THE FAST FORWORD COMPUTER PROGRAM AND ITS EFFECT ON SECOND GRADE STRUGGLING READERS

by

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CERTIFICATION OF PROJECT WORK

We, the undersigned, certify that this project entitled THE FAST FORWORD COMPUTER PROGRAM AND ITS EFFECTS ON SECOND GRADE STRUGGLING READERS by Amanda Buchnowski, Candidate for the Degree of Master of Science in Education, Literacy Education: Birth-Grade Six is acceptable in form and content and demonstrates a satisfactory knowledge of the field covered by this project.

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Abstract

This descriptive study explored the effects of the Fast ForWord Language Program and its effect on two second grade struggling readers. The study investigated whether the program had helped the students with their overall reading ability. Data were collected through observational notes and interviews with the two students and their classroom teacher. Observational notes were taken during English Language Arts in the classroom as well as during Fast ForWord. Interviews were audio-taped to get a deeper insight on what the program was, if they liked the program, if they believed the program had helped them become better readers, and if the program would be recommended for further use. The results of this study were inconclusive. There were no direct findings that showed how Fast ForWord directly impacted overall reading ability. Additional research would need to be done to be able to conclude that Fast ForWord did directly impact reading ability. Results of the study did indicate that all three participants, the two children and the classroom teacher, believed it had helped the two students become better readers.

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Chapter 1

Introduction

Technology is a very popular tool for engaging students in activities at school. In today's society, it is a rare occasion where a child has never seen or used a computer, cell phone, video game, or television. There are many computer based programs that are used to help students learn or practice skills. One program that I had never heard of before is the Fast ForWord program. I decided to learn more about this program and determine how it might help children with phonemic awareness and word identification difficulties.

Besides learning about the program and its effects on reading ability, I am also a future teacher who is preparing to teach in a technological society. Based on Reutzel and Clark (2011), I want to be able to manage my classroom with purpose and order, have high expectations, engage my students, and be prepared to teach and use my time wisely. I also want to be as knowledgeable and up to date on the programs used in schools and their effects on learning. Each school has a different curriculum and each teacher varies his or her teaching styles. Therefore, becoming aware of different programs and teaching styles will benefit me when venturing into schools.

Based on my interest in the Fast ForWord Program, I conducted a research study on two second grade students in a small, rural, town in Western New York. The purpose of the study was to see the correlations between what was learned in Fast ForWord and how it helped overall reading ability in the classroom.

Background

According to the Fast ForWord Website (http://fastforword.com.au/) this computer based program is supposed to allow students to"Gain focus, memory, and accelerate learning"

(¶ 1). I first learned about this computer based program as a substitute at a small rural school in Western New York. When I first witnessed the program, I wondered what the children were doing playing games for thirty minutes and when I asked the aid monitoring the students and she simply said "the program is rewiring the brain." Because of the rise of technology and the change in new literacies including digital and media technologies, it puts a lot of pressure on teachers to meet these new requirements and aspects of literacy. According to the New York State Standards website (http://www.p12.nysed.gov/cte), "technology education uses concepts of science, mathematics, social science, and language arts in a hands-on, systems-based approach to problem solving that guides students in the understanding, design, and development of systems, devices, and products to serve human needs and wants" (¶ 1). Teachers have to understand that "simply using software programs on computers does not prepare students for new literacies' expectations" (Barone & Wright, 2008, p. 292). Likewise, putting students onto a computer for thirty minutes, five days a week, becomes controversial compared to getting similar individualized instruction from the teacher.

Learning to read is a difficult process. A teacher needs to make learning to read meaningful so that the students will continue to benefit from the process throughout their lives. Teaching phonics in the classroom should not be the main focus because it should be a part of a balanced approach which also includes other important factors such as: introducing a variety of texts, modeling the thinking process while reading, doing read alouds, and including writing components. Some students may need to focus more on phonics and therefore should get differentiated instruction fit to their needs. One solution to the program is to put the students in a lab for thirty minutes, five days a week to engage in the Fast ForWord program. Not only does this allow children to receive individualized instruction, it also lets them do it in a way that

engages them. “Today’s students, the “new millennium learner” make large use of information and communication technologies in their everyday life for both leisure and communication/social interaction purposes” (Otta & Tavella, 2010, p. 2).

