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Effects of Technology on Literacy Skills and Motivation to Read and Write

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Abstract

This project is an initial investigation into how technology affects one student's literacy learning and motivation in reading and writing. Over a period of five weeks, I incorporated technology into instruction and then observed how it affected the student's motivation and skills while reading and writing. I conducted observations, interviews and retellings to gather all data. The primary goal of this study was to answer the research questions 1) What effects do digital literacies have on a struggling reader and writer as well as his/her motivation to read and write? 2) What additional factors influence this student's reading and writing? Through the completion of my analysis I can conclude that technology may be effective for struggling readers and writers who are considered to be digital natives. I can also conclude when teaching reading and writing, the use of both traditional and twenty-first century strategies may be an effective strategy to improve literacy skills. Through my research I was also able to conclude positive parental involvement may have a direct correlation on a student's improvement with reading and writing skills. This research suggests when a student is unfamiliar with technology being used there is no significant improvement with skills.

Keywords: elementary education, lifelong learning, media in education

This project is an initial investigation into how technology affects one student's literacy learning and motivation in reading and writing. In the twenty-first century, technology in the classroom is becoming a trend. Teachers may not be familiar with the effects technology may have on student literacy ability. According to Sylvester and Greenridge (2009), technology has the potential to affect our students' motivation within literacy domains and provide an understanding of traditional reading and writing practices. Teachers are not aware of the effects technology may have on literacy learning and how to implement technology into instruction. Teachers need to be educated on the advantages technology may have on student motivation and ability within reading and writing as well as how to best implement technology into literacy instruction. This research was conducted under the premise that students and teachers have prior knowledge operating technology such as, but are not limited to; computers, I-pads, audio books and Microsoft Word. Students vary in their abilities with literacy, and therefore, need different modes of instruction to increase their reading and writing skills. My study will determine the effectiveness technology may have on literacy skills as well as how technology may effect a student's motivation to read and write. This information will help guide teachers to develop a balanced literacy approach meeting all the necessary needs of their students.

The Common Core State Standards have transformed education in a variety of ways, preparing our students for college and career readiness. According to Calkins & Ehrenworth (2012), the level of education needed to succeed in today's world has increased dramatically. Literacy standards are not what they used to be. Calkins and Ehrenworth suggest that in the past "most jobs required low literacy skills, but children who leave school today without strong literacy skills will not find a job" (p. 9). Due to the shift in literacy skills expected of students, teachers should take into consideration new forms of literacies available to use within the

classroom in order to strengthen reading and writing skills. Within educational history several

different theories have developed to support different ways of learning. The theoretical

foundation supporting my study lies within John Dewey's (1938) theory of inquiry as well as

Howard Gardeners theory of multiple intelligences (Temiz, Kiraz, 2007). Education is founded

on the basis that every child learns differently. Temiz and Kiraz support this through the use of

Gardners theory of multiple intelligences. According to Temiz and Kiraz, Gardner suggests that

teachers should incorporate all types of intelligences to provide students with the opportunity to

learn in the way that best fits their educational needs. He also suggests that through the use of

multiple intelligences, students are provided with the opportunity to solidify the content in a

meaningful way. Therefore, incorporating media literacies into instruction provides students with

an experience that has the potential to incorporate several different multiple intelligences.

According to Temiz and Kiraz, when Gardners theory of multiple intelligences is used during

instruction, our students will perform higher specifically in literacy skills. As teachers it is our

job to take on the role as the facilitator of our student's education; however we should scaffold

our students to become facilitators of their own education. As students have the opportunity to

take control of their learning they have the ability to explore their personal curiosities. As

students are given the opportunity to explore they not only gain responsibility for their learning

but interest as well. According to Dewey (1938) when children learn through the use of their

own doings, thoughts and ideas, critical thinking is taking place. According to Judson (2010)

Dewey also suggests that students learn best through the use of the present. In today's society

children are engaging with technology at early ages. According to Judson, our students in today's

society are "digital natives who are fluent in the digital language of computers, video games, and

the internet" (p. 271). Therefore, according to both Dewey (1938) and Judson (2010)

introducing digital literacies will not only be familiar to them but will also engage them in the present providing them with a rich literacy experience.

My research explores the different ways in which technology affects student literacy skills in an educational environment. Specifically, I gathered a baseline of a student exclusively looking at motivation towards reading and writing as well as ability to read and write using traditional methods. Over a period of five weeks, I incorporated technology into instruction and then observed how it affected one student's motivation and skills while reading and writing.

My study will provide the foundation for a research program in which I could systematically manipulate the different types of technology within literacy and examine the outcomes of student motivation within reading and writing as well as students' ability in reading and writing using digital devices.

Research Questions

What effects do digital literacies have on a struggling reader and writer as well as his/her motivation to read and write?

What additional factors influence this student's reading and writing?

Rationale

The younger generation is growing up surrounded with all forms of technology. As a teacher I see primary aged students engaging with I-pads, cell phones, video games, computer games and so much more. Today's students are living in a world that is based on technology. Students are expected to take state tests and complete writing assignments in a timely manner

using the computer. As the younger generation is entering into schools I am noticing that

students have a strong foundation within computer navigation. Children are coming into school

as digital natives and seem to be extremely motivated in the task when technology is involved.

This drove me to become interested in the effects technology may have on student literacy skills.

Working with struggling readers and writers I have gained a strong passion for keeping current

on effective literacy practices for struggling students. I questioned the possible effects

technology may have on a struggling reader and writer and if motivation to read or write is

altered when technology is involved.

Study Approach

I completed a qualitative research study using Discourse Analysis specifically through

conversation as the method of research. According to Florio-Ruane &Morrell (2011) discourse

analysis through conversation is the analysis of human interactions which creates a social

identity and meaning in language. Within my study I engaged in interviews and retellings to

gather data on the student's familiarity with technology. To gather data on her comprehension of

what was read, several retellings took place. I analyzed her answers and body language to help

determine her motivations towards digital reading and writing. I also used the analysis of her

answers to help formulate an engaging conversation through the use of her interests and culture.

Within this area of study there is past research to both support and contradict the theory that

technology can in fact close the achievement gap in literacy practices with students in today's

society.

