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AUTHOR: Stacy A. Wright

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Dr. Jacqueline Thousand
THESIS COMMITTEE CHAIR

Jacqueline Thousand
SIGNATURE

7-19-06
DATE

Dr. Toni Hood
THESIS COMMITTEE MEMBER

Toni Hood
SIGNATURE

7/19/06
DATE

**The Effects of Read Naturally on Students'
Oral Reading Fluency and Reading Comprehension**

by

Stacy Wright

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Abstract

This study examined the effectiveness of a computer software program called Read Naturally on students' reading comprehension and oral reading fluency levels. Twelve students were put into six pairs based on their academic levels. All twelve students were given a pretest to gather baseline information on the students' fluency and comprehension levels. Next, one student from each pair was randomly assigned to the control group and the other was assigned to the experimental group. The students in the experimental group were from three different general education classrooms. These students participated in the Read Naturally program for 30 minutes a day, three times a week for ten weeks. The students in the control group remained in the general education classroom and did not receive additional language arts intervention. At the end of the ten week period, all the students were given a posttest to examine their growth in fluency and comprehension. The results of the study indicate that the students who received the intervention made greater progress in fluency and reading comprehension.

Key Words: Special education pre-referral intervention, literacy

intervention, response to intervention

CHAPTER 1

Introduction

As a special education teacher there is a big focus put on trying out all interventions possible before considering students to be candidates for special education. Many of the interventions that are being used in the classroom are various types of computer software programs primarily to aid in reading instruction. It is key that schools begin to shift instruction to the new Response to Intervention model that is based on changes made to IDEA (Individuals with Disabilities Education Act) by congress in 2004 (Wright, 2006a). Since these new laws were put into place, schools no longer have to use the old discrepancy model, which required that for students to qualify for special education services in the eligibility category of Learning Disabilities they must have a gap between their cognitive ability and their academic performance, as well as, exhibit a processing deficit. With the reauthorization of IDEA, schools no longer need to qualify special education students using the discrepancy model. The (RTI) intervention approach allows for struggling students to receive special education services as long as the school can prove that a number of previous interventions were unsuccessful (Wright, 2006b). With this new model beginning to be implemented throughout the country, it is important to find out which intervention programs are effective, so therefore we can best help our struggling students.

One intervention program widely used throughout the district in which I work is the Read Naturally program (Ihnot & Ihnot, 2006). The Read Naturally program offers students a very structured and highly motivating way of increasing their reading skills. This program offers teacher modeling, repeated readings, and progress monitoring. All these components are what make Read Naturally a practical intervention for our students.

Prior to students using the Read Naturally program, they are given a pretest and placed at their individual reading level. As the students progress, the Read Naturally program allows for teachers using the program to continually monitor and adjust students' reading levels. Teachers can easily move students up or down in reading levels, as well as adjust their oral reading fluency rate based upon the student's individual progress.

Two areas most teachers focus upon to improve students' reading are comprehension and fluency (Morra & Tracey, 2006). According to the National Reading Panel, instruction in oral reading is a vital part of a reading program and is associated with gains in fluency and comprehension. Some of the methods for improving oral reading include improving sight word vocabulary, teaching students to make connections to the story, provide activities to pre-teach vocabulary words, model fluency activities, and allow ample time for students to practice fluency activities

(Morra & Tracey, 2006). Activities such as these are taught through the Read Naturally program.

Today more than ever it is apparent that technology is being widely used in our schools. The ratio of students to computers in the classroom has been steadily increasing over the last twenty years. In 1984, the student-to-computer ratio was 1:125, in 1990 it was 1:22, and in 1997 it increased to 1:10 (Clements, 1998). With school systems putting increasing amounts of money and resources into technology, it is critical to investigate whether or not this investment is benefiting our students. Prior research suggests that our students are benefiting from technology and various computer software programs being used in our classrooms, but there is little research to support that the Read Naturally program indeed increases oral reading fluency or reading comprehension.

Limitations

This study had at least three potential limitations. First, the attendance of the participants could vary greatly, therefore, affecting how much exposure the students receive to the curriculum and/or use of the computer program. If one student is consistently absent or does not attend the experimental reading group, they could be at a disadvantage when they are not exposed to the same amounts of curriculum. Next, the students' backgrounds could be a variable. If a student has information processing difficulties or other cognitive challenges, it could affect that student's ability

to learn new information quickly, as well as, retain what they have learned.

Finally, a small sample was used in a single elementary school setting.

Therefore it may be difficult to generalize the results to other populations that do not fit into a similar category.

Definition of Terms

Individual Fluency Goal. Each student is given a fluency goal based on his/her reading level. This goal is a combination of rate and accuracy.