Socio-Constructivism: My Theoretical Stance

My theoretical stance, which is based on a socio-constructivist’s viewpoint would include Vygotsky’s zone of proximal development which “refers to the ideal level of task difficulty to facilitate learning” which, according to Vygotsky, is “the level at which a child can be successful with appropriate support” (Tracy & Morrow, 2006, p. 109). Fast ForWord is divided into two programs; language and reading. Assessment data is used to place students in either program. Therefore Fast ForWord is the ‘appropriate support’ that Tracey and Morrow suggest that the culture or school provides to support thinking (Vygotsky, 1993, cited in Tracy & Morrow, 2006). Vygotsky’s zone of proximal development is closely related to differentiated instruction and social interactions that most teachers try to employ in their classrooms. This gives each student “the opportunity to learn at their own individual level” (Tracy & Morrow, 2006, p. 110). Social interactions in the classroom refer to peer to peer interactions in group discussions, or projects and also peer to teacher interaction. Not every student in the classroom is going to be engaged in an activity the same way nor have to leave the classroom to complete Fast ForWord, but that is the way that the individual student, who is enrolled in Fast ForWord is taught, and that time learns and that should be allotted by the classroom teacher.

However, the Fast ForWord program itself and the idea of learning without peer to peer or peer to teacher interaction falls more into the theory of behaviorism. “In a traditional behaviorist model, learners undergo some form of conditioning,” (Boghossian, 2006, p. 716). The ‘conditioning’ that Boghossian is referring to in this situation is the Fast ForWord program that

the students engage in Monday through Friday for thirty minutes. The student plays games to get the correct answer, the correct answers then reflect on the student's performance and overall achievement in each game at each level.

I believe that when I become a teacher, I would like to follow the socio-constructivist theory. I see the benefit of using a program like Fast ForWord, not only because of the need for technology as a quick fix to solving the problem, but to help students with phonics while keeping them engaged in their learning."Too often, we limit our efforts to improve reading and literacy instruction to simply substituting one new "hot" strategy for an older one, or a new assessment device for an existing one that served much the same purpose" (Balajthy, 2007, p.246). Teaching with the internet from a constructivist point of view sees that "the internet can be a powerful ally for fostering meaningful learning experiences" (El-Hindi & Leu, 1998, p. 694). Adding technology to the state standards changes the traditional meaning of how to teach reading and writing, but also changes the definition of what it means to be literate. A new definition of what being literate is, "involves integrating reading and writing, navigating through information sources, discriminating between importance and unimportant information, responding to e-mail, or engaging in electronic chat sessions" (El-Hindi & Leu, 1998, p. 694). Constructivist believes that the learner actively constructs his or her own reality and that knowledge is from within instead of an outside source like a socio-constructivist believes, however, "learning on the internet is very compatible with constructivism and social constructivism" (El-Hindi & Leu, 1998, p. 696). I agree with Hindi and Leu (1998) when they suggested that, "organizing instruction around big ideas, empowering students, and creating classroom environments that promote learning through social interaction are key components that can be supported by effective use of the Internet" (El-Hindi & Leu, 1998, p. 696).

About Fast ForWord

According to the Fast ForWord website (www.fastforword.com) the program was developed and based on neuroscience research that states that the brain changes as we acquire new skills. The four research scientists who developed Fast ForWord created the computer software with the idea that it would strengthen the cognitive skills of memory, attention, processing and sequencing which are skills that are important for successful reading. The specific skills are phonological awareness, phonemic awareness, fluency, vocabulary, comprehension, decoding, syntax, and grammar. In order for students to improve these skills the program is based on the F.A.S.T. Power learning formula which stands for frequency and intensity, adaptivity, simultaneous development and timely motivation. The Fast ForWord program can help secondary education students, those in special education, students with limited English proficiency, and at-risk learners.

> Fast ForWord is a family of computer-based products. According to the developer's website, the programs help students develop and strengthen the cognitive skills necessary for successful reading participants spend 30 to 100 minutes a day, five days a week, for four to sixteen weeks (McArthur, 2008, p. 1).

The computer based program is divided into different levels. Fast ForWord Language is the foundation for early literacy development. "Fast ForWord Language builds fundamental cognitive skills of memory, attention, processing, and sequencing in the context of key language and reading skills, including listening accuracy, phonological awareness, and language structures" (McArthur, 2008, p. 2). The Fast ForWord Language consists of seven games, including: Circus Sequence, Old MacDonalds Flying Farm, Phoneme Identification, Phonic Words, and Block Commander that are geared towards improving sound sequencing skills, fine

motor skills, hand-eye coordination, pattern recognition and color/shape identification. The program uses acoustically modified speech. According to Valentine, Hedrick and Swanson (2006), the acoustically modified speech makes natural speech start out at the lowest level which allows students to recognize word sounds, then syllables, groups of sounds, words, and lastly in sentences. "As the child progresses through the program, these acoustic changes are gradually modified to more natural speech. The researchers speculate that the program activates and strengthens appropriate centers of the brain to facilitate the storage and processing of speech" (Valentine, Hedrick & Swanson, 2006, p. 184).

