INTERACTIVE WHITEBOARD TECHNOLOGY AND READING INSTRUCTION

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ABSTRACT

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Reading instruction has continued to change throughout the years as researchers and educators seek to find the most effective way to teach students the skills and practices needed to become successful readers. Most teachers use the basal reading series as the primary focus for language arts lessons. Basals are commonly used to introduce a variety of text genres and skills. However, basals are simply one component of reading instruction and students today need diverse exposure to a variety of resources.

The use of technology in the classroom is becoming a necessary component in the way students retrieve information and extend their knowledge. Interactive whiteboards are one of the newest tools that encompass a variety of applications including the Internet. They can be used to teach reading through interactions with a common text, which provide opportunities for whole-group instruction. However, research concerning the use of this technology during reading instruction is a seemingly unexplored field.

This research study was designed to gain a greater understanding of how the interactive whiteboard can be used during reading instruction. Select third grade teachers were interviewed and observed to gather evidence on the impact that interactive whiteboards have during the teaching of reading. Once data were collected and analyzed it was reported that interactive whiteboards can be used for a variety of reading instructional practices. Overall, there was a positive attitude toward the use of this innovative teaching tool.

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CHAPTER I. INTRODUCTION

Both reading instruction and technology have drastically evolved over time. Basal readers became widely popular in 1840 with the McGuffey series and began to change the makeup of reading instruction in the classroom (Spache & Spache, 1977). In the past there has been an emphasis on reading through stages that require children to master skills in a sequential order. However, today basals are more accommodating to educators because they offer professionals a common text that can be taught with all students. In addition, leveled readers through the basal series provided teachers with an outline that assisted students through differentiation, and although basals have their critics they are still extremely popular. According to Cloud-Silva and Sadoski (2001), "The basal reader is viewed as the predominant influence on reading instruction and constitutes the entire reading curriculum of many elementary classrooms" (p. 5). Basals provide teachers with resources and activities for guided instruction, which in turn takes the pressure off many educators to find appropriate materials for various reading levels.

Reading instruction, research behind evidence-based best practices, and teacher development have received an immense amount of national attention and government funding during the past few years (Reutzel & Mitchell, 2003). Teachers are held accountable through the No Child Left Behind Act, to ensure that every student is able to read by the end of grade three. The emphasis on students performing to their greatest potential has created an intense teaching environment for elementary school teachers. In fact, high stakes testing has become so important that some teachers fall into a habit of teaching to the test and leave little room for creative enrichment in the classroom (Gambrel, Malloy, & Mazzoni, 2007). Basals have allowed teachers to meet many requirements needed to prepare students for high stakes testing but professionals should not be reliant on this one resource to teach reading instruction.

As the value of reading instruction begins to increase, the demand to stay up to date with the use of classroom technology has become equally important. Looking back at the early 1990s, it was rare to find a computer in a classroom; therefore, technology assistance in education was very minimal (Wenglinsky, 2006). However, as technology began to flourish through the mid to late 1990s, computer labs became more common in schools, but students had limited access to them. Today, most students come to school with an exposure to technology in their home environment, which includes computers, computer gaming, DVDs and talking books (Painter, Whiting & Wolters, 2005). The progression in technology and its evolution both inside and outside the classroom has created new views on the importance of technology in education. The International Society for Technology in Education (ISTE) used the concept of "educational technology" to revise their standards for students in 2007. With educational technology, teachers not only familiarize themselves with new forms of media, but they also include their students in an environment that incorporates technology into student learned practices (Dugger & Naik, 2001; Hooper & Rieber, 1995). This means that students can interact with technology to explore new concepts and practice new skills.

With the overwhelming response to technology today, and the constant desire for teachers to provide the most influential and meaningful reading instruction practices, it is apparent that the two must work together simultaneously. Schools today are entering a new realm of technological advancements that seek to create an active and engaging learning environment. Traditional forms of reading instruction are leaning less toward skill and drill practice and more towards a technology enriched classroom that provides students with new ways to interact with text and create a purpose for reading (Coiro, 2003). Pianfetti (2001) explains, "Today, the definition of literacy has expanded from traditional notions of reading and

writing to include the ability to learn, comprehend, and interact with technology in a meaningful way" (p. 256).

Statement of Problem

Technology is becoming one of the most influential tools in classroom instruction today. Interactive whiteboards (IWBs) are part of this wave of technological supports that can be used to engage students in active learning. While there is an abundance of evidence that supports technology in the classroom, research will need to continually explore how it can be used effectively during reading instruction. The National Reading Panel (National Institute of Child Health and Human Development, 2000) stated in regards to technology and reading instruction that,

> Here again, credible experimental and qualitative research is lacking. This is understandable in light of the recent development of relevant technology and its application of reading instruction and student learning. Nevertheless, the Panel believes that this is an important and essentially unexplored field. (p. 20)

Since interactive whiteboards are fairly new technology for select classrooms, research studies on their effectiveness are limited (BECTA, 2003), making it difficult to determine whether or not these classroom novelties actually impact reading instruction in an elementary setting.

Research Question

This study sought to address the impact of interactive whiteboards on reading instruction. Since there is little evidence that supports IWB technology during reading instruction, it is essential to determine whether or not teachers find this instructional tool to be a worthwhile addition to the teaching of reading. The question to be examined is; "What are teachers'

perceptions of the impact of interactive whiteboards on reading instruction in a third grade classroom?"

Rationale

Using interactive whiteboards in the classroom should impact reading instruction. IWBs are commonly used to engage students in the learning process. Through active learning students, should receive the support needed to be successful readers. Students today are required to learn basic skills (phonics, fluency, comprehension, vocabulary) in conjunction with acquiring the ability to adequately read, write, speak, listen, view and demonstrate and understanding of concepts through visual representation (International Reading Association & National Councils of Teachers of English, 1996). All of these skills can be enhanced on the interactive whiteboard as teachers use these standards to prepare lessons, model ideas and provide a visual experience for their students.

Basal readers are still widely used today in schools across the United States (Gunning, 2008) and, for most teachers, have become a significant part of reading instruction in the classroom. Yet, because basals are only a part of effective reading instruction, it is important to use supplemental tools in the classroom. There have been links that support reading achievement and the use of technologies in the classroom through new literacy practices. According to Labbo, Love and Ryan (2007), "Any activity that may be accomplished on a computer screen may also be accomplished on a digital whiteboard" (p. 583). Interactive whiteboards are a culminating tool of new literacy ideas that involve the use of the Internet and electronic books as well as an abundance of other tools that can be used to find authentic literature and provide skills based practice with whole class instruction. Teachers who use interactive whiteboards during reading instruction are provided with a teaching tool that can be easily used to model ideas and engage

students during whole-group instruction. In turn, students should find themselves as active participants in a lesson that gives them a better understanding of principals and concepts taught during reading.

Definition of Terms

To gain a better understanding of the study, several terms will be defined in this section. Each term presented will give the reader a more in-depth view of the topic, which will essentially lay the foundation for the overall research design.

Basal readers: A set of textbooks that are grade appropriate to teach the necessary skills that develop during reading instruction. These texts include children's literature and specific skill oriented practices.

Balanced instruction: One instructional method does not overpower the importance of another. There is a balance between all reading practices that provide students with a learning experience that meets their intellectual needs. A balanced curriculum provides motivating literacy activities and "scaffolded instruction in phonemic awareness, phonics, vocabulary, fluency and comprehension" (Gambrel, Malloy, & Mazzoni, 2007, p. 19). Students use technology to extend knowledge and are given the opportunity to make meaningful connections between a variety of texts (Gambrel, Malloy, & Mazzoni).

Evidence-based best practices: "An evidence-based best practice refers to an instructional practice that has a record of success that is both trustworthy and valid" (Gambrel, Malloy, & Mazzoni, 2007, p. 13). Balanced instruction is an example of an evidence-based best practice because it is an evolving concept that has been researched extensively and is heavily supported in the literacy curriculum (Pearson, et. al., 2007).

Interactive whiteboards: "An interactive whiteboard (IWB) is a large touch-sensitive board which is connected to a digital projector and a computer. The projector displays the image from the computer screen on the board. The computer can then be controlled by touching the board, either directly or with a special pen" (BECTA, 2003, p. 1).

New literacies: "The new literacies include the skills, strategies, and insights necessary to successfully exploit the rapidly changing information and communication technologies that continuously emerge in our world" (Leu, 2002, p. 313). New literacies include the use of the Internet and other forms of media technology to locate, review, analyze and share information.

SMART board technology: a particular brand of interactive whiteboard that is most common in classroom settings. These boards are touch-sensitive, which allows the user to move his or her finger on the board in the same way a person would use a mouse on a computer.

Limitations

There are a few limitations to this study. First, the interview questions were based solely on teachers' perceptions of interactive whiteboard technology. This means that a code of honesty was essential to receive the most accurate views of IWBs. Experience with IWBs and teaching styles/preferences may have also influenced the teacher's perceptions. In addition, since each teacher was only observed for three days, it may not provide the most accurate depiction of how the IWB is used throughout the school year. Furthermore, since students were not able to be recorded in the observation data it did not fairly depict the entire lesson and the student involvement with the IWB. School delays, testing times and additional projects also limited the observational time for this study.

