IMPROVING THE READING SKILLS OF SPECIAL EDUCATION STUDENTS USING COMPUTER BASED INSTRUCTION VERSUS TEACHER LED DIRECT INSTRUCTION

Approved: __Dale Henze_____ Date: __August 3, 2016_____

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A Seminar Paper

Presented to

The Graduate Faculty

University of Wisconsin-Platteville

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In Partial Fulfillment of the

Requirement for the Degree

Masters of Science

in

Education

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by

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2016

Abstract

IMPROVING THE READING SKILLS OF SPECIAL EDUCATION STUDENTS USING COMPUTER BASED INSTRUCTION VERSUS TEACHER LED DIRECT INSTRUCTION

Kurt Meyer

Six middle level students were involved in a study using scaled scores from Star Reading tests over a two-year period. Star Tests are normed at grade levels and show the grade equivalence of the student. Students were given SRA Direct Instruction during the first year and received a computer-based reading intervention program (Academy of Reading) in the second year. The scaled scores were compared. Data shows that two of the students had little to no difference in their achievement. Another two students had marginal to somewhat effective achievement using the computer-based program. The final two students achieved better through the use of direct instruction. One of the final two students that achieved more growth through direct instruction showed a decline in scaled scores using the computer-based program. Results are inconclusive as to the effectiveness, but lean toward the direct-instruction being more useful for teaching reading than a computer-based program.

THE PROPOSED TABLE OF CONTENTS

CHAPTER I:
INTRODUCTION

Will the implementation of a computer-based reading curriculum result in a greater increase in reading skills acquisition of students in special education compared to teacher-led instruction?

Computer-based instructional programs are becoming more popular in schools because the programs have the ability to target deficiencies in students quickly and automatically. However, computer-based programs also known as computer aided instruction or CAI have a limited amount of research behind them. As computer-based programs begin to increase, it is important to determine whether they are a valid alternative to teacher-led instruction. If more studies show that CAI is a useful alternative then schools will be justified in using the programs as a means to increase reading skills (Fenty, Mulcahy, and Washburn, 2015). Academy of READING, a software program that will be implemented in my school district, provides students with individualized instruction. The program identifies goals and creates an "Individual Training Plan," allowing students to work on skill gaps at their own pace (Torlaković, 2011). Research has shown that computer-based programs are more successful with at-risk students than teacher-led classroom instruction. Gibson, Cartledge, and Keyes (2011) performed a study on eight at-risk students in an urban school district. Their preliminary study showed that all eight students made progress in oral reading fluency. The reading growth rate increased in seven out of eight students. All eight participants also showed improvements in reading comprehension.

It is important to determine the area in which a student struggles with reading. Students with reading difficulties are not homogeneous, different disabilities require different interventions (Fälth, Gustavson, Tjus, Heimann and Svensson, 2013). Teachers all too often need to ask the question what works for whom rather than focusing on what works (Tanimoto, Thompson, Berninger, Nangy, and Abbot, 2015). Computer-based systems are able to collect data automatically and target specific areas of need. Computers are able to provide training materials in an interesting manner through animations and immediate feedback (Fast, 2007 as cited in FäIth, Gustavson, Tjus, et al. 2013). Researchers have found that traditional teacher-led interventions most often occur in small groups and involve turn-taking, those readers that are experiencing the most significant reading deficits receive less direct practice with text hindering reading achievement (Sorrell, Bell, and McCallum, 2007 as cited in Fenty, Mulcahy, and Washburn, 2015). I intend to perform a study similar to Fenty, Mulcahy, and Washburn (2015) using an action research project. I will use Star Reading scores from the year prior to the implementation of the Academy of READING software as my pre-intervention scores. I will collect Star Reading scores during the year of the implementation of Academy of READING and compare the two sets of scores.

Statement of the Problem

Are computer-based instructional programs more effective in teaching literacy than a teacher-led instructional method? My study will show that the implementation of

a computer-based reading program (Academy of READING) will result in a greater increase in reading skills over a school year than teacher led SRA Direct Instruction.

Definition of Terms

Computer-based instruction: Computer-based learning is a term that can be used to describe virtually any kind of learning program using computers as a central staple (wisegeek.com, n.d.).

Direct Instruction: Direct Instruction is an approach to teaching. It is skills-oriented, and the teaching practices it implies are teacher-directed. It emphasizes the use of small-group, face-to-face instruction by teachers and aides using carefully articulated lessons in which cognitive skills are broken down into small units, sequenced deliberately, and taught explicitly (Carnine, 2000, as cited in Education.com, n.d.).

SRA: Founded in 1938, SRA or Science Research Associates Inc. is a Chicago-based publisher (McGraw-Hill) of educational materials and schoolroom reading comprehension products (wikipedia.org, n.d.).

Scaled Score: A scaled score is the total number of correct questions (raw score) that have been converted into a consistent and standardized scale (apics.org n.d.).

Grade Equivalence: Grade Equivalence represents the grade level and month of the typical (median) score for students. For example, a 5th-grade student who earns a 5.9 on a norm-referenced test has earned a score similar to the 50th percentile students in the test's norming group who were in their ninth month of fifth grade. (lexile.com n.d.)