Another component of the program is called Fast ForWord Language to Reading. This program focuses on making the connection between spoken and written languages. According to McArthur it also helps with listening comprehension, sound-letter recognition, phonological awareness, beginning word recognition, and English language conventions. Fast ForWord Language to Reading uses acoustically modified speech as in the Fast ForWord Language series. Some of the game names include: Polar Cap, Start-Up Stories, Bug Out and Treasure in the Tomb.

The next series of programs is called Fast ForWord to Reading. "Fast ForWord Reading series provide the next sequence of cognitive skills designed to help students acquire reading skills" (McArthur, 2008, p. 1). Level one introduces familiarity with print, level two helps with comprehension, level three leads develops fluency, level four improves text interpretation and level five practices advanced comprehension strategies.

Once Fast ForWord to Reading is complete, there is also Fast ForWord to Literacy and Fast ForWord to Literacy Advanced. These programs are for adolescents who want to continue

to practice. The programs use the same skills learned in the previous programs to help further children's literacy skills even more.

To track the student, adolescent, or adult's progress at any level of Fast ForWord, there is a "progress tracker" which includes, for example the overview of progress such as the days participated, average completion, participation, and protocol. The information is compared to the district and other individual students. Another section also lists individual student's progress in specific skills such as listening accuracy, phonological awareness, working memory, and language structures. Also with the progress tracker the teacher can create learner profiles, track errors, make the information available to be emailed, and give teachers intervention strategies they can use.

Terminology

The term *Fast ForWord,* with help from the Fast ForWord website (www.fastforword.com.au) will be specifically defined as a computer software that builds the memory, processing and sequencing skills, and attention for reading success in a frequent, intense, challenging, motivating, and skillful way."This intervention protocol uses computer games to train specific auditory or phonological skills that have been related to acquisition of speech and language" (Veale, 1999, p. 353).

Questions That Guide the Study

Based on the above information on Fast ForWord and my interest in learning about the program and its effects on reading ability, I have developed the following research questions that guided my research and include:

1. How can technology enhance learning to read?

2. In what ways does additional research support, or not support Fast ForWord?

3. How does Fast ForWord impact literacy and overall reading abilities?

Chapter 2

Literature Review

The following sections will explore how technology enhances the ability to read: additional research on Fast ForWord, including where it came from and information from studies that have previously been done on the program: as well as what a balanced reading approach entails. The chapter is organized by the three leading research questions and the themes that have developed from those questions.

How Technology Effects Reading

Importance of technology.

"In only 6 years (1994-2000), the Internet will have appeared in nearly every K-12 classroom in the U.S. and identical changes are rapidly taking place in countries around the world" (Leu, 2000, p. 424). This statistical representation of how fast technology has changed schools in just six years shows the dramatic change from the idea that "our focus has almost always been the book: publishers focus on the book in their products, teachers focus on the book in their lessons, teacher educators focus on the book in their classes, and scholars focus on the book in their research" (Leu, 2000, p. 424). Not only has the use of technology become more common in schools, but this has led to technology being more commonly used in the work place. "The technologies of literacy involves each of us: we must change our focus as rapidly as the change. Anything less will shortchange our children, denying them important opportunities during their journeys through life" (Leu, 2000, p. 425). The new expansion of technology and having the Internet does not mean that we replace the traditional books, but we should build upon them to give children everything they need to succeed.

Specific uses of technology.

Overall, "the challenge becomes how can teachers best design instruction to develop critical visual literacy skills and, in some instances, recapture the interests of the students they teach" (Flynt & Brozo, 2010, p. 526). Some ways that teachers have taken initiative and embraced the rise of technology and how it has affected literacy includes: the use of e-books, having literature discussion blogs, recreational reading and language experiences. Anderson and Balajthy (2009) describe how one teacher used her summer vacation to find e-books that her students can read based on their reading level. Another teacher used discussion blogs by having students choose a book of their interest and then pairing with the student to read that book and respond to books through blogging. Recreational books from the Internet came about when a recreation center added on a computer lab to not only have traditional books to offer to the students. Lastly, a teacher helped her struggling second-grade readers by using Powerpoint and making an electronic storybook to base the reading lessons off the next few weeks. Teachers ultimately need to remember to "use any technology as a tool, not as a curriculum; don't try to add another subject to the day (Labbo, Leu, Kinzer, Teale, Cammack, Kara-Soteriou, & Sanny, 2003).

Fast ForWord.

The school where the research for this project was completed used technology as a tool and incorporated it into their curriculum by having Fast ForWord for individualized instruction. The Fast ForWord program is a computerized program where students spend thirty minutes a day, five days a week playing games to improve their reading skills. Fast ForWord, as shown above, is compiled of various levels and follows a sequence for helping students become successful readers. The Fast ForWord Language to Reading program "builds fundamental

cognitive skills of memory, attention, processing, and sequencing in the context of key language and reading skills, including listening accuracy, phonological awareness, and language structures" (McArthur, 2008, p. 1). Fast ForWord was developed by following a sequence because students do not just become fluent readers, they have to take steps and the first step is being able to understand the English Language first.