Literature Review

As society moves through the 21st century, technology is becoming more advanced and

prevalent in our education system. In this section I will discuss literature that examines the

effects of technology on our youth. This literature will specifically focus on the effects that technology has on literacy abilities both in and outside of the school setting. The subheadings addressed in the following review include effects of technology on reading comprehension and motivation, digital natives and the importance of teacher conceptions.

Effects of technology on reading comprehension and motivation

Within this section I will discuss threes studies which all encompass the effects technology may have on student comprehension skills and motivation to read. Specifically looking at individual studies, I will discuss how each study informs my research. Ciampa (2012) seeks to explore the differences in reading motivation when using either traditional or non-traditional texts with first grade students. Grimshaw, Dungworth and McKnight's (2007) study explores the effects technology may have on reading comprehension, motivation and fluency through the use of three types of media; CD-Rom, electronic text and traditional text. Ertem explores the effects digital texts with animations, digital texts without animations and traditional texts have on student comprehension.

Ciampa (2012) states, developing a strong set of comprehension skills during elementary school provide students with an opportunity to become successful readers. Reading is the foundation of a person's education. As we get older reading becomes a way of learning. According to Ciampa, "Motivation to read is both the essential element for actively engaging young children in the reading process and a strong predictor of later reading skills" (p. 2) thus, teachers are challenged to provide students the reading skills necessary to further their education and become successful readers. Ciampa suggests that motivated readers are more likely to

become more advanced within their reading skills allowing them to exemplify advanced

vocabulary use, comprehension ability and critical thinking. Students are exposed to a wide

variety of technology that has become a prominent influence in their lives. Students are excited,

interested and motivated to engage in technology devices. According to Ciampa, incorporating

the present into our reading instruction helps motivate our students to essentially further their

reading ability ensuring success in their future literacy endeavors. Therefore, Ciampa focuses

this study on the experiences of first graders using e-books to read.

According to Ciampa (2012) the research study was driven on four basic data collection

methods which included; Observations during traditional reading as well as eBook reading,

questionnaires, teacher interviews as well as reading assessments. It is important to mention that

all eBook interactions that were used within Ciampa's study were similar in length, genre, level

of difficulty and quantity of pictures. Classroom observations were specifically focused on

student reading engagement with traditional texts during their literacy block while students were

participating in on-task behaviors. Classroom observations took place eighteen times between

September and April. Observations with online eBooks were held during either the student's

recess or lunch time to ensure that students never missed classroom literacy instruction. These

interactions took place ten times with a duration of twenty-five minutes. During reading sessions

with eBooks participants used headphones to eliminate any possible distractions. During this

time participants sat next to the researcher to guarantee all important observations were recorded.

Ciampa states, important field notes included any comments that the participant had while

reading the online eBook, body language as well as on-task behavior (was the child focused).

Two questionnaires were conducted with the participants included questions were based on

student motivation with technology and reading online. The questionnaires were conducted in

the beginning of the study as well as at the end of the study. The questionnaire at the end of the study incorporated questions around the participant's feelings toward eBooks after the study was complete. Interviews/ questionnaires were also conducted individually by both the parent and teacher of the participant. The parent was given a questionnaire at both the beginning and end of the study with the intention to notice any changes in student reading behaviors through the eyes of the parents. The teacher was interviewed at the end of the study. During this interview the teacher was audio taped and transcribed by the researcher. During this interview teachers were asked questions surrounding student interest to read using online resources specifically eBooks after the study was conducted. Ciampa states, all questionnaires and interviews were compared and analyzed ensuring a holistic view of student motivation through the use of eBooks. According to Ciampa, through the analysis of these data collection procedures an increase in student motivation to read was exemplified.

According to Ciampa (2012), the use of eBooks increased student motivation to read especially struggling readers. Eight students participated in this study, 5 of which were observed to be motivated to read during classroom literacy instruction whereas the other 3 students were the exact opposite. These 3 students in the beginning of the study were considered to be struggling readers. While engaging in traditional texts the three participants showed signs of off task behaviors. However, according to Ciampa, when the struggling readers interacted with eBooks students displayed a higher interest for reading and engaged more actively in the text. Ciampa also suggests that through the triangulated analysis of teacher, parent and researcher observations, students showed an increase in reading eBooks at both home and school. According to Ciampa, "It appeared that the word-by-word matching and 3D animated features helped to capture all the participants' attention, assist in the learning of new words, and sustain

attentive listening during the read aloud without being distracted or influenced by their peers or external stimuli" (p. 18). Therefore according to Ciampa, eBooks were a positive attributed to not only student reading skills but motivation to read digital texts as well.

However, according to Grimshaw, Dungworth and McKnight (2007), motivation is not effected through the use of traditional texts compared to electronic texts. According to Grimshaw et al., exploring different kinds of techniques that may help aid in student comprehension and motivation should be of high interest to teachers and researchers within the educational field. Grimshaw et al. suggest that "features such as word pronunciation, narration, sound effects and animations, which support the text, all help to remove the effort from decoding individual words and allow the child to focus on meaning" (p. 584). According to Grimshaw et al., electronic texts have these features which have the capability to help student comprehension. However, digital texts range in features where some are basic features and others have more advanced features such as text to speech and highlighting of words as the student follows along. Electronic storybooks offer many features that have the capability to increase reading comprehension as well as motivation to read. Grimshaw et al. aim to focus the study to determine the effects that electronic books may have on student comprehension and motivation. Grimshaw et al. specifically focus on whether electronic texts affect student comprehension as well as reading speed.