Intervention Programs: Programs or curriculum that are used in the classroom to help improve the reading levels of struggling or “at risk” students.

Language Arts Intervention. For this study, language arts intervention is a series of programs (computer software) that my district implements in order to assist struggling students by giving them additional language arts remediation in order to help them improve their language arts skills.

Modeling. Students listen to a model of how a passage should sound before they read it independently. This allows for students to listen to the story for content, as well as, listen for accurate pronunciation of unknown words.

Oral Reading Fluency. What someone can read as well as you can speak. Fluent readers can read without thinking about it. Fluency includes a person’s intonation and expression.

Posttest. A final test that was given to all study participants to chart the students' progress after the language arts intervention groups had concluded. All study participants were given the exact same test at the third grade level.

Pretest. A baseline test that was given to all study participants to establish their level of reading fluency and comprehension. All study participants were given the exact same test at a third grade level.

Progress Monitoring. Teachers and/or paraprofessionals periodically check and evaluate how the students are doing on a given reading program. The monitoring can be informal observations or more formal charts indicating progress made.

Read Naturally program. A computer software program designed to improve reading fluency and measure student progress. The program levels vary from first grade to eighth grade.

Reading Comprehension. A person's understanding of a text that he/she has read.

Repeated Reading. Students read and reread the same passage multiple times until they reach their individual fluency goal.

Response to Intervention. Emphasizes the use of more effective early intervention programs for struggling readers in hopes that less students in the future will be identified as learning disabled (LD).

Student Reading Level. This is individual for each student. It is the level at which a student can read and comprehend a passage independently.

Technology. Using multimedia technologies as a tool to enhance the teaching and the learning process. Most commonly this refers to the use of computers.

CHAPTER TWO

Review of Literature

Struggling students are in need of strong and effective reading intervention programs to enable them to bridge the academic gap that year after year continues to grow. According to the National Education Goal Panel (1995), only 25% of 4th grade students, 28% of 8th grade students, and 34% of 12th grade students scored at least proficient in national reading standards. Many times our students have so much difficulty decoding and reading the text, it is almost impossible for them to comprehend what they have read, but that does not mean that we should not also emphasize the importance of teaching our children reading comprehension. Many researchers believe that an early emphasis on decoding and fluency needs to be well balanced with a deliberate and systematic approach to reading comprehension from the earliest of ages (Pearson & Underwood, 2004). In addition to reading fluency and comprehension, vocabulary instruction is also an important piece of the puzzle. Vocabulary knowledge is fundamental to reading comprehension; students cannot understand the text without knowing what most of the words mean (Nagy, 1988). This is why it is so important for our struggling students to be using intervention programs that are proven to be effective in these areas.

Reading Comprehension and Fluency

Strong reading comprehension and fluency skills are two key components of reading that students must acquire in order to be successful readers. Unfortunately, according to Pearson & Underwood (2004), it is a fact that most adolescent students in our schools today struggle when it comes to comprehending what they have read. High school readers who are very low performing often are unable to read passages above the first or second grade level without the assistance of a teacher (Devault & Joseph, 2004). Due to the fact that the students' have such low reading levels, there are not many high interest books for high school students written at that level (Devault & Joseph, 2004). Thus, these students are forced to read books that were designed for primarily elementary level students. When students end up reading these books, they are not given the opportunities they need to learn higher levels of reading comprehension skills. To avoid this dilemma and for students to be successful, all students need instruction in fluency and comprehension, as early as possible. If our students do not acquire fluency and comprehension skills early, the curriculum quickly gets more and more difficult and eventually gets to a point where students can no longer comprehend what they are reading even if they are able to orally read words fluently and with expression (Pearson & Underwood, 2004).

Often students with poor word identification strategies and who read at very slow rates have difficulty establishing deeper comprehension levels. Researchers note that helping students achieve effortless identification of words in text is one of the most important goals of reading comprehension (Devault & Joseph, 2004). The ability of students to read a text fluently has been shown to predict reading comprehension better than direct measures of comprehension such as questioning, retelling, and cloze sentences (Jones, Therrien, & Wickstrom, 2006). As students get more opportunities to increase their fluency levels, they also develop more confidence in their reading comprehension skills (Morra & Tracey, 2006). In addition, we know that when students' confidence levels rise they are more willing to attempt difficult tasks, take risks in the classroom, and stay engaged in classroom activities.

Strategies to Increase Students' Reading Levels

There are many various methods that teachers use to help increase their students' reading levels. Some teachers use instructional strategies from a specific curriculum and others use whatever they feel will be effective. There are three main strategies that many researchers focus on in order to improve students' reading levels.