Delimitations and Limitations of the Research

Delimitations: The study will include only students from my classroom, a special education classroom located in rural Southwest Wisconsin. The students received teacher-led SRA Direct Instruction during the 2014-2015 school year. The data will be collected from the scaled STAR reading scores for the 2014-2015 school year and from the 2015-2016 school year. I am using this data to show an equal time period of scores from two different teaching methods within a school year. The students have each received the same type of instruction from the same teacher.

Limitations: Potential limitations of this study relate to the small sample size. I only have a limited number of students to choose from within my classroom. A wide range of disabilities could impact the scores. Environmental factors such as problems at home, poor nutrition, poor sleeping habits, and lack of effort may also impact the scores of the STAR reading test when given. This study also lacks a control group due to the limitations of the sample size I am able to use.

Method of Approach

Students have received teacher-led SRA Direct Instruction during the 2014-2015 school year. The results of the scaled STAR reading scores for that time period provides the pre-test data for my study. During the 2015-2016 school year, Academy of READING, a computer-based instructional method will replace direct instruction. The scaled STAR reading scores for the 2015-2016 school year composed the data for the post-test. The data will provide a comparison of the effectiveness of a computer-based reading program versus a teacher-led instructional method. This comparison is the basis of this action research study.

CHAPTER II:
REVIEW OF THE LITERATURE

Research Question

Is computer-based instruction more effective at teaching reading to struggling students than teacher-led direct instruction? Struggling students are those who are considered at-risk or are already receiving special education services. Research has shown that computer-based instruction meaningfully increases reading ability in at-risk and low functioning students.

Discussion of Research

Children who complete elementary school with very low reading skills are at a very high risk of dropping out before they finish high school (Chambers, Slavin, Madden, Abrami, Logan, and Gifford, 2011). Similarly, low reading skills are found to be associated with cognitive, behavioral, and motivational deficiencies preventing the development of further learning. In fact, knowledge based tasks dependent on reading skills are inhibited whereas students with optimum reading skills continue to advance with further success. This phenomenon is referred to as the 'Mathew effect.' (Stanovich, 1986 as cited in Hughes, Phillips, and Reed, 2013)

In 2001, No Child Left Behind (NCLB) was enacted. (Coyne, Pisha, Dalton, Zeph, & Cook Smith, 2010) This bill required that all students be proficient in reading at third grade by 2013. Alongside the NCLB act was the Individuals with Disabilities Education Improvement Act (IDEA). Stated in the report from the President's Commission on Excellence in Special Education (2002), "Leaving no child behind…. means leaving no children with disabilities behind" (p.42, PCESE, 2002 as cited in

Coyne et.al.). The legislation required that students be exposed to evidence-based instruction prior to their referral for special education eligibility evaluation (Pindiprolu & Forbush, 2009). These legislative acts led to a need for research or evidence-based reading programs to meet the qualifications. The reading programs had to go through efficacy studies to show validity and reliability in order to be considered research or evidence-based. Once the results demonstrated that the programs were methodologically sound in teaching skills, the instructor must then use the program with fidelity to meet the standards of the legislative requirements.

Students with disabilities tend to be visual learners. They also require repetition. Traditional computer-based programs typically are designed to be relatively easy and repetitive (Chambers, Slavin, and Madden et al. 2011). Computer software programs offer literacy-based interventions that can give students predictable and relevant information for the skills that need to be addressed (Flores, et al., 2014). The National Reading Panel (NRP, 2000) reports the following: phonemic awareness, phonics, vocabulary, fluency, and comprehension are the critical areas for successful, balanced literacy (NRP, 2000, as cited in Coyne, et. al., 2010). The quantity of practice alone doesn't lead to a high level of reading competence. Students must be guided by a sufficiently sensitive tutor, who is correctly leading and instructing students through the reading process (Lenhard, Baier, Endlich, Schneider and Hoffman, 2013)

Reading Naturally Software Edition® (RNSE) is a computer-based instructional program used to increase oral reading fluency (ORF), words gained per week (WPW), and comprehension. Gibson, Cartledge, and Keyes (2011) researched the effectiveness of RNSE in a study involving eight African American first grade students who were

considered at-risk or some-risk, who were given the RNSE as a supplemental reading program to improve reading fluency and comprehension. The students were selected based on their scores from Dynamic Indicators of Basic Early Literacy Skills (DIBELS) and their oral reading fluency winter benchmark. The students' results showed substantial gains. The pre-test oral reading fluency scores averaged 10.4 correct words per minute. Following the RNSE intervention, all eight participants increased their oral reading fluency on their DIBELS spring benchmark test. The ORF for all the participants averaged 29.4 correct words per minute (Gibson et al.). Comprehension scores showed an even more substantial improvement. The combined average percentage of correct responses to the comprehension questions before RNSE intervention was 37% correct. Following the implementation of the program, that figure rose to 82.7% correct. That was an average increase of 45.7% correctly responding to comprehension questions (Gibson et al.).