Language-to-literacy.

Miller and Tallal (2006) posit that "before children can learn to read proficiently, they must first be able to understand and produce spoken language in the same language they are learning to read" (p.2). Therefore, language-to-literacy is the idea that the brain does not just learn how to read, it has to take steps. In order to acquire the skills to match spoken words to print, children first need to learn to organize the information. This process begins when children are first exposed to letters and words as infants because they take this and the brain forms neural networks from which reading skills can develop (Miller & Tallal, 2006).

Miller and Tallal (2006) describe the English Language and how it includes phonology, morphology, semantics, syntax and pragmatics. Phonemes are the smallest unit of a word and can change the meaning if pronounced or heard incorrectly. Fast ForWord language series help improve the rate of processing, sharpen phonemic awareness and perception. Morphemes are the smallest unit of meaning, semantics are a set of common vocabulary words and definitions a person holds, and syntax is more the rules of a particular language. Fast ForWord was "designed to employ the scientific learning principles underlying neuroplasticity to enhance the fundamental memory, attention, processing and sequencing skills on which effective classroom learning depends" (Miller & Tallal, 2006, p. 3). The best way to teach these skills has changed throughout the years and is still a leading question to educators. Some educators would believe a

balanced reading approach is the best solution. A balanced reading approach incorporates all aspects of the skills needed to become a successful reader, which includes differentiated instruction for those who need individualized instruction from the Fast ForWord program.

Balanced reading approach and technology.

According to Moss (2005) content area literacy is changing. It is changing in the way that they are focusing on using content area literacy in the earliest of grades. Addressing three factors critical to literacy: "standards-based education, emphasis on standardized-test performance, and technology" (p. 46). Technology is a critical factor in literacy because "the literacy demands of today's technological society require that students not only be able to read and write in the print world but also in the digital world" (p. 46). Connecting all these factors together has developed a balanced reading approach. This means engaging students in reading narrative texts, a larger emphasis on informational texts, and the use of technology.

> We seem to assume that as children progress through the primary school and middle school, they transfer their ability to read narrative into competent reading of non-narrative, upon which much of their further education and capacity to deal with adult life will depend. (Littlefair, 1993, sited in Moss 2005, p. 48)

The earlier students can be exposed to all three factors, the better they will be able to learn how to read, understand, and use it for the rest of their school careers (Moss, 2005). Fast ForWord is one piece of technology that may or may not be used by educators and some may ask "Why Fast ForWord?" The studies that have been done have showed gains after rewiring the brain a gain in overall reading ability after completing the program.

Additional Research Behind Fast ForWord

Brain plasticity, according to Miller and Tallal (2006), is a new term that neuroscientists have been using that contradicts the past one hundred and fifty years of research that the brain stops learning after a certain point. They now believe that the brain is a plastic organ or an ever changing organ that can continue to grow throughout life not just during early childhood. Experience-dependent learning or neuroplasticity is the idea that the brain codes neurally. This means that if a pattern occurs frequently then that pattern will be neurally coded, or stored in the memory until it is used often and becomes familiar and used again. For these reasons, Kidder (2005) suggests that the Fast ForWord computer program was designed to have the games magnify speech sounds at a slower rate to help children be able to process more accurately. Royal (2008) states that the "misinterpretation of the simplest part of speech, such a phoneme, can completely change the meaning of a word or sentence" (p. 18). According to Royal this auditory deficit of understanding normal speech is what causes language-learning difficulties (Royal, 2008).

According to Veale (1999) Tallal, one of the creators of the Fast ForWord program, believes there is a direct relationship between language-learning difficulties and auditory deficits. This means that students who have a difficult time understanding auditory aspects of language may hurt reading ability. Tallal and her associates; Michael Merzenich, William Jenkins, and Steven Miller created the Fast ForWord Program. They describe the program by stating:

> The games within the program have been designed to lengthen and intensify phonemes that were found to be difficult for children with language impairment. The activities also provide practice in discriminating tones with decreasing interstimulus intervals. By

> addressing these key aspects of auditory processing, the Fast ForWord program is designed to improve auditory and language skills (Veale, 1999, p. 354).

