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Are computers effective tools in teaching reading comprehension to learning disabled students?

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ARE COMPUTERS EFFECTIVE TOOLS IN TEACHING READING COMPREHENSION TO LEARNING DISABLED STUDENTS?

by
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A Thesis

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ABSTRACT

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In this study, teaching reading comprehension through the use of computers was tested against the traditional book method of teaching reading comprehension, in which students read in a book and the teacher does oral questioning. To carry out the study, six students with similar reading levels, were split into two groups of three. The control group did reading comprehension through the traditional method for six stories. The experimental group worked on reading comprehension in Stories and More on the computer, using the same six stories. The reading comprehension section of the Kauffman Test of Educational Achievement was administered individually to all six students prior to the treatment and again at the conclusion. After comparing individual and mean scores for the six stories, as well as differences in pre and post test scores, it was determined that the computer method was more effective than the traditional method in the majority of cases. The students in the computer group had a higher mean score than the book students on each of the six stories, with the exception of one. Further, the computer students' scores increased between pre and post tests, while the book students' scores dropped on the K-T.E.A..

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Chapter 1

Background: Decoding words is an essential reading skill. However, some students are coming through the early elementary grades able to read words, but not necessarily able to derive meaning from them. As a result, they have difficulty understanding both narrative and expository text. Neurologically Impaired students have a particularly difficult time in this area. This problem effects not only their ability to interpret story lines, but also their ability to extract key facts from subject matter text books. Reading comprehension is a crucial area for students. It affects them, not only in Reading class, but in all subjects in school and throughout their lives.

In the past, reading comprehension was approached through the use of oral questioning techniques and the use of prompts and purpose-setting questions prior to reading. One solution to the comprehension issue is to teach students through the use of technology. This study examines the use of computer technology to aid in teaching reading comprehension. Computer technology is very widespread in society today. Knowing how to use a computer is important, if not essential, in our modern, high-tech world.

Motivating, hands-on methods are essential for teaching any students. For students with learning disabilities, attention-grabbing, multi-sensory activities are even more imperative. For both Regular an Special educators, computer-aided instruction can open up a whole new realm of exciting and effective teaching strategies.

Problem Statement: Does the use of the Stories and More computer software program increase the comprehension scores of a group of elementary-age, Neurologically Impaired students as compared to a similar group of students, using a traditional approach to instruction?

Hypothesis: The use of the Stories and More computer software program does increase the comprehension scores of a group of elementary-age, Neurologically Impaired students, as compared to a similar group of students using a traditional approach to instruction.

Definition of Terms: In this study, the students are seven to eight years old and are in a self-contained, Neurologically Impaired class of ten students. The term *Neurologically Impaired* is defined by the state of New Jersey as "...a specific learning disability manifested by a severe discrepancy between the pupil's current achievement and intellectual ability in one or more of the following areas: basic reading skills, reading comprehension, oral expression, listening comprehension, mathematic computation, mathematic reasoning, and written expression." The *computer* reference represents the use of I.B.M. Eduquest classroom computers with Stories and More I and II software for comprehension practice. A *traditional approach* to teaching reading comprehension is to have the students read the story in a book and answer verbal or written questions in oral or written format.

Purpose: If this experiment demonstrates that the use of computers does increase comprehension abilities, it will give teachers another method of teaching this skill. In addition, it offers them another resource when implementing a multi-sensory approach.

The computer-assisted reading comprehension would prove to be beneficial to

students, as well as teachers. The students would be able to have fun learning and to become interactive with the learning process.

An added positive dimension of computer work is the social skills component. It can be used to facilitate peer tutoring and/or cooperative learning. This can help teachers to work on the various aspects of a social skills curriculum, while giving students the opportunity to sharpen their communication skills.

Overview: The study examines reading comprehension through both traditional and computerized methods. The subjects will be given weekly comprehension tests to check for understanding. At the end of this time, the results will be measured and conclusions will be made. In Chapter 2, the Literature Review will highlight various noteworthy findings of different researchers. These findings will be categorized and discussed, as they pertain to the research question.

Chapter 2

COMPUTERS

In education today, technology is a prominent issue. Computers are being used more and more as educational reinforcement and teaching tools in both regular and special education classes, particularly in the area of reading. The use of computers is important, both for immediate educational tasks at hand and for preparation of students for future endeavors. One of the most important educational tasks is reading. Computer technology gives teachers a means to meet the individual needs of each student (Novelli, 1993). Computers can make concepts more realistic to students by allowing them to experience things through technology that they would not otherwise have the opportunity to encounter (Novelli, 1993).