According to Grimshaw, Dungworth and McKnight (2007), the research was collected using two different stories. The stories were chosen on the basis that they were available in both traditional texts, electronic texts as well as on CD-ROM. Grimshaw et al., found one story in traditional and downloadable form whereas the other text was found in traditional form and CD-ROM form. Students, who were assigned the CD-Rom form, were provided with either a

narrated text or un-narrated text. Student reading skills were measured in both comprehension as well as the amount of time it took for them to finish the reading. Students were also measured in the motivation to read the different medias of texts. According to Grimshaw et al., comprehension was measured through a multiple choice test for all medias of text. There were also questions that required students to answer with either a yes or no as well as questions that were directly text based and questions that required the student to make inferences based off the text. While answering all of the comprehension questions students were able to have access to the text. To measure motivation for each media of reading according to Grimshaw et al., students were asked questions regarding personal interests and enjoyment. This interview style questioning was conducted strictly after reading before any comprehension questions were asked. Grimshaw et al. suggests that when students were asked about their enjoyment of the text after the comprehension questions students were basing answers off the enjoyment level of the testing instead of the reading. One of the features that Grimshaw et al. highlighted in the study was the option to use the dictionary for all types of media. Students who read the traditional texts were provided with a traditional dictionary which was deemed appropriate for their age level. Students who interacted with the downloadable texts as well as the CD-ROM texts were provided with an internet based dictionary. The dictionary was incorporated into the text such that the student simply needed to double click on the word and an appropriate definition would appear. For all medias, the amount of time to complete the reading was recorded. According to Grimshaw et al., data collection was compared and analyzed to determine comprehension and motivation effects.

Results from Grimshaw, Dungworth and McKnight's (2007) study provided data on the effects that digital texts have on comprehension and motivation compared to traditional texts.

According to Grimshaw et al., participants came into the study with a strong background knowledge in technology navigation. According to Grimshaw et al., children who read using digital texts were not able to manually follow along while they were reading, Grimshaw et al. suggests that following along using a bookmark or finger is not uncommon in young readers specifically when reading fluency has not been mastered. According to Grimshaw et al., comprehension was slightly increased when reading using digital literacies specifically during the narrated CD-Rom stories but showed no major significance with comprehension between the CD-Rom, traditional texts and electronic texts. Grimshaw et al. suggest this may be due to the lack of interruption in either fluency or intonation skills. Accoridng to Grimshaw et al., through the analysis of motivations within reading between digital and traditional texts, there was no significant difference.

According to Ertem (2010) the purpose of reading is to understand the content. Through the development of young readers, reading comprehension is a crucial skill to master in order to receive a successful education. Ertem suggests that "reading comprehension is an active cognitive process, and involves interaction between reader and text to construct meaning" (p.140). According to Ertem, there has been a decrease in motivation to read for pleasure within students. Ertem also states that struggling readers are experiencing a lack in decoding skills and fluency which results in a barrier to develop a strong foundation of comprehension skills.

According to Ertem (2010), data collection was composed through the use of three different medias which included; digital texts with animations, digital texts without animations and traditional texts. According to Ertem, 77 fourth grade students participated in the study encompassing five different primary schools lasting for a period of 8 weeks. According to Ertem, reading chosen for this study was deemed appropriate for all participants involved. Each child

only read the book in one form and students using the electronic form received instruction on how to navigate through the text. In order to gather data on student comprehension students were asked to retell what was read. Ertem suggests that "Comprehension is truly reflected by storytelling, and the use of retellings provides readers with an opportunity to transform the story into their own words and also to share their individual understanding of text" (p. 148). According to Ertem, student comprehension was scored through the use of Morrow's 10-point scale by both the research and a specialist to ensure that results were correct.

Through the comparison and analysis of student comprehension using all three medias, effects of digital texts on student comprehension was visible. According to Ertem (2010), data shows there was a significant increase in reading compression when students engaged in digital texts which incorporated animations. Digital texts that didn't incorporate animations were reported being the second highest scores in comprehension whereas traditional texts had the lowest scores within reading compression. Therefore, the data collected "found that electronic storybooks can improve and support reading comprehension of struggling readers" (p. 150). Digital texts incorporate features such as animations and reading options resulting in improved reading comprehension skills for struggling readers. According to Ertem, through the analysis of student retellings, animations within digital texts resulted in the ability to understand the underlying theme of the text, plot and solutions within the story better than traditional text illustrations. Students using electronic texts showed signs of higher level thinking and reached a more advanced level of comprehension. However, according to Ertem, there was no data to support any kind of effect on student motivation while reading either a digital or traditional text.

Comprehension and motivation are two common components measured in Ciampa's (2012), Grimshaw, Dungworth and McKnight's (2007), and Ertem's (2010) research. Through

all studies technology has had an overall positive effect on reading comprehension and motivation. Ciampa's study suggests digital texts instill intrinsic motivation for all readers specifically struggling readers and both Grimshaw et al. and Ertems study suggest comprehension is positively affected when using twenty-first century literacies.

Digital Natives

Students are entering into the education system as digital natives. Students are constantly engaging with technology on a daily basis. This section will explore two studies which discuss the effects technology may have on literacy skills when a student is considered to be a digital native. Specifically Judson's (2010) research focuses on digitally native students and how their background knowledge with technology may or may not help them in all domains of education such as mathematics, reading, and ELA. The second study completed by Turner (2011) explores literacy skills students acquired through the use of Information and communication technology (ICT).

According to Judson (2010) students are digital natives; they are growing up surrounded by a world that runs on technology. Although our students may be proficient in computer navigation, video games, cell phone usage etc. this does not mean they are technologically literate in a deeper sense. Judson suggests that digital literacy should be measured based upon the experiences that students have with technology specifically focusing on the manipulation of technology to "yield meaningful information" (p. 272). However, according to Judson, there has been a substantial amount of research around the effects of technology on student achievement.

According to Judson (2010), research data was driven on two main forms of data collection which included the TechLiteracy Assessment as well as the TerraNova Assessment.

According to Judson, the TechLiteracy Assessment evaluated student's literacy ability through the use of technology. This assessment was administered to a group of fifth and eighth-grade students. The TechLiteracy Assessment incorporated a mixture of knowledge based questions as well as performance based interactive questions. This assessment did not measure any attitudes towards technology therefore not measuring student motivation to use technology. According to Judson, the TerraNova Assessment is a "standardized norm-reference achievement test" (p. 276). The TerraNova Assessment was administered to students once in the fall and then again in the spring and assessed comprehension of both fiction and non-fiction texts as well as conventions of writing.

According to Judson (2010) through the analysis of both the TerraNova Assessment and TechLiteracy Assessment technology showed no significant gains in student literacy skills as well as all other subjects. According to Judson, "Although computers and related technology can be used to support all school subjects, students today use computers in schools more for word processing than any other function" (p.281). Therefore, Judson suggests that word processing function is inhibiting student ability to advance literacy skills. As students focus on word processing a small gain in writing conventions has been reported. However, there has been no significant reading improvement reported. Although Judson states technology had no significant gains in literacy skills, Turner (2011) suggests that because students were digitally native, literacies skills improved.