First, many researchers note that repeated reading is one of the most important strategies that can be used because it allows the instructor to detect any word identification difficulties or miscues in their reading,

allows the teachers to give immediate feedback, and is an effective way of monitoring student progress (Devault & Joseph, 2004). Repeated reading has been proven effective with general education students, as well as students with special needs (Kubina & Therrien, 2006).

The process of repeated reading consists of readers reading the same passages multiple times (Morra & Tracey, 2006). Students read the same passage until they reach their individual fluency goal. Repeated reading allows for students to immediately recognize their mistakes and correct them (Jones, Therrien & Wickstrom, 2006). The outcome of repeated reading is an increase in reading rate and accuracy, which students can later transfer to new or unknown text (Morra & Tracey, 2006). When students increase their fluency levels it has a direct correlation with higher comprehension skills (Jones, Therrien & Wickstrom, 2006).

Another strategy that can increase students' reading levels is modeling. One of the most important components to an effective reading program is modeling because it allows for students to first listen to a fluent reader in order to improve his/her own reading skills (Morra & Tracey, 2006). This allows for the students to purely concentrate on the content of the passage before they read it independently. Modeling also allows students to listen to pronunciation of unknown words before he/she must decode them themselves. Effective modeling has many objectives including exposing students to reading, encouraging students to try and

read unfamiliar text, help students understand the nature of reading, and assist students in understanding the uses and functions of print materials (Walter, 1996).

Lastly, according to Scholastic a key component to an effective reading program that often gets left out or is simply not incorporated into the direct instruction is vocabulary development. Vocabulary is one of the most essential components of a good reading fluency and comprehension program. It is important for us to remember that our students cannot comprehend the text we are giving them unless they know what the words in the passages mean (Nagy, 1988). When students are reading unknown text, the single most accurate predictor of whether or not the student will comprehend it is the proportion of difficult words in the text (Nagy, 1988). If students are able to comprehend and define the majority of the words from a passage, they are very likely to be able to comprehend it. On the other hand, if a student can only define a small number of words from the passage, he/she will have a much more difficult time comprehending what the passage was about. Lack of adequate vocabulary instruction in our schools is a serious obstacle for many of our students, especially struggling readers (Nagy, 1988).

Technology in the Classroom

Having and supporting students in using computers in the classroom allows students unique opportunities for learning through exploration,

creative problem-solving, and self guided instruction (Clements, 1998). Technology and media in education today receives widespread attention throughout the world (Reeves, 1998). This is partially due to the fact that an enormous financial investment is being made in technology throughout the K-12 system. Within the past 10 years, presidential reports have identified technology as a significant portion of the education budget (Reeves, 1998). In his second term as president, Bill Clinton recommended that at least \$13 billion annually be designated for technology related expenditures in education.

Children are using computers and technology earlier than ever and researchers are confident that technology is “developmentally appropriate” for our children and that they often exhibit comfort and confidence in using various software programs (Clements, 1998). With the increased availability of various software and hardware adaptations, students with special needs can also benefit from the use of technology in the classroom (Clements, 1998). Many teachers have reported that the use of technology, specifically computers, helps to level the playing field for their students with special needs and allows them more opportunities to be mainstreamed successfully in the general education classroom (Glaser & Hasselbring, 2000).

As soon as schools began to look towards technology as a means of learning in the classroom, many authors began researching this topic and

writing books to assist teachers in the classroom with selecting and using software to increase student learning (Greenlee-Moore & Smith). There has been much recent advancement in understanding cognition in children. Four essential components to student learning are active engagement, participation in groups, frequent interaction and feedback, and connections to real world context (Hoadley, Gordin, Means, & Roschelle, 2000). All four of these components are incorporated in educational software; computers have had positive effects on student learning as measured by standardized achievement tests (Reeves, 1998). Many of the pioneers in learning research have also been pioneers in investigating how technology can improve student learning, this is not a coincidence (Hoadley, Gordin, Means, & Roschelle, 2000). In conclusion, that is why computers and technology today is more motivating for our students, is accepted by more teachers, and is widely supported by administrators, politicians, and the public in general (Reeves, 1998).

CHAPTER THREE

Methodology

As schools begin to shift away from the discrepancy model and start to move towards to the new Response to Intervention approach to early intervention, schools will undoubtedly begin to use a variety of intervention programs in the classroom to help improve the academic skills of students. Schools will need to assess the power of various computer software programs used in the classroom to see if they are really benefiting the students. Therefore, the purpose of this study was to investigate the effectiveness of the Read Naturally program on students' achievement in oral reading fluency and reading comprehension.

Participants

The participants in this research study were 12 third grade students. Of these seven were male and five were female. All students attended a suburban elementary school in southern California. The ethnic make up of the students was as follows: one Hispanic male, three Hispanic females, one African-American male, five Caucasian males, and two Caucasian females. All students ranged between eight and nine years of age. These students were all placed in three of the school's third grade general education classrooms. The students in this study were identified by their teachers as students "at risk." They all had begun to exhibit difficulties in

various aspects of reading including, but not limited to comprehension and/or fluency.

