5-10-2002

The effects of the direct instruction with computer-assisted instruction in reading for students with learning disabilities

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THE EFFECTS OF THE DIRECT INSTRUCTION WITH COMPUTER-ASSISTED INSTRUCTION IN READING FOR STUDENTS WITH LEARNING DISABILITIES

By
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A Thesis

Submitted in partial fulfillment of the requirements of the
Master of Arts Degree
of
The Graduate School
at
Rowan University
May 1, 2002

Approved by _____
Professor

Date Approved 5-10-2002

ABSTRACT

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2001-2002
Dr. Joy Xin
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The purposes of this study were: (a) to examine the effects of using the Direct Instruction Reading Mastery program along with Computer-assisted instruction to enhance the students' vocabulary learning; (b) to examine the effects of using the Direct Instruction Reading Mastery program in reading along with Computer-assisted instruction to enhance the students reading comprehension; (c) to evaluate if students display a higher level of satisfaction in reading when taught with the Direct Instruction Reading Mastery program followed with computer-assisted instruction. Nine 5th grade students with learning disabilities in a resource room participated in the study. A multiple baseline design across students was used in the study. Baseline data of four weeks was collected based on student test scores followed by interventions (intervention I – Direct Instruction Reading Mastery program, intervention II-Direct Instruction Reading Mastery program with computer-assisted instruction). Each intervention lasted for four weeks. The findings of the study showed student gains in reading achievement both in vocabulary and comprehension in the intervention phases. The results also showed student satisfaction in learning.

MINI ABSTRACT

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The purpose of this study was to examine the effects of using the Direct Instruction Reading Mastery program with Computer-assisted instruction to enhance students' vocabulary and comprehension skills and to evaluate students' learning satisfaction. Nine 5th grade students with learning disabilities participated. A multiple baseline design across students was used. Baseline data of four weeks was collected based on student test scores followed by two four-week interventions. Results showed students' vocabulary and comprehension gains in test scores and their satisfaction in learning.

Acknowledgments

I would like acknowledge and gratefully thank my children Kimberly and John for their constant love, support, and dedication throughout my educational endeavors.

I would like to acknowledge the Superintendent, the Director of Special Services, the Principal, and the Administrative personnel in my school district for granting me the opportunity to do the study.

I would like to acknowledge my students for giving me the motivation and the incentives to do the study.

I would like to acknowledge my educational assistant for her continuous support and friendship throughout the study.

I would like to acknowledge my Mother for always making me feel that I could reach for the stars.

Finally, I would like to acknowledge Dr. Xin for her continuous guidance and support throughout my thesis.

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Chapter 1

Introduction

Statement of the Problem

Reading is a developmental skill necessary to interpret and express the written word (Rabren, Darch, & Eaves, 1999). Interpreting the written word involves word recognition, vocabulary, and comprehension. A reading disability is defined as below average in reading comprehension by standardized assessment (Aaron, Joshi, & Williams, 1999). Students with reading disabilities demonstrate weaknesses in word recognition, vocabulary knowledge, and reading comprehension. Often they lack ability to decode and apply comprehension strategies adequately, and display difficulty in self-assessment of their own comprehension (Rabren, Darch, & Eaves, 1999).

Throughout the years, various strategies and reading programs have been used for students with learning disabilities. Students with learning disabilities usually exhibit deficits in reading (Mastropieri & Scruggs, 1997). These students display difficulty in one or more of the key processes involved in reading, which affects vocabulary knowledge and text comprehension. Without success in phonics and decoding, long-term achievement cannot be gained.

One problem special education teachers are dealing with is the fact that many schools provide reading programs that are directed toward children with average levels in reading comprehension. However, few suggestions are provided in basal teachers' manuals to assist students with learning disabilities (Schumm & Sharon et al, 1994). Literature-based reading programs are very popular but this particular type of instruction integrates reading and writing. For example, students with learning

disabilities experience difficulty in the process of reading, and they should be placed in programs that are specifically for teaching the required skills. Appropriate skill development, such as understanding vocabulary, comprehending the material, and relating the information to the student is the primary objective (Giddings, 1992). Although ample information is offered in the program, the organizational skills for students with learning disabilities are not completely structured. This situation may cause these students to become inattentive and lose interest in reading (McMahon & Goatley, 1995).

Students with learning disabilities are often characterized as exhibiting difficulty in motivation (Fulk, et al, 1994). Feeling incapable and unable to read may lower individual self-esteem and leads to a loss of interest and enjoyment of reading. Lack of self-esteem and motivation prevents the student from participating in group activities and discussions. This in turn hinders the students from earning successful grades not only in reading but also in other content areas. Eventually, the desire to be successful dissipates along with the initiative to attend school. Absenteeism and school dropout rate may be attributed to this problem.

Programs to enhance the motivation of students with learning disabilities may result in learning achievement (Dev, 1997). Educators should note that the student's individual differences affect the outcome of strategies that are used to increase motivation (Dev, 1997). The intrigue concerning academic motivation of these students has gained wider attention. An integration of motivational and cognitive components provides a comprehensible model of student learning (Pintrich, Anderman, & Klobucar, 1994). Because all children are individuals and have different learning styles, instruction must

be presented through various teaching modalities that are directed towards the student's individual needs. Materials should be presented in an attractive way that will motivate the student to become involved in the academics. Interesting and successful programs have come to play a valuable part in special education. Reading Mastery is a basal reading program that is intended to instruct reading in a structured, sequential, step by step fashion for students in the first through sixth grade (Englemann, Osborn, Osborn, & Zoref, 1988).

Computer-assisted instruction (CAI) is well known in the field of special education. Presently, the most typical application of assistive technology for students with learning disabilities is computer-based programs (Mastropieri & Scruggs, 1997). The use of Computer-assisted instruction is increasing due to its capability to reinforce lessons that were previously taught. Educational computer programs offer the possibility of helping individuals with learning disabilities to capitalize on their strengths, or compensate for their disabilities (Lewis, 1998). Computers provide an additional way for students to practice the skills they have learned, and offer additional ways to overcome and break down the barriers of learning (Lewis, 1998). Presently, the most common assistive technology used as an aid to students with learning disabilities is the computer. The computer can be used for curriculum assistance that correlates with the reading programs to help students reading comprehension and decoding skills (Lewis, 1998).

Self-esteem and self-determination play an important part in the life of students with learning disabilities (Sands & Doll, 1996). Special education teachers recognize the need to enhance self-esteem and self-determination among students with disabilities (Sands & Doll, 1996). Continuous motivation of students with learning disabilities can

help them to reach academic success in many areas. Using the Direct Instruction Reading Mastery program with Computer-assisted instruction will give the additional motivation to encourage students in learning reading and participating in learning activities.

The present study developed a teaching method that incorporates the Direct Instruction Reading Mastery with Computer-assisted instruction in a special education resource room. The purpose of using the Direct Instruction Reading Mastery with Computer-assisted instruction is to evaluate students' gains in learning vocabulary words, comprehension skills, and their motivation.

Background

The Direct Instruction model has been used for many years, and it has been represented in instructional materials such as Corrective Reading, DISTAR, and Reading Mastery (Mastropieri & Scruggs, 1997). The primary goal of the Direct Instruction is to increase the amount of learning in a systematic manner (Carnine, Dixon & Stein, 1998). This process helps link background information to new knowledge by application (Carnine, Dixon, & Stein, 1998). Direct Instruction specifies all activities in detail in a step by step fashion. Students receive daily practice in reading, writing, speaking, and listening while learning how to predict, infer, and make conclusions (Englemann, Osborn, Osborn, & Zoref, 1988).

The Reading Mastery program attempts to provide students with a reasonable amount of practice in the skills that are necessary to achieve success in the reading process (Englemann, Osborn, Osborn, & Zoref, 1988). The teacher reads the scripted material and is responsible for completing the entire lesson. The instruction is direct, and

the tasks and activities are indicated with specific details in the teacher's manual. Reading skills and strategies that are necessary to succeed are taught, utilized, and reviewed. Although there have been many studies on Direct Instruction and on Computer-assisted Instruction, there has been limited research on using The Direct Instruction Reading Mastery program with Computer-assisted instruction.