Difficulties in being able to automatically recognize words negatively affect reading fluency and comprehension (Perfetti & Leisgold, 1979; Stanovich, 1980 as cited in Macaruso, Hook, & McCabe, 2006). According to Cromley and Azvedo (2007) as cited in (Lenhard, Baier, and Endlich et al. 2013) students at the age of fourteen are mostly strongly influenced by background knowledge and vocabulary, however, fluency, inference and other reading strategies also play a crucial role in competent reading comprehension. Computers are well-suited to provide supplemental instruction for these deficiencies. Presenting activities that are interesting and motivational through use of colorful pictures, providing instant feedback as well as positive reinforcement are attributes that are difficult for a classroom teacher to accomplish consistently. A

computer can do those things instantaneously. Students can also work at a pace that is comfortable for them and receive as much extra practice as needed to help build their literacy skills (Macaruso, et al., 2006). Research has shown that students respond to computer-based programs differently. Most would assume that struggling students would respond in a positive manner however some students demonstrate that they are completely engaged while others are disengaged (Anderson 2008; Bangert-Downs and Pike, 2001 as cited in Fenty, Mulcahy, and Washburn, 2015).

In the fall of 2015, my school district implemented a computer-based instructional reading program called Academy of READING® (AOR). This program provided students with individualized instruction (Torlaković, 2011) and was used primarily with students in special education and those needing reading interventions.

An efficacy study was performed on this reading program in 2011 (Torlaković, 2011). Her study involved 77 special education students in grades 2-11. A total of 38 students were randomly assigned to the treatment group, and 39 students were assigned to the control group. She found that the gains made by the treatment group, as shown by oral reading fluency and vocabulary benchmark tests, were greater than those by the control group. Comprehension gains were marginally better in the treatment group than in the control group, however, the students in the treatment group achieved significantly greater gains on the AOR placement tests and the state mandated tests (Torlaković, 2011).

Summary

The research shows that students who fail to maintain grade level reading skills benefit from the use of supplemental computer-based reading programs. In fact, intensive phonics-based interventions using computer-based instruction can be quite beneficial to low performers in early grades (Macaruso et al., 2006). Students in the Title I treatment group of Macaruso et al. study almost caught up to the non-Title I treatment group in their mean scores on a normal curve equivalent post-test.

Clearly computer-based literacy programs can increase reading skills, especially in struggling students and when used as early interventions, but several questions remain to be answered. Did computer-based interventions support older students and younger students the same? Did computer-based interventions work on a variety of disabilities? Did they work better than teacher-led instruction? Computer-based instruction seems to made for students that struggle, however previous research has shown that there are several limitations. The largest being that, ironically, the computer lacks human qualities (Fenty, Mulcahy, and Washburn 2015). The computer isn't able to read a student's demeanor at that time and adjust accordingly. Therefore, the final question is, did the computer provide enough quality feedback to engage the student the majority of the time? The intent of my study was to possibly answer those questions.

Hypothesis

The implementation of a computer-based reading program (Academy of READING®) would result in a greater increase in reading skills over a school year than did SRA Direct Instruction.

Chapter III:

Methodology

Participants and Setting

Data collection occurred in my special education classroom at a rural school district located in Southwest Wisconsin. The school includes prekindergarten through twelfth grade with approximately 400 students. There were six students targeted in my classroom that provided data for the study. Two of the students were female and four students were male. Two students were in eighth grade and four students were in seventh grade at the time the data was collected for the study. Two additional students were to be included in the study, but permission was not granted to use their data.

This was my sixth year teaching in the special education classroom and my fifteenth year of teaching.

Materials and Procedures

Students received teacher-led direct instruction from SRA Horizons Fast Track AB or CD during the 2014-15 school year and took Star reading tests twice each quarter. The scaled scores from those tests were used as my pre-test data. I acquired permission from the University of Wisconsin Platteville, the Elementary and Middle School principals, and the students' parents. At the start of the 2015-16 school year I began using a computer-based instructional reading program called Academy of READING. The students took the Star reading test two times each quarter during the 2015-16 school year, and the scaled scores from those tests were used to compare with the tests of the 2014-15 school year.

I created a data entry chart to collect the scaled scores from the Star reading tests for each student from 2014-15 and 2015-16. I took the average of the scaled scores to compare if the students' average scaled score increased from 2014-15 to 2015-16. The scores from the 2014-15 school year and the 2015-16 school year were graphed for each participant to visually show the progress of the participants through the duration of the study. The graph showed a trend line to see if the progress in each year sample was improving, declining, or staying the same. Following the study, I shared a memo with parents, staff, and administration about the results.

Chapter IV:

Results

In Table 1, the average scores by child for year 1 (pre-intervention) and year 2 (intervention) are represented. Each child showed improvement, however, effectiveness of the intervention must be inferred by the trends across each year.