According to Turner (2011) "New literacies build on traditional elements of literacy, such as phonics, comprehension, and writing, but require new skills, strategies, and dispositions to navigate through complex semiotic systems and critically evaluate, synthesize, produce, and distribute new knowledge in a timely way using emergent technologies" (p. 613). According to

Turner, technology has been expanding both in and outside of the classroom. With a shift in technology new forms of literacy are emerging. According to Turner, students are engaging in Information and communication technology (ICT) which has the potential to further student literacy skills; however, teachers are not incorporating ICT's into instruction but instead are viewing them as recreational.

According to Turner (2011), data collection was composed of 4 different modes which included observations, interviews, videotaping, and surveys. Research was gathered from thirty middle school students living in an urban community. Participants ranged in literacy ability; however, all students were performing below grade level. According to Turner, a pre-survey was utilized to determine student motivation when using technology as well as their competencies with technology navigation. According to Turner, there was a concern in student ability to critically analyze digital literacies. Over the course of one year observations took place in the classroom specifically focusing on how students were engaging in ICT literacies and if their literacy skills improved over time. Within this time period the student's culture was structured into digital literacies. Students were asked to reproduce media writing pieces using their cultures as a foundation to their writing. According to Turner, students were also videotaped so analysis of teaching practices and student motivation could be brought to a deeper level. Towards the end of the study, students were interviewed along with teachers to gather data on student literacy improvement. According to Turner, at the end of the study students completed a post survey where they answered questions based on personal self assessment specifically within literacy and technology skills. Through the analysis of the collected data, the effects of ICT literacies were determined on students literacy skills within reading and writing.

Through the analysis of all data collection methods the effects of ICT literacies surfaced. According to Turner (2011), students were able to exemplify higher levels of critical thinking, reflect deeper, and an increased motivation to read and write using digital literacies was observed. The research showed through the incorporation of the student's culture and interests within lessons, students were able to achieve higher within reading and writing as well as deepen critical thinking skills. Students were observed to reflect more through the use of digital literacies and make more text to self connections. Turner suggests that "media other than traditional reading and writing can be used to further students' ability to interpret and produce texts" (p.621). However, Judson (2010) suggests that through the utilization of digital literacies no significant gains in literacy skills are supported.

As students are entering into the education system they are coming equipped with background knowledge on how to use technology. Students are constantly surrounded by technology providing them with a new skill set. Judson (2010) concludes that although students were digitally native, no reports of improved literacy skills were observed. However Turner (2011), suggests that students who used ICT's were observed to show improved literacy skills.

Teacher conceptions are important

Our world is ever changing and is now incorporating technology into classroom instruction. As school districts begin to require technology in the classroom teachers are challenged with not only their personal conceptions of technology but their understanding of how to navigate through technology. In this section I will discuss Rosaen and Terpstra's (2012) study which focused on new teaching practices to integrate digital literacies during instruction as well as focusing on the teacher's evolving conceptions of literacy.

Through the use of digital literacies, classroom teachers are finding themselves challenging their personal perceptions of literacy instruction. According to Rosaen and Terpstra (2012), our culture is based on technology. Rosaen and Terpstra suggest that, "New developments in a world rich with Web 2.0 social environments such as blogs, facebook and new technological advancements such as iPods, smart phones, and SmartBoards invite new approaches to teaching literacy in today's K-12 schools" (p.35). Rosaen and Terpstra state, the shift in technology within schools should result in a change in teaching practices to help further student literacy skills both in digital and traditional texts.

According to Rosaen and Terpstra (2012), data was collected using three different methods including; blogging, written work as well as collecting lesson plans which incorporated new literacies to teach reading and writing. Research data was collected from fifty-one teachers who were all younger than thirty years old with the exception of two. Teachers were asked to construct weekly blogs to discuss any reactions that took place during digital literacies, classroom experiences and course projects. According to Rosaen and Terpstra, written work was analyzed to provide data on evolving personal beliefs of digital literacies. To expand the data on the teacher's evolving conceptions of digital literacies lesson plans created by the teachers were collected. According to Rosaen and Terpstra, through the collection of the lesson plans a broad view of teacher understanding and evolving conceptions of digital literacy implementation was concluded. Through the comparison of all modes of data, results on teacher changing perceptions of digital literacies and implementation was concluded.

Through the analysis of teacher blogs, written work and lesson plans, teacher conceptions of literacy were determined. According to Rosaen and Terpstra (2012), Teacher conceptions of literacy were expanded from traditional texts to digital literacies as well as how to implement

digital literacies in their classroom. Rosaen and Terpstra suggests that exposing teachers to a variety of lessons and ways to implement them within literacy instruction, teacher's ability to implement digital literacies as well as comfort level with digital literacies increased. However, Judson (2010) suggests that teachers are not receiving proper instruction to effectively implement digital literacies into instruction to promote higher level thinking as well as reading and writing skills.

Context

Participant

I worked with a student, Katie (all names are pseudonym), who was enrolled in the Literacy summer program through SUNY Brockport a college in Western New York. As a graduate student in the program, I was assigned a student to work with. This student was entering third grade. Katie has several interests which include but are not limited to; swimming, camping, riding 4-wheelers, playing in the woods and boating. She lives with her older sister who she enjoys doing those activities with. Katie is a helpful child who finds joy in helping the people around her with almost any task.

According to Fountas and Pinnell (2010) assessments as well as an unassisted writing sample, this student was reading and writing at a first grade level. Although she is several years below grade level her mother states that over the past 12 weeks prior to the study, Katie has shown improvement in her reading and writing skills. Katie struggles with tracking which is the ability to move the eyes left to right and not skip lines while reading. To help correct this problem Katie is enrolled in Vision Therapy which she feels is helping her improve her reading skills.

Katie works best working with an adult one to one in a safe, comfortable environment. She tends to have low self esteem when it comes to reading aloud in front of peers and adults who she believes may judge her reading skills. This is evident in her ability to shy away from group interactions when reading aloud is expected. Katie is very aware of her reading challenges and the level of books her peers are reading and is embarrassed about her deficiencies in reading. Due to these insecurities Katie has built up a negative stereotype around reading and writing.