Because Computer-assisted instruction (CAI) is filtering into the field of special education as well as regular education, the computer has been a successful technology tool in classrooms (Ochoa, Vasquez, & Gerber, 1999). Computer technology has the potential to help learners understand and use incoming information more effectively (Ochoa, Vasquez, & Gerber, 1999). The use of Computer-assisted instruction is increasing in classrooms due to its capability to reinforce lessons that were previously taught. Educational computer programs offer the possibility to help individuals with learning disabilities and to capitalize on their strengths, or compensate for their disabilities (Lewis, 1998). Although poor reading skills are a high priority to improve for students with learning disabilities, technology-based interventions for reading lag far behind those in other content areas. In previous years, instructional software programs for reading were designed to offer drill and practice lessons to reinforce skills that were previously taught. An upward trend in the field of special education has created the development and implementation of assisted technology that correlates with instructional programs (Lewis, 1998).

The present study will be conducted to examine the gains of students with learning disabilities in learning vocabulary words and reading comprehension skills when using the Direct Instruction Reading Mastery program comparing it to a Literature-based

Reading program. It will be conducted in a fifth grade resource room for students with learning disabilities.

Significance of the Study

Special education teachers are faced with the responsibility of teaching students with learning disabilities on a daily basis. Students with learning disabilities display difficulties in vocabulary and comprehension skills (Rabren, Darch, & Eaves, 1999). It is not easy for them to integrate new information with their prior knowledge because students with learning disabilities experience difficulty in reading comprehension strategies (Mastropieri & Scruggs, 1997). The students require assistance in content area reading to decipher important information and remember what they have learned.

Although curriculum based computer programs are becoming popular, limited research has been done on Reading Mastery with Computer-assisted instruction. The present study has produced a method of teaching reading by combining the Reading Mastery program with Computer-assisted instruction in a daily reading instructional period. The objective of this study is to demonstrate the effects of the Direct Instruction Reading Mastery program with Computer-assisted instruction for students with learning disabilities.

Statement of the Purpose

The purposes of this study are: (a) to examine the effects of using the Direct Instruction Reading Mastery program along with Computer-assisted instruction to enhance the students vocabulary learning; (b) to examine the effects of using the Direct Instruction Reading Mastery approach in reading along with Computer-assisted instruction to enhance the students' reading comprehension; (c) to evaluate if students

display a higher level of satisfaction in reading when taught with the Direct Instruction Reading Mastery program along with Computer-assisted instruction.

Research Questions

1. Do students with learning disabilities gain skills in learning vocabulary when taught with the Direct Instruction Reading Mastery program along with Computer-assisted instruction?

2. Do students with learning disabilities gain growth in reading comprehension when taught with the Direct Instruction Reading Mastery program along with Computer-assisted instruction?

3. Do students with learning disabilities enjoy a higher satisfactory level in reading when taught with the Direct Instruction Reading Mastery program along with Computer-assisted instruction?

Chapter 2

Literature Review

Reading Strategies for Students with Learning Disabilities

For all children, learning to read is very important because it is the foundation of their academic career (Stevens, Slavin, & Farnish, 1991). Students with learning disabilities require a variety of strategies that enable them to achieve success in academic areas. For most of them, reading is a difficult task that causes their experience of failure in school (Bryant, 1999). Reading failure is the main reason why some children become candidates for retention, supplemental help, or classification (Bryant, 1999). The following literature review discusses diverse approaches that are used to develop students reading abilities whether they are students with learning disabilities or students in a regular education setting. The approaches include Literature-based reading, the Direct Instruction Reading Mastery program, and the Direct Instruction Reading Mastery program with Computer-assisted reading instruction.

Literature-based Instruction

Literature-based instruction is a holistic arrangement that presents realistic literacy to students (Parlady, 1997). Literature-based reading instruction involves a complete reading program with the combinations of teacher and student interaction (Hiebert & Colt 1989, Giddings, 1992). It includes the selection of literature research that helps students to develop as proficient readers (Hiebert & Colt 1989, Giddings, 1992). Research in Literature-based reading, with a holistic viewpoint of the reading

process, began to appear during the 1960's and 1970's (Giddings, 1992). Before that time, reading was conceptualized primarily as an accumulation of skills that began with the knowledge of individual words (Giddings, 1992). Advocates of Literature-based reading believe early experiences in literacy-rich environment is necessary for children to be successful in a less restrictive environment (Katims & Pierce, 1995). They believe that the strategies teachers use in teaching the reading process should be comparable to those used in well-read homes, and the methods used in instruction should influence students to become good quality readers (Giddings, 1992). Educators should read to students on a daily basis to promote a love for reading literature, and to develop important concepts about the reading process itself (Giddings, 1992). Although some Literature-based instruction uses the entire book, other Literature-based programs use excerpts of basal versions (Parlady, 1997). Centering the instruction that focuses on childrens' literature is one of the most distinguishing characteristics of the program (Parlady, 1997). Through Literature-based reading programs, students have a chance to read about many places in the world. Through literature, students also have the ability to develop background knowledge on various cultures and people throughout the world (Parlady, 1997). It gives students an opportunity to read books that they can personally relate with and use to develop visualization skills. When students are able to develop a connection between literature and themselves, they increase the possibility of becoming intrinsically motivated to read the material (Bryant, 1999). Reading literature opens the world of many topics to students. Literature-based instruction does vary in the classroom but there are a few characteristics that make a Literature-based program successful (Parlady, 1997). They are as follows: 1) Literature-based instruction should be organized

and planned around the basic views of language learning, 2) Students are given the opportunity to read stories they relate to, and 3) Students are involved in discussions with their teachers and peers (Parlady, 1997). In a Literature-based program, sufficient reading must be a key activity, and the students should be able to react to and complete the given assignments. The capability to decode words rapidly and accurately is an important prerequisite for continued and successful fluency in reading skills, and in the ongoing improvement of comprehension skills (Bryant, Ugel, Thompson, & Hamff, 1999). The Literature-based movement is critical of the emphasis of the reading sub-skills that are encouraged by basal programs (Giddings, 1992).

Using a Literature-based instructed program allows the students an opportunity to select their own reading materials. The selected material may include trade books, newspapers, and magazines (Parlady, 1997). In a Literature-based reading program, students are persuaded to explore additional materials that will enhance their prior knowledge. The students are encouraged to select literature that is based on their personal interests in reading. In a Literature-based reading environment, the students participate in a specific amount of social interaction that involve various groups of students with ongoing discussion and debates. Teachers act as facilitators throughout the verbal discussions and they supply various open-ended questions for the students to work on and to expand the questions for students to explore (Parlady, 1997).

In order to successfully plan and present a Literature-based reading program, teachers should become well known with the continually growing world of children's literature. There must be excellent planning and organizational skills to enhance reading instruction, and allow the instruction to be presented in an orderly and timely manner.

This procedure would simultaneously reinforce the student's organizational and structural skills while they are learning. There must be sufficient materials to reinforce the program and enhance learning. Throughout the program, the teacher must continuously work on close communications with students, their parents, the administrators, and other colleagues to encourage students' success (Parlady, 1997).