Student selection criteria. The third grade general education teachers of the 12 student participants were notified that reading intervention groups were going to begin for struggling readers. All third grade teachers were invited to participate and identify any of their students that were in need of extra reading instruction. Three out of four of the third grade teachers chose to participate in the study. Teachers were given an outline of criteria that the students must meet such as the student must have difficulty in at least one area of reading, he/she must be willing to actively participate in the reading groups, and the student must have a consistent attendance record.

Matched pairing procedure. First, the teachers gave the researcher a list of the students in his/her class that would meet the criteria for the intervention group. Students from the same class were then paired up based on similarities in their learning and academic profile. The researcher randomly assigned one student from each pair to the experimental group, where he/she would receive supplemental reading instruction via the Read Naturally program. The other student remained in the general education classroom during the intervention time and did not receive any supplemental reading instruction. Six of the students were assigned to the experimental group. The other six were assigned to the control group

Materials and Pretest and Posttest Procedures

All general education teachers were given information on how the intervention groups were going to be run. They were knowledgeable about what their students were going to be working on and how this program could potentially increase their students' reading performance. Before the intervention groups began, the teachers also received a notice informing them of which of their students would be attending the Read Naturally groups, what dates the groups would be run, and at what time their students would be coming to the reading groups. See Figure 1 for a copy of the letter given to teachers.

March 8, 2006
Dear _____,
<p>Thanks again for letting "borrow" some of your students for the Read Naturally intervention groups. All of the students have been given the pretest and I am now ready to start the groups. I would like to see the student Mondays, Tuesdays, and Wednesdays from 2:00-2:30 pm. The groups will begin on Monday, March 13th and will conclude on Wednesday, May 31st. Below I have listed the students who will be coming to the reading groups. The students should to room 24. If you forget to send your students, don't worry I will just give you a call ☺. Thanks again!!</p>
Sincerely, Stacy
Students' Names: _____ _____

Figure 1. Teacher notification of read naturally groups

Prior to and after implementing the intervention, each of the 12 students was given an individual pretest and posttest. The expository passages given to the students to read were at the third grade level and were taken from the Jerry L. Johns Reading Inventory (Johns, 2001). These passages were from the Form A and Form B versions of the same assessment; therefore, the reading level stayed consistent.

The pretest focused on the students' reading comprehension level, oral reading accuracy, and oral reading rate and allowed the researcher to gather baseline information on all of the participants. The pretest required the students to read the third grade passage presented in Table 1 aloud and then answer a series of 10 comprehension questions about the story. The comprehension questions presented in Table 2 included questions on main idea, fact finding, inference, and vocabulary. Those reading passages were then scored to establish current baseline information on all of the participants. The pretest yielded a comprehension level, oral reading accuracy, and oral reading rate for each student. See Table 3 for the pretest results for the 12 students.

Table 1. Third grade reading passage pretest

The Noise	
<p>Fred was lying in bed trying to go to sleep. He had a big test the next day. He kept hearing a soft whistle, so he went into the kitchen and checked the tea kettle. The stove was off. Then he stood outside his parents' room to listen for snoring. Everyone was sleeping quietly. He returned to his room and noticed some wind. It wasn't the fan. It was off. He heard a dog bark outside and saw that his window was open a little. He closed it and the noise stopped. He climbed into bed and fell asleep quickly.</p>	

Table 2. Third grade pretest comprehension questions

Type of Question	Question	Typical Answer
Main Idea	What is the story about?	A noise that kept Fred awake; Fred looking for a noise
Fact Finding	What was Fred trying to do at the beginning of the story?	Sleep
Fact Finding	What did Fred have to do the next day?	Take a test
Fact Finding	How did the noise sound?	Like a soft whistle
Fact Finding	Where did Fred look for the noise?	The tea kettle; his parents' room
Fact Finding	What did Fred hear from the window?	A dog barking
Fact Finding	How did Fred make the noise go away?	He closed the window
Inference	What was probably causing the soft whistle?	The wind
Inference	How would you feel if you heard a soft whistle when you were trying to sleep? Why?	Scared; frustrated; mad
Vocabulary	What does "listen" mean?	Try to hear

Table 3. Third grade pretest results

Student	Words Read Per Minute	Decoding Accuracy	Comprehension Accuracy
Student 1	74	98%	60%
Student 2	90	98%	80%
Student 3	118	100%	70%
Student 4	103	99%	30%
Student 5	102	98%	80%
Student 6	146	100%	50%
Student 7	81	98%	40%
Student 8	100	98%	80%
Student 9	115	98%	20%
Student 10	133	99%	90%
Student 11	128	99%	90%
Student 12	146	100%	60%

Next, the students who were chosen for the experimental group were each assigned a computer onto which the Read Naturally software program was loaded. They were also assigned a reading level based upon their pretest performance and an individual password for each time they logged onto the computer.