Computers can be positive motivators for students to work cooperatively (Roberts, 1991). Many computer programs provide good opportunities for peer tutoring ("Instructional Design,"1995). Computerized programs give students incentive to discuss books amongst themselves voluntarily (Roland, 1990). This can be very beneficial as reinforcement of social skills. Computers also create learner-centered teaching structures which foster positive interchanges between students (Ryba, et.al., 1995).

Another positive aspect of using computers in teaching is that it is an asset in preparing and managing paperwork. "Computers are providing for more detailed and efficient instructional record-keeping for both teachers and students" (Sawyer and

Zantal-Wiener, 1993). The computer provides copies for students taking home work to show parents and work samples for portfolio assessment (Tomczak, 1995). In addition, book reports can be done on the computer, which cuts down on paperwork for teachers (Roland, 1990).

COMPUTERS AND STUDENTS WITH LEARNING DISABILITIES

Diane Simmons Tomczak studied four students with learning disabilities at the International School of Geneva (1995). She found that the use of computer games proved effective in helping these students to focus. The study further showed that the more a student uses the computer, the longer his or her attention span becomes.

Steen Larsen had similar findings. Various studies were reviewed and he reported that, in those studies, it was discovered that the less attention the computer program uses up, the more attention a learning disabled student can use for the actual learning of the concept (1995). Another finding of Larsen's study was that reading skills are enhanced when the interaction between the student and the computer is increased.

In a study done by Heimann, et. al., it was found that autistic students were able to concentrate considerably longer when they performed computerized tasks than they had been able to on non-computer tasks (1995). In addition, their responses were much higher than expected. This case suggests that computerized instruction can really help disabled students focus and be motivated to answer and learn.

In order to motivate students, programs must be selected carefully. Motivational appeal is often low in programs with extrinsic rewards (rewards which are not related to the task and/or subject matter in the program) (Larsen, 1995). The rewards should be meaningful and relevant to the students. Computers motivate students by allowing them

to produce impressive work without the interference of their handicaps getting in the way (Horns, 1993).

Appropriate software is imperative in teaching learning disabled students through the use of computers. The higher the quality of the software, the better the chances of the students learning the concepts well (Mingolarra, 1994). According to Novelli, software can be used to remediate or accelerate, depending on the level of the program (1993). These students should have software that has uncluttered, purposeful, non-distracting components ("Instructional Design," 1995). The rationale for the program should be portrayed precisely (Larsen, 1995). The software should also provide frequent practice of each concept and corrective feedback ("Instructional Design," 1995). Computer programs are most effective for students with learning problems when they are used in conjunction with strong teacher-directed lessons ("Instructional Design," 1995). The balance between learner control and program control must be changed in correspondence to the student's mastery of the program (Larsen, 1995). Lynes states that, after a few years of computer use, teachers begin to get away from the lower thinking level software and move into more involved higher-order programs (1993).

READING

Reading is an essential educational task. It is described by Larsen as a collage of many different skills (1995). It encompasses word identification, spelling, and comprehension. It is a crucial task, not only in and of itself, but also as a subtask of other areas. Much of the materials used in other subjects is written as expository text. This requires astute reading skills. The students are required to read the material carefully in order to extract key pieces of information.

COMPUTERS AND READING

Spring and Perry asserted that students who use computer-assisted instruction (CAI) in reading learn and perform better than students who are taught solely through the use of a basal reader approach (Casteel, 1988). Students stand to gain a lot by using computers in their education (Moursund, 1995). This research indicates that the use of computers in the classrooms is positive and would be beneficial to the students.

Motivation is often a factor in how well a student reads. In many cases students are hampered in their reading progression because they do not enjoy reading, therefore, they do not get a lot of reading practice since they rarely read (Lundberg, 1995). As a result, it is important to motivate students to read in all ways possible.