Literature-Based Instruction for Students with Learning Disabilities

As mentioned earlier in this chapter, Literature-based reading instruction entails a complete reading program that includes various combinations of teacher and student interactions (Hiebert & Colt, 1989, Giddings, 1992). Students' individual needs should continuously be included in the reading process, and they should constantly be able to understand the materials provided. The students should be immersed in material they can relate to personally with their existing background knowledge. Because many students are considered poor readers, they read less text compared to good readers and do not make any gains in fluency by reading practice (Ciborowski, 1995). In some instances, poor readers receive a qualitatively method of instruction compared to average readers (Ciborowski, 1995). The ability to identify unknown words rapidly and accurately is an important prerequisite to produce continued fluency in reading and comprehension skills in a Literature-based program (Bryant, Ugel, Thompson, & Hamff, 1999). However, does Literature-based reading programs provide phonics instruction and decoding strategies that are necessary to increase reading fluency and comprehension skills? Recent research has shown that instruction in phonics will help the students develop independence in decoding skills (Giddings, 1992). Working on phonics and the structural analysis allows the students with learning disabilities additional time to work on the

required skills that will enhance their ability to read the literature successfully (Parlady, 1997). Increasing the sub-skills such as phonemic awareness and decoding in Literature-based reading will additionally help students to develop their imagination and their visualization abilities. Even though difficulties with decoding and comprehension skills are often described as problems that students with learning disabilities display, a weakness in reading fluency is a common problem (Mastropieri, Leinart, & Scruggs, 1999). When students display difficulty in reading fluency, it affects their reading performance (Mastropieri, Leinart, & Scruggs, 1999). Because of their difficulty in reading, students with learning disabilities usually have reading fluency problems that makes them reduce their reading rate. As a result, these students may read less text compared to other students. Therefore, they are processing less text to remember or comprehend (Mastropieri, Leinart, & Scruggs, 1999). To provide sufficient reading as a basic activity in the program, the students must be able to complete the given assignments and actively participate in reading activities. Without the necessary skills involved this task would be difficult to achieve. Slower reading rates imply that more emphasis should be placed on recognizing the words instead of remembering them (Mastropieri, Leinart, & Scruggs, 1999). When students read words at a slower rate, it may suggest that students are putting more effort into decoding the word instead of reading the word (Mastropieri, Leinart, & Scruggs, 1999). It seems that this program's demands may be a challenge to students with learning disabilities and they may not be able to complete the assigned reading task as the program required. In addition, in a Literature-based program, it may be difficult to make all the accommodations necessary to address individual reading problems. Also, slow readers read with less automaticity

due to their difficulty in decoding the written words. The students may have limited background information to develop the meaning of the words (Mastropieri, Leinart, & Scruggs, 1999). Because students are reading at different levels, various instructional strategies should be used in order to help these individuals. Regular education teachers that have students with learning disabilities that are included in their classrooms are facing identical problems. In many instances, it would be easier to implement adaptations if supplemental material were available (Schumm & Sharon, et al, 1994). In many of the classrooms, most of the attention is being focused on meeting the individual needs of students (Schumm & Sharon, et al, 1994). Although the initial reason of Literature-based reading was to depart from particular reading programs, many publishing companies are producing various commercial programs (Nastase & Corbett, 1998). To date, teachers are realizing that every teacher's manual does not provide the information that is needed to incorporate the sufficient accommodations for students with learning disabilities. Individual accommodations and adaptations must be made in order to enhance the assimilation of knowledge with various individuals. Although reading aloud to students and giving them the opportunity to read on their own communicates much about reading, there is always a need for instructional methods and strategies to build on prior background knowledge in the reading process (Mercer & Lane, et-al, 1996). Much of what students know about the reading process is learned through the observation of reading skills (Mastropieri, Leinart, & Scruggs, 1999). These skills include reading fluency, comprehension strategies, and word decoding. It is indicative if Literature-based reading programs are to improve, professional development programs

should be made available to prepare teachers to help meet the need for individual accommodations and adaptations for their students (Schumm & Sharon, et al, 1994).

Direct Instruction (Reading Mastery)

It was over twenty years ago that Rosenshine introduced the term Direct Instruction into the area of reading education in the classroom (Stein, Carnine, & Dixon, 1998). The Direct Instruction Reading Mastery is a systematic and comprehensive model of instruction that integrates effective teaching practices with curriculum design (Stein, Carnine, & Dixon, 1998). Also included in the Direct Instruction Reading Mastery program is organization, management, and the daily monitoring of the student's progress (Stein, Carnine, & Dixon, 1998). In previous years this model has also been represented through instructional program materials known as Corrective Reading and DISTAR, (Mastropieri & Scruggs, 1997). The method or educational plan of the Direct Instruction Reading Mastery program is based on previous teaching experiences which indicates that students learn with small sets of information and then are able to generalize the acquired knowledge to larger sets of information (Gersten & Carnine, 1986, Cole, Jenkins, Mills & O'Connor, 1993). The primary objective of the Direct Instruction Reading Mastery program is to increase the amount of material the student learns, and also the quality of systematic learning by applying the new material and linking it to prior background knowledge (Stein, Carnine, & Dixon, 1998). The Direct Instruction model is characterized by teacher-directed instruction (Stein, Carnine, & Dixon, 1998). The main principle in the design of the Direct Instruction Program is very simple. In order to be successful both the teacher's presentation of the materials and the materials itself must be clear and unmistakable. Low-performing students repeatedly show higher academic

achievement in reading when the teachers follow a structured and continuous pattern of guided practice and corrective feedback (Gersten, Woodward, & Darch, 1986). Effective phonics instruction should be presented in a systematic, explicit and aural method (Snider, 1990). Phonological awareness, alphabetic understanding, and automaticity of the code should be included in the beginning stages of reading (Coyne, Kameenui, & Simmons, 2001). Evidence that was taken from primary and secondary sources agree that children with good phonological awareness skills usually learn to read quicker than children without developed phonological skills (Coyne, Kameenui, & Simmons, 2001). The Direct Instruction Reading Mastery program deals with phonemic awareness, alphabetic understanding, and automaticity of the code. Additional research on reading instruction has focused on direct and explicit instruction on specific comprehension strategies to improve students' reading ability (Stevens, Slavin, & Farnish, 1991). Decoding and comprehension skills are taught in the Direct Instruction Reading Mastery program along with literary skills and different study skills (Engelmann, Osborn, Osborn, Zoref, 1988).

The results of a study by Snider, (1990) using the Direct Instruction reading program were interesting. It was conducted with average first grade students that were placed into two groups. One group used Direct Instruction and the other group used a basal reading program. After implementing the two programs for the school year, the results indicated that the Direct Instruction group scored higher in word analysis and spelling in their Iowa tests the following year. However, there were no differences between the groups in Vocabulary or Reading (Snider, 1990). The results also indicated

that Direct Instruction in phonics was more successful than basal reading when teaching basics (Snider, 1990).

All lessons in the Direct Instruction Reading Mastery program are teacher scripted, and the lessons assist teachers in keeping the instruction consistent and basically understandable. In the Direct Instruction Reading Mastery program, the program provides various strategies through scripted materials in order to facilitate clear communications between the teacher and the student (Carnine, Stein, & Dixon, 1998). Beside scripted lessons, the teaching practices in the Direct Instruction program include frequent questioning with productive feedback with students responses to the corrective feedback (Stein, Carnine, & Dixon, 1998).

There are critical elements described in the effective presentation of the Direct Instruction Reading Mastery program (Gersten & Carnine, 1986, Cole, Jenkins, Mills & & O'Connor, 1993). They are as follows: explicit step-by-step strategies, student mastery, specified error corrections, and formative testing with cumulative review. In step-by-step strategies, the Direct Instruction Reading Mastery provides a strategy for each new skill that is introduced (Gersten & Carnine, 1986, Cole, Jenkins, Mills & O'Connor, 1993). Strategies or Big Ideas are the concepts or principles that enhance the gaining of knowledge (Kameenui & Carnine, 1998). The Direct Instruction Reading Mastery program provides the conspiguous strategies, scaffolding, and review that is necessary to achieve success. Once the skill has been introduced to the student, continuous repetition of the skill or scaffolding is performed until the student is able to complete the skill without prompts and hesitation. Scaffolding is an important strategy in the Direct Instruction that follows the introduction of a strategy. Scaffolds provide the

learner with guidance and support during the beginning phases of learning new and challenging information (Kameenui & Carnine, 1998). Teacher mediated scaffolding is especially important for the correction of student errors and requires careful strategic responses (Carnine, Stein, & Dixon, 1998).