When reading a book aloud she becomes frustrated when she begins to make several errors in her reading. Katie uses her background knowledge and the illustrations in the book to help her read and decode words. Although Katie is actively using a decoding strategy she sometimes resorts to her advanced background knowledge skills to make up the story instead of reading the words on the page. Katie reads at home to her dolls multiple times a week; however, this reading is mostly pretend reading where she makes up the story based upon the illustrations. Katie understands the importance of reading and is motivated to become a better reader. This is evident in her attempt to constantly gain new information through books; however, most of the books are out of her reading level and need to be read to her.

Setting

This study took place on campus at SUNY Brockport, a Western New York State College. As a graduate student I completed my research during my literacy internship where I worked with a struggling reader and writer. This course required me to incorporate reading, writing and word study into my daily plans.

Positionality of the researcher

I have completed my bachelor's degree in Childhood Education with a concentration in Social studies grades 1-6. During my undergraduate degree I completed both student teaching

placements in an urban setting where I taught both in a general education and bilingual classroom. Within both of these placements I worked with students to strengthen their reading and writing skills. Since then I have been consistently subbing in several school districts within my local area. From this experience I have had the opportunity to work with a diverse group of students in several different subject areas. For the past year I have been working towards my master's degree at SUNY Brockport in Literacy B-12. I am a firm believer that literacy is the foundation of education; as children we learn to read, as adults we read to learn. I am determined to provide every student with a rich foundation of literacy skills that will only further and enhance their reading and writing experiences both in and out of school.

Methods of data collection

This study encompassed a variety of data collection techniques which helped me gather data to investigate the research questions present in this study. I gathered information through interviews, retellings, running records and observations.

Observations

The observations took place Monday through Thursday for an hour and a half in the morning for a total of 5 weeks. These observations encompassed several areas of focus to explore the effects of technology (Appendix A). I collected data specifically looking at how the student engaged with technology while she was reading and writing. This helped determine her motivation to read and write while using digital literacies. I also used observation to gather data on student comprehension and her thought process behind her comprehension. I observed how she organized her thoughts within her writing and during conversation in both a formal and informal setting.

Interview

An interview (Appendix B) took place in the beginning of the study. This was meant to provide me with a solid baseline of prior knowledge regarding technology usage both in and outside of an academic setting. During this interview I asked the student to describe how often she used technology on a daily basis. I then explored the types of technology she used in her everyday life. I also investigated the purpose for the student to be using the forms of technology she list.

Retellings

After the student read a text, the student was asked to provide a summary incorporating as much detail as possible. These Retellings were used to determine student comprehension. Retellings took place several times throughout this study. The first retelling occurred in the beginning of the study using a tradition text. This data provided a comprehension level baseline when using a traditional text. All other retellings throughout the study were through the use of digital and audio texts. This allowed me to view student progress in comprehension while using digital literacies. At the end of the study I compared all retellings to determine the effects of technology on student comprehension.

Procedures of Study

This study was conducted over a period of five weeks, during July and August of 2014. It took place four days a week for approximately an hour and a half during a summer internship located at SUNY Brockport.

On our first day I met the student and learned her background knowledge with literacy and technology as well as her motivation to read and write. I used an interview to explore her

prior knowledge and motivation with technology (Appendix B). This interview informed my

study with a strong baseline of her views on technology and literacy.

During one of our first few meetings I assessed the students reading and writing through

the use of Fountas and Pinnell assessments as well as an unassisted writing sample. Once I knew

her independent reading level I took a baseline of her reading comprehension through the use of

a traditional book within her independent reading level. The book chosen for this baseline was

one that the child had never read before ensuring the level of comprehension is accurate and

authentic. I assessed comprehension levels through a retelling between the student and myself;

questions were asked to gather data on her comprehension (Appendix C). To assess student

comprehension using digital literacies I conducted the same retelling question used with the

traditional book retelling (Appendic C). Using a traditional book as a baseline allowed me to

compare her comprehension levels with traditional texts and her comprehension levels with

digital literacies. These interviews occurred twice a week. All interviews were compared and

analyzed to gather data on student comprehension with digital literacies.

To gather data on the effects that technology has on student writing, participants used the

computer to formulate responses to her reading through the use of speech to text software. Her

writing reflected her comprehension of what was read. During this activity there were no

prompts other than the direction to write about what the student read. The student completed

retellings on the computer twice a week. No prompts were provided; the lack of prompts allows

me to determine the student's organizational skills when writing on the computer as well as her

ability to incorporate detail from the text. All writing samples were compared and analyzed to

determine the effects that technology had on student writing.

During our five weeks together, the student engaged in digital literacies. As the student actively participated and engaged with digital literacies, I observed the student specifically observing her motivation, comprehension, writing skills and technology skills (Appendix A). These observations took place every day to ensure that data collection was accurate and all actions were recorded to the best of my ability. Conducting these observations informed my study with the levels of motivation that the student had towards literacy as well as comprehension levels, writing skills and technology skills. These observations were compared to previous observations and then analyzed to determine if there were any effects on student motivation and comprehension levels due to digital literacies.

Trustworthiness

To ensure this study was as accurate as possible I incorporated tools, listed above, over a period of several weeks to assess student literacy skills. I compared and analyzed the results from my observations, running records and retellings. Observations took place every meeting where I took notes ensuring I didn't forget any important details of what the child did or said.

As I completed my research I used guidelines of Discourse analysis through conversation supported by Florio-Ruane and Morrell (2011). I looked at all forms of conversation including body and verbal language when using both traditional and non-traditional texts. This data was then cross-analyzed to support a credible conclusion.

Analysis

For centuries, literacy has been taught through the use of traditional strategies which include paper, pencil and tangible books. This traditional way of teaching has been deemed efficient and effective. However, as we enter into the twenty-first century, technology has been prevalent in most schools. In today's society students entering into the education system are assumed to be

digital natives who are proficient users of technology. Through this research, I found that when

unfamiliar technology was used literacy skills showed no significant improvement. I also found

that when used simultaneously, traditional and twenty-first century strategies led to higher

literacy skills. I also learned that other factors may improve literacy skills for struggling students.

I found when a student has positive parental influences their literacy skills may improve.