In order to gather information about the amounts of progress all the students had made, after 10 weeks of intervention at the conclusion of the reading groups, all 12 students were given a posttest from the alternate version of the Jerry L. Johns Reading Inventory. The posttest again gathered information on the students' reading comprehension level, oral reading accuracy, and oral reading rate. As with the pretest, students read a third grade passage. This time it was the passage presented in Table 4.

The comprehension questions presented in Table 5 included questions on main idea, fact finding, inference, and vocabulary. See Table 6 for posttest results for the 12 student participants.

Table 4. Third grade reading passage posttest

<p style="text-align: center;">The Hungry Bear</p> <p>The busy bees had been making honey all day. That night it was cool and damp. I had slept well until I heard a loud noise near my window. It sounded as if someone were trying to break into my cabin. As I moved from my cot, I could see something black standing near the window. In fright I knocked on the window. Very slowly and quietly the great shadow moved back and went away. The next day we found huge bear tracks. The bear had come for the honey the bees were making in the attic of the cabin.</p>

Table 5. Third grade posttest comprehension questions

Type of Question	Question	Typical Answer
Main Idea	What is the story about?	A bear trying to get honey; being scared
Fact Finding	What had the bees been doing?	Making honey
Fact Finding	Where were the bees making honey?	In the attic of the cabin
Fact Finding	Who or what woke the person in this story?	A bear; a loud noise at the window
Fact Finding	What was near the window?	Blackness; shadow; a bear
Fact Finding	What was found the next day?	Bear tracks
Fact Finding	What did the bear want?	Honey
Inference	Why do you think the bear walked away?	It heard a knock
Inference	What might you do to keep the bear away?	Remove the honey
Vocabulary	What is an "attic"?	A place upstairs in your house where you put junk and stuff

Table 6. Third grade posttest results

Student	Words Read Per Minute	+/-	Decoding Accuracy	+/-	Comprehension Accuracy	+/-
Student 1	94	+20	96%	-2	70%	+10
Student 2	105	+15	99%	+1	30%	-50
Student 3	136	+18	99%	-1	80%	+10
Student 4	125	+22	100%	+1	80%	+50
Student 5	115	+13	98%	NC	80%	NC
Student 6	193	+47	99%	-1	70%	+20
Student 7	89	+7	100%	+2	50%	+10
Student 8	109	+9	99%	+1	70%	-10
Student 9	117	+2	97%	-1	30%	+10
Student 10	133	NC	99%	NC	70%	-20
Student 11	115	-13	99%	-1	90%	+30
Student 12	143	-3	100%	NC	60%	NC

* NC-No Change

Intervention Procedure

The students in the experimental group began attending intervention groups in the beginning of March. The groups met Mondays, Tuesdays, and Wednesdays for 30 minutes a day for a period of 10 weeks. The students came to a computer lab where each student had his/her own computer and a set of headphones. The students all began Read Naturally on level 3.0 (third grade level). Students were given a menu of 12 non-fiction stories from which they could choose. The first part of the Read Naturally program asks students to access their prior knowledge and state what they already know about the chosen story. Next, students engage in a "cold timing" on their chosen story. A cold timing is when the student reads

an unfamiliar passage aloud to an adult for a period of one minute. After the minute is up, the program tells the student's oral reading rate. Each student is given an oral reading rate goal, which is higher than the cold timing score.

Instruction consists of the following steps. First, the program models the correct reading of the passage three times for the student to listen to. The student listens to the story and follows along to help identify unfamiliar words and listen to the correct expression that is used when reading the passage. Now that the students have had the story read to them, it is the expectation that students are much more confident and willing to read the stories aloud independently.

For the next step, the student independently reads the story aloud for a one-minute period. The program keeps track of the student's oral reading rate. After the student practices three times and met or exceeded the session's oral reading rate goal, the student then answers a series of five comprehension questions. The questions are a combination of multiple choice and short answer questions.

The final step of instruction involves the student calling over an adult to listen to the student's oral reading of the passage. This is called a "hot timing." The adult starts a timer when the hot timing begins. The adult keeps track of the student's reading including oral reading accuracy. If after the one minute, the timer goes off and the student has a) met or exceeded

his/her oral reading goal, b) answered the majority of comprehension questions correctly, and c) has a high rate of correct words read aloud, the student is considered to have “passed” the story. Once a story is passed, the student can go back to the menu of stories and begin something new.

