the control (Manning & Manning, 1984). However, when SSR was coupled with peer-interaction, it had a statistically significant effect on attitude and achievement (Manning & Manning, 1984). Additionally, when SSR was coupled with teacher-conferencing, it had a statistically significant effect on attitude (Manning & Manning, 1984). This study gave initial

support to the idea that a scaffolded approach to SSR, either by peers or teachers, could be effective.

The Manning and Manning (1984) study was advanced more recently by Reutzel et al. (2008) in their study that responded to the NRP's call for more rigorous research on encouraging students to read more through the strategy called Scaffolded Silent Reading. In this strategy, the teacher takes a more active role by modeling strategies, conferencing with students, guiding book selection, and setting goals with students to finish the book. They compared the ScSR strategy to the NRP-supported strategy of guided repeated oral reading (GROR), where students were in small groups reading the teacher-selected text. They found no statistically significant difference between ScSR and GROR on comprehension and fluency (Reutzel et al., 2008). In this situation, ScSR was just as effective. This is a promising finding because in the ScSR strategy, students still have the motivating factor of choosing their own text (with teacher guidance), and they get the benefit of practicing silent reading, which is more appropriate at the older levels. These results, if replicated, could change how SSR is approached in the future.

Main components of ScSR. There is research to support the important strategies included in the Scaffolded Silent Reading program that will be helpful to understand for replication. The first main component of Scaffolded SSR as purposed by Reutzel et al. (2008) was having the teacher conference with the student. Teacher-student conferences involved a one-minute oral reading by the student, a summary recalled by the student, discussion involving comprehension questions guided by the teacher, and a goal-setting conversation on when the student wanted to finish the book. The advantage of a teacher conferencing with students and increasing engagement rather than modeling reading behavior is supported by several theories. Vygotsky argues with his Zone of Proximal Development theory that learning is a social

behavior, and children develop and meet their potential through interaction with more knowledgeable others, in this case teachers (1978). Giving students assistance in solving a problem (or comprehending a text) is the first step to their independence in the future.

By guiding a student during the conference, a teacher can help develop comprehension. The NRP's research on effective comprehension strategies also supports the conferencing done in ScSR. Effective instruction of comprehension strategies includes a teacher demonstrating, modeling, or guiding the reader in understanding and using the effective comprehension strategies before the student becomes independent (NICHD, 2000). The NRP found 7 effective strategies for improving comprehension, including comprehension-monitoring, question answering, and summarization which are all addressed in the conference portion of ScSR (NICHD, 2000). By using these strategies in the conference, a teacher can also help a student develop the necessary comprehension-monitoring strategies and external motivators that they lack in silent reading (Hiebert et al., 2012). ScSR allows the teacher to become engaged with the students and guide them to a deeper understanding of the text.

The second main component of ScSR is guided book selection. The teacher's role is to help the student select appropriate texts. Again, conventional wisdom suggests that students should select books within their independent reading level, a text level that a student can read with 98% accuracy or better with excellent comprehension (Fountas & Pinnell, 2009; Leslie & Schudt Caldwell, 2011). The assumption is that students might choose books that are too difficult for their reading level and not benefit from the strategy because of it. Since students with a higher reading ability/larger vocabularies are more likely to learn more words incidentally (NICHD, 2000; Swanborn & Glopper, 1999), it would be important for them to be reading at their independent levels. Presumably then, they would be able to use contextual analysis to figure

out the meaning of the unknown word. If they read a book that is too difficult, they will lack the word knowledge to figure out the meaning.

On the other hand, Stahl & Heubach (2006) suggest that there is an inverse correlation between how much scaffolding a student receives and the appropriate text level that they can read, meaning the more scaffolding provided the more complicated of text a student can read. Because the teacher is present as a more knowledgeable other in ScSR and can provide scaffolding, it may be acceptable for students to read books at their instructional level, typically considered somewhere between 95-97% accuracy with excellent comprehension (Fountas & Pinnel, 2009) or sometimes 90-97% (Leslie & Schudt Caldwell, 2011). Regardless of whether a student is reading a book at their independent or instructional level, teacher involvement in the activity is key.