Since three teachers were observed and interviewed only a small sample of information was gathered. This research study is simply a glimpse into the instructional practices of three teachers and does not serve to represent the entire population of educators who use IWBs in their classroom.

CHAPTER II. REVIEW OF LITERATURE

This chapter will focus on the research gathered from several different sources to lay the foundation for the use of interactive whiteboard technology in reading instruction. The first section examines the history of reading instruction from 1840 until today. It places emphasis on the tremendous impact that basal readers have on the teaching of reading and discusses the advantages and disadvantages of these educational resources.

The theoretical framework of this research starts with section two. Here the reader will explore the more important issues and practices that shape reading instruction today. This section will focus on the national attention that reading instruction has received from the National Reading Panel and the International Reading Association. In addition, evidence-based best practices will be discussed to give an overview of balanced literacy and the skills that are essential for in increase in reading development. An understanding of how reading instruction has evolved will pave the way for the idea of implementing technology into the classroom to support effective reading practices.

Section three begins with an introduction of technology in the classroom, emphasizing reading instruction. This review will address the differences that technology can make on reading achievement and performance. In addition, the importance of "product technologies" and "idea technologies" will be addressed to support the ideal view of technology in education. The idea of using technology to support reading instruction systematically paves the way for new literacies in the classroom. Section four discusses the beginning of new literacies and looks at the benefits of incorporating the internet and electronic books into the language arts curriculum.

After reviewing the historical and theoretical frameworks that have impacted the views of reading instruction and the common uses of technology during reading, section five will begin to

uncover the basic functions of interactive whiteboards (IWB) and their use in the classroom. Finally, section six will examine how basal readers and IWBs can be used in uniform to effectively impact reading instruction.

History of Reading Instruction: Basal Readers

Reading instruction and views on how to teach reading differ from teacher to teacher. There is no one way that students can and should be taught basic reading skills. However, engaging students in the reading of common texts has been a centerpiece of curriculum since the early days of education in America. By the 1840s, the McGuffy series revolutionized reading instruction (Hoffman, McCarthey, Elliot, Bayles, Price Ferree, & Abbot, 2001; Spache & Spache, 1977) and thus was born what we have come to call basal readers.

Basal readers are a set of textbooks that have been developed for a series of grade levels. Basals are sequential, providing literature that can be used to teach specific skills in reading instruction. Their essential purpose is to guide teachers through reading practices while teaching the skills that children need to progress in reading (Shannon, 2001; Shannon & Crawford, 1997).

The entire basal series was very controlled in the 1920s and 1930s, restricting features such as workbooks, teaching guides and leveled tests. The traditional basals were based on skill development and focused little on actual literature (Hoffman, et. al., 2001). According to Martinez and Mcgee (2000), “In these textbooks, literature was moved out from the center of reading instruction to its very edge, only to be enjoyed when the real work of learning to read was completed” (p. 158). The basal mainly focused on vocabulary and sight words, with stories geared toward middle class suburban families.

In the 1960s and 1970s, it was still suggested that skills came first and then literature. Teachers were encouraged to use literature to read aloud to children but were also reminded that

these were simply literature materials and were different from those used to actually teach reading. Read alouds were used for enjoyment and basals were intended for instruction (Martinez & McGee, 2000). The basal reading series continued to adjust to criticism in the years to come as the publishers added manuals and workbooks to ensure a more popular skills-based curriculum in the 1980s, only to be adjusted again during the literature based movement of the 1990s (Hoffman, et al., 2001).

In the 1990s, children's literature and tradebooks were becoming more popular and basal publishers began to feel pressure to adapt to the change in society (Hoffman, et al., 2001). The call for literature-based reading instruction began with the Texas Education Agency's Proclamation 68 (1990). This act requested that Texas schools adopt programs that included quality children's literature (Hoffman, et al; Martinez & Mcgee, 2000). Basals soon began to transform to include authentic literature although they still contained "predictable features like repeated patterns, rhyme, and rhythm" (p. 160). Genuine children's stories replaced the traditional basals in hopes of creating a more engaging experience between reader and text. McCarthy and Hoffman (1995) discovered that "the new basals appeared to contain selections with more complex plots and more highly developed characters; the selections required more interpretation on the part of the reader then the old" (p. 73).

The traditional basal readers that focused primarily on mastering skills from 1920-1980 eventually developed into a more literature based program in the 1990s, which in turn abandoned some of the skills based instruction that was present in earlier editions (Hoffman, et al., 2001). Ultimately the basal became a series of leveled texts that included skills based instruction with support from authentic children's literature. According to Gunning (2008), "today's basals have

spelling, grammar, oral language, listening and vocabulary components" (p. 475). In addition, basals include leveled readers for differentiation as well as activity guides for active learning.

Today, basal readers continue to gain popularity in elementary classrooms, but not without criticism. Many critics still believe that basal readers are filled with meaningless text that lack authentic materials and creativity (Winograd, 2001). Students complete daily activities, and skills based assessments during a "hierarchal scope and sequence" (Shanon & Crawford, 1997) format. Teachers, therefore, are more concerned about moving to the next leveled book that they forget about the essence of teaching. In addition, since every goal and practice activity is already developed by the publisher, many believe this leaves little room for creativity (Shanon & Crawford).

On the other hand, however, researchers have found a connection between effective teaching and the use of basal readers in the classroom. Baumann and Heubach (1996) conducted a study that examined whether or not basal readers deskilled classroom teachers. They decided to survey elementary school teachers about their opinions on basal readers and how they use them in their classrooms. They sought to discover whether basal readers deskill teachers based on their responses. What they found was that "most teachers are discriminating consumers who view basal readers as just one instructional tool available to them as they plan literacy lessons" (p. 522). This view of using the basal reader as a teaching tool alongside other materials was also a common finding in a study by Cloud-Silva and Sodoski (2001). A sample of 500 Texas school teachers were surveyed in Cloud-Silva's and Sodoski's study which looked at teachers' attitudes toward the basal reader, how often they use the basal and their opinions on statewide adaptation policies. Cloud-Silva and Sodoski found that 98% of teachers believe in the validity of a basal reading series when aided with supplemental materials. The authors further examined that most

teachers use their basal readers on a daily basis with their class but still continue to develop their planning using both the basal and other sources.

Reading instruction through the use of basal readers has continued to evolve over the past several decades. Yet, basal readers have not been the only contribution towards reading instruction. Research suggests that educators "should feel free to use those sections that seem appropriate and to use the manual as a resources rather then a guide" (Gunning, 2008, p. 477). As the teachers in both studies mentioned, basal readers are only a piece of the reading curriculum. There are still other supplemental factors to be considered in the instruction of reading, which will be discussed in the next section.

A Broader View: Reading Instruction Today

The political attention surrounding reading instruction today has been overwhelming. High stakes testing and teacher accountability has placed reading instruction in the national spotlight within the last few years. For teachers to accommodate the needs of their students while aligning goals to state standards, best practices strategies have been reviewed to ensure that all learners succeed in the classroom (Gunning, 2008).

The National Reading Panel (National Institute of Child Health and Human Development, 2000) has placed emphasis on reading instruction, arguing that it should involve: phonological awareness, phonics, fluency, vocabulary and comprehension. Most of these skills can be taught using the basal reader, which is the primary source of reading instruction. Yet, it is important that teachers also address other literacy skills beyond reading, including writing, listening, speaking, viewing and visual representation (International Reading Association & National Councils of Teachers of English, 1996). The combination of these practices is used to

extend knowledge beyond just reading and writing to support interactivity during reading instruction.

Teachers need to integrate these "six language arts" into a curriculum which allows students to communicate and interact with their peers and teachers on a more meaningful level. This can be accomplished through engaging in a variety of genres when reading. It can also include writing for a variety of purposes and reaching out to a particular audience. During the process of sharing student work, classmates are also encouraged to engage in listening skills as they interpret what other readers have to say. Students learn spoken language by participating in classroom discussions, presenting information to classmates and articulating stories to peers and other members of society. Viewing and visual representation are the standards needed to interpret text, film, advertisements, photography, illustrations, graphs and charts. Students are encouraged to use their visual knowledge to critically think about text that they read. Although these standards have been around for fifteen years, they have recently begun to represent a new era of learning in which media is accepted as a viable part of the language arts curriculum (International Reading Association & National Councils of Teachers of English, 1996).

Research in best-practices instruction states that students not only need to acquire skills, but they also have to be active participants in the learning process (Gambrel, Malloy, & Mazzoni, 2007). According to the International Reading Association and National Councils of Teachers of English (1996):

> Students can best develop language competencies (like other competencies) through meaningful activities and settings, such as reading and viewing whole texts, writing and creating visual images for recognizable purposes, and speaking and listening to others both within and outside the classroom. (p. 3)

Students begin to create meaning through new experiences as they interconnect each of the six language arts standards (IRA & NCTE) allowing them to make personal, intellectual and social connections to literature (Gambrel, Malloy, & Mazzoni). Students take what they read from text, view images, and listen to others to create their own understanding of concepts that can be represented through "written, spoken and visual language systems" (IRA & NCTE, p. 3).