Katie as a Digital Native

I found that Katie is proficient at using the computer and an I-pad which provided extra

support for her reading and writing skills. As I got to know Katie and her experience using

technology I uncovered that she uses technology on a daily basis for many different purposes; to

help support her reading and writing deficiencies and she enjoys it. She engages with several

different devices which included I-pads, computers, Nintendo DS, cell phone, and televisions. As

I explored the purpose of technology in Katie's life I was shocked. I was expecting to hear she

used different forms of technology for enjoyment or entertainment only but what I discovered

was the exact opposite. She uses texting on her mother's phone to improve spelling skills and

practice using the keyboard. Katie uses her DS to practice reading through the use of an

application called, pickle chat, which she plays with her sister to practice writing skills. Finally I

learned that the computer is utilized at both home and school. A net book is provided to Katie at

school and she is expected to write and read using the net book. Katie uses the computer at home

for both enjoyment and educational reasons. I became very interested in the reasons she seemed

to enjoy reading on the computer rather than using traditional texts. According to Katie, it is

easier for her to follow along because the words are highlighted when they are being read aloud

to her. She also states she likes how she can sometimes click on the pictures which give her more

information about the text furthering her comprehension. She reads e-books as well as writes on

the computer. I learned that Katie uses software called speech to text both at home and in school to support her writing skills. She has become familiar with this software utilizing it when writing and searching in Google. She tends to use speech to text to speed up the process due to the fact she struggles to decode words when writing. Katie thrives in reading and writing when she is able to use the different features available through the use of technology. This not only is increasing her motivation but her skills as well. As I used different forms of technology with Katie I realized her abilities in reading and writing improved. Her expertise with technology provided Katie with the skills necessary to utilize the e-books to their fullest potential. Due to the fact Katie is a digital native; her skills using technology helped further her reading and writing skills.

Through my analysis I was able to conclude that Katie's reading and writing performance showed improvement when technology was used. Technology was a proper way to support Katie in her reading and writing deficiencies due to her extensive background knowledge using technology. I found that when I used technology Katie was not familiar with, her skills showed no significant improvement. Her frustration level increased and her motivation to continue using the program decreased. Katie's frustration was exceptionally prominent when observing her type on the computer. I was surprised to see that Katie's typing skills were not proficient due to the amount of technology Katie has been exposed to. Her typing skills are very low therefore causing a high frustration level when typing. She is unable to find the keys fast enough which results in a lack of sentence fluency.

Both traditional and twenty-first century strategies led to higher literacy skills

Traditional practices

Reading

Katie has a strong motivation to read but shows some hesitation towards reading when in school. Her reading is not at grade level,making her very self-conscious when reading in front of peers or adults she doesn't feel comfortable around. This negative feeling has caused a Katie to dislike reading in the school setting.

I found that when Katie reads a traditional book she isn't highly engaged and finds it easier to give up when she becomes frustrated with the text. Although Katie's frustration level increases at a higher rate when reading a traditional book her motivation to read is still very high. I found that Katie went through phases when reading a traditional book at her instructional level. The first phase observed was excitement. Her motivation to read the text was very high and she always seemed to be interested in the text. As she began every traditional text her confidence was high and she always started reading utilizing all the decoding skills that she had mastered. The second phase I saw a drastic change in Katie's motivation and ability to utilize her decoding skills. . She became too confident in her reading and began to make errors. Katie's errors changed the meaning of the text which made comprehension difficult. As she continued to read and make errors she began to become very frustrated which resulted in more errors. She began to yawn as a coping mechanism to try and hide that she didn't know a word and would rub her eyes as if she were tired. Her motivation turned into frustration which caused Katie to build a negative stereotype around reading. The final stage she encountered was discouragement. She became frustrated with the text which led her to begin looking at the illustrations to make up the story.

As I watched her read a traditional text I noticed that Katie was trying to use the illustrations to help decode words that were challenging. She was lacking in her ability to use

Meaning and Syntax when decoding challenging words. I began to think why she was putting these two very important skills to the side and what I uncovered was very interesting. She struggles to track while reading which is causing a negative effect on her ability to see parts of words. As she begins to stumble on words she becomes frustrated and begins to make up the words based upon the first letter. Katie's reading then becomes unclear which decreases her comprehension and motivation to continue to read. A traditional text doesn't provide Katie was positive stimulating features which Katie can utilize to help support her decoding skills resulting in a negative experience while reading traditional books.

Writing

I found that when Katie was interested in her writing she goes far beyond the expectations of a second-grade student. She brought a wealth of background knowledge into her writing and her sentences were well formed that included higher level vocabulary. Although she brought a wealth of background knowledge into her writing I found that Katie struggled with getting all her ideas down on paper. During our conversations before the writing process I found that Katie had several ideas that she could possibly include in her writing. These ideas surpassed that of an average second grader. When Katie was asked to write using traditional practices she struggled to write the details she spoke about. I found that this was due to that fact she was a very slow writer and struggled with spelling sight words. As she struggled to write her ideas down on paper she seemed to want to stop writing after she wrote a few sentences. I determined that Katie was lacking the ability to chunk and stretch out words while writing challenging words. Although she struggled with writing I found that Katie doesn't show much frustration while writing using traditional practices. While Katie wrote I was always sitting next to her. I feel as though this relieved all of Katie's frustration she otherwise would have encountered while

writing independently. Since I was sitting next to her, she spoke as she wrote each sentence so I would be able to understand her writing. Although she had several spelling errors she was confident in her writing. When she finished writing I always asked her to re-read her writing out loud. She had many spelling errors which restricted her from re-reading her writing piece. This is when she became frustrated. When she was asked to re-read her entire writing piece she began to realize the words on the paper were not what they were supposed to be. As she became frustrated reading her writing she began to make-up sentences based upon what she knew was on her paper.