Sustained Silent Reading may be an effective strategy if it is scaffolded by the teacher. Scaffolded Silent Reading involves increased teacher engagement through conferencing and guided book selection. By conferencing with the student, a teacher can increase the student's comprehension of the text and help them develop independent comprehension-monitoring strategies. Additionally, the guided book selection ensures students are reading books at a level that will benefit them. However, there have only been a few studies that test the effectiveness of this strategy.

Summary and Limitations of Research

Traditional Sustained Silent Reading has been a popular reading strategy for some time, despite the lack of sufficient evidence to support its use. However, there is an increasing need to encourage leisurely reading in students, and SSR is still viewed as one way to do that. Previous research has viewed traditional SSR as mainly a fluency strategy, but reading development

theory suggests its use for a variety of outcomes, depending on the age of the students. As students increase in age, SSR becomes more relevant as a vocabulary, comprehension, or attitude strategy. Regardless of the outcome, SSR is still lacking the research-base to recommend its practice. The question is: If we add scaffolding to SSR, can we develop an effective strategy? Research supports increasing teacher engagement during SSR. Adding scaffolds such as teacher-conferencing and guided book selection should increase students' comprehension.

While traditional SSR has been studied across grade levels and student populations, the promising study discussed earlier, Scaffolded Silent Reading (Reutzel et al., 2008) has, unfortunately, only been studied with 4th graders from a diverse background. ScSR was also originally compared to a different fluency strategy, guided repeated oral reading, so future studies should compare it to regular reading instruction to determine the difference in effectiveness. Additionally, more studies need to be done to determine definitively if ScSR is an effective strategy at all age groups will all types of students.

Methodology

This investigation of whether a Scaffolded SSR approach is more effective than the traditional SSR approach took place in four eighth grade classrooms during 12 out of 14 weeks during the fall semester.

Subjects

The subjects were eighth grade students residing in a rural Mid-Western town. The school's ethnic composition of the student body is 95% white, 4% Hispanic, and less than 1% American Indian, Asian, and Black. Twenty-one percent of students in the school receive free or reduced lunch and 8% receive Special Education services. There were 104 students involved in the study, previously split between four different English classes, each with the same teacher.

There was a mortality of 6 students. The mortality was mostly due to incomplete test data. Thus, the sample consisted of 98 students, 46 in the treatment and 52 in the control. The sample was 62% male and 38% female. The English class was a required mixed-ability class that met for 52 minutes a day. Both the treatment and control SSR approaches were practiced on average three days a week for 10 minutes a day.

Materials

Classroom Materials. Access to books at appropriate levels was a necessary component of this study. Students had access to a classroom library with nearly 200 books and the school library to find books that met their interests and reading levels. Most books within the two libraries were leveled by Lexile scores. Lexile levels for books in the classroom ranged from 350-1140, with the majority in the 700-900 range. The school library had a similar range, with the majority of books between 500-900. Additionally, the Tracking Form for Individual Student Reading Conferences from the Scaffolded Silent Reading study was used as a guideline for student conferencing (Reutzel, Jones, Fawson, & Smith, 2008).

Assessment Instruments. Two different assessment instruments were used in this study to determine the effects of Scaffolded SSR on students' reading comprehension and reading disposition. A maze test was used to test students reading comprehension. One study found the reliability of maze tests to be over .80 and the validity to be .66 (Shin, Deno, & Espin, 2000). The specific maze tests used were 8th grade progress monitoring passages from AIMSweb. The pre-test passage was 8.17, "Madame Zelda's Sweet," and the post test was 8.19, "Miguel is an."