Recent Effects Of Fast ForWord

Temple's (2003) article describes the first case study that used the newest technology called functional magnetic resonance imaging (fMRI). fMRI is the next step past a magnetic resonance imaging (MRI). Temple explains that an MRI allows the structure of the brain to be seen, but an fMRI allows the function of the brain to be seen. When the brain has increased function, this causes increased blood flow, which in turn also increases oxygen and the oxygen can be measured with the fMRI. The study was based on the changes in brain function in children with dyslexia. In children with dyslexia, brain function on the left side or temporoparietal cortex, is different when it comes to completing phonological processing activities. This case study did research on children 8-12 years old with dyslexia who underwent eight weeks of Fast ForWord Language training, one hundred minutes a day, five days a week. During Fast ForWord the children were learning auditory attention, memory, listening comprehension and phonological processing. These children received fMRI scans before and after the training. To compare these scans, there were also 12 children without dyslexia who had two fMRI scans about eight weeks apart. During the scans the children were to do a rhyming activity and matching task, for example asking if "T" and "D" rhyme and if "P" and "P" match. After the training, the children with dyslexia showed signs of improvement in reading performance based on their performance on the Woodcock Johnson Reading Mastery Test. Another study by Hook, Marcaruso and Jones (2001) showed similar improvements by both groups but used Orton Gillingham for assessing compared to the Woodcock Johnson Reading Mastery Test.

THE FAST FORWORD COMPUTER PROGRAM

Hook, Marcaruso and Jones (2001) wanted to determine the long and short term effects of the Fast ForWord program on reading and spoken language skills in children with difficulties in phonemic awareness and word identification. There were 11 students in the Fast ForWord group with students ranging from ages 7 to 12. There were 11 students in the longitudinal control group in the same age range and then nine students in the short term effects group who did not train with Fast ForWord, but had Orton Gillingham instruction. The Fast ForWord group lasted for two months, five days a week, for two hours a day. The Orton Gillingham group received one-on-one training, five days a week, for one hour. The longitudinal control group received multisensory structured language programs that the school teaches as part of their curriculum. Both the Fast ForWord and Orton Gillingham groups had similar gains in phonemic awareness, word identification and word attack. The Fast ForWord group made verbal gains as well as gains in syntax but these gains were not long lasting. A study by Rouse and Kreuger (2004) found results that were not so positive either when it came to helping with actual reading skills.

Rouse and Kreugar (2004) conducted a study in four different schools on 512 students. There were students from third to sixth grade in the study and were randomly selected to be in the treatment group or the control group. Both groups were assessed using four different assessments. The first one was a computerized test called “Reading Edge” which measures phonological awareness, decoding, and processing before and after the study. The second one was CELF-3 (concepts and directions, word classes, and semantic relationships). This assessment measured semantics, auditory memory, and morphology and syntax. The SFA (success for all) assessment was given to assess the impact of Fast ForWord on reading skills. The last assessment was the state’s standardized test. The students in the study were to complete a minimum of 20 days of training with 80% completion of the Fast ForWord Language games.

Results for this study found “that while the FFW programs may improve some aspects of students’ language skills, it does not appear that these gains translate into a broader measure of language acquisition or into actual reading skills” (p. 19).

The positive and negative results from the above studies have lead me to understand that the Fast ForWord may help with language aspects but may not help with reading skills. The research study I have developed is to find out how technology and the Fast ForWord program helped with overall reading ability.

Chapter 3

Methods

The purpose of conducting this study was to determine the effects, if any, of the Fast ForWord program on struggling readers. The study included qualitative data that were collected on two students and the classroom teacher. Data collection included the use of observational notes and audio-taped interviews.

Participants and Setting

Children. This study focused on two students from a second grade classroom at a small rural school in Western New York. There were a total of 16 students in the classroom, five male and 11 female. Out of the 16 students in the classroom, there were two students who were scheduled to do the Fast ForWord program, one male and one female. For the purpose of this research project the real names of the two students were changed and they will be referred to as called 'Hannah' and 'Joey'. Both students are Caucasian and come from English speaking homes.

Teacher. This study also focused on the second grade classroom teacher. This teacher, 'Mrs. Cardinal' has been teaching second grade the past five years and is a Caucasian female approximately forty-five years old. Mrs. Cardinal consented to allow me to observe the above two children and to participate in an audio-taped interview with me.

Data Collection

Data were collected from March 5, 2012 to March 14, 2012. I collected data on consenting students by observing them by using an observational log as they were engaged in the Fast ForWord program and in their classroom during English Language Arts (ELA). I used suggestions from Bogdan and Biklen (2003) to make sure my observational notes were very

descriptive and included my own reflections. I observed the students during English Language Arts which was from 10:15 to 11:30 as well as during their time using the Fast ForWord program which was from 1:40 to 2:10. Taking observational notes allowed me to understand what the students were learning in the classroom as well as during Fast ForWord and see if there were any connections between the two. Besides taking observational notes, I also conducted audio-taped, open-ended interviews with the students during English Language Arts and the classroom teacher during her planning block. I took Bogdan and Biklen's (2003) suggestion to use a tape recorder when interviewing to make it easier to recap what was said during the interview. The interview with the students allowed me to get insight on what they believed the Fast ForWord program was and if they thought the program had helped them become better readers. The interview with the classroom teacher also allowed me to get her insight on what she believed the Fast ForWord program was, if she felt the students had gained anything from the program, and if she had ever recommend the program to other classroom teachers and parents. Both the students and classroom teacher were only interviewed once due to time constraints.