A study done in 1992 by Farmer, Klein, and Bryson showed that the motivational aspect of the computer gives pupils more exposure to reading (because they enjoy it) and this, in turn, betters their skills. In this study, fourteen students with reading disabilities, ranging in age from thirteen to eighteen years, students were given stories to read at their own pace and multiple choice questions about the story to answer. In addition, subjects were given a work recognition test once each week. At the end of the study, students were given an anonymous questionnaire to complete which gave statements about computerized reading comprehension. The subjects were asked to answer by checking off the appropriate responses on a Likert Scale, ranging from "strongly agree" to "strongly disagree." While there was an insignificant increase in word identification and comprehension, the results of the motivation questionnaire were significant. The mean score for enthusiasm about a computerized speech feedback reading system was 67 out of 90. Additionally, the students indicated that they would be interested in spending an

average of 2.4 hours per week using the system on their own if it were accessible to them.

Computers are catalysts for getting students interested in reading and making it fun (Lundberg, 1995). Tomczak studied four disabled students as they worked with writing software and found that programs that are fun for students become good motivational tools (1995). She also noted that, the more the students worked with the writing programs that they enjoyed, the longer they were able to focus. Computerized reading programs have caused students to want to read for enjoyment outside the classroom (Roland, 1990). Many students with reading deficiencies do better with computerized lessons than with traditional lessons, so the computer helps them to achieve positive attitudes toward reading (Roberts, 1991).

COMPUTERS AND STUDENTS WITH LEARNING DISABILITIES IN READING

In some cases, students have difficulties learning and performing the reading process. If a student cannot do one of the task components automatically, it consumes a large amount of attention and lowers the efficiency of reading as a whole (Larsen, 1995). The primary problem among students with reading disabilities is difficulty with word identification (Cohen, et. al., 1988). Learning disabled students have trouble reading words quickly and correctly, therefore their comprehension is often interrupted and, as a result, their comprehension skills are low (Torgesen, et. al., 1988). Since comprehension is essential to the reading process, these students need effective remediation. Computer-assisted instruction not only remediates reading problems, but it can also prevent these difficulties from initially surfacing (Torgesen and Barker, 1995). There are expert systems which can diagnose processing problems that a student has and

give suggestions for remediation strategies (Raab and Steel, 1995). These are diagnostic computer programs in which the teacher answers questions about the students' abilities to process information. "The key is for teachers to know what technology can do and to match up the technology with the specific needs of students" (Stueben and Vockell, 1993).

The format of presentation of the information is also a key factor in the instruction of students with learning deficits. When people both hear and see information, they are able to process it more quickly and remember it more accurately than if they had perceived it through only one of the senses (Montali and Lewandowski, 1996). Students with reading problems feel most comfortable using computer programs which give facts in this bimodal fashion (Montali and Lewandowski, 1996). Computer programs that give bimodal presentations of information increase comprehension ability of students with reading difficulties (Montali and Lewandowski, 1996).

Graphics are an important issue in computer-based reading instruction for students with reading deficiencies. They should only be used for purposes related to the task, and not for other reasons (i.e., decoration) (Larsen, 1995). Graphics can have negative effects. They can cause students to rely too heavily on concrete representations and limit their ability to think abstractly (Larsen, 1995).

Often, students become off-task, or even discouraged when they come to words in their reading which they cannot decipher. Some computer programs are capable of pronouncing a word in text that the user does not recognize, which causes significant gains in students' sight vocabularies (Cohen, et. al., 1988). This, in turn, causes their reading to flow without interruption of difficult words destroying their confidence

(Lundberg, 1995). "Talking computers" (which give information both visually and auditorily) improve the word recognition skills among students with reading deficiencies (Montali and Lewandowski, 1996). It is vital that computers be used in reading and spelling instruction, not only for practice method diversity, but also for stimulation of essential processing needed to overcome reading and spelling deficiencies (Daal and Leij, 1992).

Language skills are often a problematic area for learning disabled students. Reading comprehension difficulties are actually one component of language comprehension skills deficits (Stothard and Hulme, 1994). Computer program learning can help these students to learn language skills (Heimann, et. al., 1995). Electonic books provide students with the opportunity to practice repeating sounds, which helps to strengthen speaking skills (Roffey, 1995). In addition, electronic books promote listening skills which help students associate words with symbols and symbols to concepts existing in their prior knowledge (Roffey, 1995). One effective electronic book program was studied by Shelly B. Wepner. It is entitled, Stories and More and it includes pre-reading activities that help to capture students' interest and direct it to the theme of the story (1992). In addition, thinking activities are provided, according to Wepner, which help students grasp various vocabulary words and concepts in the story. A third feature of the program are the extension activities which cause students to elaborate their ideas and thoughts about various themes and concepts present in the story (Wepner, 1992).