Table 1

Student	Year 1 Average Scaled Score	Year 2 Average Scaled Score
1	222.00	256.75
2	316.63	347.50
3	477.50	668.63
4	340.63	359.13
5	150.25	214.63
6	344.63	419.25

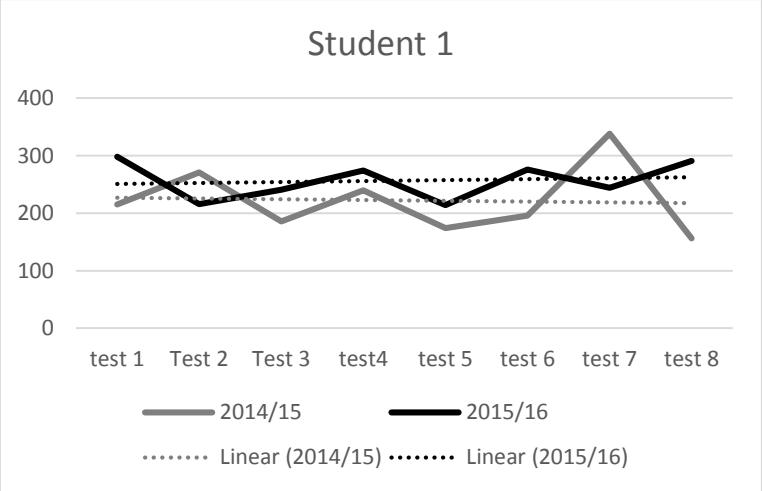
It should be noted that not all students completed the entire intervention during the school year. See Table 2 for completion percentages.

Table 2

Student 1	Student 2	Student 3	Student 4	Student 5	Student 6
100%	80%	87%	81%	41%	70%

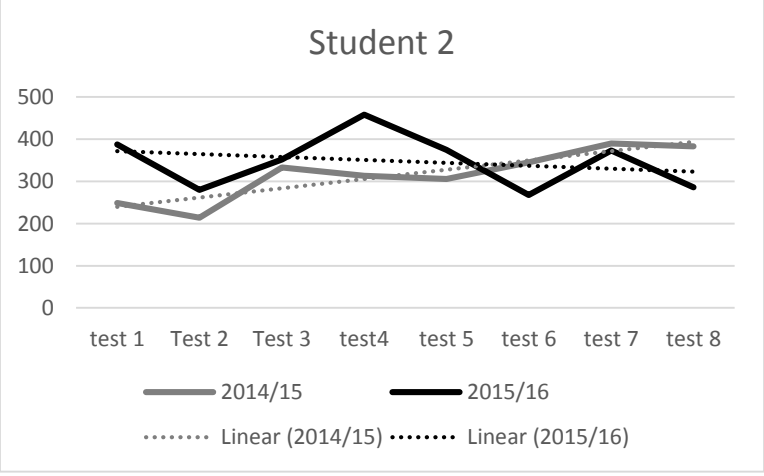
The trend for Student 1 showed a slight decrease in the pre-intervention year and a slight increase in the intervention year. For this student, the intervention appears to have been marginally effective. See Figure 1.

Figure 1



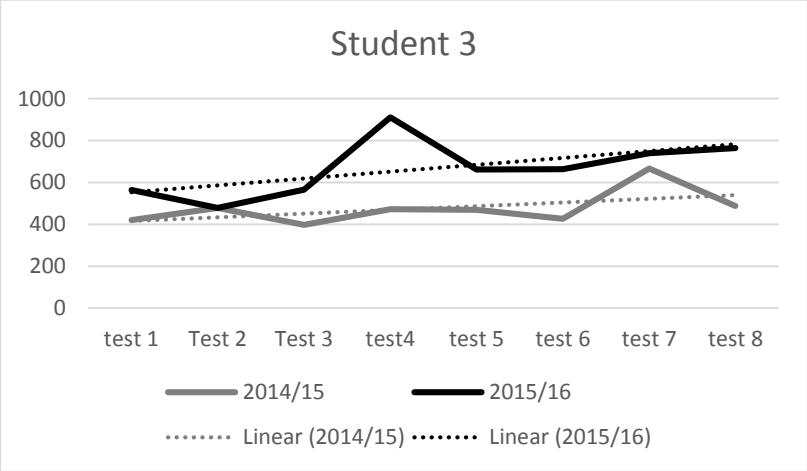
The trend for Student 2 showed an increase in the pre-intervention year and a slight decrease in the intervention year. For this student, the intervention appears to not have been effective. See Figure 2.

Figure 2



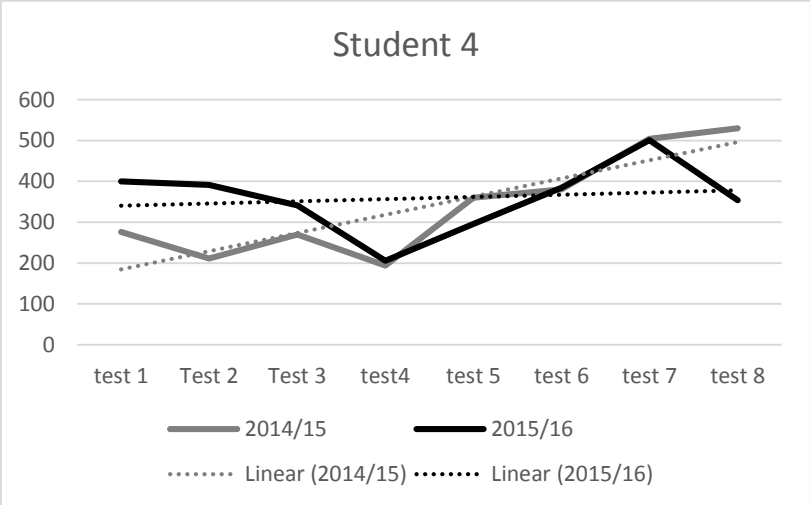
The trend for Student 3 showed an increase in the pre-intervention year and a slightly greater increase in the intervention year. For this student, the intervention appears to have been marginally effective. See Figure 3.