Balanced Instruction

Evidence-based best practices are the instructional methods that have been studied by researchers and found to be the most reliable strategies in the teaching of reading. The idea of balanced instruction has been the most popular solution after several decades of widely debated reading strategies. During the era of Reading Wars, in which researchers argued over the best way to teach reading there were heated arguments over phonics vs. whole language. This debate began after World War II as phonics became a central concern for most education professionals. Researchers were now beginning to look at how students interpret a text and understand its meaning versus how students decode words. Therefore, instead of relying on what students do not know, decoding unknown words with the phonics approach, researchers wanted to look at what students already know, making meaning with the whole language approach (Pearson, Raphael, Benson, & Madda, 2007). The evolution of the basal readers even demonstrated several attempts to include both practices. In the 1960s and 1970s basal readers focused on skills (phonics approach), then shifted to look at authentic literate (whole language) until finally coming to consensus to include both skills and meaningful literature into the basal (Hoffman, et al., 2001).

The idea of balanced instruction has expanded to incorporate a variety of instructional methods that include skills based instruction, an array of text genres and leveled texts, authentic

tasks, and response to literature (Pearson, Raphel, Benson, & Madda, 2007). According to Gambrel, Malloy and Mazzoni (2007) balanced instruction is also motivational and promotes "teacher- and student-led discussions" (p. 19). It involves a variety of assessments to ensure an overall understanding of student performances. In addition, a balanced literacy program includes the "use of technologies to link and expand concepts" (p. 19) while preserving traditional forms of literacy through multiple texts and independent reading (Gambrel, Malloy and Mazzoni).

Flexible grouping is a best-practice strategy that provides a balance between various grouping methods. Students are no longer separated into three distinct reading groups, but instead they are given the opportunity to achieve success through peer support (Levy, 2008). Flexible grouping is "used to accommodate student interest, learning preferences, and social needs" (Reutzel, 2008, p. 325), which means groups are not permanent and are subject to change based on instructional needs and goals. Flexible grouping can include whole-class instruction, or small group instruction for a variety of tasks. Whole-class instruction allows teachers to model a skill learned by the entire class. In addition, it gives students the opportunity to participate in read-alouds, shared readings, discussions, and activities together. Small groups on the other hand, allow students to work with others to complete a task in a more intimate setting (Ruetzel).

Today most basal readers have provided a balanced approach when it comes to skills based assessment and children's literature. Basals include resources such as a variety of text and worksheets that help to address the skills required by NRP standards. In addition, basals contain different genres, leveled readers for text difficulty, and a variety of questions for literature response. However, these traditional forms of instruction still lack a key component that allows children to expand their thinking through digital and visual forms (Pearson, et al., 2007). The process of teaching visual representation through various media outlets such as movies, pictures

and charts is often seen by teachers and parents as a passive way to interpret, discuss and reflect on the reading process (International Reading Association and National Councils of Teachers of English, 1996). Therefore, this standard is often overlooked as a necessary part of reading instruction. However, the IRA and NCTE argue that "we cannot erase visual texts from modern life even if we want to" (p. 2). Technology is quickly becoming an instructional tool that can incorporate skills based learning with authentic literature through a visual and hands-on experience.

Technology and Reading Instruction

Like reading instruction, technology in the classroom continues to flourish, becoming a supplemental tool for most forms of classroom instruction. In the early 1990s, it was rare to find a computer in every classroom and even less common to find students using a computer if it was available (Reinking, 1998). In classrooms today, observers may see a TV, DVD player, computer or CD player being used by the teacher. These devices are used to assist in classroom instruction through "product technologies," which tend to lack the interactive experience needed for students to fully be engaged in the learning process. Product technologies are any types of hardware devices such as audio-visual equipment (computers, cassette tapes, overhead projector, movies) that are used to supplement instruction in the classroom.

The problem, however, is that simply having the resources and understanding how to use product technologies is not enough for effective classroom instruction (Hooper & Rieber, 1995). In the new age of technology researchers are looking more toward "idea technologies" to provide readers with an experience when acquiring new skills. This new model of technology in education is represented by the term "educational technology." Educational technology means that teachers need to incorporate technology into their instructional methods and allow students

to use technology to enhance their learning (Hooper & Rieber). According to Ikpeze and Boyd (2007), "The National Educational Technology Standards for Teachers, require the use of various technologies to plan and design effective learning environments and experiences for students" (p. 644). Therefore, the overlying goal in education is to combine the effectiveness of product technologies with experiences associated with idea technologies to create an authentic and meaningful learning environment (Hooper & Rieber).

In a study conducted by Knezek and Christensen (2007), several Texas teachers received training in the use of technology and how to implement it into instruction for first and second grade students. Teachers who participated in the study were shown how to create web pages, portfolios, online quizzes, and teaching aides to use during reading instruction. Students, in turn, were given the opportunities to interact with technology through high-interest reading modules. This process allowed both teachers and students to use technology during reading instruction. Using the computer to create the assessments and portfolios is an example of teachers using product technology in the classroom, while having students interact with the technology through reading modules and PowerPoint's provides them with an experience through idea technologies (Hooper & Rieber, 1995).

Students in Knezek's and Christensen's (2007) research were given an informal reading assessment at the beginning and end of the study to show if they made improvements in areas of spelling, writing, word recognition, vocabulary and comprehension. Research findings showed that participating students were positively impacted by the use of technology in the classroom. In the first grade classroom, reading accuracy improved and, in the second grade classrooms, reading comprehension improved in response to the intervention of technology (Knezek & Christensen). These gains brought upon by different forms of technology bring attention to how

reading instruction has shifted from traditional reading materials (textbooks, worksheets) to include a variety of technological resources (PowerPoints, computers, the Internet).

New Literacies

According to Larson (2008), "In addition to more traditional literacies of paper, pencil and books, today's students encounter and interact with new literacies" (p. 121). The idea of new literacies means that students can communicate with technology using the skills, insights and strategies needed to navigate through the Internet and new forms of technology (Leu, 2002). New literacies are described in a number of ways, which makes it hard to pinpoint an exact definition. New literacies change constantly as technology and the World Wide Web continue to evolve (Leu; Reinking, 1998).

For new literacy practices to be accepted, teachers need to embrace technology and allow it to become an essential part of the classroom. It is a simple fact that Internet resources are increasing rapidly (Leu, 2002) and teachers need to keep up. Educational technology means that teachers use technology as part of the curriculum and familiarize themselves and their students on the purposes that both product technologies and idea technologies serve (Hooper & Rieber, 1995). Teachers need to understand that a "vast range of experiences contribute to literacy learning" (Compton-Lilly, 2009, p. 88). Therefore, it is necessary to embrace the new forms of literacy that will contribute to a child's success in today's society. By engaging in new literacy practices teachers are allowing their students to present "richer and more complex learning opportunities for both themselves and their students" (Leu, p. 329).

The use of tools such as the Internet can be used to expand a child's reading experience (Castek, Bevans-Mangelson & Goldstone, 2006). According to Gunning (2008), "The internet has a number of positive features that can be used to foster higher-level thinking and literacy,

and it offers virtually unlimited content that is up-to-date…" (p. 15). For instance, online texts and e-books have become popular in last several years due to the fact that computer technology is used in most homes and schools across the country (Larson, 2008; Martinez & McGee, 2000).

The use of new literacies practices during reading instruction has several benefits. When the Internet is used during reading instruction, students become engaged in a new level of thinking as they interact with online text (Coiro, 2003). Literature online gives students a new means to comprehend information while engaging in technology. In one study by Karchmer (2001), he found that the use of Internet technologies had enhanced literacy instruction in K-12 classrooms. The technology instruction used in Karchmer's study was similar to the research on teacher's perception of basal readers by Baumman and Heubach (1996) and Cloud-Silva and Sodoski (2001). Technology, the Internet in particular, was used as an extension to print-based texts, just as the basal readers were used as simply a piece of the reading curriculum. Essentially, the use of technology as a teaching tool alongside basal readers can create a more idealistic learning environment for teachers and students. Teachers should use technology to enhance and extend a basal lesson. Students can use the Internet to research an author presented in the basal or to find other stories that fit into a particular genre that is currently being taught.

E-books can also give students the same satisfaction of comprehension as the Internet in addition to an increase in sight word recognition. E-books are electronic versions of a text that contain additional features such as "animation, sound, music, video and hyperlinks" (Larson, 2008, p. 122). Depending on the type of e-book or the software used features may vary. Editing options available through e-books can allow students "to highlight or underline key vocabulary or text passages" (p. 123). Common tools also allow the user to replace text, add comments,

attach documents and change the font size if needed. In addition, an audio support can be used to help students pronounce unknown words (Larson).

McKenna (1998) looked at the benefits of e-books on the development of young readers. What he noticed is that children are already exposed to the traditional forms of reading a book from left to right and piecing together sounds to make words. However, as students at the first grade level try to develop their decoding skills they are reliant on more experienced readers for support and guidance. In reality a teacher cannot sit and assist every child in the classroom at the same time when trying to address individual needs. A child at this age needs to develop his/her word recognition skills until words are mastered automatically. Through the use of electronic books students can read independently while the e-book itself provides support in recognizing and pronouncing unknown words. Students receive assistance by simply clicking on an unknown word and having the e-book pronounce it for them. McKenna mentions that this theory of using e-books can also be known as "electronic scaffolding" (p. 47). This means that the e-book provides help as needed (McKenna).