In addition, the Reader Self Perception Scale developed by Henk and Melnick (1995) was used to test students reading self-perception. The Reader Self Perception Scale consists of 33 statements, with a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5),

for each statement (Henk & Melnick, 1995). Statements were broken up into five categories: general perception (“I think I am a good reader”), progress (“I am getting better at reading”), observational comparison (“I read more than other kids”), social feedback (“My teacher thinks I am a good reader”), and physiological states (“I enjoy reading”) (Henk & Melnick, 1995). Each question was worth a total of five points, and each category had its own raw score based on the number of questions: general perception (5), progress (45), observational comparison (30), social feedback (45), and physiological states (40); the overall total was therefore out of 165 (Henk & Melnick, 1995). The Reading Self-Perception test was given as a pre-test and a post test.

Procedures

This study was a quasi-experimental matching-only pretest-posttest control group design with a sample of convenience. Students were not randomly assigned to classes; rather, four predetermined English classes were used. Pre-tests (maze and Reading Self-Perception Scale) were administered to determine baselines on students reading comprehension and reading self-perception. The maze pre-test means and standard deviations were used to match classes into pairs. Once classes were matched, one was randomly selected to be the treatment and the other was left to the control. The intervention then took place during 12 of 14 weeks during the fall semester, on average three times a week. This resulted in 37 intervention days with a total of 370 minutes of reading time.

The control intervention consisted of 10 minutes of sustained silent reading. Traditional models were followed. Students were given the choice of what book to read as long as it was roughly 200 pages, with no guidance from the teacher beyond suggestions based on student-interest. During the SSR time, the teacher modeled reading and correct behavior by reading the entire time as well.

The treatment intervention also consisted of 10 minutes of sustained silent reading, although the treatment followed the Scaffolded Silent Reading approach outlined by Reutzel et al (2008). Students were given the choice on what books to read as long as they were roughly 200 pages, but the teacher helped to guide them. The teacher instructed the students on different ways to find the right level of book: through the use of a Lexile score or the five finger test. Students were given their most recent Lexiles, obtained from the NWEA standardized test given in the spring of the previous school year, and were told to try to match that to their book choice. They were also told to do the five finger test by reading one page from the book and counting how many words they did not know. If they counted more than five, the book was probably too difficult (under the assumption that this would lead students to finding a book at their independent level of 98% accuracy). Students had to report their book choice, along with the book's Lexile and the number of unknown words to the teacher for approval. Student interest in the material was taken into account if Lexile levels did not match.

During the 10-minute reading time, instead of the teacher modeling, student-teacher conferences were held. Students were taken into the hallway to avoid distracting the rest of the students who were silently reading for a five minute conference with the teacher. During these five minutes, the teacher conducted a running record (one-minute oral reading fluency check) where words correct per minute (wcpm) and accuracy were recorded. If a student had a low accuracy percentage, the teacher would recommend switching to a more suitable book. After the running record, the student was asked to do a 30-second summary of the book up to the point where they were at. Then, the teacher would ask comprehension questions like, "Who is the main character?" or "What is the main conflict in the story?" At the end of the conference, the teacher

helped the student set a goal date for completing the book. Students were able to conference with the teacher a total of three times during the 12 weeks.

At the end of the 12 weeks, right before the students left for winter break, both groups were given the maze and Reader Self-Perception Scale post-tests to measure for growth on reading comprehension and self-perception. The collected data was then studied to determine the effectiveness of the treatment.

Planned Analysis

Quantitative data will be collected through pre and post test scores. On the maze pre test, means and standard deviations will be used to match classes. Means, standard deviations, and ranges will be collected from both the pre and post maze test as descriptive statistics. An ANOVA test will be run as the inferential statistic to determine if there is a significant difference between the control and treatment groups. For the Reader Perception Scale, medians will be used as the descriptive statistic. For the inferential statistics for the scale, a Mann-Whitney test will be used to determine if there is a significant difference between the treatment and control groups.

Threats to Validity

There are several threats to this study's internal validity that are worth mentioning. The first threat is subject characteristics. Students in this study are not randomly assigned to classes, causing this to be a sample of convenience. This will be controlled by matching classes based on reading comprehension scores on the maze pretest. The second threat is the attitude of the subjects. Students may notice the difference in treatment between classes and react correspondingly. This will be controlled by writing a script to be read to all classes to explain the purpose of the study, how data collected will be used and shared, and what will happen after the study is complete. There is also a regression threat because of the use of a scale as an assessment.