Data Analysis

In order to gather information about whether Read Naturally is effective at increasing students’ reading levels, the researcher compared each student’s pretest and posttest performances. The pretest and posttest procedures are described previously in this chapter. The researcher intended to determine whether or not the students that received supplemental reading instruction would make more progress in the areas of oral reading fluency and reading comprehension than the students who remained in the general education classroom.

CHAPTER FOUR

Results

The focus of this study was to investigate the effectiveness of the Read Naturally computer program on increasing struggling students' reading comprehension and oral reading fluency levels.

Upon completion of pretest, the researcher was able to get the study groups running and really focus on increasing the students' reading comprehension and oral reading fluency levels. It was determined that the Read Naturally program would be the best tool to investigate its effectiveness because this program incorporates instruction in many different areas of reading instruction including the two areas that were the focus of this study.

The researcher determined that changes in the pretest and posttest scores for all the participants would be used to evaluate Read Naturally's effectiveness. The changes in the assessed reading rate, decoding accuracy, and comprehension performances were the dependent variables for this study.

Oral Reading Rate Results

Figure 2 compares pretest and posttest summary scores across the two groups of students with regard to words read per minute. As the data from the pretest and posttest shows, the control group students made virtually no gains in oral reading rate. In contrast, the students in the

experimental group, with an average increase of 22 words per minute, made a significant improvement in their reading rate. This data shows that students who receive supplemental reading instruction via the Read Naturally program made more progress than students who did not receive the supplemental instruction in reading rate.

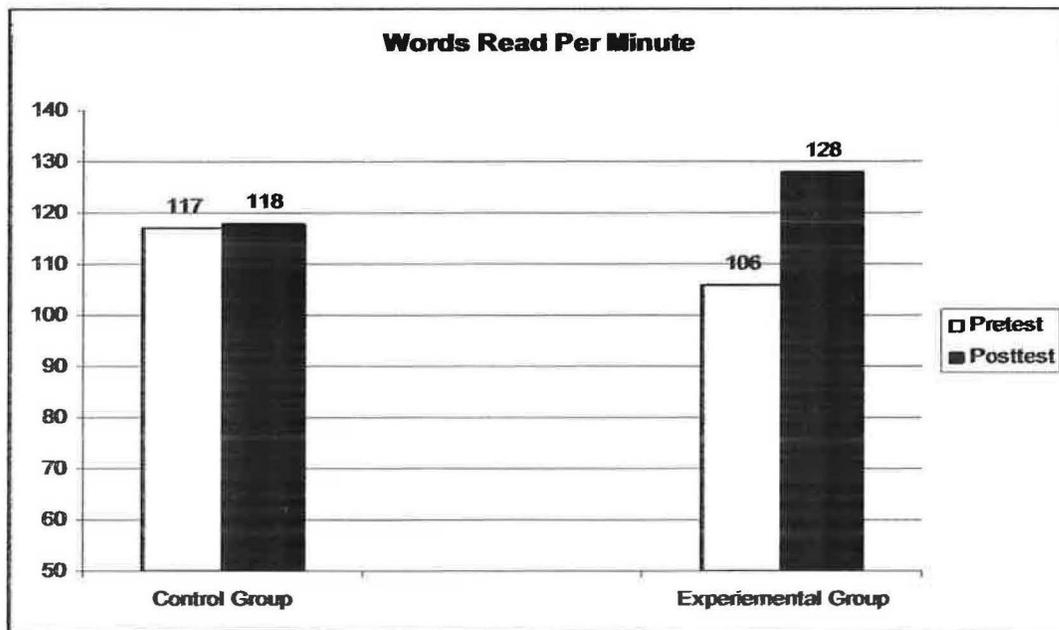


Figure 2. Comparison of pretest and posttest scores between each group in the area of words read per minute.

Word Accuracy Results

Figure 3 compares pretest and posttest summary scores across the two groups of students with regard to percentage of words read accurately. The data from the pretest and posttest identifies that neither the experimental group nor the control group made improvements in the area oral reading accuracy. This data shows that students who receive

supplemental reading instruction via the Read Naturally program made no more progress than students who did not receive the supplemental instruction in oral reading accuracy.