New literacies are an essential part of the classroom environment but are not there to completely erase the traditional literacy practices of reading and writing. The purpose of having students engage in new literacies is to enhance the traditional skills. Students will still have "similar types of vocabulary knowledge, for example, but new strategies for locating, evaluating, and using information will be required" (Leu, 2002, p. 327). According to Labbo, Reinking, and McKenna (1998), students who engage in what they call "digital literacy" are able to work on flexible social projects in which they collaborate with peers. Teachers are the facilitator of this digital environment and their purpose is to guide students through this new world of information.

Students should learn how to use features on the Internet to gather information and use strategies to help them determine the usefulness of online resources (Labbo, Reinking & McKkenna).

Using new literacy practices in the classroom is a way for teachers to balance reading instruction between the traditional literacies of the basal reader and technology. Whether it be an e-book or the Internet students need to be taught how to use these tools to benefit themselves as readers. The computer, e-books, and software programs are all product technologies (Hooper & Rieber, 1995) that can serve multiple purposes. Teachers should not use the computer for skill and drill practice (Labbo, Reinking, & McKenna, 1998) but instead it should be used by students to view information in a new way. As students use new literacies to explore concepts and enrich their learning they become engaged in idea technology (Hooper & Rieber), which provides an experience that sticks with them.

Interactive Whiteboards

In 1991, Dave Martin of SMART technologies created the first touch sensitive interactive whiteboard that worked in sync with Microsoft Windows. These boards first arrived in businesses and then ventured into select classrooms for instructional purposes (Moss, Jewitt, Levaaic, Armstrong, Cardini & Castle, 2007). An IWB looks similar to a traditional whiteboards, yet its functions are more advanced. According to Smith, Higgins and Miller (2005) “IWB’s (or electronic whiteboards as they are perhaps more accurately called) are large, touch-sensitive boards, which control a computer connected to a digital projector” (p. 91). Interactive whiteboards (IWB) are one of the newest forms of instructional technology to surface in the classroom over the last several years. They are so new in fact, that research conducted on these novelties is limited.

There are several brands of IWBs, but the most popular are Promethean TM and SMART board. Promethean TM uses an electric pen with electromagnetic sensing technology (Schmid, 2007). On the other hand, SMART board technologies allow users to retrieve information by using their fingers like a mouse. In general though, all IWBs project images on screen that can be controlled by the user. Students and teachers are given the option to cut and past documents, save images on a desktop, and perform multiple functions at the same time. According to Hall and Higgins (2005), "The purpose for using IWB's in the classroom is to enable access to and use digital resources for the benefit of the whole class while preserving the role of the teacher in guiding and monitoring learning" (p. 104).

Research suggests that IWBs hold the attention of students longer and are more engaging than traditional forms of classroom instruction. In addition, IWBs appeal to the senses, seeing, hearing and touching (Hall & Higgins, 2004). Children are able to visually see images and videos projected on screen, which could be pulled from the Internet. Research by Wall, Higgins, and Smith (2005) found that most students agreed that pictures helped them understand concepts easier when projected on the IWB. Audio clips can also be used to address the senses so that children are engaged in learning through auditory processes. Finally, since the IWB is touch-sensitive, students are given the opportunity to actually perform tasks by using their figure or a pen (Hall & Higgins).

Interactive whiteboards are mainly used for whole-class instruction, which is different from most computer based practices. Individual computers allow students to work with technology on their own, creating a personalized hands-on experience. However, even though the interaction that a child has with a personal computer seems effective, it is more difficult for teachers to provide instruction and monitor student progress (Moss, Jewitt, Levaaic, Armstrong,

Cardini & Castle, 2007). IWBs on the other hand, allow teachers to address the whole class during instruction, so that all students remain on task.

Features such as ACTIVote, a type of classroom performance system and a proprietary brand for the Promethean, can be used to address whole-group learning on the interactive whiteboard. The ACTIVote program is designed for "assisting students in checking their own progress and their standing amongst peers" (Schmid, 2007, p. 124). The ACTIVote system allows the teacher to also assess student learning. When using ACTIVote the teacher will create a series of questions based on a particular theme or lesson, which will be projected onto the IWB. Each student will in turn receive his/her own control that has options A, B, C, and D on it. As questions are presented on the IWB, students will choose from up to four answer choices. Once all students have selected their response, the teacher can show them the correct answer as well as present the class with information on how many students chose the correct answer and how many students chose other options. This information can be shown in graphs that are immediately made by the ACTVote system (Schmid).

The classroom performance system (CPS) is completely anonymous which takes the pressure off whole-group participation. According to Schmid (2007) "The research findings indicated that the voting component of IWB technology facilitated several learning effects" (p. 127). Students in Schmid's study indicated that the ACTIVote program enabled them to see immediate feedback on responses, while comparing their results with other classmates. Teachers also found ACTIVote to be beneficial when assessing what students in the class understand and what areas still need to be addressed concerning content material. In addition, the immediate feedback allows teachers to raise questions and stimulate classroom discussions, while presenting students will opportunity for competitive learning (Schmid).

Lewin, Somekh, and Steadman (2008) addressed the benefits of IWBs on student learning and instruction practices in the UK. This study showed that "shared learning" between students and teachers was proven to be beneficial when using the IWB. These practices therefore, open the door for greater discussion and questions. Wall, Higgens, and Smith (2005) conducted a study in which they interviewed, observed and surveyed fifth and sixth graders from 12 surrounding England schools. The purpose of this research was to gather information on student's perceptions of IWBs. After an analysis of the data, Wall, Higgins and Smith learned that students responded positively to the visual aspects of the IWB and saw it as a highly motivating tool. They conclude that students were more likely to contribute ideas because of the positive impact of social learning.

Interactive Whiteboards and Reading Instruction

Interactive whiteboards have proven to be beneficial teaching tools in regards to most curriculum subjects. With the emphasis placed on viewing and visual representation as part of the language arts curriculum, it is seems apparent that IWB be used to assist basals in the teaching of reading. Evidence-based best practices presented in the works of Gambrel, Morrow, and Pressley (2007) stressed the idea of active learning through balanced instruction. Technology in the form of basic computers, and new literacies experience available through the use of the Internet and e-books provide an adequate support for reading instruction and student interaction with technology. Furthermore, IWBs have embed the use of Internet technologies and active learning that can assist basal readers in providing the most effective classroom strategies for reading instruction.

IWBs can be implemented into reading instruction through a variety of ways. According to Labbo, Love and Ryan (2007), "This important tool has the potential to contribute to literacy

development because it provides a large (e.g., 60 inches) interactive presentation space that is easily viewed by all students" (p. 583). Interactive whiteboard technology makes it possible for teachers to create activities prior to instruction, which allows for faster paced lessons. In addition, "Work can be saved, printed out, or viewed on demand" (Labbo, Love & Ryan, p. 583).

IWBs allow for whole-class instruction, which is an evidence-based best practice for the teaching of reading. According to Ruetzel (2008), "whole-class instruction engages teachers and children in a community of socially shared literacy activities and discussions" (p. 324). Evidence-based best practices state that through whole-class instruction students can share stories and ideas, dramatize plays and other literary texts, and participate in an active learning experience (Ruetzel). For example, the teacher can use video clips to enhance or support a concept, manipulate text for teaching skills, and present students work on screen (BETCA, 2003). In addition, the classroom teacher can model skills and strategies that can later be applied by students in small group settings or individually (Ruetzel).

Features presented on the IWB allow it to lend support when teaching skills through whole-class instruction. In a current study, Schroeder (2007) looked at the effects of SMART board technology on college freshman. In his results, Schroeder found that students were excited to use the SMART board technology and were more engaged during instruction. The purpose of the lesson was to teach students how to use a library database to research certain scenarios. The overall impact that this project showed how the instructor became the facilitator of student learning instead of the center of teaching. In addition, this study demonstrated the impact that SMART boards have on instructional time. In this scenario, the instructor was able to easily teach the class the necessary skills needed to complete the assignment, through modeling and scaffolding using the SMART board. The SMART board made it easier for the students to

understand the assignment visually and ultimately resulted in less instructional time and more time for active learning and exploring. This time allows the students to demonstrate the skills they learned (Schroeder).

Studies like the one mentioned above demonstrate the effectiveness of interactive whiteboards on instruction. Hall and Higgins (2005) interviewed students on the impact of IWBs in the classroom. When students were asked how the interactive whiteboard helps them in literacy, one student mentioned that "You can do sentences. It's got parts of sentences and you can put them together. On that board (PW) you have to rub them out and put them back on again" (p. 110). This student who was interviewed had explained one of the most compelling features that an IWB possesses. Students are able to move text around and make changes by simply touching the board. This interactive process allows students to actively participate in lessons that are engaging while addressing necessary skills.

According to McKenna, Labbo, Reinking and Zucker (2007), SMART board technologies have been used to address spelling and phonics in the elementary classrooms. Research suggests that highlighting features presented on the SMART board application can be used to emphasis word features and spelling patterns. Gray, Hagger-Vaughan, Pilkington, and Tomkins (2005) researched the effects that IWBs have on foreign language classrooms; they discovered:

> The use of visual effects such as colour, highlighting and animation were felt to be the most important aids in drawing attention to patterns such as endings, negative expressions and reflexive pronouns, as well as different parts of sentences such as question words, nouns and adjectives. (p. 42)

Additionally, Labbo, Love and Ryan (2007), found that "Computer response to literature activities… that are conducted on digital whiteboards, provide unique occasions for all of the children in a classroom to engage in oral language and to learn new vocabulary" (p. 587). The use of digital pictures and multi-media instruction has proven to be beneficial in the Labbo, Love and Ryan study, which supports the use of IWBs during reading instruction. In their study, students improved 26% in receptive vocabulary knowledge and 33% on expressive vocabulary knowledge after intervention.