Figure 3



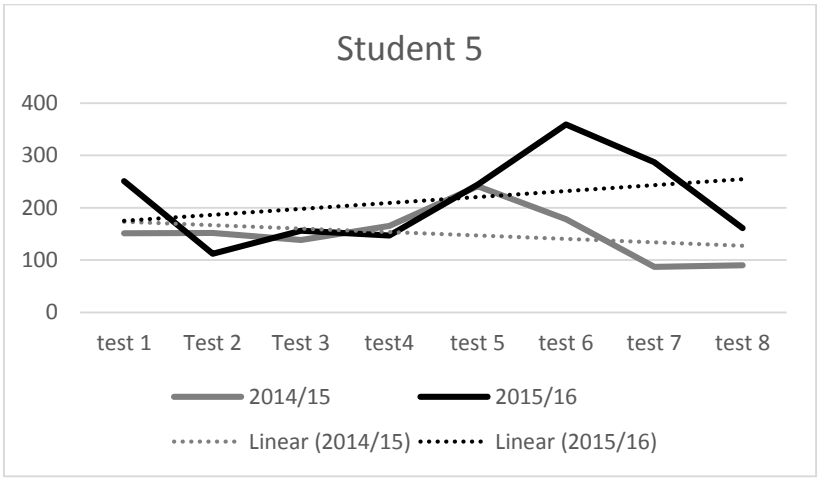
The trend for Student 4 showed a strong increase in the pre-intervention year but only a very slight increase in the intervention year. For this student, the intervention appears to have been ineffective. See Figure 4.

Figure 4



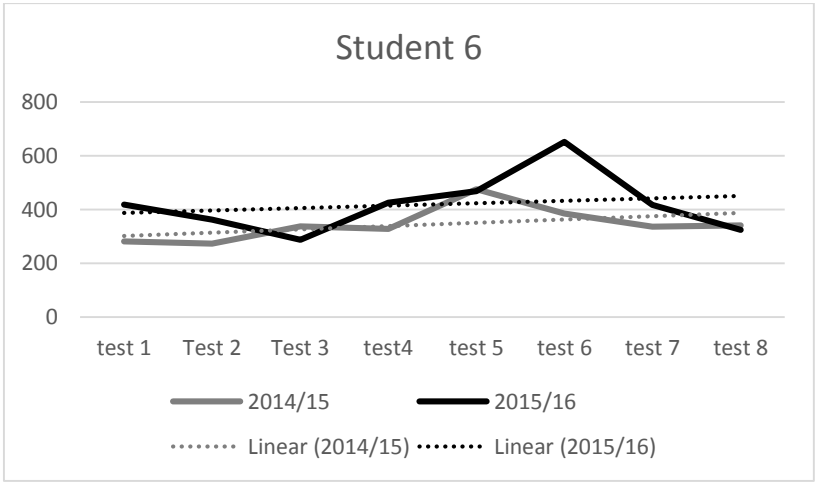
The trend for Student 5 showed a slight decrease in the pre-intervention year but an increase in the intervention year. For this student, the intervention appears to have been effective. See Figure 5.

Figure 5



The trend for Student 6 showed a slight increase in the pre-intervention year and a slight increase in the intervention year. For this student, the intervention appears to have been ineffective. See Figure 6.

Figure 6



Chapter V:

Discussion

The purpose of the study was to determine if computer-based instruction proved to be a more effective method of teaching reading to special education/at-risk students than direct instruction. After compiling data from two years using the Star Reading test, students' scores were compared from a pre-intervention year of SRA Direct Instruction to an intervention year using the Academy of READING computer-based reading program. The results were decidedly mixed.

Students 1 and 6 showed a trend that was nearly identical in both years. Although the trend line is higher in the second year of testing, the trend does not show any significant change in reading gains from the beginning of the year to the end. The amount of change is the same in both years. Therefore, the intervention did not seem to impact the students positively or negatively.

Students 3 and 5 demonstrate some effectiveness of the intervention program. It should be noted that the trend line of student 3 improved very marginally between the two years. Student 5 demonstrated the most gain between the two school years. The trend line for 2014/15 was declining and the trend line for 2015/16 showed effectiveness in the intervention and the greatest gain of the subjects. It should be noted that student 5 finished the smallest portion of the program with 41% completion. See Table 2.

Student 2 showed a declining trend in scaled score following the intervention. Student 4 showed a positive gain in both trend lines; however, the gains were marginal using the intervention but were quite substantial with the use of direct instruction. The

intervention proved to be ineffective, possibly even detrimental to Student 2. Both student 2 and student 4 made greater gains provided direct instruction.