Writing skills go hand-in-hand with reading ability. Students need as many opportunities as possible to facilitate effective writing. Computers afford students the

opportunity to read and write items which relate to real-world experiences (i.e., letters and personal experience stories). (Roberts, 1991) When writing using a computer, students can easily move sentences to other areas in their text. (Storygard, et. al.,1993) "Technology provides a concrete medium for creative expression." (Novelli, 1993) Some electronic books have a feature in which students can write their own sentences into a story, allowing them to practice written expression skills. (Roffey, 1995) In many cases, students with learning disabilities are hindered in their writing by poor handwriting and spelling ability. With "Spell Check" and typing fonts on the computer, students can write text without becoming discouraged. (Storygard, et. al., 1993) Reading and spelling ability among students with written language difficulties can also be bettered by having students copy words from the screen repeatedly. (Daal and Leij, 1992)

The main focus when teaching learning disabled students to read is to teach them to identify words quickly and accurately. (Cohen, et.al., 1988) The most efficient method should be used. Computer-based training in "chunking techniques" works as well as traditional methods and results are generally quicker. (Casteel, 1988) "Chunking" (grouping key words of sentences into meaningful phrases) is important for helping students remember information. (Casteel, 1988) Teaching students to chunk information effectively has been proven to increase reading rate and reading comprehension. (Casteel, 1988) Casteel did a study in this area in which he worked with thirty learning disabled students ages fifteen to seventeen, in order to assess which of two chunking methods is more effective. He tested computer chunked passages against text chunked passages. He used a pre-post method of experimentation by administering unchunked passages to students as a pre-test, then giving one group chunked text passages, giving the

other group chunked computer passages and giving a third group unchunked computer passages and, finally, having all of the students take a post-test of chunked passages. The results of Casteel's study showed that the post-test scores were somewhat higher for the group doing the computerized chunking (M=87.5 vs. M= 85.95). The scores for computer chunked passages were considerably higher than the scores for nonchunked passages. Therefore, Casteel has proven that chunking is an effective technique for teaching reading and computerized chunking enhances the effectiveness of the tool.

For these various reasons, computers are effective tools for teaching. Both regular and special education students can profit from them. The computers are beneficial to the students' education in many ways. The multi-faceted learning opportunities are countless. Computers are the wave of the future, and all students deserve to be on the forefront of that wave.

Chapter 3

SUBJECTS

The subjects of this study are six neurologically impaired students who are placed in a self-contained neurologically impaired class. This placement is based upon a referral to the Child Study Team. Once the child is referred, academic, social, and psychological tests are given to determine eligibility for Special Education and classification. If neurological impairment is suspected as a result of testing, the child is then sent to a Neurologist for a neurological test.

The students ages and reading levels are as follows:

	Computer Student #1	Computer Student #2	Computer Student #3	Book Student #1	Book Student #2	Book Student #3
Age	8-7	7-11	8-4	8-5	8-8	7-11
Reading Level	2.2	2	2.3	1.8	2.3	2

Three are boys and three are girls. One of the students has Attention Deficit Hyperactivity Disorder.

SETTING

The students are working in a self-contained, neurologically impaired classroom consisting of eight students, one teacher and one teacher's aide. There are four IBM Eduquest computers and a Lexmark printer in the room for student use. The computers are linked by a fiber optic network. The main server includes software for reading comprehension entitled: Stories and More I and II. Headphones are available for students who have difficulty blocking out noises other than those of the computer he or she is working on.

INSTUMENT DESCRIPTION

In order to achieve a baseline, the reading comprehension subtest of the Kaufman Test of Educational Achievement was administered to the six subjects. The first ten items were presented to the students. The levels of the problems ranged from first to sixth grade, ordered from lowest to highest. The first eight items requires the students to read sentences and act-out what they say. The last two, of the ten administered, calls for the subjects to read a short story and respond to a statement about the story. There is no time limit on the test, however, the students must read and respond completely on their own and cannot move on to the next item until they have responded to the one before.