IWBs have been shown to be an effective teaching tool for most classroom settings. There are an abundance of applications that can be used in relation to IWBs, but it is to the responsibility of educational professionals to take advantage of them. New literacies of today which include e-books and Internet resources can all be implemented on the IWB. Yet, active learning still remains the focal point of interactive whiteboard technology which supports student involvement in the learning process.

Summary

Reading instruction has significantly evolved overtime and has now commanded the attention of all educators. The pressure for teachers to create a learning environment in which all children will succeed is extremely overwhelming. Basal readers have given teachers a significant amount of support when planning instruction based on varying needs. Leveled readers have allowed teachers to differentiate instruction within small groups, but there is still a need for active learning and whole group instruction in the classroom.

Technology in reading has expanded the work of basal readers and has provided additional supports for students during reading instruction. The age of new literacies and educational technology require that new technology be used to provide students will an authentic

learning experience. The use of IWBs in the classroom is a potential way to increase the ideas of new literacies and educational technology. IWBs give students the opportunity to use multiple supports during instruction while providing them with an interactive experience. Both basal readers and IWBs can be used to address reading instruction in their own unique ways. When used in uniform both supports provide students with a balance of all the necessary components that support the teaching of reading.

CHAPTER III. METHODS AND PROCEDURES

Interactive whiteboards are quickly making their way into school districts across the country in hopes of giving students a more active and authentic learning experience, while providing teachers with support during whole-group instruction. Interactive whiteboards are becoming more common in elementary settings, yet there is limited research that supports the use of this new wave of technology on the teaching of reading. The purpose of this study was to examine how teachers use the IWB during reading instruction and to address whether or not they believe IWBs are a worthwhile addition to the language arts curriculum. Therefore, the question examined was, "What are teachers' perceptions of the impact of interactive whiteboards on reading instruction in a third grade classroom?"

Methods

Research Design

The main goal of this study was to analyze the perceptions of teachers regarding their use of IWBs during reading instruction. Therefore, the research design included both semi-structured interviews and observations. Semi-structured interviews were used to obtain information from participating teachers, while observations allowed the researcher to see how the IWB was used during daily lessons. This study used qualitative research to gather information. Qualitative data are usually narrative and are analyzed logically to make sense of patterns and similarities (Mertler, 2009).

Semi-structured interviews are forms of questioning that allow the researcher to prompt the subject to receive additional information and feedback. According to Mertler (2009) "When gathering truly qualitative data, interviews are probably best conducted following semi-structured or open-ended formats" (p. 110). Questions designed for each interview were

ultimately the same, yet there was an option for additional probing when more information was needed. The teachers who participated in this study were interviewed separately on how they use the IWB for reading instruction. They also answered questions in regards to IWB technology being used to support the basal reading series.

Observations were conducted with each of the participants to gather a more in depth understanding of how the interactive whiteboard was used during a lesson. Only teachers were observed and recorded in the data. Although students were present in the classroom, their responses to the lesson were not recorded for confidentiality reasons.

Participants

Participants were chosen from a school in Northwestern Ohio. The elementary school and teachers selected for this study were chosen based on a convenience sampling (Mertler, 2009). The school was located in a suburban middle class neighborhood and had a high rating for student achievement and staff dedication. The school was located near the researcher, which made it convenient to conduct interviews and to observe the teachers for several days. Each teacher was specifically chosen for this research because of his/her experience with the interactive whiteboard during reading instruction and his/her ability to use a variety of programs on the IWB. The staff's history with interactive whiteboard technology and willingness to participate allowed the researcher to gather the most accurate information.

Three third grade teachers were selected for this study to gain different perspectives on the use of IWB technology and reading instruction. Interviews and observations were conducted with each of the three teachers. All three teachers use the same basal reader during reading instruction; however, equipment used on the IWBs (classroom response system, websites,

document camera, etc.) as well as number of years using the IWB for instruction varied with each professional.

Instrumentation

Teacher interview questions (See Appendix A) were created to be in-depth and detailed. These questions sought to answer how a third grade teacher uses the IWB during reading instruction and whether he/she thinks these teaching tools impact reading achievement among third grade students. Observations on the other hand, gave the researcher a first hand look at how the teacher uses the IWB during a lesson.

Procedures

Interview questions for the classroom teacher (See Appendix A) were created based on studies by Hall and Higgins (2005) and BETCA (2003). Chapter two highlighted many important features of the IWB, and reading instruction in general, which helped to lay the foundation for this research design. Questions were separated into three main categories: general reading instruction, IWBs in the classroom, IWBs and reading instruction, and how IWBs affect student learning. Information obtained from Hall and Higgins and BETCA provided the researcher with details on how to interview teachers based on their perceptions of IWBs. There were a total of 18 interview questions with several sub-questions that were used to prompt more information and to further clarify responses. The purpose of the interview questions was to gather as much detail as possible for this study.

Before interviewing and observing each teacher, the researcher obtained permission from the school principal to conduct research at the chosen sight. Once permission was obtained, Human Subjects Review Board (HSRB) paperwork was completed and submitted. After approval was granted, each of the selected third grade teachers was approached about his/her

participation in the study. To seek informed consent from subjects, the teachers were provided with a letter that explained the study (See Appendix B). They were allotted a week to read the letter and were encouraged to contact the researcher with any additional questions. Once the three teachers read the letter and all questions were answered to their satisifaction, they signed the consent form agreement giving the researcher permission to interview and observe them.

Each teacher was asked not to share information regarding the content of the interview questions with other collegues, and was also encouraged not to alter their teaching styles for the observation sessions. Inteviews took approximately one hour. The teachers answered questions pertaining to how often they used the IWB during reading instruction, what they used the IWB for during reading instruction, and how they think the IWB impacts learners in the classroom. Observations on the other hand, lasted three days for each teacher. Certain observation times were shortened due to school delays, testing, and other commitments to class projects. The observer recorded how the teacher used the IWB during reading instruction but did not record student involvement and participation.

Interviews and observations began mid January. The first teacher was interviewed in the morning and observed during language arts time on Wednesday of week one. Observations continued on Thursday and Friday of that week one. The second teacher began her interview and observations on Tuesday of week two and continued her observations on Wednesday and Thursday of that week. The third teacher began her interview and first classroom observation on Monday of week three and observations continued on the Tuesday and Wedensday of that week. Once all interviews, observations and follow-up questions were completed no further information was asked of the teachers and they had officially completed their part in the study.

Data Collection

Data received from teacher interviews were collected immediately after each interview session. All data were collected through notes and tape recordings. While interviewing the teachers, the researcher recorded teacher responses that served as an outline for the study. Each question was printed on a piece of paper with room beneath for the researcher to record important details. A tape recorder was also used to obtain specific details and to review information following the interview. For observations, the researcher took extensive field notes in a single notebook. The notebook was divided into three sections for each of the teachers. No tape recording was used during the observation time. Teachers participating in this study were given pseudonyms to protect their identity. No data were collected relative to student interactions with the interactive white boards.

Data Analysis

Qualitative data were collected and analyzed for this study. Data collected from teacher interviews were analyzed based on four categories: general reading instruction, interactive whiteboards in the classroom, interactive whiteboards and reading instruction, and how interactive whiteboard technology affects student learning. Common trends were examined to assess whether or not IWBs have a positive impact on reading instruction. Each category was then discussed to give an overall view of each teacher's perception. Observations occurred after the initial interview of each teacher. The purpose of observing the teachers was to determine how they actually use the IWB during a lesson. This information was analyzed and added as additional support to the section on interactive whiteboards and reading instruction.

Summary

This study ultimately seeks to address the impact that IWB technology can have on reading instruction. The IWB is used as a supplemental tool in each of the participating classrooms which made it possible to gather a substantial amount of evidence on the given topic. Teacher interviews were used to collect data on the teaching styles and preferences of each professional and ultimately sought to gather information on their attitudes and beliefs when it comes to IWB technology. Observations were used for additional insight into how an IWB is used during an actual reading lesson. Each teacher was observed for three days because there were several instances when school delays and testing intervened with a lesson. Having a three day window, however, allowed the researcher to gather at least one or two substantial days of field notes for this study. By the end of the study, all interview and observation data were collected and analyzed to gain a better understanding of how IWBs can impact reading instruction.