Students may think they know the “correct” way to respond, instead of their honest answer. Again, this will be controlled by writing a script to read to all the classes explaining the purpose of the scale and that it will not be used against them. There is also an implementation threat if the strategies are not implemented correctly or if the implementer is biased.

There are also several threats to the external validity of this study. There is a population generalizability threat due to the demographics and grade-level of the study. Finally, there is an ecological generalizability threat because of the materials used and the students’ access to both a school and classroom library to find appropriately leveled books that cover a wide range of interests. Because the sample includes a high population of white students at only the eighth-grade level, additional research needs to be done to increase the generalizability.

Results

Group Comparison on Maze

The control (1.0) and treatment (2.0) groups were compared to see if there was a statistically significant difference between them on the maze test. Table 2 in the Appendix shows the means and standard deviations for both groups on the maze test. Both groups showed growth between the pre- and post- maze test, with the control group showing an average growth of 7.4, and the treatment group showing an average growth of 9.1. The maze test was used to match classes based on the means and standard deviations, and Table 3 shows that the classes were equally matched based on the pretest with a p-value of .812. Table 3 also shows that there was no statistically significant difference between groups at the time of the maze posttest, with a p-value of .266.

Additionally, the individual classes that were matched were compared to see if there was a statistically significant difference between the control and treatment classes on the maze test.

Table 4 in the Appendix shows the means and standard deviations on the maze test for each of the four classes that took part in the study. In this table, Classes 1 and 4 participated in the control, and Classes 2 and 3 participated in the treatment. Each individual class showed growth from the maze pretest to posttest. The average growth for the individual classes ranged from 6.5 – 9.2. Table 5 shows that Classes 1 and 2 were equally matched on the maze pretest, with a p-value of .449, and were not significantly different on the maze posttest after the treatment, with a p-value of .149. Table 6 shows that Classes 3 and 4 were also equally matched on the maze pretest with a p-value of .482 and were not significantly different on the maze posttest after the treatment with a p-value of .932.

Group Comparison on Reader Self-Perception Scale

The control (1.0) and treatment (2.0) groups were also compared to see if there was a statistically significant difference between them on the Reader Self-Perception Scale. Table 7 in the Appendix shows the median scores for each section of the scale for both groups on both the pre-scale and post-scale. Both groups showed an increase in the median on the scale total score: the control grew by 2.0 and the treatment grew by 7.5. On the four subsections, the control showed growth in the median that ranged from -.5 to 1, and the treatment showed growth in the median that ranged from .5 to 1.5. In Table 8, a Mann-Whitney U Test confirms that the treatment and control groups were equally matched on the pre-scale across all subsections of the scale, and there was no statistically significant difference between groups in any subsection at the time of the post-scale after treatment.

Additionally, the individual matched classes were compared to see if there was a statistically significant difference between the control and treatment classes on the Reader Self-Perception Scale. Again, Classes 1 and 4 participated in the control, and Classes 2 and 3

participated in the treatment. Table 9 shows the median scores across subsections of the scale for each of the classes on both the pre-scale and post-scale. The individual classes' growth in the median ranged from -1 to 7. A Mann-Whitney U Test confirms in Table 10 that Classes 1 and 2 were equally matched on the pre-scale subsections, with no statistically significant difference between classes on the post-scale in any area. Table 11 also shows that Classes 3 and 4 were equally matched on the pre-scale subsections, with no statistically significant difference on the post-scale for the two classes.

Discussion

The purpose of this study was to determine if Scaffolded Sustained Silent Reading was more effective than traditional sustained silent reading at improving middle school students' reading comprehension and self-perception. The results of the study showed no significant difference between the two strategies when implemented in an eighth grade classroom for 12 weeks.