RESEARCH DESIGN

This study will consist of two groups of subjects with three students in each group. One group will function as the control group and the other group will function as the experimental group. It will be carried out with a pre-post design. Baseline was done through the administration of the reading comprehension subtest of the Kaufman Test of Educational Achievement. The raw scores ranged from 1 to 8 out of a possible10 items correct. The students will be given the same subtest of this standardized test at the end of the experimentation period and the scores will be compared.

PROCEDURE

The control group will be taught reading comprehension through traditional methods (i.e. reading stories and answering questions about them). The experimental group will be taught reading comprehension through the use of computer programs, namely Stories and More I and II. In this software program, students answer set induction questions which include graphic representations of the topic information. Then the story is

presented on the screen with words and pictures. Students have the option of reading the story themselves or having the computer read it to them. In addition, if there are isolated words that the students do not know, they can click on "read" and have the computer read them. As the students are reading, the teacher can stop them at appropriate places and ask prediction and comprehension questions. At the end of the story, there are follow-up activities relating to the story, such as fill-ins and picture puzzles.

All of the students will be given weekly comprehension tests which will consist of questions to be answered orally, without looking back at the story. This will be done for six weeks. At the end of this time, the reading comprehension section of the Kaufman Test of Educational Achievement will be administered again as a post-test. The results will be measured and conclusions will be drawn.

Chapter 4

In the study, two methods of teaching reading comprehension were compared. Six students, selected for their similarity of reading levels, were divided into two groups with three students in each group. The control group was given books to read and comprehension was tested through the traditional means of oral questioning. The experimental group was given the same stories, to be read on the computer, with follow-up questions presented by the computer.

The results were as follows:

Figure 1
Overall Mean Scores for Groups

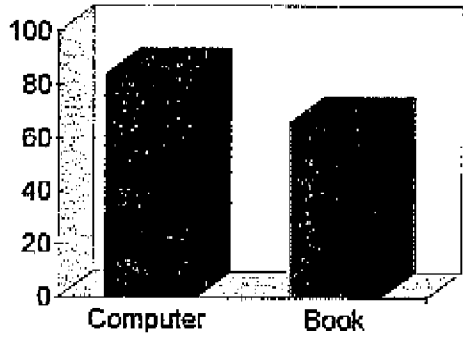

Figure One shows that the computer group performed better overall than the book group. The computer group had a mean score of 84.3 overall, while the book group scored only 66.3 overall.

The mean percentages of correctly answered questions is portrayed in Figure Two:

Figure 2

Mean % Story Quest. Answered Correctly

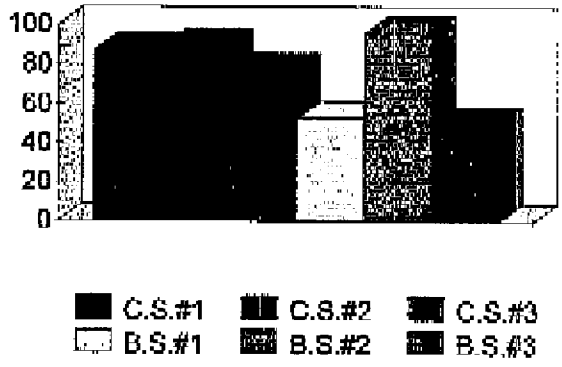

Table 1: Mean Scores for All Stories

	Computer Student #1	Computer Student #2	Computer Student #3	Book Student #1	Book Student #2	Book Student #3
Mean Score for Six Stories Read	87%	89%	77%	53%	96%	50%

The data represents the mean scores of the students in both the control and experimental groups on all six stories read. The computer students scored higher than two of the book students. However, one book student outperformed all of the students.

The breakdown of mean scores for each story was as follows:

Table 2: Mean Scores for Each Story

	Story #1	Story #2	Story #3	Story #4	Story #5	Story #6
Computer Group	96%	88%	85%	86%	76%	73%
Book Group	67%	94%	72%	62%	54%	49%

Table 2 shows that the computer group performed better than the book group, on average, on five of the six stories read.