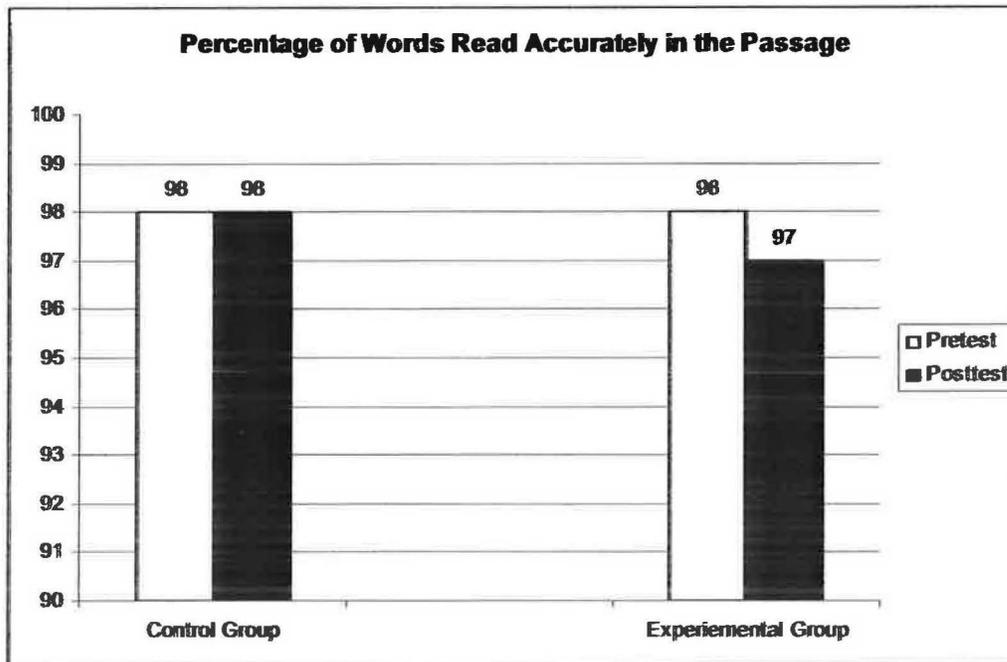


Figure 3. Comparison of pretest and posttest scores between each group in the area of decoding accuracy.

Comprehension Results

Figure 4 compares pretest and posttest summary scores across the two groups of students with regard to percentage of comprehension questions answered accurately. The data from the pretest and posttest shows that the experimental group, with an average increase of 5 percentage points, made a more significant improvement in their reading comprehension than did the control group. This data shows that students

who receive supplemental reading instruction via the Read Naturally program made more progress than students who did not receive the supplemental instruction in reading comprehension.

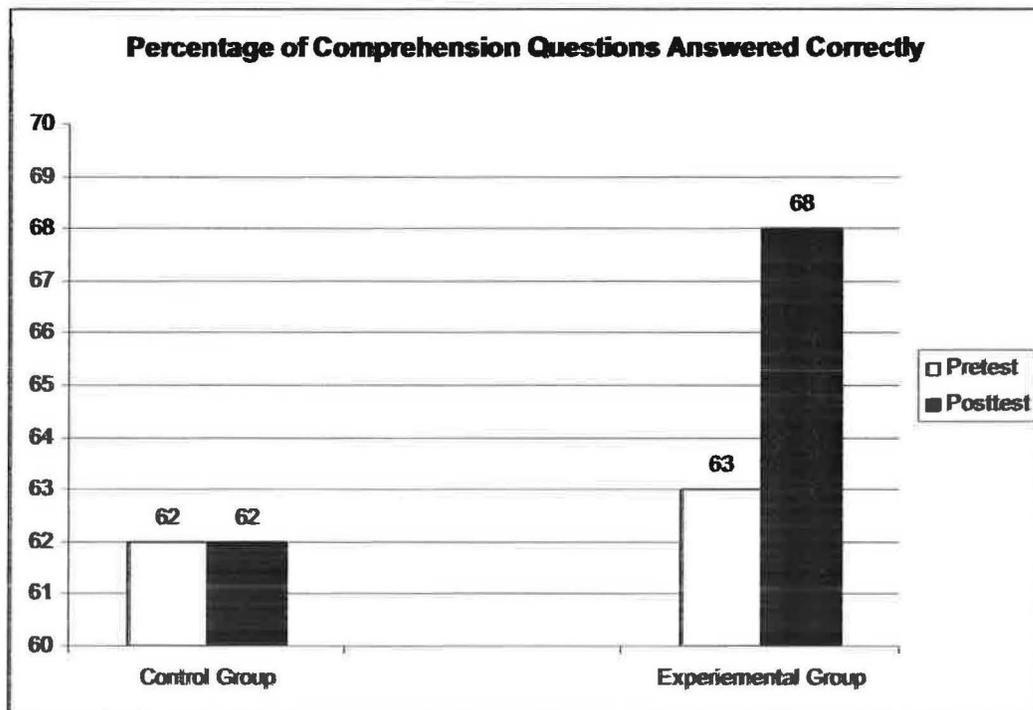


Figure 4. Comparison of pretest and posttest scores between each group in the area of reading comprehension.