Students in both groups showed slight growth on the Reader Self-Perception Survey, but there was no significant difference between groups. It is not surprising that there was not a discernable change in student's self-perceptions about reading in just 12 short weeks. In a 5-point Likert scale format, there is not a lot of room to change in either direction. An assessment like this would work better if the pretest was given at the beginning of the year and the post test was given at the end of the year to allow perceptible change to happen.

Both groups did show comparable growth in reading comprehension on the maze test. According to the AIMSweb National Norms (2013), students in the 50th percentile grow an average rate of .08 words per week. In 12 weeks, students would be expected to grow around one word on the maze test. Students in both groups showed large growth in the 12 weeks, growing

from 6.5 – 9.2 words on average per class. However, it is unclear if this growth was due to the strategies or just natural progression from the regular reading instruction.

The results of the ANOVA run on the maze comprehension test did not say that ScSR was more effective than traditional SSR, but the results approached significance. This contradicts the study done by Reutzel et al. (2008) that compared ScSR to guided oral reading and found ScSR to be just as effective as the NRP-supported strategy of guided oral reading. One factor that could have affected the results in this study was the amount of time spent reading. Both groups of students were only given about 340 minutes to read in class throughout the 12 weeks. In addition, it is impossible to say how much of that time was actually spent reading. For the ScSR group, the teacher was outside of the classroom during the reading time, so it is unknown if the students were on-task. The students in the traditional SSR group were also not monitored by the teacher, even though she was in the room, because she spent the time modeling reading. Students in Reutzel et al.'s study spent 25 minutes a day over 36 weeks in ScSR (2008). More research is needed to confirm if increasing the amount of time reading would cause a significant difference between the two strategies in this study.

Along with the limited amount of time spent reading, students in the ScSR group only conferenced with the teacher an average of three times during the 12 weeks. This was due to the amount of time allocated to ScSR (just 10 minutes a day). Only two students could be conferenced with in a day, and class sizes ranged from 22 -24. At the upper middle school level, the reading class is only 50 minutes long, so allocating more than 10 minutes for the reading time is impractical. However, teacher conferencing is an integral part of ScSR because this is when effective comprehension strategies are discussed and taught. In the original ScSR study, teachers were able to conference with 4-5 students a day, and class sizes of 20 allowed for students to

have a conference roughly once a week (Reutzel et al., 2008). Without regular conferences with the teacher, the ScSR strategy is not that different from the traditional sustained silent reading. More research needs to be done to determine if ScSR can be effective in the upper middle school grades when the reading block is cut to 50 minutes and class sizes increase.

Because of the limitations in the study, this research needs to be continued and the length of the study increased to determine if significant results could be obtained. Implementing the study for a full year could determine if increasing the amount of time spent reading and the amount of conferences is enough to create a significant difference between ScSR and SSR.

In addition, outside research needs to be done to determine the difference between ScSR, SSR, and regular instruction. This study did not compare ScSR to regular instruction, so it would be important to determine if classroom time is better spent learning other comprehension strategies rather than silent reading. Until that time, educators should use silent reading sparingly and in conjunction with research-based comprehension strategies.

Finally, more research is needed on students' attitude or reading disposition. Motivation and attitude towards reading are most likely important factors in whether students choose to read, but they are difficult to measure and study. In this study, it was difficult to see growth on the Reading Self-Perception Scale since it was a 5 point Likert scale. Students were unlikely to show any discernable growth after only 12 weeks. Other assessments are needed to help track progress on a student's reading disposition.

The effectiveness of time spent reading in school is still widely debated and unclear. Sustained silent reading has intuitive appeal, but more research needs to be done to find a suitable strategy that effectively increases students reading comprehension and disposition

towards reading. Until that time, teachers need to carefully consider the purpose of providing students with time to read in class and whether explicit instruction would be more beneficial.