A major misconception in the program is that there is confusion between rote memorization and explicit instruction (Carnine, Stein, & Dixon, 1998). Following the Direct Instruction, there are specific correction procedures offered for various errors in the Direct Instruction Reading Mastery. The strategies are provided to the students when they are having difficulties with or making mistakes in their assignments (Carnine, Stein, & Dixon, 1998). Judicious review is defined as the process of repeating specific material in sensible ways and should follow scaffolding (Kameenui & Carnine, 1998). If teachers review the new material with their students and apply it into appropriate situations, the outcome will be the acquisition of and the retention of knowledge. In the Direct Instruction Reading Mastery program, testing occurs about every five teaching days. The tests include items that were taught and reviewed earlier in the program (Gersten & Carnine, 1986, Cole, Jenkins, Mills, & O'Connor, 1993).

In the Direct Instruction Reading Mastery, there is a specific emphasis placed on teaching skills to students and facilitating the acquirement of knowledge (Englemann, Osborne, Osborn, & Zoref, 1988). The student materials include a textbook, workbook, skill book and test book. All of the student's material correlate with the teachers scripted materials which in turn makes the material easy to reciprocate and the activities easy to complete.

Direct Instruction (Reading Mastery) for Students with Learning Disabilities

For many years, problems in reading fluency have been considered to be among the most common characteristics of students with learning disabilities. Although problems with word recognition skills and reading comprehension are often described in students with learning disabilities, one of the most common characteristics of problem readers is a lack of reading fluency (Mastropieri, Leinart, & Scruggs, 1999). However, since students with learning disabilities are normally labeled as dysfluent readers, skill building approaches appear to be effective (Mastropieri & Scruggs, 1997).

Because the Direct Instruction Reading Mastery program focuses on phonics and comprehension skills, the skills are taught simultaneously. Research shows that phonological awareness should be taught to children who are at risk of reading difficulties (Coyne, Kameenui, & Simmons, 2001). Big Ideas are concepts and principles that facilitate the acquisition of knowledge within an academic area (Carnine, 1994, Coyne, Kameenui. & Simmons, 2001). Phonological awareness is the understanding and knowledge that language is made up of sounds. Students with learning disabilities need effective strategies to be able to deal with basic concepts and principles. Learning to read entails the students understanding the relationship between written print and speech (Spector, 1995). In a research study by Spector, 1995, conclusions show that training in phonemic awareness works. For beginning readers, phonemic awareness training develops the connection between segmenting and blending skills. However, additional research is necessary to measure the results of phonemic awareness training on older students that have experienced reading difficulties (Spector, 1995). In addition to this research, there was a study by Davidson & Jenkins, (1994) on phonemic processes to

beginning reading and spelling words. The study used kindergarten students as the subjects. The students were divided into four groups. They were as follows: blending spoken phonemes into words, segmenting spoken words into phonemes, both segmenting and blending, and the control group that involved no phonemic instructions (Davidson & Jenkins, 1994). The results indicated that the children acquired the skill of generalizing in the area they were taught in but were unable to generalize the material if they were uninstructed in it (Davidson & Jenkins, 1994). Thus, the Direct Instruction Reading Mastery program is being used for the students with learning disabilities.

In the Direct Instruction Reading Mastery, new concepts and skills are presented in two to three lessons in order to provide the correct amount of review and reinforcement needed to master the skill, and to give students time to assimilate the new information into their existing background knowledge. One quality of a Mastery Program is that it does not present large amounts of material and skill training in one lesson (Englemann, 1999). The amount of new material that is presented is small because students with learning disabilities have a difficult time assimilating too much material in a given amount of time. One principle of Englemann and Carnine's (1982) theory in instruction was one of unambiguous communication. An example of this principle was to teach similar information separately to avoid confusion (Cole, Jenkins, Mills & O'Connor, 1993). Also in order to avoid confusion later in reading, the Direct Instruction promotes using letter sounds through the first year of instruction. Students with learning disabilities often experience difficulties in comprehension and a systematic program such as the Direct Instruction Reading Mastery program may prove academically beneficial to the students. In the Direct Instruction Reading Mastery

program comprehension is taught from the first lesson and throughout the program (Englemann, Osborn, Osborn, & Zoref, 1988). Through several research studies, it has been implied that the repeated reading of the same material may help to increase fluency and comprehension in the text (Mastropieri & Scruggs, 1997). However, a notable weakness in this method is that it lacks the ability of providing information to students that will enable them to comprehend the material (Mastropieri & Scruggs, 1997). The Direction Instruction Reading Mastery program provides strategies for each new skill that is introduced (Cole, Jenkins, Mills & O'Connor, 1993). The strategies are specifically taught, applied, and reviewed (Englemann, Osborn, Osborn, & Zoref, 1988). This is an important factor for students with learning disabilities due to their difficulties in assimilating the new material. Learning new material in small increments enhances the possibility for students with learning disabilities to assimilate the new knowledge with greater ease. The skill-building approaches in the program appear to be effective for those students (Mastropieri & Scruggs, 1997).

In the Direct Instruction Reading Mastery program, the educational strategies and lessons are generally taught in small groups. This method gives each student the opportunity to respond to questions and receive corrective feedback quickly. Throughout instruction of the skill in the program, there are specific times the students are to respond to the teacher. The instruction in the program is direct and unaltered, and the directions, tasks, and activities are specific and clear (Englemann, Osborn, Osborn, & Zoref, 1988). The teacher reads the scripted lesson to the students and they are given a signal to respond. The response-prompting strategy keeps the students with learning disabilities focused on the task and ready to respond to the questions. The use of response-

prompting strategies has also been the focus of considerable educational research (Wolery & Schuster, 1997). A common recommendation to achieve success is to use a response-prompting procedure in small-group instructional arrangements (Wolery & Schuster, 1997). However, there are still questions surrounding the issue of using the procedure while teaching students with significant disabilities in small groups with their classmates who do not have significant disabilities (Wolery & Schuster, 1997). Even though there is more information needed on how to increase the efficiency of the response-prompting procedures, a common procedure for promoting instructional efficiency with response-prompting procedures is instructive feedback (Werts, Wolery, Holcombe, & Gast, 1995, Wolery & Schuster, 1997).

The Direct Instruction Reading Mastery program is among the reading programs that are most used by special education teachers teaching students with learning disabilities (Cole, Jenkins, Mills, & O'Connor, 1993). Students with learning disabilities usually exhibit deficits in reading comprehension. The deficits may include problems in retention of the facts and details but also interpreting the given information (Mercer & Mercer, 1993, Mastropieri & Scruggs, 1997). During the past twenty years, extensive research has been devoted to improving reading comprehension by using different methods (Mastropieri, Scruggs, Hamilton, Wolfe, Whedon, & Carnevaro, 1996, Mastropieri, & Scruggs, 1997). Various methods used to improve reading comprehension have been direct questioning of text content, reinforcement strategies, visualization and text organizers, and comprehension strategy training with the hope of helping students (Mastropieri, Scruggs, Hamilton, Wolfe, Whedon, & Carnevaro, 1996, Mastropieri & Scruggs, 1997).

Once the skill is introduced, it is practiced and reviewed until automaticity is achieved. The teacher repeats each task until the information is firm and the students are able to perform the required task without any prompts and hesitations (Cole, Jenkins, Mills & O'Connor, 1993). It has been suggested that reading fluency can be increased by the method of repeated reading (Mastropieri, Leinart & Scruggs, 1999). The Direct Instruction Reading Mastery program places particular emphasis on phonics and comprehension (Englemann, Osborn, Osborn, & Zoref, 1988). When students are taught to a mastery program, they acquire information faster and develop strategies for learning (Englemanm, Osborn, Osborn, & Zoref, 1999).