On Mondays and Wednesdays, I entered the classroom right before English Language Arts started and wrote the date on my observational log. As Hannah and Joey rotated through the centers, I wrote observational notes of what the student were doing, if they were engaged, and if the activity had any relation to what was learned from the Fast ForWord program. After English Language Arts, I would then join Hannah and Joey in their Fast ForWord lab and take more observational notes as they played through their phonics games. I would put on headphones for the first fifteen minutes and observed one student playing the phonics games and then during the remaining fifteen minutes, I watched the other student play the phonics game. Each session, I

rotated who I watched for the first fifteen minutes to be able to experience all the games the students would play.

Data Analysis

All data collected were coded and analyzed to see if there were improvement in the students' overall reading ability. I followed Bogdan and Biklen's (2003) procedures for coding and labeling categories. To code my work, I first organized all the fieldnotes and interview transcripts and highlighted information that answered my three initial research questions by using three different colored highlighters. Besides coding by research questions, I also coded my field notes which allowed me to connect what the students were doing with how the students were engaged. Coding the material this way made it easier to connect activities with student engagement and then added comments. By using Bogdan and Biklen's (2003) suggestions, I was able to code my fieldnotes and interview transcripts to organize the following chapters in the most beneficial way to effectively analyze and present the information.

Chapter 4

Findings

There were three participants in this study all of whom were from a small rural school in New York. They included two second grade students and their classroom teacher. The first participant, Joey, a pseudonym, was an eight year old boy. The second participant, Hannah, a pseudonym, was an eight year old girl. The classroom teacher was the third participant for this study, she is referred to as Mrs. Cardinal.

The remainder of this chapter is organized according to the three research questions. The three guiding questions are:

1. How can technology enhance learning to read?
2. In what ways does additional research support, or not support Fast ForWord?
3. How does Fast ForWord impact literacy and overall reading abilities?

How Can Technology Enhance Learning To Read?

This section is divided into three parts: a) Fast ForWord and technology, b) KidBiz: Technology in the regular classroom, and c) the teacher interview.

Fast ForWord and technology.

The Fast ForWord Language program, which utilizes games, uses technology to enhance learning to read. Each game in the program focuses on one aspect of literacy. The game “Jumper Gym” focuses on listening accuracy and auditory sequencing; “Tomb Trek” works on word analysis; “Polar Planet” includes word analysis and sustained attention; “Paint Match” emphasizes word analysis and phonological memory; and lastly, “Cosmic Reader” incorporates listening comprehension, following directions, English language conventions, and vocabulary.

Besides the Fast ForWord Program I observed another source of technology that was used in the classroom during the "fluency" station called KidBiz.

KidBiz and technology.

Hanna and Joey also experienced the use of technology during their regular classroom English Language Arts period. During this time, they each logged onto KidBiz, a computer program, and then read a story and answered multiple choice questions based on the story. If they received a 75% or better on the multiple choice questions, they were able to print the scores and received a ticket for a prize given out later in the day. When Hannah and Joey were finished with KidBiz I would ask them what the story was about and neither of them were able to tell me. They would say "I don't remember" after just finishing the story five minutes prior. Another time, I found that Joey skipped through the story and went right to the comprehension questions and clicked through the answers as a classmate did them next to him. Behaviors and reactions could be because the story was too difficult for Hannah and Joey to read and comprehend.

Teacher interview.

When the teacher was asked if she had seen students who use Fast ForWord gain reading ability in the classroom, her response was "I would say its contributing, but as far as if it's the sole contributor or not, I would like to think that I have something to do with it." Mrs. Cardinal has seen improvements in both Hannah and Joey and she assumes it's due to both programs. She also went on to state how this year is the first year that Fast ForWord had its own separate time instead of the children being pulled out of English Language Arts. She said this is so the students are getting a "double dose" of emergent literacy compared to past years, and she was not sure how that variable factored in.

What Is Fast ForWord?

This section is divided into three components. The first component describes the games that are a part of Fast ForWord, the second component talks about the Fast ForWord's progress tracker, and the third component describes how Joey and Hannah interacted with the games.

Games.

Based on my observations, the Fast ForWord program is a series of phonics games that improves the reading skills of students. The Fast ForWord Language Program includes five games: Jumper Gym, Tomb Trek, Polar Planet, Paint Match, and Cosmic Reader.