Students participating in the study had a variety of disabilities including cognitive, learning, and Asperger's. Since the sample size is small, students will not be connected to their disabilities to keep their anonymity intact. There does not seem to be a correlation to the disability label of the students, or the effectiveness or ineffectiveness of the intervention.

Research has shown that computer-based reading programs work for at-risk and special education students (Macaruso, et al, 2006; Pindiprolu and Forbush, 2009; Torlaković, 2011). There are several reasons why researcher believe the programs work. They provide activities that are interesting and motivational. Programs can provide instant feedback and positive reinforcements. They also can provide an opportunity for students to work at their own pace and avoid the frustration they may have trying to keep up with the pace of regular teacher-led classroom instruction (Macaruso, et al., 2006). I agree with the efficiency of data collection in these programs. They provide instant data for a teacher to use. They also provide students with data to see how they are doing. However, that data can be detrimental to students if it shows that they are not meeting a goal. When that happens, the feedback becomes a positive punishment, while attempting to show the students positive results, the data has a negative impact. For example, in Academy of READING, students are shown a graph of their correct answers as well as a graph of their pace for the activity they are doing. There is a green line showing the acceptable amount of correct answers the students must meet in order to master the activity. The student must also maintain the

same pace throughout the activity to master it. They must maintain the two goals over the course of three trials with fifty items in each trial. The students are aware of their errors whether it be accuracy or pace. When students cannot consistently pass for any number of reasons, whether it be lack of attention, poor motor skills, or difficulty with a concept, students lose motivation, and for some students it becomes more difficult to complete a computer-based reading program. Research done by the Academy of READING or EPS School Specialty (Academy of READING's parent company) has shown that the required pacing and accuracy is the benchmark for students reaching automaticity of a skill, however, many students with special needs have attention difficulties and poor motor planning creating a scenario in which developing mastery is excessively difficult. Macaruso, et al., (2006) stated computer programs are interesting and more interactive for at-risk students. That is probably true; however, the Academy of READING program utilized a drill and practice interface that did not motivate most of the students. Torlaković, (2011) stated in her efficacy study of Academy of READING that comprehension gains were marginally better in the treatment group over the control group; however, the students in the treatment group made significantly greater gains on AOR placement tests and the state mandated tests. I found that the students involved in this study followed this trend. Students did not make great gains in reading comprehension but did show higher gains over time on the Academy of Reading placement tests. They did not make gains in the state mandated tests and demonstrated a great amount of frustration, even with modifications. In general, the reasons stated by the research for the benefits of using a computer-based reading program did not drastically improve the outcome of the students involved in this study.

The interface of Academy of READING and the methods used to develop automaticity, tested factors other than reading ability. As stated earlier, students who became easily frustrated, had poor motor planning, and/or lacked focus had an extremely difficult time with the computer program. The student would quickly shut down and lose motivation to continue to meet the requirements of mastery. Even with intervention from myself to work through the difficulties, several students took excessive trial attempts to master certain skills. Students that were very consistent with their attention, and had adequate coordination, passed the skills requiring accuracy and pacing very quickly.

Interestingly, the placement tests used in Academy of READING for their initial, mid-year, and final are the same test. Therefore, improvement should occur when an individual is provided more than one attempt on the same test. The data that Academy of READING provided from the placement tests is inconsistent with the data that is provided by the Star Test. The assessment scores for the placement tests on Academy of READING are not included in the IRB, therefore, were not included in my analysis, but I can comment on them for the purpose of this discussion. The trend of the scores shows that the placement tests' grade equivalence on the Academy of READING are typically one or two grade levels higher than the grade equivalency given on the Star Test. Students take the same tests on the Academy of READING program but are always given different questions on the Star Test exams. The familiarity with the questions on AOR and the lack of familiarity on the Star Test would be a plausible reason for the difference in grade equivalency.

The results of my study conform little to my hypothesis that computer-based reading programs will show greater reading gains than direct instruction. Even though the data shows that each student increased their average reading level, each student is a year older and has had another year of learning. The results of my research are similar to those of previous researchers, showing improvement in reading scores using computer-based software programs, however, the results don't show that the improvement is any better or worse than teacher-led direct instruction.

There are several limitations to this study. First of all, the sample size is extremely small. If more students were available to include in this study, results may have been different. Methods in which the way the computer programs are delivered and explained to students could change the outcome of the results. Teachers do not use the same language or break down information and deliver it the same way to instruct students, therefore, a different instructor may have had more success using the computer-based software than I did. Another limitation relates to student age. Students were in the middle level age range. Research has shown that computer-based instruction is beneficial for students in the early grades (Macaruso et al., 2006). Perhaps older students do not get the same benefits from computer-based reading programs as younger students. A more effective intervention may have been a greater extent of combined training with the computer program and teacher-led instruction. This may show an improvement in maintaining motivation among students (Fälth, Gustavson, Tjus et al. 2013). With a small sample size, and students in the middle level, external factors such as effort, desire, and focus could cause the results to be less desirable.