Twenty First Century Literacies

Speech to Text and Word Document

Through my analysis of her unassisted writing sample using traditional practices I found that Katie has a wealth of knowledge to bring to her writing but struggles to write her ideas down on paper. Due to her struggles with spelling I found when Katie was asked to type her responses she became frustrated quickly. She struggled to find the keys fast enough, resulting in the same challenge she encountered when using traditional practices. To allow Katie's strengths to shine through in her writing she used a computer software called speech to text. This software allowed Katie to speak into the computer as if she were writing a sentence and the computer would generate the sentence into Microsoft Word. This software allowed Katie to get all her ideas down on paper quickly. This program allowed Katie to formulate writing pieces that exemplified Katie's true understanding of the content. As we used this software I noticed Katie was motivated to write. She showed no signs of frustration when writing and showed an improvement in formatting of her writing. Her writing began to incorporate paragraphs and voice

into her writing. This was evident in her ability to show personality, incorporate personal connections and feelings in her writing.

Although there was an improvement in her writing, she wasn't spelling the words herself. To practice spelling words I incorporated word study into our daily routine. I used Word document within Gmail to motivate Katie to Practice her words. She typed the word and then wrote it in a sentence. This allowed Katie to practice writing the word twice as well as using the keyboard. To make word study engaging she found a picture within Google images to go along with the sentence she wrote. To put emphasis on the word she was practicing, she bolded it and then underlined the specific diagraph we were working on for that week. She kept this list and printed them out to have and refer to while writing. I noticed that Katie loved going online to practice her words specifically when searching for images to reflect her sentence. Because it was online she was able to practice word study at home. I was able to see her work she completed at home through the online database providing her with extra practice when she completed what was already assigned to her. Her skills and motivation within writing improved drastically when using speech to text and Word document within Google docs.

E-books

As I used Traditional books with Katie I noticed she wasn't stimulated enough. Therefore I chose to use electronic books with Katie to learn if the electronic reading process would be more engaging for this reader. The texts chosen were at her instructional reading level. Within each book chosen, Katie was offered a variety of different features to help engage her in the text. The first feature Katie used was clicking on a picture to provide a caption providing Katie with a deeper understanding of the picture. We also used the highlighting feature which highlighted

challenging words for the reading level chosen. As Katie was reading I noticed she was using

both features simultaneously to help her read which improved her comprehension of the text.

When she came across a word that was challenging she didn't show as much frustration as she

did while reading traditional texts. She was able to click on the word and have it broken up into

chunks. The computer then provided an audio recording of the word so Katie was able to hear

and see the word. Due to the fact Katie was given both visual and auditory examples of the

challenging word, she didn't stumble on that word again throughout the entire text. As Katie

continued to use e-books and listen to the readings I found that she became excited to read and

engage with the electronic text. Her confidence when reading a book increased dramatically and

she was asking if she could show her mother how well she could read.

Three Step Strategy

Although I found technology to improve Katie's reading and writing skills, a three step

strategy worked best. This strategy utilized a traditional book as well as an audio recording of the

book. The first step Katie listened to an audio recording of the text. To help with tracking, Katie

used her finger to follow the reader while listening to an audio recording of the book. Doing this

allowed Katie to become familiar with the text and train her eyes and finger to follow the audio

recording word by word. As Katie followed along with her finger as the audio recording played a

piece of paper was being utilized to cover up the lines below the sentence being read. I realized

this allowed Katie to focus on each word and reduced the amount of frustration when reading.

After Katie listened to a page the audio recording was stopped. I then began step two. I re-read

the section that was listened to on the audio recording. During this step I aimed to read slower so

Katie was able to follow along using her finger exemplifying her ability to see chunks within

words. Within this step I emphasized the different chunks within words allowing Katie to

visually see the beginning middle and ending of words. The third step Katie read the section that was just worked on. Katie showed most progress when she was using both traditional and twenty-first century literacies. One of Katie's struggles is tracking while she reads which is the ability to read left to right. I found the e-books were visually allowing her to see where the reader was reading but it wasn't strengthening her tracking skills. The e-book wasn't allowing her to move slow enough to see the chunks of words. Through this deficiency with the technology being used I incorporated a traditional book to help improve her tracking skills. Using both technology and traditional practices allowed Katie to take her reading to the next level. Her tracking skills improved and Katie was being exposed to instructional texts. Her frustration level was low and her success motivated her to continue reading. She used the three step strategy voluntarily at home with her mother and/or father. From my observations Katie felt as though she was making progress in her reading and writing. Some might question this strategy saying the child is simply memorizing the words on the page which results with an increased reading ability. I must say, I was very skeptical of the effectiveness. However, I found that the repetitive nature of the three step strategy is what brought Katie's reading to the next level. She was strengthening not only her tracking skills but her decoding skills as well. Katie has an outstanding ability to remember a text she has listened to. She is able to take the vocabulary she saw and heard and recognize it in the text when she tries to read the text herself. When she is able to do this she is allowed to focus more on breaking the words into chunks recognizing the beginning, middle and endings of the word. As Katie used this strategy I noticed she would recognize the same challenging words in a different text weeks later. I also noticed when Katie encountered a new challenging word she was recognizing chunks of words that were previously worked on weeks before. The Three step strategy which utilized both traditional and twenty first

century practices improved Katie's reading skills as well as provided her with a feeling of success which resulted in a higher motivation to read.

Additional factors that affect reading and writing

Parental influence

Literacy skills begin at home. Students are exposed to language, books, newspapers, subtitles on the television and so much more at an early age. The level of engagement with literacy is different based upon the student's home environment.

After interviewing the mother I discovered she is a full time special education teacher in the local area. Due to her profession I was able to gather specific data on Katie's literacy skills that otherwise would not have been provided. From this interview I determined both parents are very involved in Katie's education. Katie is constantly immersed in literacy on a daily basis and is encouraged to read and write for enjoyment. Although Katie struggles with writing, it doesn't stop her from practicing her skills at home. Her parents have created a safe environment for Katie to practice her reading and writing. Her mother has a passion for helping her daughter improve her reading and writing skills and is educated in the field of education allowing her to provide Katie with extra support that wouldn't necessarily be available to the average child. Although Katie's home life allows her to feel comfortable while practicing her reading and writing skills I believe her home life had a direct correlation on her reading and writing improving with the technology being used during this study. The mother was constantly involved and asked severally questions requesting ideas on how she could help improved her daughter's skills at home. Due to this request Katie was receiving extra support at home using the strategies

we worked on during our time together. Having the support from her parents and the technology readily available at her home only helped improve her reading and writing skills.