Jumper Gym. Jumper Gym is a game played to improve student's listening accuracy. The game has a girl jumper that will jump higher as the student mimics the correct pattern. The game involves listening to a pattern of high and low pitch sounds and using the mouse to click the same pattern with the up and down arrow on the screen.

Tomb Trek. Tomb Trek is a game where the students are to practice word analysis. There is an alien sitting on a chair and for every word the student gets correct a code is broken on the wall that crashes when all the words are complete. For example, the alien says "gag," then the student selects from one of two words above the alien's head (gag, bag), and the student clicks the correct word. Another part of this game includes a row of words and the student is to scroll across the whole row and click all the boxes that say "gag."

Polar Planet. Polar Planet was also used to practice word analysis as well as sustained attention. The idea is the same as Tomb Trek except this time the game is set in a polar region and for every word clicked correctly an ice block helps to finish building the igloo. For example, the word given will be "gash" and a series of blocks with "lash," "cash," "sash," and "gash" on

them. The student chose the ice block that says "gash" on it and then that block goes onto a sled that helps build the igloo. The other words on the ice blocks that the student was able to choose from was in the same word family as the original word. For example if the main word was "gash" then the other words in the series would be "sash," "bash," and, "hash."

Cosmic Reader. Cosmic Reader provided practice with listening comprehension, following directions, English Language conventions, and vocabulary. A version of the story "The Three Little Pigs" was read to the student and then the student responded to multiple choice comprehension questions. This included a display of three similar pictures and the students were to choose the picture that best described what it being said. For example "Paddle Pig will jump into the pond" or "he is hugging the wolf."

Paint Match. From my observations, I believe that Paint Match is a sub-section of Cosmic Reader. The Paint Match is a game that practiced world analysis and phonological memory. This game has a table of about sixteen pictures with four of the same objects in different colors and sizes. The student listened to the question and either put those objects into the table or took them out. For example, a basic task was "touch the green wolf and the blue fish." A harder example would ask "touch the brown pig, NO, the pink baby" or "add all the small radios except the blue one."

Progress tracker.

The weekly progress tracker included the following: a) a progress history report, b) a percent complete history report, c) weekly achievement report, d) participation report, e) error report and, f) reading progress indicator (RPI) assessments report. The progress history report included graphs of each game with the percent complete in relation to the participation day. The percent complete history report included the goal of each game and how many trials it took to

complete. The weekly achievement report was a chart that showed the activity planned for the day, time completed, time not completed, and any exercise that was skipped throughout one week. The participation report showed each game that was played during each specific day of the month. The error report indicated incorrect responses for each game. For example, an error might read "initial sound change /k/." Lastly, the reading progress indicator showed the student's growth from before they started the program up until that weeks progress tracker and it also showed the current grade equivalent in year (current year) and month (month of school) format.

Hannah and Joey's interactions.

Twice a week I observed Hannah and Joey in the Fast ForWord lab. When interviewed and asked whether they liked the Fast ForWord program they both responded "yes." Hannah responded by saying "it's basically where you um go on computers and play games to help you learn words and memorize." During the time in the lab I would observe each student for fifteen minutes. Each time, two of the games were highlighted on the screen for them to choose and begin to play. Both Hannah and Joey understood what was supposed to be done and went through the games without much difficulty. Hannah was really good at finding the correct words when playing Polar Planet and Joey was good at finding the correct objects when playing Paint Match. I found both Joey and Hannah had difficulty when playing Jumper Gym because they would click the correct arrows that matches the sounds but not click it enough times. I am not sure if that was a difficulty with the mouse or if they were not hearing the last sound when a four beat pattern was played. Throughout the duration of Fast ForWord, all the students sat in their seats with their head phones on and did not talk. Hannah and Joey stayed on task for most of the thirty minutes and would only become off task if there was commotion in the classroom like another child getting up to use the restroom. If any student was became frustrated, the aid in the

lab would put on the teacher headphones to listen to the task and then prompt the student to get them back on task and explain what needed to be done.

How Does Fast ForWord Impact Literacy And Overall Reading Abilities?

This section is divided into three parts: a) Fast ForWord and technology, b) Kidbiz: Technology in the regular classroom, and c) the teacher interview.

Typical day in English Language Arts.

The English Language Arts block in the classroom was divided into four stations: comprehension, word study, teacher table, and fluency. A typical day in the classroom began with the class being divided into each of the four stations. The class was divided into reading groups based on their reading ability and while at the "teaching table" station the students would get direct instruction from Mrs. Cardinal. While with the teacher, they not only discussed suffixes such as at the "teaching table" station the students would get direct instruction from Mrs. Cardinal. They discussed suffixes like "ful." As a group they read a book on snakes and were taught a new reading strategy to skip the unknown word until the whole sentence was read and then go back and try to figure out the word. The "comprehension" station had Hannah and Joey independently write in their response log for chapter three on the revolutionary war book the class was reading. The "word study" station was for Hannah and Joey to choose a partner in their group and listen to the partner read a word off the spelling list and decide if it went under the "ow" or "ou" sound and then spell it while their partner recorded their answer.