Based on the data included in the results portion, direct instruction worked equally as well as the computer-based reading program for teaching reading to the subjects involved. Looking at the trend lines of the students over the course of the two school years, the lines show nearly parallel results in three students (1,3,6). The trend lines showed a better growth trend using direct instruction in two students (2,4). The trend line showed a more positive growth in one student, (5) using the computer-based reading program. Most students did make reading gains using the computer-based system. Therefore, it is plausible to consider that the computer-based curriculum is a useful instructional method for the students with low reading ability. Four of the six subjects reflected that the intervention was an effective tool for teaching reading. Only one of the six students showed a decline in reading level based on direct instruction, and the other five showed comparable or greater gains using that method. That being said, and considering the very small sample size, it would be beneficial for a study to include a much larger demographic of students with multiple reading abilities and disabilities to get a broader scope of data to be used and analyzed.

Appendix V

	Pre-Intervention Scores 2014/15										Post-Intervention Scores 2015/16									
Student	SS 1	SS 2	SS 3	SS 4	SS 5	SS 6	SS 7	SS 8	Ave SS	Range	SS 1	SS 2	SS 3	SS 4	SS 5	SS 6	SS 7	SS 8	Ave. SS	Range
1	215	271	186	240	174	199	338	356	222	182	288	218	247	274	214	276	244	291	256	87
2	249	214	333	313	306	345	390	383	317	176	366	280	352	458	375	268	373	296	342	190
3	421	479	387	472	470	427	667	497	478	270	564	478	566	911	662	664	740	764	669	477
4	276	211	270	284	360	360	504	530	349	338	400	381	347	208	298	384	501	354	329	295
5	151	152	138	165	241	173	87	90	149	151	251	112	156	147	244	359	287	161	215	247
6	282	273	337	325	475	365	336	341	344	193	418	362	288	425	468	651	417	375	419	160

Key
ss = Scaled Score on Star Reading Test

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UNIVERSITY OF WISCONSIN
PLATTEVILLE
INSTITUTIONAL REVIEW BOARD

9/23/2015

Kurt M. Meyer
Sponsor: Dr. Joan E. Riedle
Department of Masters of Science - Education
University of Wisconsin-Platteville

RE: IRB Protocol #2015-16-12

Project Title: Improving the Reading Skills of Students in Special Education Using Computer-Based Instruction.

Approval Date: 9/23/2015
Expiration Date: 9/22/2016

Your project has been approved by the University of Wisconsin-Platteville IRB via a Full Board Review. This approval is subject to the following conditions, otherwise approval may be suspended:

1. No participants may be involved in the study prior to the IRB approval date listed above or after the expiration date.
2. All unanticipated or serious adverse events must be reported to the IRB.
3. All modifications to procedures, participant selection, and instruments used (surveys, consent forms, etc) must be reported to the IRB chair prior to their use. Extensive modifications may require full board approval.
4. If the project will continue beyond the expiration date, then the researcher must file for a continuation with the IRB at least 14 days prior to the expiration date. If the IRB approval for this project expires before approval for continuation is given, then a new protocol must be filled out and submitted. Federal guidelines allow for no exceptions to this rule. Any data collected after the expiration date cannot be used in the study.

If you have any questions, please contact the IRB chair at the address below. Include your protocol # on all correspondence.

Sincerely,

Dr Barb Barnet

Dr. Barb Barnet
Institutional Review Board Chair
Professor, Mathematics Department
Gardner 451
University of Wisconsin-Platteville
(608) 342-1942
barnetb@uwplatt.edu

Appendix I
Principal Consent Form For Research

I. Research Background

Title of Study: Improving the Reading Skills of Students in Special Education using Computer Based Instruction.

Researcher: Kurt Meyer
Special Education Teacher, North Crawford School District
Graduate Student, School of Education
University of Wisconsin-Platteville
608-369-1338
kmeyer@ncrawford.k12.wi.us

II. Description of Research Proposal

I intend to do a comparative study of the scaled scores achieved on Star Reading tests prior to the implementation of Academy of READING software program and following the implementation of the software. The comparison will determine the effectiveness of a computer-based instructional program versus the effectiveness of teacher led Direct Instruction.

III. Agreement (to be completed by principal)

I, Brandon Munson principal of North Crawford school, understand

- the study and what it requires of students, and/or parents in my school,
- that the privacy and confidentiality of any student will be protected,
- that I have the right to allow or reject this research study to take place in my school,
- that I have the right to review all consent forms and research documents at any time during the study and up to three years after the completion of the study.

☒ I grant permission to the researcher to conduct the above name research in my school described in the proposal.

☐ I DO NOT grant permission to the researcher to conduct the above named research in my school as described in the proposal.

Signature of Principal

8/30/15
Date

Appendix I
Principal Consent Form For Research

I. Research Background

Title of Study: Improving the Reading Skills of Students in Special Education using Computer Based Instruction.