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Appendix

Table 1
Chall's Stages of Reading Development

Stage	Focus	Typical Age
Stage 0: Pre-Reading	Oral development	Age 0-6
Stage 1: Initial Reading	Phonemic/phonological awareness and development	Grades 1-2
Stage 2: Confirmation and Fluency	Decoding and fluency	Grades 2-3
Stage 3: Reading for Learning the New	Expanding vocabulary and knowledge	Grades 3-8
Stage 4: Multiple Viewpoints	Critical analysis through different viewpoints	Grades 9-12
Stage 5: Construction and Reconstruction	Building understanding through analysis and synthesis	Age 18 and up

(This table shows the focus of instruction in the different age groups defined in Jeanne Chall's theory of reading development.)

Table 2: Descriptive Statistics For Maze Assessment by Treatment(1) and Control Groups

		N	Mean	Std. Deviation	Minimum	Maximum
PreMaze	1.0	46	26.522	7.7481	11.0	47.0
	2.0	52	26.173	6.7613	11.0	40.0
	Total	98	26.337	7.2053	11.0	47.0
PostMaze	1.0	46	35.674	9.6679	14.0	66.0
	2.0	52	33.558	9.0606	13.0	50.0
	Total	98	34.551	9.3623	13.0	66.0

(This table shows the mean and standard deviations for treatment and control groups on the maze assessment).

Table 3: Inferential Statistics – ANOVA between Treatment and Control Group

		Sig.
PreMaze	Between Groups	.812
	Within Groups	
	Total	
PostMaze	Between Groups	.266
	Within Groups	
	Total	

(This table shows that the treatment and control groups were equally matched on the maze pretest, and no significant difference existed after treatment.)

Table 4: Descriptive Statistics for Maze Assessment by Class

		N	Mean	Std. Deviation	Minimum	Maximum
PreMaze	1.0	23	27.174	7.8893	14.0	40.0
	2.0	22	29.045	8.5271	17.0	47.0
	3.0	24	24.208	6.2761	11.0	38.0
	4.0	29	25.379	5.7347	11.0	36.0
	Total	98	26.337	7.2053	11.0	47.0
PostMaze	1.0	23	33.652	10.4473	13.0	50.0
	2.0	22	38.273	10.6690	14.0	66.0
	3.0	24	33.292	8.1586	16.0	51.0
	4.0	29	33.483	7.9849	15.0	46.0
	Total	98	34.551	9.3623	13.0	66.0

(This table shows the means and standard deviations for each class on the maze assessment.)

Table 5: Inferential Statistics – ANOVA between Class 1 and 2

		Sig.
PreMaze	Between Groups	.449
	Within Groups	
	Total	
PostMaze	Between Groups	.149
	Within Groups	
	Total	

(This table shows that classes 1 and 2 were equally matched on the maze assessment at the pretest, and were not significantly different on the maze after treatment.)

Table 6: Inferential Statistics – ANOVA between Class 3 and 4

		Sig.
PreMaze	Between Groups	.482
	Within Groups	
	Total	
PostMaze	Between Groups	.932
	Within Groups	
	Total	

(This table shows that classes 3 and 4 were equally matched on the maze assessment at the pretest, and were not significantly different on the maze after treatment.)

Table 7: Median scores by group on Reader Self-Perception Scale

	GroupsT1C2	N	Median
PreScaleTotal	1.0	46	112.0
	2.0	52	119.5
	Total	98	
PostScaleTotal	1.0	46	119.5
	2.0	52	121.5
	Total	98	
PreScaleProgress	1.0	46	36.0
	2.0	52	39.0
	Total	98	
PostScaleProgress	1.0	46	37.0
	2.0	52	38.5
	Total	98	
PreScaleObsComp	1.0	46	20.5
	2.0	52	21.0
	Total	98	
PostScaleObsComp	1.0	46	21.0
	2.0	52	22.0
	Total	98	
PreScaleSocialFdbck	1.0	46	29.0
	2.0	52	29.0
	Total	98	
PostScaleSocialFdbck	1.0	46	30.0
	2.0	52	29.5
	Total	98	
PreScalePhysioStates	1.0	46	25.0
	2.0	52	27.0
	Total	98	
PostScalePhysioStates	1.0	46	26.5
	2.0	52	28.0
	Total	98	

(This chart shows the median score for students in the treatment and control on the Reader Self-Perception Scale.)