CHAPTER IV. DATA ANALYSIS AND DISCUSSION OF RESULTS

The purpose of this study was to examine teachers' perceptions of interactive whiteboards. It should be noted that each of these professionals teach third grade and use the SMART board brand of IWBs. This study was divided into multiple sessions in which each teacher was interviewed and observed for three days. The first part of the research included teacher interviews. Each teacher was asked a series of questions that pertained to teaching style, beliefs and attitudes toward using the interactive whiteboard in the classroom. Semi-structured interviews were tape recorded and used to collect data. Observations, on the other hand, were intended to see first hand how the teacher incorporates the IWB into lessons. Field notes were taken at the time of the observations and will be reported in this section. Chapter four begins with an analysis of the teacher interviews and continues with the classroom observations. Teachers were given pseudonyms to protect their identity (Ms. Anthony, Ms. Jones and Ms. Smith). After the results are reported, a discussion of the data will be presented

Data Analysis Interviews

During the interview process each of the three third grade teachers discussed her teaching styles, experience with the IWB, and beliefs concerning IWB technology and student achievement. There were many common themes but also several differences between each of their responses. The following sections will be divided according to responses on each of the four subsections: general reading instruction, interactive whiteboards in the classroom, interactive whiteboards and reading instruction, and how interactive whiteboard technology affects student learning. The purpose for including all of these sections was to develop a complete overview of teaching styles, experience, personal beliefs and attitude toward technology in the classroom.

General Reading Instruction Questions

Ms. Anthony, Ms. Jones and Ms. Smith have all been teaching third grade for a different number of years. Ms. Anthony is a relatively new teacher with a year and a half of teaching experience. While Ms. Jones and Ms. Smith have both been teaching for 27 years. These three teachers are constantly collaborating with each other and continue to share ideas for future lessons. In addition, they all use the same basal reading series although Ms. Jones prefers to call their reading book an anthology because it uses authentic literature.

Both Ms. Smith and Ms. Jones have experienced the evolution of the basals over the past several years and mentioned this as the most dramatic change in reading instruction. They mentioned that research is constantly changing how they teach reading. When they first started, it was all about whole language, but Ms. Jones expressed that although she thought it was a beneficial approach it still lacked skills-based instruction. This is why they have come to appreciate basal readers today because they believe basal readers have a good balance of authentic literature that allows them to teach the necessary skills. Ms. Anthony, on the other hand, has not been exposed to the radical change in basal readers but has noticed a change in the way she has to assess students. She mentioned that much more focus is being placed on vocabulary and phonics in the past year then what she had seen before. In addition, Ms. Anthony also expressed that the SMART board is the biggest change that she has seen in reading instruction just within a year's time. She expressed that reading instruction today is "much more visual and hands-on than just reading aloud and answering questions."

Each of these professionals agreed that their reading series is used for most, if not all, reading lessons. They do, however, incorporate novels into their reading curriculum such as, *Ramona Quimby Age Eight,* by creating activities to prepare students for OAT testing. Ms. Jones

and Ms. Anthony also expressed that the basal reader is primarily the center of their planning. However, Ms. Smith likes to think of the basal reader as just a part of her reading instructional time because she supplements a lot of other materials into the curriculum. She believes that the basal is simply a "base line."

One of the primary topics explored in this section of the interview was how technology has influenced reading instruction. All three of the teachers mentioned the SMART board as the one piece of technology that has drastically changed the way they teach reading. They believed that the SMART board has made learning more visual and exciting. Ms. Smith suggested that it ties in a variety of multiple intelligences (tactile, auditory etc.) while Ms. Anthony loves using the IWB to model things. Ms. Jones stated that, although she used to use the computer, overhead and tape recorder, the SMART board has been "fabulous." One additional point though that Ms. Jones has observed is the fact that not all students are visual learners. She believes in a balance between activities on the SMART board and other forms of instruction. For instance, she might be showing something on the IWB while students are required to use their own paper and pencil for writing.

Interactive Whiteboards in the Classroom

The words "love, awesome and excitement" were used by the three teachers as they expressed the initial perceptions of IWBs. They all mentioned a certain comfort level with IWBs and Ms. Jones even joked that she would marry her SMART board if she could. In fact, Ms. Jones and Ms. Anthony both shared that they had no concerns about receiving a SMART board. However, since Ms. Smith was the first educator to receive an IWB in the entire school, her only concern was that she would not use it to its full potential. She worried how she would present the SMART board to her students and had concerns about students interacting with it.

Ms. Smith has had her IWB for four years and her unit includes a document camera, classroom performance system (CPS), and an AirLiner. She expressed that her classroom performance system (CPS) allows her to get a "quick overview of what the students know. It's anonymous so there is no risk taking. It is just another way to interact with the lesson that they absolutely love." In addition to her CPS, Ms. Smith is becoming more accustomed to her AirLiner which is a "wireless component that allows you to walk around the classroom so you can interact with the whiteboard from anywhere." The AirLiner is marketed as a peripheral device for the SMART board.

Ms. Jones has had her IWB for 2 ½ years now and Ms. Anthony has had hers for a year and a half. Both teachers have a document camera that is included in the IWB unit in addition to speakers. All three teachers use their document cameras to make Portable Document Formats (PDF) of worksheets and to model ideas.

When asked if IWBs impacted instruction, each teacher agreed that it made lessons more engaging and was a motivational tool for students. Ms. Anthony expressed that the SMART board was an excellent way to extend knowledge and could be used with children at all learning levels. The SMART board enhances a lesson and makes it more visual. Ms. Anthony shared that she can pull up extra activities and websites and include additional information on authors that students can explore. She likes to use pop up pictures and show students multiple examples through various resources available on the IWB. Each teacher agreed that the IWB had changed the way they teach reading. Ms. Anthony believed her students "zoned out" last year when she presented concepts on a traditional whiteboard. This year her students are eager to touch the board and just seem more engaged. Ms. Jones and Ms. Smith believed that the IWB has made

them work harder. They like to present things that are visually appealing so it makes them more conscious of what they create.

Overall, the teachers did not find it difficult to use an IWB in their classroom. Ms. Smith has attended workshops in which NWOET (NorthWest Ohio Educational Technology Foundation) professionals came and showed them how to use different features on the IWB. Ms. Anthony received SMART board training in college, while Ms. Jones attended a seminar in Cleveland. Ms. Jones said that here she learned about making tabs, which she has shared with her colleagues. Ms. Smith expressed that she learned a lot from professional development opportunities but that she also learned about new ideas and resources through other teachers in her building.

Interactive Whiteboards and Reading Instruction

When asked how often the IWB is used during reading instruction each teacher said that they use it throughout the lesson, sometimes more than others. The IWB is primarily used for reading instruction to model ideas and introduce vocabulary. They still use the basal reader for stories but found that they can use the IWB to enhance a lesson by creating PowerPoints, linking to websites and providing visual aides. Although each teacher may find the IWB to be engaging for students, they each shared a different advantage that it possessed. Ms. Smith likes the fact that students can move text and pictures. She also mentioned that the IWB "brings animation, and color" to a lesson in comparison to the traditional whiteboard. Ms. Anthony liked that she can cover up answers with a shade feature and "reveal them little bits at time." Ms. Jones believed that the SMART board was very dynamic. She explained that "it gives immediate response" and students can work independently at the IWB without her assistance. Ms. Jones added that the IWB can be used to link to websites and PowerPoints. It can be used for cloze

activities, scavenger hunts and concept webbing. In addition, she used the IWB to pull up information on a particular author through Amazon.com. She can also use the document camera so students can check their work or post a page from the book that can be used for a discussion on letter writing.

Each of the three teachers mentioned that they use the IWB primarily for whole-group instruction, but that it can be also be used for small groups of children to engage in skill orientated activities. When used during whole-group instruction Ms. Anthony, Ms. Smith and Ms. Jones model most activities. Students in each third grade classroom were given the opportunity to use the IWB on a daily basis and all three teachers believed that creating lessons ahead of time allowed the pace of the lesson to move faster. The teachers also liked the option of going back to previous lessons and reviewing information. Ms. Smith explained that this feature, however, may slow the pace of the lesson down because it gives teachers the option to stop and review the information again.

Each of the teachers used resources already available through Waltke's Web, which is a teacher made website that aligns with their reading series. However, Ms. Anthony explained that although she might retrieve resources from somewhere else she never keeps them as is. She says that she may turn certain online resources into games or add clipart and color to make them more appealing. Ms. Anthony shared that when she makes a worksheet into a PDF, she added clip art and colored pictures to make it more visually appealing. She also explained that she added tabs to documents that reveal answers and had the ability to highlight important details if needed for an assignment.

Ms. Jones explained that she is a very creative person and enjoyed making resources for the SMART board. She is constantly using bing.com to locate clipart, which can be added to any

Notebook file or PowerPoint on the SMART board. Each of the teachers used notebooks files, PowerPoints and the Internet most frequently during reading instruction. The PowerPoints were mainly used for vocabulary while the Internet was used to show videos, search for information and play reading games.

During reading instruction time, the IWB allowed the teachers to prepare lessons ahead of time, although they expressed that this aspect takes up most of their free time during the workweek. Waltke's Web, Mrs. Peters Classroom, Welcome to Reading Street, Professor Garfield, and UnitedSteaming are just a few of the web resources that can be used before and during reading instruction time. Ms. Anthony even explained that she takes videos from YouTube or UnitedStreaming to help students with a grammar lesson. She used short clips from *Up*, *Mary Poppins,* and *Tinkerbell* to teach different types of sentences. She had the students listen to the video clip and then describe if they would use a question mark, exclamation mark or period at the end of the sentence.

All three teachers also used their document cameras to show student work on the IWB, which is primarily used to demonstrate good answers, so they understand what their expectations are for an assignment. Ms. Anthony, Ms. Jones and Ms. Smith also use the IWB to manipulate text by highlighting the main idea and details in a variety of colors.