The breakdown of scores for each student on each story is represented in Figure 3:

Figure 3
Individual Scores for Each Story

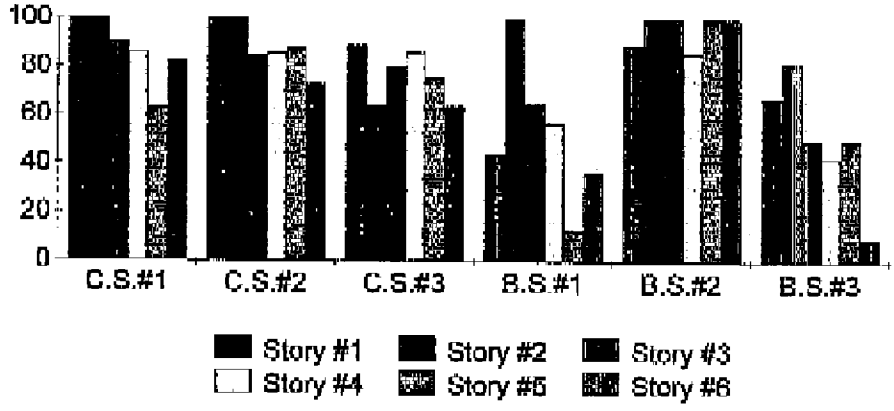

Table 3: Individual Scores for Each Story

STORY TITLE	COMPUTER STUDENT#1	COMPUTER STUDENT#2	COMPUTER STUDENT#3	BOOK STUDENT#1	BOOK STUDENT#2	BOOK STUDENT#3
The Carrot Seed	100%	100%	89%	44%	89%	67%
The Little Red Hen	100%	100%	64%	100%	100%	82%
If You Give a Mouse a Cookie	90%	85%	80%	65%	100%	50%
Peter's Chair	86%	86%	86%	57%	86%	43%
Morris the Moose	63%	88%	76%	13%	100%	50%
The Happy Day	82%	73%	64%	36%	100%	10%

The results presented in Figure three indicate that the scores varied greatly among the six stories. However, the computer students scored higher than the book students in most cases. The computer students scored significantly higher than the book students with the exception of one book student.

In addition to the criterion-referenced tests administered to the students throughout the course of the study, the students were tested using the Reading Comprehension subtest of the Kaufman Test of Educational Achievement. The test was administered to each of the six subjects, once before the study began and a second time at the conclusion of the study. This standardized test gives students words to read with no pictures on the page. The K-T.E.A. yields a raw score which is comprised of the total number of correct responses. There were ten items tested. The overall scores of the subjects were as follows:

Table 4: Mean Scores on K-T.E.A. for Computer and Book Groups

	Computer Group	Book Group
Pre-Test	4.7	3
Post-Test	7.3	1.7
Overall Change	2.6	-1.3

In Table 4, it is evident that the overall change from pre-test to post-test was significant for the computer group. Their scores increased substantially. The book group had a smaller change on the negative side. Their scores actually decreased from pre-test to post-test.

Figure four and table five show the breakdown of individual scores on the K-T.E.A..:

Figure 4

Pre and Post Scores on K-T.E.A

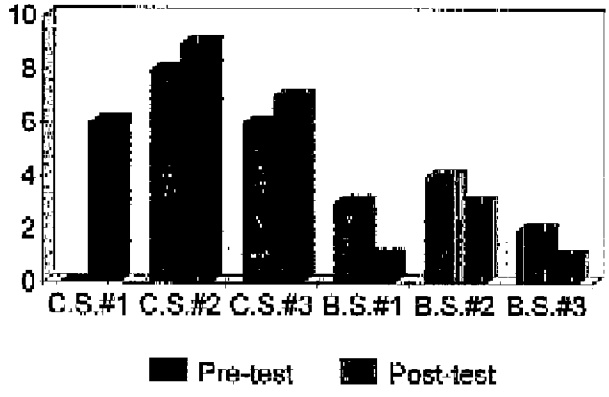

Table 5: Results of K-T.E.A. for Computer and Book Students

	Computer Student #1	Computer Student #2	Computer Student #3	Book Student #1	Book Student #2	Book Student #3
Pre-Test	0	8	6	3	4	2
Post-Test	6	9	7	1	3	1

Table five shows the difference between pre and post tests for the control group versus the experimental group. It portrays a larger difference between pre and post tests for the computer group than the book group. The most significant growth occurred in Computer Student number one. The students scores increased six points after the treatment was applied. The book students' score did not increase at all. In fact, their scores actually dropped between pre and post tests.

Chapter 5

In this study, which was conducted to find out whether or not teaching reading comprehension to learning disabled students through the use of computers is more effective than the traditional book method with oral questioning, the outcome was positive in favor of computers. The various statistical data presented in the preceding chapter illustrates this fact.