Table 8: Inferential Statistics Between Groups on the Reader Self-Perception Scale

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of PreScaleTotal is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.281	Retain the null hypothesis.
2	The distribution of PostScaleTotal is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.596	Retain the null hypothesis.
3	The distribution of PreScaleProgress is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.307	Retain the null hypothesis.
4	The distribution of PostScaleProgress is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.645	Retain the null hypothesis.
5	The distribution of PreScaleObsComp is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.442	Retain the null hypothesis.
6	The distribution of PostScaleObsComp is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.307	Retain the null hypothesis.
7	The distribution of PreScaleSocialFdbck is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.969	Retain the null hypothesis.
8	The distribution of PostScaleSocialFdbck is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.799	Retain the null hypothesis.
9	The distribution of PreScalePhysioStates is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.414	Retain the null hypothesis.
10	The distribution of PostScalePhysioStates is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.692	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

(This table shows that groups were equally matched on the Reader Self-Perception Scale at the time of the pretest, and that no significant differences existed on the same measure after treatment.)

Table 9: Descriptive Statistics for Reader Self-Perception Scale by Class

Reader Self-Perception Scale Category	Class 1	Class 2	Class 3	Class 4
PreScaleTotal	123	122.5	109	115
PostScaleTotal	122	129.5	112	120
PreScaleProgress	40	38	36	37
PostScaleProgress	38	38	36	39
PreScaleObsComp	22	22	19	20
PostScaleObsComp	23	23	18.5	21
PreScaleSocialFdbck	29	30.5	28	29
PostScaleSocialFdbck	29	31.5	28	30
PreScalePhysioStates	25	27.5	24.5	27
PostScalePhysioStates	28	28.5	24	28

(This chart shows the median score for students by class on the Reader Self-Perception Scale.)

Table 10: Inferential Statistics for Reader Self-Perception Scale Comparing Classes 1 and 2

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of PreScaleTotal is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.838	Retain the null hypothesis.
2	The distribution of PostScaleTotal is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.328	Retain the null hypothesis.
3	The distribution of PreScaleProgress is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.616	Retain the null hypothesis.
4	The distribution of PostScaleProgress is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.430	Retain the null hypothesis.
5	The distribution of PreScaleObsComp is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.523	Retain the null hypothesis.
6	The distribution of PostScaleObsComp is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.811	Retain the null hypothesis.
7	The distribution of PreScaleSocialFdbck is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.356	Retain the null hypothesis.
8	The distribution of PostScaleSocialFdbck is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.367	Retain the null hypothesis.
9	The distribution of PreScalePhysioStates is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.657	Retain the null hypothesis.
10	The distribution of PostScalePhysioStates is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.674	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

(This table shows that students in classes 1 and 2 were equally matched across all measures of the Reader Self-Perception Scale, and that no significant differences existed after treatment.)

Table 11: Inferential Statistics for Reader Self-Perception Scale Comparing Classes 3 and 4

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of PreScaleTotal is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.131	Retain the null hypothesis.
2	The distribution of PostScaleTotal is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.124	Retain the null hypothesis.
3	The distribution of PreScaleProgress is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.294	Retain the null hypothesis.
4	The distribution of PostScaleProgress is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.181	Retain the null hypothesis.
5	The distribution of PreScaleObsComp is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.500	Retain the null hypothesis.
6	The distribution of PostScaleObsComp is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.203	Retain the null hypothesis.
7	The distribution of PreScaleSocialFdbck is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.296	Retain the null hypothesis.
8	The distribution of PostScaleSocialFdbck is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.267	Retain the null hypothesis.
9	The distribution of PreScalePhysioStates is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.329	Retain the null hypothesis.
10	The distribution of PostScalePhysioStates is the same across categories of GroupsT1C2.	Independent-Samples Mann-Whitney U Test	.270	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

(This table shows that students in classes 3 and 4 were equally matched across all measures of the Reader Self-Perception Scale, and that no significant differences existed after treatment.)