When asked what skills based learning the IWB processes, each teacher responded slightly differently based on the practices that they use most frequently. Ms. Jones said she used the IWB for comprehension skills through cause and effect activities, matching games, and for letter and sound practice. Although she understood that listening skills can be enhanced using the IWB, she has not fully pursued this option. Ms. Smith attributed the highlighting tool to most of her comprehension instruction and practiced fluency with her students by displaying a passage

on the IWB and choral reading. Ms. Anthony, on the other hand, used the IWB for comprehension instruction by placing reading questions up on the board. In addition, she used sound clips to enhance auditory skills as students listen for expression or characteristics of a particular character.

All three teachers used SpellingCity.com for spelling practice. In addition, they all used PowerPoints, pictures, cloze activities, fill-in-the-blank and matching activities to introduce new vocabulary words. The three teachers explained that they used the document camera in conjunction with IWB to model paragraph writing and to demonstrate proofreading skills.

How Interactive Whiteboard Technology Affects Student Learning

When asked if the IWB increased student learning during reading instruction each of the three teachers believed that it has been a wonderful tool for teaching. Ms. Jones suggested it kept students engaged and was like having another hand in the classroom but was also quick to state that the IWB was a motivator and that students still had to do the work and put effort into learning. Ms. Smith shared that students want to interact with the IWB and it helps them to retain information because of all the visuals they receive. Ms. Anthony expanded on the idea of providing visuals by sharing that she believed the SMART board gives students, who are not visual learners, the opportunity to use their tactile and auditory skills. Ms. Anthony explained that students took more away from the IWB because it provided them with practice that was engaging. In addition, through modeling students were fully aware of what was expected.

Each of the three teachers strongly agreed that the IWB increased student participation in the classroom, but Ms. Jones added that this might be due to the fact that they are not "jaded" yet. She mentioned that all of her students, even her children with special needs, enjoyed using the IWB. Ms. Jones explained that she has the students sit in front of the SMART board so they

pay close attention to the lesson. Ms. Anthony mentioned that games and other activities that can be presented on the SMART board made learning more fun and seemed less like work to students. She explained, “Even just silly things like writing or erasing an answer makes students part of the learning process.”

Each of these three teachers noticed that the IWB helped lead student discussions. Ms. Anthony stated that her classroom was more engaged in discussions when pictures were shown. She shared that pictures and websites were used to give students a better understanding of a topic. For instance Ms. Anthony had students take a virtual tour of Colonial Williamsburg to give them a better understanding of the era. Essentially Ms. Anthony explained that the IWB gives students more examples then what is presented to them in their reading series.

When asked how IWBs have changed instruction Ms. Anthony explained that it made reading “more visual, interactive and engaging.” It can be used with all learners (tactile, auditory, visual) and allowed students to explore different sites and be somewhat in control of their own learning. Ms. Smith added that the IWB allowed teachers to focus on a different skill with each Notebook file she created. Overall though, Ms. Smith believed the IWB just engaged students in a more “colorful environment.”

The final question of the interview was to ask each of the teachers if there were any disadvantages to using an IWB. Ms. Jones stated that there were no disadvantages but was careful to mention that “you need to put the time and effort into it.” Ms. Anthony had a similar point of view when she said making materials for the IWB may be very time consuming. In addition, Ms. Anthony mentioned that because they (IWBs) are so expensive not every teacher is able to get one, “therefore planning cannot always be shared.” She also explained that experience with the IWB is critical because not everyone knows how to use it. Troubleshooting

can be and issue and that choosing resources can also be a challenge. Ms. Smith remarked, "Technical difficulties can be frustrating. When the SMART board is down you feel like you lost your right arm."

Data Analysis Observation

During field observations each teacher was observed for three days. Only the teachers and their actions were recorded in the data. The purpose for these observations was to see first hand how the teachers interact with their SMART board during reading instruction. These observations provided a more in-depth understanding of how certain tools on the IWB can be implemented into a regular lesson. The observation data did not follow the same format as the interviews since data were not permitted to be collected from students. Instead, this section of chapter four will summarize each teacher's use of the IWB during instructional time.

Ms. Anthony

Ms. Anthony's observations were focused on whole group instruction. It was noted that Ms. Anthony used the IWB throughout each of her reading lessons, particularly when modeling ideas. On day one she modeled how to complete a Ben Franklin sequencing activity by placing the worksheet on the document camera which projected a picture image onto the IWB. She then used different colored SMART board pens to draw a picture indicating the sequence of events. The following day Ms. Anthony pulled up a Notebook file that was a duplicate of a worksheet. It was a main idea and supporting detail worksheet that included a short passage. Ms. Anthony modeled how to select the main idea of the passage as she ran her finger over a sentence, highlighting the main idea. She then chose other colors from the toolbar to highlight supporting details. The SMART board pens were also used by Ms. Anthony to demonstrate how to complete the worksheet.

Aside from modeling, Ms. Anthony also used the IWB for vocabulary instruction and teaching about text genres. A self-made Notebook file was pulled up on the IWB that had the title of a chosen story from the classroom reading series and a picture of the book cover. Ms. Anthony discussed historical fiction on this day so she was able to go back to the previous day's lesson and pull up a notebook file on colonial homes for review. When she maneuvered back to the current day's lesson, she pulled up a PowerPoint presentation that contained a vocabulary web on colonial times. The vocabulary words were beside the web and with the touch of a finger were moved into the correct circle. When Ms. Anthony touched the arrow on the IWB to move to the next slide, there was a series of definitions related to colonial times. Picture tabs on the side of PowerPoint document were moved by Ms. Anthony's finger which displayed the vocabulary words that matched each definition.

Throughout Ms. Anthony's observational time, she pulled up Notebook files that were duplicates of worksheets. For each worksheet, she added colorful backgrounds and clipart. In addition, to go along with the colonial times theme, Ms. Anthony pulled up a link that displayed a virtual tour of Colonial Williamsburg. Pictures of colonial times could be found on each notebook file and PowerPoint presentation that Ms. Anthony used.

Ms. Jones

Ms. Jones was teaching "The Gardener" to her students at the start of the observations. Ms. Jones used the IWB for modeling ideas, vocabulary instruction and classroom activities. On the first day, she used a cause and effect activity that was presented in Notebook file. The purpose of this activity was to demonstrate how to choose whether a sentence was an example of a cause or an effect. Ms. Jones used her finger to drag the sentences under the correct category.

She also used her finger to rearrange the sentences so that they were in sequential order. Ms. Jones also used blank notebook files and the SMART board pens to practice contractions.

To reintroduce "The Gardner," Ms. Jones pulled up a Notebook file presentation that displayed the story cover, title and author. An additional link was opened that pulled up a vocabulary PowerPoint with definitions and pictures, as well as cloze activities. Ms. Jones demonstrated that the eraser could be used in the cloze activity to reveal answers. On the following day another cloze activity was revealed on the IWB. This time, a flower tab was pulled over to disclose a word bank.

Ms. Jones was also observed using the IWB to pull up resources. At one point she demonstrated how to search Google.com for a presidential assignment. She explained how to pull up the keyboard up touching a button and the bottom of the IWB and then showed how to type in a key word to Google search. In the last step of this process Ms. Jones demonstrated how to copy and paste pictures from the web, displaying them in a separate Notebook file.

Ms. Smith

Ms. Smith used her SMART board for whole group instruction for the majority of class time. Like Ms. Jones and Ms. Anthony, she also used it to model ideas, explain text genre and practice vocabulary. Ms. Smith used her document camera to review instructions for assignments. Once the instruction sheet was on the board, Ms. Smith used the highlighting feature to underline key parts.

On the first day observing Ms. Smith, she introduced the story "Pushing Up The Sky." Her Notebook file showed the book cover, title, and author's name. Then her next slide showed a picture of the author and provided a description of the author's purpose. Following slides were used to explain the purpose of the story and the reasoning behind myths. The page that

introduced myths had important phrases that were bolded and enlarged to emphasize the most important points. On a following day, Ms. Smith showed these slides again as a review of the story and central themes.

Ms. Smith used the Notebook files as an extension to information presented in the basal reader. Her Notebook files for this story were also linked to a vocabulary PowerPoint. This presentation included animation and sound. As Ms. Smith pressed the IWB, vocabulary words appeared along with pictures.

Discussion of Results

The purpose of this study was to answer the question, "What are teachers' perceptions of the impact of interactive whiteboards on reading instruction in a third grade classroom?" Through interviews and observations, the teachers' beliefs and attitudes toward reading instruction and IWB technology were articulated. The discussion of results will be based on the four categories presented in the interview sessions: general reading instruction, interactive whiteboards in the classroom, interactive whiteboards and reading instruction, and how interactive whiteboards affect student learning. The purpose for conducting teacher observations was to provide additional evidence for the use of IWB during reading instruction.

General Reading Instruction

Each professional's views of reading instruction differed depending on how many years she had been teaching. Ms. Jones and Ms. Smith have seen reading instruction change from whole language to a balance between skills and authentic literature. Ms. Anthony, on the other hand, noted that the biggest change she witnessed was the amount of assessment required and the emphasis placed on vocabulary. Each of these teachers, however, agreed that the basal reader played a significant role in planning for reading instruction. Interviews also uncovered each

teacher's perceptions of technology's impact on reading. They mentioned that SMART boards have made everything more visual for their students.