Researcher: Kurt Meyer
Special Education Teacher, North Crawford School District
Graduate Student, School of Education
University of Wisconsin-Platteville
608-369-1338
kmeyer@ncrawford.k12.wi.us

II. Description of Research Proposal

I intend to do a comparative study of the scaled scores achieved on Star Reading tests prior to the implementation of Academy of READING software program and following the implementation of the software. The comparison will determine the effectiveness of a computer-based instructional program versus the effectiveness of teacher led Direct Instruction.

III. Agreement (to be completed by principal)

I, Julie Kruizenga principal of North Crawford Elem. school, understand

- the study and what it requires of students, and/or parents in my school,
- that the privacy and confidentiality of any student will be protected,
- that I have the right to allow or reject this research study to take place in my school,
- that I have the right to review all consent forms and research documents at any time during the study and up to three years after the completion of the study.

☒ I grant permission to the researcher to conduct the above name research in my school described in the proposal.

☐ I DO NOT grant permission to the researcher to conduct the above named research in my school as described in the proposal.

Julie Kruizenga
Signature of Principal

8-26-15
Date

Appendix III

Colleague Consent Form for Research

I. Research Background

Title of Study: Improving Reading Skills of Special Education Students Using Computer Based Instruction versus Teacher Led Direct Instruction

Researcher: Kurt Meyer
Special Education Teacher, North Crawford School District
Graduate Student, School of Education
University of Wisconsin-Platteville
608-369-1338
kmeyer@ncrawford.k12.wi.us

II. Description of Research Proposal

I intend to compare the results of Star Reading scaled scores of special education students using teacher led direct instruction during the 2014-2015 school year to Star Reading scaled scores of the same special education students using a computer based reading program during the 2015-2016 school year.

Participants will include a small sample of students that were enrolled in Kurt Meyer's special education classroom during the 2014-2015 school year and the 2015-2016 school year.

In addition, data will be collected from Lisa Andresen's special education classroom via shared reports from the Star Reading assessment program. The data collected will remain anonymous and will be described only as special education students in a rural school district in southwest Wisconsin.

III. Agreement

I, Lisa Andresen, special education teacher at North Crawford School District, agree to take part in this research study by means of providing data from students in my classroom to increase the sample size and validity of the comparative study. I understand the study will and what it requires of the staff, students, and/or parents in my school. Additionally, I understand that the privacy and confidentiality of any staff or student will be protected.

Lisa Andresen
Signature of Participating Colleague

Signature of Researcher

Julie Kruizenga
Signature of Principal

Appendix II

PARENT/GUARDIAN CONSENT FORM FOR PARTICIPATION OF HUMAN PARTICIPANTS IN RESEARCH

UNIVERSITY OF WISCONSIN-PLATTEVILLE & NORTH CRAWFORD SCHOOL DISTRICT

1. Purpose: This year, our school will be using the Academy of READING software for reading instruction. I intend to do a comparative study of the scaled scores achieved on Star Reading tests prior to the implementation of Academy of READING software program and following the implementation of the software. The comparison will determine the effectiveness of a computer-based instructional program versus the effectiveness of teacher- led direct instruction.

2. Procedure: Students will participate in daily instruction for thirty to forty minutes using Academy of READING software. PARTICIPATION IN MY RESEARCH IS VOLUNTARY AND HE/SHE WILL BE ASKED TO GIVE HIS/HER ASSENT. YOUR CHILD'S NAME WILL NOT BE RECORDED ON THE RESEARCH MATERIALS AND IT WILL NOT BE INCLUDED IN OUR DATA SET OR IN ANY REPORTS ABOUT THE PROJECT.

3. Time Required: Participation will continue for the duration of the 2015-2016 school year and will only require regular classroom participation.

4. Risks: No short-term or long-term risks are foreseen. Your child will be engaged in the same learning experience as would occur regardless of my study.
Benefits: Your child's participation in this study will inform staff and administration about the potential benefits of computer-based instruction. Students may benefit from accelerated learning of reading skills such as fluency, comprehension, and vocabulary acquisition.

5. Your Rights as the Parent of a Student Participant: The information gathered in this study will be confidential. Data or summarized results will not be released in any way that could identify you or your child. If your child would like to withdraw from the study at any time, he/she may do so without penalty or repercussions. The information collected from your child up to that point would be deleted from my data set if you or he/she so desire. If you have any questions, please ask:

Kurt Meyer, Researcher		Julie Kruizenga		Brandon Munson
Special Education Teacher	or	Elementary Principal	or	Middle/High School Principal
North Crawford School District		North Crawford School District		North Crawford School District
(608) 624-5201		(608) 624-5201		(608) 735-4311

Once the study is completed, you may request a summary of the results by contacting me (Kurt Meyer) or Joan Riedle (Faculty Sponsor) at riedlej@uwplatt.edu

6. If you have any questions about your child's treatment as a participant in this study, please call or write:
Barb Barnet
Chair of the UW-Platteville IRB
(608) 342-1942, barnetb@uwplatt.edu

I have read the above information and (check one):

____ I **DO** give consent for my child to participate in the research.

____ I **DO NOT** give consent for my child to participate in the research.

Please print your child's name

(First, Middle, Last):_____

Please print your full name (First, Middle, Last):_____

Please sign: _____ Date: _____

Then return this completed form to Kurt Meyer by _____