Support for using the Direct Instruction Reading programs in special education is based on two interesting hypotheses. Since all instruction is direct and unambiguous, effective instruction makes it a better program for students with learning disabilities (Cole, Jenkins, Mills & O'Connor, 1993). Also, the optimistic effects observed in research with students without learning disabilities can be generalized to students with learning disabilities (Cole, Jenkins, Mills & O'Connor, 1993). Teaching with the Direct Instruction Reading Mastery program has benefits for all students. Having scripted material allows more instruction to take place in one particular period of teaching. There are two types of academic changes that occur in the program. In this specific program, the student learns more material in a specific amount of time, and they are able to develop their ability in learning new material (Englemann, 1999).

Computer-Assisted Instruction in Reading

Computer-Assisted Instruction (CAI) is becoming common in all school programs as well as programs for students with learning disabilities (Lewis, 1997). Computer-

assisted instruction is being used to increase skills in decoding and comprehension skills in educational programs in regular and special education classrooms (Lewis, 1997). Since Computer-assisted instruction is being used to reinforce and review lessons in content areas that were previously taught, the use of computers is increasing. Computer-assisted instruction (CAI) is being used to promote reading fluency in students (Mastropieri, Leinart, & Scruggs, 1999). Programs that ordinarily provide learning guidance by Computer-assisted instruction are as follows: drill and practice, tutorial, or simulation (Wissick, 1996). The computer is being used for curriculum based computer assistance that correlates with numerous reading programs. Using Computer-assisted instruction in the classroom has been developed to enhance students by giving them an additional way to practice skills they are having difficulties with (Hall, Hughes, & Fibert, 2000). The effects of Computer-assisted instruction on reading was investigated by Jones, Torgesen, & Sexton, 1987. The study of research focused on recognizing text that included words with different vowels and vowel combinations. A game-like activity increased the rate of speed in reading. A result was that the experimental groups had shown an increase in reading fluency, accuracy, and generalized to reading similar words in content (Mastropieri, Leinart, & Scruggs, 1999).

Computer-assisted instruction is being utilized to promote the basic skills of decoding and comprehension necessary to reach academic success in reading (Lewis, 1998). The use of the computer in the classroom is becoming a tremendous supplement for teachers when providing instruction that correlates with specific reading strategies and the correlating reading skills (Hall, Hughes & Fibert, 2000). Using the computer as a hands on manipulative to enhance instruction is becoming a common practice. An

additional reason for using Computer-assisted instruction in the classroom is that educators would be able to develop and enhance additional time for educational instruction with the students (Hall, Hughes & Fibert, 2000). While the teacher is working with a group of students, other students may be practicing their skills on the computer. In addition, the students are able to receive one-on-one instruction at the computer.

Due to the major advances in technology and large storage devices known as CD-ROM drives, many educational programs are now published in multimedia format (Wissick, 1996). In reading instruction, the computer-based programs showed positive effects on achievements with students that displayed reading problems. Computer-assisted instruction may also be used to increase motivation in a student.

Computer-Assisted Instruction in Reading for Students with Learning Disabilities

Assistive technology can be defined as any technology with the possibility of enhancing and broadening the performance of students with learning disabilities (Lewis, 1998). Although there are many valuable forms of technology available, the personal computer seems to be the form of technology most often related to students with learning disabilities (Lewis, 1998). The belief that Computer-assisted instruction improves and increases instruction is based on the principle that teacher-based instruction could be transferred to Computer-assisted instruction with additional benefits (Hall, Hughes & Fibert, 2000). In a review of literature on the use of CAI in special education, research by Okolo, Bahr, & Rieth (1993) concluded that CAI can improve skills in word recognition and decoding (Lewis, 1998). However a study by Higgins & Boone (1993) concluded that the traditional reading software available was not as effective for improving skills in the comprehension area (Lewis, 1998).

Meeting the individual needs of these students should be the primary objects in the classroom and using Computer-assisted instruction can be helpful. Motivational deficits have serious and significant implications for students' academic success (Okolo, et al, 1995).

In the academic area of reading, the computer can be used for curriculum-based reading programs by using computer programs that correlate with instruction, or by using the computer as the assisted technology needed for individual instruction. It is effective because it gives students individual assistance on the computer. It may be used for the students with learning disabilities as the reinforcement and review that is necessary to achieve academic success. It can be used as a specific educational strategy that gives the students the opportunity to step away from the time constricting group instruction and allows them the opportunity to correct his/her responses with immediate individual feedback. This process of using the computer allows the student to remain active through the learning process. Are teachers allowing a certain amount of time for computer-based instruction as an additional supplement to the students' education?

Throughout the years audio segments have been added to many programs to assist with the development of vocabulary words. Although it was assumed that Computer-assisted instruction with speech output would help students with learning disabilities to read better, a study was conducted and it was found that computer-assisted instruction was equally or more effective with out the speech component (Torgesen, 1986, Herbert & Murdock, 1994). Continuous research is taking place in computer-assisted technology. Research results on assisted technology should be examined to see if there is a justifiable need for a curriculum that correlates with computer-assisted technology (Bryant, Erin,

Lock, Resta, & Allan, 1998). Computer-assisted instruction can be used to bridge the gap between one-to-one instruction and the traditional routine for teaching (Higgins & Boone, 1993).

Even though poor reading skills are the main concern for students with learning disabilities, technology-based interventions in the area of reading are behind computer technology in other areas (Lewis, 1998). During the past few years, there have been many changes in instructional software providing the educator with various programs to choose from. Educational computer programs offer the possibility of helping individuals with learning disabilities to capitalize on their strengths, and/or compensate for their disabilities (Lewis, 1998). Computer assistance provides an additional way for students to practice the skills they have learned. Various methods of research have shown that computer-assisted instruction may possibly improve skills in a few areas such as word recognition and decoding (Okolo, Bahr, & Reith, 1993, Lewis, 1998). However, traditional software has proven less effective for improving skills in the comprehension area (Higgins & Boone, 1993).

The use of Computer-assisted instruction is increasing due to its capability to reinforce the lessons that were previously taught and to continue to meet individual needs of students with learning disabilities. Advances in computer-based technology, and the recognition of Computer-assisted instruction have encouraged a wide range of adaptations for students with learning disabilities (Bryant, Bryant, & Raskind, 1998).

Summary

A concentrated review of literature summarized various methods of approaches and/or programs used as a resource that improve gains in vocabulary learning and reading

comprehension skills. Literature-based reading programs are based on the foundation of presenting realistic literacy to students through a complete reading program that involves the interactions of teachers and students. In order for students to be successful in a literature-based reading program, it is important that they are able to identify unknown words quickly and accurately to become proficient in reading. Students with learning disabilities display a difficulty with decoding skills. Research has shown that a strong evidence for phonetic instruction will help students improve their decoding skills (Spector, 1995). Also, if the students are reading at a slower rate due to decoding difficulties, comprehension will be affected. Although a literature-based reading program is beneficial and successful in many incidences, it is not always adaptable for all students with learning disabilities.

Another approach reviewed was the Direct Instruction Reading Mastery program. The Direct Instruction Reading Mastery program is effective for students with learning disabilities because it has all of the components to enhance reading skills. It is a systematic method of instruction, presented in step-by-step format, teacher scripted and understandable lessons, provides review and reinforcement, corrective feedback and comprehension strategies. In addition, Reading Mastery presents classic stories and stories that correlate with the program (Englemann, Osborn, Osborn, & Zoref, 1988). The Direct Instruction Reading Mastery program provides strategies for the necessary skills and the program also is beneficial because it introduces smaller sets of information at one time. Students with learning disabilities need this strategy in order to compensate for their difficulties in assimilating new information.

Computer-assisted instruction has become a very important component of the educational aspect in the classroom. Being successful in various skills may increase the possibility of students' motivation and self-esteem that will affect how they learn new skills and information (Okolo, et al, 1995).