Conclusion and Implications

Conclusion

The primary goal of this study was to answer the research questions 1) What effects do digital literacies have on a struggling reader and writer as well as their motivation to read and write? 2) What additional factors influence this student's reading and writing?

Through the completion of my analysis I can conclude that technology may be effective for struggling readers and writers who are considered to be digital natives. Students who are familiar with different types of technology come equipped with the skills to navigate through different programs providing them with an easier transition when using the technology in an educational setting. Students who have the foundation of how to use e-books and computers may have a slight advantage for they can utilize the program to their fullest potential. Judson (2010) can support this finding that in today's society our students are becoming digital natives.

I can also conclude when teaching reading and writing to struggling students the use of both traditional and twenty-first century strategies together may be an effective strategy to improve literacy skills. As students enter into the classroom they come with a variety of different needs to improve their reading and writing skills. With these differences it is also important to mention all students learn differently. Although technology can help improve reading and writing the best way to improve a struggling reader and writers skills may be through the use of both traditional and non-traditional practices. Through my research I found technology cannot

completely take over the traditional way of reading and writing. In order to use technology to the fullest potential students must have the basic skills of reading and writing that only a traditional practices can provide them with. Turner (2011) had a similar finding stating that new twenty-first century literacies combined with traditional literacies takes a student's literacies skills to the next level.

I found technology may have a positive effect on a struggling reader and writer's motivation to read and write. Through the use of e-books and text to speech students are highly engaged in the reading and writing process. As students become more engaged in the reading and writing process extra distractions become less prominent allowing the student to focus in on improving the skill they are working on. This study found when students feel as though they are improving they become intrinsically motivated to practice the skill voluntarily outside of the educational setting. A study conducted by Ciampa (2012) supports this finding through a study which was conducted using e-book resulting in higher motivation to read and write when students read using e-books.

Through my research I was also able to conclude positive parental involvement may have a direct correlation on a student's improvement with reading and writing skills. This study reflects an increase in motivation and student literacy skills when the parents were involved. It is common that a struggling student will only practice skills when in an educational setting due to the extra support and encouragement from the teacher. However, this study resulted in increased practice at home when the parent was positively involved in the students reading and writing progress. Positive parental involvement has the potential to provide the student with extra support at home when practicing literacy skills. It is also important to mention that this study revealed when parents are knowledgeable about the strategies used in the educational setting a

continuation of the practice is brought into the home. As students experience positive reading and writing situations in the home their literacy skills may improve.

Implications

The case study with Katie revealed that technology alongside traditional practices may have positive effects on a struggling reader and writer. Using the results from this study there are a few implications that can be suggested for curricular practices.

As a teacher and researcher it is important to note, not all teachers are digital natives. From my personal experience I have noticed the younger generation of teachers are entering into the profession as digital natives; however, the older generation seems to struggle with technology. As we have entered into the twenty-first century students are entering into our classrooms with a higher level of knowledge on the usages of technology than ever before. According to Judson (2010) teachers are not receiving proper instruction to implement twenty first century literacies into instruction. Using the results from Judson's study as well as my study I can suggest teachers should consider professional development providing them with the knowledge and skills set to best implement technology into instruction. Thousands of programs and applications can help students improve their reading and writing skills. As teachers begin to use these forms of technology in their classroom it is important they are using the technology effectively. To do so teachers should consider becoming trained in the chosen technology program to ensure the chosen technology is effectively implemented into instruction.

Through the conclusions of this study I can also suggest teachers should offer a balanced approach to a struggling reader's intervention by using traditional and technological resources in order to teach effectively. It is important to note although this study found technology to increase

student literacy progress, the most improvement was through the use of a combination of

traditional and nontraditional practices. As teachers implement different strategies during

intervention combining both strategies may lead to higher levels of progress with struggling

readers and writers. This is supported in Turner's (2011) study where he states technology is

used as a tool to further student education. Both Turner's and my study provide evidence which

support the use of both technology and traditional simultaneously when teaching literacy skills.

When teaching students, especially struggling students, it is important to understand how

each and every child learns best which is supported by Gardner's theory of Multiple Intelligences

(Temiz and Kiraz, 2007). The results from this study can help suggest that teachers should find

out what motivates each individual struggling reader and teach towards that as a way to improve

their literacy skills. I found when the student was motivated to read and write her skills

improved. Using technology may have a positive effect on student motivation to read and write.

Ciampa's (2012) study supports this finding by suggesting that technology has a positive effect

on struggling readers. As a struggling student becomes motivated, voluntary practice outside of

the educational setting may take place resulting in improved literacy skills.

There are several factors that need to be considered when trying to improve struggling

student's literacy skills. This specific study found that positive parental influences resulted in

improved reading and writing skills both in school and at home. From this conclusion I can

suggest that teachers should provide opportunities to allow positive parental involvement with

their child's learning. Keeping a log of documented interactions with the parent can ensure that

teachers are encouraging parental involvement in the student's education.

Limitations and Future Research

Through this study several limitations that must be considered reviewing the results. This research was conducted with one struggling reader and writer therefore the results of this study reflect the effective practices of one struggling reader and writer. It is also important to note that technology may encounter problems when the student is using it. this study had several occasions when the chosen technology was not connecting to the internet or would skip during the audio recordings. This delayed the research and had to be postponed until the technology was working. Another factor that must be considered when incorporating technology into instruction is making sure the students have access to the program or application outside of the home. Some students may not have computers in the home therefore making extra practice at home difficult. Finally the above results are based on a student who is considered a digital native. Although we are in the twenty-first century, not all of the students are digital natives therefore requiring an increased level of teacher guidance when using technology to help improve literacy skills

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Appendix A

During my **<u>Observations</u>** I will be looking for the following as well as any other notable

observations;

1. Student motivation with digital reading

2. Student motivation with digital writing

3. Student comprehension skills

4. Students' skill with technology

Appendix B

Questions that may be asked during the **<u>interview</u>** with the child to determine prior knowledge

and motivation with technology include:

1. How often do you use technology in a day, both in and out of school?

2. What type of technology do you use?

3. How do you use technology in your daily life?

Appendix C

Questions that may be asked during the **<u>retelling</u>** of their reading may include but are not limited

to the following:

1. Tell me the important details about what you read.

2. What is the theme of the reading?

3. What can you infer from your reading?