Effects of Fast ForWord on reading ability.

From observing both English Language Arts and Fast ForWord it was discovered that there is no direct impact from Fast ForWord on reading ability. There was also no direct correlation from what was taught in Fast ForWord with what was taught in English Language

Arts. Although there was no direct relationship between Fast ForWord and overall reading abilities or being taught with English Language Arts, there were still similarities between the two that with further research could indicate that children could improve reading abilities and help each other. For example, during English Language Arts in the "word study" station, Hannah and Joey would get spelling words for the week that would focus on a specific pattern, like words with "oy" and "oi." Fast ForWord would not focus on patterns like "oy and oi," but would practice more basic patterns like individual letter sounds like "g, k and c."Mrs. Cardinal believes that having a "double dose," or additional time, of literacy instruction is benefiting the students more than she has seen in previous years. Also, during the "comprehension" station, Hannah and Joey would have to write in their response logs on a story being read in class, cut out a story and put it in according to page numbers and then read, or read a story on frogs and match a picture from a frogs lifestyle with the proper description. During Fast ForWord when Joey and Hannah were playing "Cosmic Reader" it also worked on comprehension by having the students listen to a story about the three pigs and then answering comprehension questions like if "Paddle Pig's house was blown down by the wolf."

Interviews with Joey and Hannah.

When the students were interviewed on whether they believed the Fast ForWord Program had helped them become better readers, Joey responded "mmm I don't really know that one" so I then prompted with asking if it helped him learn new words and if he thought learning new words helped him become a better reader while reading books and he responded "yes" to both. Hannah responded "yes, cause it like um it helps you with like seeing the words," and when I prompted her as to whether it helped her remember the words and if it helped her sound words out, she said "yes" to both.

Based on the above findings the research shows that that the study in inconclusive. Further research is needed to discover the exact correlation between reading abilities and the Fast ForWord Program and also how it benefits English Language Arts.

Chapter 5

Conclusion

Overview

According to the aforementioned interviews, both with Mrs. Cardinal and with the participating students, all three believed that Fast ForWord was helpful. However, it was not proven that Fast ForWord was the main reason they were becoming better readers. Both Joey and Hannah stated that they believed Fast ForWord had helped them remember words and sound them out. In Mrs. Cardinal's interview, she stressed that not all of her previous students had shown improvement, but Hannah and Joey had improved.

Significance

Fast ForWord used technology as a good alternative for students to get extra individualized instruction that was not provided in the classroom. The findings are inconclusive, though, because there was not enough data to make a valid conclusion. However, because Hannah and Joey stated that they liked the program and that it had helped them become better readers, it appeared Fast ForWord was a possible alternative to teach phonics.

Fast ForWord is the "appropriate support" that Vygotsky states is needed in a socio-constructivist style classroom. Becoming more knowledgeable with the program has let me see the positive results and feel confident to utilize this program when differentiating instruction. However, the Fast ForWord program does not include peer-to-peer interactions as Vygotsky suggests because students are to sit with their headphones on and silently complete a full thirty minutes of work. This type of behaviorist style does not support Vygotsky's theory, but the Fast ForWord program is not meant for peers to interact with others and is programmed to fit each student based on his or her reading level and how well each student does during each activity.

For future teaching, if this program were being offered at my school, I would feel more confident to support the program and would be able to talk about it to other teachers and parents. Also, to make Fast ForWord more effective, I would make connections from what was being taught in Fast ForWord to reading events in the classroom.

Limitations

There were two limitations found in this study. The first limitation was the time constraint. I expected to have a full five weeks but I only had three weeks.

The second limitation was the fact that the research only included two student participants and one classroom teacher. Therefore the results from this study did not include enough data to make a generalization to other settings on how Fast ForWord helped with overall reading abilities.

Recommendations

There are three recommendations. The first recommendation is that this particular study focused on the Fast ForWord Language Program and should include the Fast ForWord Reading Program. By including the Reading Program, teachers would get a greater understanding of the Fast ForWord Program as a whole.

The second recommendation is to include more than two students and one classroom teacher. With a larger number of participants, results would be more valid and reliable.

The third recommendation would be to compare and assess the students in the Fast ForWord Program to students who are just in English Language Arts. The two groups should be assessed at the beginning, middle, and end of the school year and also pin point what components of the Fast ForWord Program directly benefit overall reading ability.

Overall, due to the lack of data and other limitations, further research is suggested to improve this study. Using the aforementioned recommendations will help answer future questions about Fast ForWord.

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