Adding a form of Computer-assisted instruction to the Direct Instruction Reading Mastery program may provide the possibility for students with learning disabilities to achieve greater gains in the area of vocabulary and comprehension skills. This present study will attempt to use Computer-assisted instruction with the Direct Instruction Reading Mastery program for students with learning disabilities to gain academic achievement and reading enjoyment.

Chapter 3

Method

Samples

Nine 5th grade students attending one elementary school participated in the study. This elementary school is in a small district located in Southern New Jersey. The children were identified as learning disabled students by the school district personnel by means of state eligibility standards. Each student had an Individualized Educational Plan (IEP) with goals and objectives in reading, and received remedial reading instruction for at least ninety minutes per day in a special education resource room.

Table 1

Grade, Gender, and Classification Distribution of Sample Students

Students	Grade	Gender	Classification
Group 1			
A	5	Male	SLD
B	5	Male	SLD
C	5	Male	SLD
D	5	Male	SLD
E	5	Male	SLD
Group 2			
F	5	Male	SLD
G	5	Male	SLD
H	5	Male	SLD
I	5	Male	SLD

The participating students were placed into two groups, one with four students and another with five. They were placed into these two groups for small group

instruction. The first and the second group was placed in a literature-based reading program for four weeks in order to determine a baseline level for vocabulary knowledge and comprehension skills. Both groups were given the same amount of instructional material in the same amount of time but at different schedules each day. A teacher made test was provided at the end of each week in the areas of vocabulary and reading comprehension to obtain student scores. One special education teacher instructed both groups (See Table 1).

Research Design

A multiple baseline design across students was used in the study. Baseline data were collected prior to the Direct Instruction Reading Mastery (DIRM), an intervention program for 4 weeks. Subsequently, DIRM was provided for 4 weeks, followed by computer-assisted instruction together with the Direct Instruction Reading Mastery program for another four weeks. All instruction was conducted in a resource room.

Types of Instruction

There were two types of instruction implemented in the study. They were Direct Instruction Reading Mastery Program and Direct Instruction Reading Mastery program with computer-assisted instruction.

Instructional Materials

Presentation Book

The presentation book contains scripts for every lesson in the textbook. The scripts give explicit instruction for teachers in a step by step fashion. The book is printed in different fonts to indicate different instruction. It also presents the answers and

procedures to correct the students mistakes (Englemann, Osborn, Osborn, & Zoref, 1988).

Textbook

The textbook is a nonconsumable book. It is made up of adventure and contemporary stories, classic novels, poems, comprehension passages that contain fact and fiction for students, and a glossary of vocabulary words is included (Englemann, Osborn, Osborn, & Zoref, 1988). The stories are printed in sections followed by a letter. This indicates an end of an idea or a specific section for questioning to enhance comprehension and reinforcement of the material.

Workbook

The workbook is a consumable book. It contains questions about stories in the textbook and provides spaces for the answers. The book also contains items to reinforce skills and to review vocabulary words and story facts (Englemann, Osborn, Osborn, & Zoref, 1988). The workbook is used as an independent reinforcement of the material.

Skillbook

The skillbook is a nonconsumable book. It contains vocabulary word lists, items related to the story, activities, writing assignments, and projects with answers written on a separate piece of lined paper (Englemann, Osborn, Osborn, & Zoref, 1988). This skillbook is assigned as independent work.

Computer-Assisted Instructional Program

The computer program was designed to be simple enough for the students to operate on their own to practice the skills they learned. The program is written in HTML, (Hypertext Markup Language) the language used to create World Wide Web pages. Each page had the lesson title at the top, a picture that pertained to the story, and a narrative of

the lesson. There were two graphical buttons on the bottom of each screen that allowed the students to go back and forth among the pages.

There were two to three pages developed by the teacher on a daily basis. The program contained information that correlated with the daily lesson. The fourth page contained a multiple-choice quiz written in JavaScript, which is an interactive programming language commonly used on the Web. The core code of the program remained the same, but the questions and answers were changed with each lesson. The quiz had 10 questions including vocabulary words and comprehension skills based on the lesson. At the bottom of the quiz, the students were able to type their name into a designated box and click a button labeled "Grade Me". The last page of the program displayed the numbers of the questions answered correctly, incorrectly, and the percentage that were answered correctly. A final button brought up the printer dialogue so that the students were able to print out their results.

Procedures

The instruction was given in the participating students' reading resource room five times a week for eight weeks. The instruction time lasted for 40 minutes. All students were instructed with the same material for the same amount of time. The two groups of students were instructed separately with the first group of students being one week ahead of the second group. Group one consisted of 5 students and Group two consisted of 4 students.

The students received daily instruction with the Direct Instruction Reading Mastery program for the first four weeks. They completed lessons one to twenty in the first part of intervention (See sample of lesson plan in Appendix B).

The information below is a list of procedures for Direct Instruction Reading Mastery that the students followed:

Exercise One

Word Practice – The students were instructed to open their skillbook to lesson one. The students were given directions to touch column one. The teacher presented the first word, directed students to touch the word, and gave them a signal to repeat the word. Steps were repeated for each word in column 1 (seven words).

Exercise Two

Word Family – The students were directed to touch column two. The teacher presented the word, instructed students to touch the word, and gave them a signal to repeat the word. Steps were repeated for each word in column 2 (four words).

Exercise Three

Word Practice –The students were instructed to touch column three. In this part of the lesson the students touched the word, and were given a signal to say the word. Steps were repeated for each word in column 3 (nine words).

Exercise Four

Vocabulary Development – The students were given directions to touch column three. The teacher informed them that after they read the words they were going to discuss the meaning of each word. It was in this section of the lesson that meanings were given and examples demonstrating how the new words were used (8 words).

Exercise Five

Decoding – The students took turns reading part of the story aloud. Each student was given at least three sentences to read trying carefully not to make errors. At the end of the reading, the students were given points for staying in the margin or errors.

Exercise Six

Comprehension Questions – Whenever a letter appeared after a paragraph in the reading, comprehension questions that correlated with the material were asked.

Exercise Seven

Silent Reading – The students were given a particular part of the story to read silently.

Exercise Eight

Independent Work – The students were given the time to work in their workbooks and skillbooks.

During the second phase of intervention, (including lesson 21 to completion), the students followed the same format as the first phase of intervention however, the

computer-assisted instruction directly followed the lesson. The independent work took place after the students completed their daily computer program.

Computer-based assistance – The students used the computer for about ten to fifteen minutes daily depending on individual student's reading ability. There was a short narrative that correlated with the reading and was followed by multiple choice questions in vocabulary and comprehension.

Measurement

Baseline data were collected on the four-week test scores of the Literature-based reading program the participating students were previously enrolled in. Once the intervention was in place, the testing took place on a weekly basis. The students took a teacher-made test in vocabulary and comprehension. The instruction was the independent variable and the vocabulary and comprehension tests were the dependent variables. The test results are shown on charts (graphs) indicating the gain scores students had throughout the instruction compared to their baseline performance.