Summary of Results

In conclusion, students who participated with the Read Naturally program made more progress in the areas of oral reading fluency and reading comprehension than did those who did not use Read Naturally. Neither group made gains in word accuracy. This is a preliminary indicator that as students' reading fluency increases, so does their reading comprehension. It is important to note that the students who attended the

Read Naturally group were reminded throughout each session of the importance of reading for content and not just for speed.

Due to the fact that such a small sample size was used, it is difficult to determine whether or not these improvements can be generalized. However, these preliminary results can be used as an indicator that the Read Naturally helps to increase students' oral reading fluency and reading comprehension.

CHAPTER FIVE

Discussion

Summary of Study

This study examined the effectiveness of a computer software program called Read Naturally on students' reading comprehension and oral reading fluency levels. Twelve students were put into six pairs based on their academic achievement levels. All twelve students were given a pretest to gather baseline information on the students' fluency and comprehension levels. Next, one student from each pair was randomly assigned to the control group and the other was assigned to the experimental group. The six third-grade students in the experimental group were from three different general education classrooms. These students participated in the Read Naturally program for 30 minutes a day, three times a week for ten weeks. The other six students in the control group remained in the general education classroom and did not receive additional language arts intervention. At the end of the ten week period, all the students were given a posttest to examine their growth in fluency and comprehension. The results of the study indicate that the students who received the ten week literacy intervention program made greater progress in fluency and reading comprehension, but not in reading accuracy.

Is Read Naturally an effective computer software program for increasing students' oral reading fluency and reading comprehension skills?

The purpose of this study was to examine the use of the Read Naturally program on elementary age students' reading levels.

The researcher ran reading intervention groups using the Read Naturally program for a period of 10 weeks as a source of supplemental reading instruction. The participants attended Read Naturally groups three times per week.

The pretest scores in words read per minute, decoding accuracy, and reading comprehension for both groups of students was fairly even. It did not appear that either group was significantly stronger in reading than the other. The posttest results revealed that the experimental group scored on average 22 words read per minute more than they had scored on the pretest (Figure 2). While the control group scored on average one word read per minute more than they had scored on the pretest (Figure 2). In addition, the experimental group also increased their comprehension scores on an average of five percentage points (Figure 4), while the control group made no gains in the area of reading comprehension (Figure 4).

Based upon the results from the 10-week intervention groups that took place, there was a definite increase in reading rate and reading comprehension scores for the students who did attend the Read Naturally reading groups. Therefore, it can be concluded that students who receive supplemental reading instruction via the Read Naturally will make greater academic gains than those who do not participate.

Limitations

The researcher has identified at least four limitations to this study. The first was the relatively small sample size. The intervention groups were run with only third grade students, therefore it is difficult to determine if these results would generalize to any other grade level. Also, the study consisted of a total of 12 students. This is a small sample, again making it difficult to make any major generalizations. In addition, the intervention groups were run for a relatively short amount of time. It is unknown if the students from the control group were given some more time if they would make the same or similar increases in their reading levels. The level of maturation in that 10-week period could have been different for the students in the experimental group. Lastly, it is possible that the students who attended the Read Naturally groups thought of the experience as a novel one. Many of the students had never been pulled out of the classroom before in order to receive special services and therefore may have been more motivated to do a good job. If this study were to be done for a longer period of time, it would be able to either confirm or rule out this limitation.

Implications for Educators and Educational Systems

The results of this study imply that having struggling students use the Read Naturally program as an intervention in the classroom may positively increase their reading rates and comprehension levels. Now that the positive effects of Read Naturally have been proven, it is necessary for

educators and schools to ensure that the intervention program(s) they use with the new Response to Intervention approach to early intervention and prevention of special education referral are run efficiently and consistently. It is clear that if a student who is experiencing difficulties in reading is in need of supplemental instruction that student needs to be involved in a program that is run with integrity (i.e., as designed) and is run in a consistent manner.

It is vital to the effectiveness of any intervention program that is run in a school that it is well structured and monitored. The implementation of new intervention programs in the schools require administrators and educators to work together and develop a plan stating how the program should be used, where the program will be run from, how students would qualify to become participants, how much time would the students participate for, how student progress will be monitored, when students would be exited from the intervention program, and who would be overseeing the program.

Future Research Questions

There is much more research that needs to be done on the effectiveness of the Read Naturally program. This study solely focused on academic scores and did not examine some of the other factors that could be contributing to increased reading scores. In a follow-up study, it would be important to examine the role that motivation played on the success of

the students. The researcher could create an interest inventory asking students about their level of interest in computers, computer programs, and so on. By taking a look at this piece of the study it would make it possible to either confirm or refute the role motivation played in this study.

Secondly, it would be important for researchers to take a look at other grade levels. This would allow researchers to learn if the Read Naturally program is more or less effective with students at various age and grade levels.

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