The results of the study have shown that using the computer as a tool for teaching reading comprehension is more effective than using the traditional method of book reading and oral questioning by the teacher. The following points indicate this:

1. The computer group had higher mean scores overall on the six stories.

2. The computer group had a greater increase in pre-post test scores on the K-T. E.A..

The students who did their reading comprehension work on the computer had higher mean scores overall on the six stories than did the other group of students who did not work on the computer. In addition, the pre-post test scores of the computer group showed significant increase from pre-test to post-test on the K-T.E.A., while the book group exhibited a decrease. This could have happened because the computer group gained confidence in their reading comprehension abilities, which may have helped them to *feel* that they could do well and therefore *did* do better, whereas the book students did not feel confident, which may have caused them to become frustrated when they saw the achievement test again because they felt they had not acquired the skills to do well.

This indicates that the computer was effective in strengthening reading comprehension skills as well as self-confidence.

There was a unique occurrence with one of the students in the control group that should be addressed. Book Student #2 scored higher on the comprehension questions than any other students included in the study. This could be due to the fact that he has Attention Deficit Hyperactivity Disorder and, since the questions were presented one-on-one, he was probably able to focus better than he normally would. Additionally, the research situation was novel to him. Novel situations capture the attention of A.D.H.D. students. These facts indicate that his performance level may be based on the situation and not on the fact that he was using the book method. This student would probably earn high scores in the experimental group as well, because his scores are the result of a one-on-one, novel learning situation.

On the K-T.E.A., computer student number one became frustrated during the pre-test and gave up reading the words. She ended up guessing at a majority of the answers. When taking the post-test, computer student number one was far more motivated than she had been at the time of the pre-test. She indicated that it was easy now. She appeared to be much calmer and happy when taking the exam. Her confidence level may have been raised as a result of the positive reinforcement of the computer program.

If this study were to be expanded, it would be advisable to conduct the research over a twelve week period rather than a six week period, so that the groups could be switched halfway through in order to correct for individual differences in ability. This would increase the validity of the study. It would also help to determine whether or not the A.D.H.D. student performed higher due to the nature of the testing situation or the

method of reaching reading comprehension. In addition, an attitude survey would help to determine how and to what extent attitudes about computer work and traditional work play a roll in performance on these tasks.

In this study, it was observed that students who normally have difficulty focusing were able to stay on-task for considerably longer periods of time than they are able to focus on work not involving the computer. A study done by Heimann, et.al., in 1995, showed that autistic students had higher degrees of concentration when they did computerized tasks than they did when they performed non-computerized tasks.

The study that was conducted yielded similar findings to the study done by Farmer, Klein, and Bryson in 1992. In this study, the students were very eager to get to use the computer and exhibited happy, excited behavior for the duration of the lesson. In the 1992 study, although the subjects were older, the same attitudes were evident among the fourteen learning disabled subjects who were using computers to learn reading. Farmer, Klein, and Bryson gave the students attitude surveys about their use of the computers and received positive answers. In addition, the students opted to use a significant amount of their free time on the computers.

The results of the present study suggest that computers should be incorporated into the curriculum for both regular and special education students. This would be particularly effective for special education students

because computers:

1. focus student attention
2. provide immediate feedback and reward
3. are enjoyable (cause work to seem like play)

4. are non-threatening

5. provide multi-sensory modes of learning

6. are self-esteem building

7. bridge communication gaps (handwriting and spelling do not stand in the way)

Teachers can use computers for reading practice, follow-up activities, or both when teaching comprehension skills. The Stories and More program may also be employed as a method of vocabulary- building. Adding computers into the teaching repertoire can help

to vary the method of instruction as well as enhance the quality of presentation of information.

During the study, it was observed that the students in the computer group were very enthusiastic about having the opportunity to use the computer. They indicated that they enjoy using the computers because they get to "play" *instead* of working. This supports the fact that computers can be highly motivational tools in the learning process.

Overall, this research study has succeeded in proving that computer assisted instruction in reading comprehension is superior to traditional book reading with oral questioning techniques. The results suggest that teachers should use computers on a regular basis when teaching reading comprehension to their students. Computer technology is a way of focusing special education students and helping them learn to read efficiently.

Works Cited

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