A teacher-made reading inventory was given out at the beginning and the end of the intervention to all students in reference to their satisfaction in reading. (See sample of inventory in Appendix C)

Chapter 4

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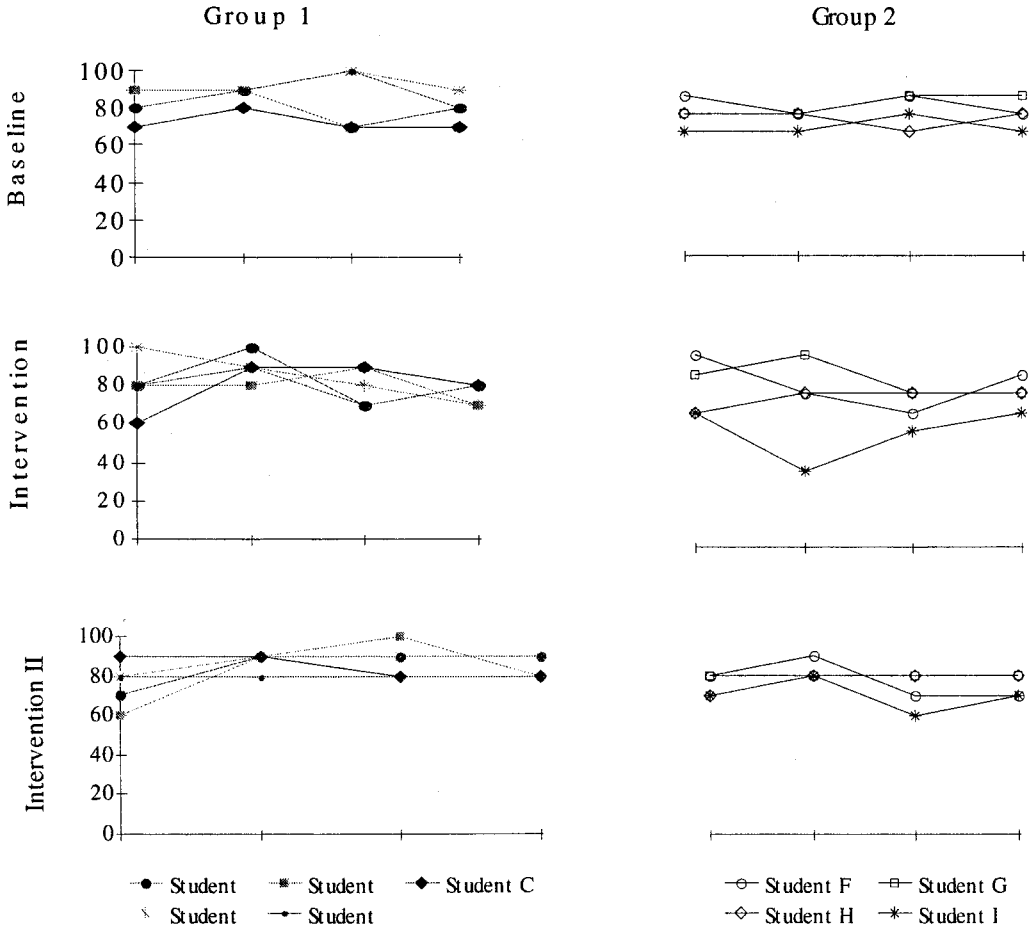
Results

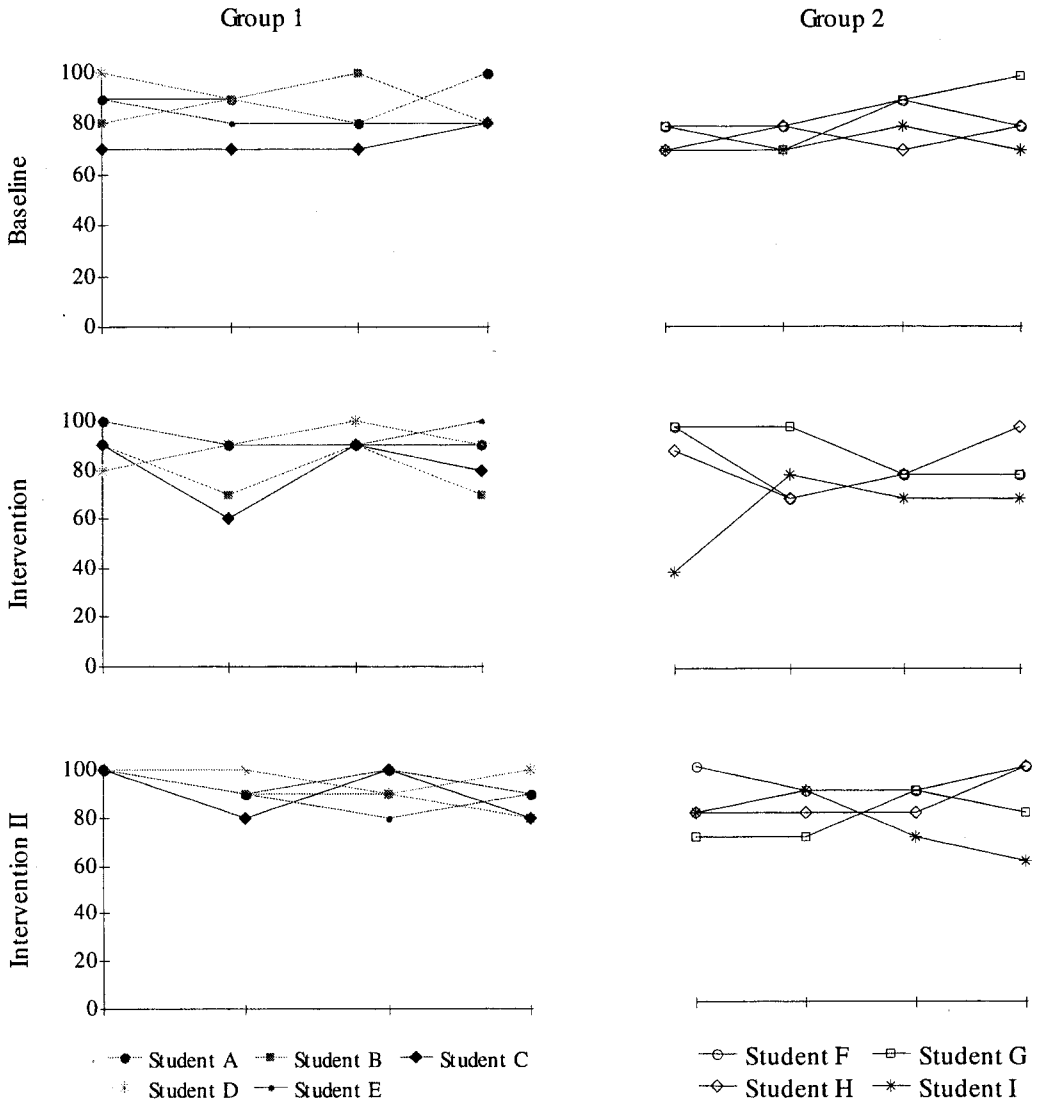
Student Achievement

Two groups of the students' performance on vocabulary and comprehension tests were presented in the Baseline, Intervention, and Intervention II (intervention with computer assistance). Weekly average scores of Vocabulary and Comprehension of the students' performance were presented in the following Charts.

Vocabulary Chart



Comprehension Chart



A follow-up reading inventory was presented to the class on the last day of the study. The inventory was analyzed by using the percentage of the students in each group that answered yes, no, and sometimes in the inventory before and after the interventions.

The questions on the inventory were as follows (See appendix C)

Student Satisfaction

Questions		Group 1			Group 2		
		Y	N	S	Y	N	S
1. Do you enjoy reading?	**Pre**	40%	0	60%	100%	0	0
	Post	40%	0	60%	100%	0	0
2. Do you enjoy reading a story in class?	**Pre**	40%	0	60%	50%	0	50%
	Post	60%	0	40%	75%	0	25%
3. Do you enjoy being called on to read in class?	**Pre**	20%	20%	60%	25%	25%	50%
	Post	60%	20%	20%	25%	25%	50%
4. Do you recognize the consonants?	**Pre**	60%	20%	20%	50%	0	50%
	Post	80%	0	20%	100%	0	0
5. Do you recognize the vowels?	**Pre**	100%	0	0	100%	0	0
	Post	100%	0	0	100%	0	0
6. Do you know your consonant sounds?	**Pre**	80%	0	20%	100%	0	0
	Post	100%	0	0	100%	0	0
7. Do you know your vowel sounds?	**Pre**	80%	0	20%	100%	0	0
	Post	100%	0	0	100%	0	0
8. Are you able to decode words?	**Pre**	20%	0	80%	50%	0	50%
	Post	20%	0	80%	50%	0	50%
9. Do you have difficulty identifying the main idea of the story?	**Pre**	40%	0	60%	50%	0	50%
	Post	20%	0	80%	50%	0	50%
10. Are you able to summarize a story?	**Pre**	60%	0	40%	50%	0	50%
	Post	100%	0	0	50%	0	50%

Chapter 5

Discussion

The purpose of this study was to examine the effects of using the Direct Instruction Reading Mastery program along with Computer-assisted instruction to enhance student knowledge of vocabulary and reading comprehension. The findings of the study showed student gains in reading achievement both in vocabulary and comprehension instruction. Another purpose was to evaluate if the students displayed a higher level of satisfaction in reading when taught with the Direct Instruction Reading Mastery program along with Computer-assisted instruction. The results showed an increase in student satisfaction compared with their responses on the inventory prior to the instruction.

Each participating student gained scores in vocabulary knowledge when taught with the Direct Reading Mastery program along with Computer-assisted instruction. During the baseline, Student A's data on vocabulary scores were around 80% accuracy. Throughout intervention, the scores remained stable but accelerated close to 90% accuracy during the intervention II. Student B's baseline and intervention scores were close to 80% but accelerated close to 90% at the completion of intervention II. Student C's vocabulary data ranged from baseline scores of 70% to 75% throughout intervention to 85% by the completion of intervention II. Student D's scores fluctuated throughout interventions. His baseline data was close to 85% and remained close to that through the intervention phases. Student E's scores on the baseline were around 90% accuracy and decreased to 80% throughout the two interventions.

In the second group, Student F's baseline data on vocabulary testing was around 80% and stayed stable throughout Intervention I and II. Student G's vocabulary scores stayed close to 85% throughout the study, and Student H's scores stayed close to 80% during the baseline, intervention I and intervention II. Student I's baseline data was around 70% and decreased to 65% through intervention I and increased to 70% accuracy through intervention II.

In group 1, each student gained scores in reading comprehension when taught with the Direct Reading Mastery program along with Computer-assisted instruction. During the baseline, Student A's comprehension scores data were around 90% and remained stable throughout the interventions. Student B's scores were close to 80% during baseline and interventions. Student C's scores increased from 75% in the baseline to 80% with an accelerating trend to 85% accuracy in intervention II. Student D scored 90% accuracy in the baseline and remained close to 90% throughout intervention I, and accelerated close to 95% throughout intervention II. Student E scored 85% accuracy during baseline, then showed an increase close to 90% accuracy during both intervention I and II.

In Group 2, Student F scored around 80% in baseline rising to 90% during the interventions. Student G scored around 80% in baseline decreasing to 75% throughout intervention, and increased to 80% during intervention II. Student H had baseline data close to 75% and accelerated to 80% accuracy throughout the interventions. Finally, Student I showed a stable score of close to 70% throughout baseline, intervention I, and intervention II. Although the students scored within a close range of each other, a few students displayed difficulty in the comprehension area. A weakness or deficit in

decoding skills and reading fluency may have caused this difficulty. Some students used additional time decoding the content, and were not able to comprehend the material.

Student satisfaction in reading was examined before and after the study. Results indicated an increase in the level of satisfaction after the interventions. Student responses showed either the same or an increase in each area except in the area of identifying the main idea of the story. One student indicated that the majority of time was used to identify the main idea, and the other students admitted they had displayed the difficulty only some of the time.

When comparing the results of this study with Davidson & Jenkins (1994) findings, there was an apparent similarity when it became evident that students who were taught phonics were able to generalize the material versus the students who were unable to do so. Although there were minimal gains in vocabulary learning, greater success may have been reached if the direct instruction approach on explicit phonics was performed at an earlier age. Another similarity made in comparison with Snider's (1990) findings is that direct instruction was more successful in phonetic areas rather than reading basal books although in the case of this study the comparison was made to Literature-based books. It is proven the results of this study support Hall, Hughes & Filbert (2000). Computer-assisted instruction can improve and increase student achievement when teacher-based instruction was transferred to Computer-assisted instruction.

There are some limitations in this study. The variables such as timeline of the actual instruction, the limited sample students, and the flexibility of an elementary school schedule could not be controlled. Although the Computer-assisted instruction went well, it would benefit students if there were additional computers in the classroom.

Overall, the results of this study may provide support to previous research in reading for students with learning disabilities. The study showed that students with learning disabilities could make gains in the areas of vocabulary and comprehension by combining the Direct Instruction Reading Mastery program with Computer-assisted instruction on a daily basis. It appears that the Direct Instruction Reading Mastery program with Computer-assisted instruction offers the opportunity for students with learning disabilities to increase their potential to gain knowledge in learning vocabulary and reading comprehension.

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Appendix

Appendix A

November 12, 2001

Dear Parents:

Before we enter the holiday season, I wanted to keep you informed of how I will be teaching your child this year. Currently, we are using a literature based reading program that the entire fifth grade is using. After the new year, I will be switching to the Direct Instruction Reading Program (Reading Mastery) with computer assisted instruction. This program will assist the children in learning phonics, vocabulary words, and reading comprehension skills by using scripted teacher manuals, students workbooks, and eventually the computer.

Just as I feel education is important for school-age children, I want you to know that I feel it is important for teachers as well. This is an exciting year for me personally and professionally. For the last few years, I have been working toward my Masters Degree in Special Education. The last requirement for this degree is a Thesis paper. I am writing my thesis this year on the effectiveness of the Direct Instruction Reading program that I would usually use with my students. I will be closely studying this method and how well my students benefit from it.

Let me assure you of two things.

1) I will be teaching my class the same way I always have been teaching.
2) Your child will remain anonymous and the data will be used in a group format.

Please sign the attached paper, which gives me permission to use your child's performance (again, not his/her name) in my thesis paper.

If you have any questions about this, please feel free to call me at 829-3601. Thank you in advance for your time and consideration.

Sincerely,

Arlene Dowd

Cc: Superintendent
Director of Special Services

Student name _____will participate in the Direct Instruction Reading Program study.

Parent Signature _____Date_____

Appendix B

Sample Lesson Plan

Intervention I (Lesson 1-20)
DIRM

SKILLBOOK – Lesson 1

Word Practice – 5 minutes –Introduce word, student touches word, signal is given, student repeats word. (cabinet, park, party, etc.)
Word Family – 5 minutes – Introduce word, student touches word, signal is given, student repeats word . (Jill, Tom, Roger, etc.)
Word Practice – 5 minutes – Students will touch the words and say the words. (cabinet, park, party, etc.)
Vocabulary development – 7 minutes –Students will discuss meaning of the vocabulary words and use them in examples. (Teacher directed)

TEXTBOOK – Lesson 1

Decoding –(pages 2,3) Students will be given three sentences to read. **Comprehension** questions will be asked at the end of the paragraphs.
Silent Reading – Students will read part of page three silently for comprehension.

WORKBOOK, SKILLBOOK

Independent work - Students will work on Lesson 1 in the workbook and skillbook.

Intervention II (Lessons 21-40)
DIRM with Computer –assisted Instruction

Computer-assisted program – Students will work independently on the computer program that correlates with the lesson. Students will reading the short story on the computer and answer the questions (multiple choice).

Appendix C

NAME_____DATE_____

Reading Attitude Inventory

Please answer each question by placing a check in the correct space.

	Yes	No	Sometimes
1. Do you enjoy reading?	___	___	___
2. Do you enjoy reading a story in class?	___	___	___
3. Do you enjoy being called on to read in class?	___	___	___
4. Do you recognize the consonants?	___	___	___
5. Do you recognize the vowels?	___	___	___
6. Do you know your consonant sounds?	___	___	___
7. Do you know your vowel sounds?	___	___	___
8. Are you able to decode words?	___	___	___
9. Do you have difficulty identifying the main idea of the story?	___	___	___
10. Are you able to summarize a story?	___	___	___