Interactive Whiteboard in the Classroom

Based on teacher interviews, each of the three professionals have had their SMART board for different lengths of time. They were eager to acquire this new piece of technology in their classroom. Each teacher strongly believed that the IWB impacted instruction because it made learning more "engaging" and "visual." Each professional had some sort of training in the use of IWB technology. Whether it was before or after they received their boards, it was apparent that professional development opportunities were beneficial in gaining new insight into how to effectively use the IWB. In addition, even though the teachers received IWB training through different programs, they shared what they know or learned with their colleagues. They believe that collaborating on new ideas and sharing resources helps them learn new features that the IWB possesses.

Interactive Whiteboards and Reading Instruction

Based on teacher interviews, the IWB was viewed as a wonderful teaching tool during reading instruction. The IWB was mainly described as a tool for whole-group instruction although all three teachers believe that it can also be used for individual groups. IWB technology is perceived to be a great tool for vocabulary instruction and according to each professional can be used to model almost any literacy concept or skill. The teachers praised features, such as the highlighting tool and the ability to manipulate text, as being a wonderful way to engage students in a lesson. They believed that the IWB has benefited all areas of skills-based learning, including writing and each teacher thoroughly enjoys the fact that the IWB creates a more visually engaging environment for students.

Based on observations each teacher demonstrated multiple ways in which the IWB could be used throughout a reading lesson. They created cloze activities as well as PowerPoints to introduce and practice with vocabulary. In addition, they pulled up sites from the Internet to use as extension activities and provided more information in the form of Notebook files about authors and genres. The IWB was used as an extension for stories in the basal reader.

How Interactive Whiteboard Technology Affects Student Learning

Based on interviews, it was apparent that all three professional strongly agree that students were more actively engaged and participated more in group discussions when the IWB was used. They believe that the IWB addressed the needs of many students including those who are more visual, tactile and auditory learners. The IWB is perceived by each professional as a motivational tool that assists students in their learning. Ms. Smith and Ms. Anthony both agreed that the IWB helped students retain information because it provided them with more examples. However, Ms. Jones explained that students still need to put the effort in to their learning.

Based on teacher interviews each educator mentioned that there are a few disadvantages to IWB technology. Although it is thought to be a wonderful teaching tool it is very time consuming to create lessons. This means that each teacher has to spend several hours at home creating materials that are aligned with their basal reader. In addition, it was also mentioned that technical problems can create several issues during instructional time. Furthermore, not all teachers in their school have an IWB, which could make it difficult to collaborate on certain lessons.

Summary

This study sought to address teachers' perceptions of IWB technology during reading instruction. After reviewing the collective data, all three teachers interviewed and observed in

this study showed extremely positive attitudes toward the use of IWBs. They articulated several benefits of IWB technology during reading instruction, which included the ability to effectively model assignments, retrieve information, engage students, and provide visuals for enhanced learning. During classroom observations each teacher used the SMART board to introduce skills and to provide additional information on a story or author. The Internet was also utilized during instructional time for a further expansion of a lesson. Overall, each teacher believed in the effectiveness of using the IWB in the classroom even though each had a different background with technology. Since this group of professionals were all teaching at the same grade level, it was an ideal environment to collaborate and share ideas related to IWB technology.

CHAPTER V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This study sought to explore the impact that IWBs have on reading instruction. Specifically, the question to be answered in this investigation was: "What are teachers' perceptions of the impact of interactive whiteboards on reading instruction in a third grade classroom?" To collect data for this study, teachers were interviewed and observed in their classroom settings. This chapter will include a summary of research, a conclusion of the findings and recommendations for teachers, designers of curriculum, administrators, and future research.

Summary of Study

The research findings presented in earlier chapters created an underlying view of reading instruction and the use of IWB technology. A review of literature examined how reading instruction has evolved from the tradition basal reader, which focused on skills, to a more balanced approach to reading that includes writing, listening, speaking, viewing and visual representation. Standards that include viewing and visual representation are sometimes overlooked in the classroom because literature can often be one-dimensional. Books may display pictures but the world of media literacy is used to expand knowledge and provide students with a deeper level of visual representation.

How students view text is no longer limited to books. Instead, a world of new literacies has been accepted as a valuable component of learning. New literacies allow students to retrieve information from a variety of sources while still engaging in the traditional skills of reading and writing. New literacy components can include the Internet, electronic books and any other forms of multimedia technology.

The use of IWBs in the classroom has provided teachers with a tool, which can embed all the necessary resources and additional software needed to fully engage students in a lesson.

Previous research on IWB technology often focused on its use in a math or science classroom, although some studies have shown student gains when this teaching tool is used for vocabulary and spelling instruction. The IWB has given teachers a new way of presenting information to students, which is why the research design for this study focused on teachers' perceptions of IWB technology.

Methods and procedures were carefully designed to gather a thorough understanding of IWB technology and reading instruction. Qualitative data were collected and analyzed to check for patterns among interview questions and classroom observations. The first part of this study consisted of semi-structured interviews that included questions outlining four specific categories: general reading instruction, interactive whiteboards in the classroom, interactive whiteboard technology and reading instruction, and how the interactive whiteboard affects student learning. Field note observations where then used to determine how the IWB is used by teachers in a typical reading lesson. Based on the collective data, conclusions were drawn to answer the research questions.

Conclusions

Conclusions presented in this section will be based solely on evidence gathered about the use of IWB technology during the teaching of reading. Each conclusion is aligned with evidence presented in Chapter II which discusses three central ideas; basal readers, balanced instruction, and interactivity. The purpose of this study was to identify teachers' perceptions of IWB technology and reading instruction in a third grade classroom.

The first conclusion that can be drawn is that the IWB has had a tremendous impact on the way the three teachers teach reading and the way students respond to lessons presented on the IWB. Each professional uses the basal reader as part of the classroom curriculum, which was a

common trend that Baumann and Heuback (1996) found in their study. Baumann and Heuback discovered that most teachers use the basal readers along with additional resources, creating a balance between instructional materials. The teachers in this study were observed using their basal reader for the foundation of their lessons and in turn incorporated the IWB to model, clarify and extend information.

During the teacher interviews all three professionals noted that the IWB has made them work harder. They care about the way material is presented to their students because they believe that it makes a difference on how students learn new information. One teacher noted that when she used the traditional whiteboard her students were less attentive; however when the IWB is used during reading instruction students are eager to touch it. Wall, Higgins and Smith (2005), believe that the visual aspects of the IWB are what make it so engaging for students. When students are motivated to learn they are more willing to participate in classroom discussions and activities. According to Gambrell, Molloy and Mazzoni (2007) motivation as well as "teacher- and student- led discussions" (p. 19) are both examples of evidence-based best practices for a balanced literacy program.

Each teacher was aware of benefits the IWB has over the traditional whiteboard, which has resulted in positive attitudes toward new technology. The number of years of teaching experience did not affect their willingness to integrate new forms of technology in the classroom. They were each eager to embrace the IWB because it was exciting and new. Research presented in Chapter II discussed that "The purpose for using IWB's in the classroom is to enable access to and use digital resources for the benefit of the whole class while preserving the role of the teacher in guiding and monitoring learning" (Hall & Higgins, 2005, p. 104).

During whole-group instruction with the IWB each teacher was able to clearly instruct students in "social shared-literacy activities" (Ruetzel, 2008, p. 324). The social aspect of using the IWB creates an opportunity for students to engage in their own learning while interacting with teacher made materials. Teachers used the IWBs in a variety of ways such as using color, pictures, and bold font. Teachers also utilized the IWB during reading instruction to enhance skills presented in the basal reader and to provide additional information to extend students' knowledge. Each professional used Notebook files to share additional information about authors, stories or genres. In addition, the teachers included countless visuals. Using technology to link information through multiple texts and genres creates a balanced between a variety of resources (Gambrell, Molloy & Mazzoni, 2007).

According to Gambrell, Molloy and Mazzoni (2007) "teachers need to provide students with scaffolded instruction" (p. 19) and the IWB has given each of these three teachers the ability model various reading skills. They had document cameras hooked up their SMART boards, which made it easy for them to make instant PDFs of worksheets. Also used was the highlighting tool to emphasis key points in a passage for comprehension. The IWB was used primarily for vocabulary instruction. PowerPoint slides were used to introduce new vocabulary and included images, sounds and activities.

The IWB can be used with auditory, visual and tactile learners (Hall & Higgins, 2005). All three teachers used the visual and tactile features of the IWB frequently; however Ms. Anthony was the only teacher that mentioned that her instructional practices on the SMART board gave students practice with listening skills. Her knowledge of retrieving and condensing video clips from a variety of search engines gave her students the opportunity to listen for voice patterns and also gave her students extra practice with sentence variations.

Teachers do not completely agree about the impact of the IWB on student learning. Two teachers believed that IWBs help students retain information because of all the visuals, while the other cautioned that IWBs were not appropriate for all learners. This goes back to the idea that one-size does not fit all. The reason behind balanced instruction is to meet the needs of all learners through a variety of instructional methods (Pearson, et. al., 2007). Leu (2002), noted that there is still a need for students to engage in traditional literacy practices. New literacies presented on the IWB are not replacing books and writing with a paper and pencil but they are however, being used to extend knowledge (Larson, 2008).

Each of the teachers still uses their traditional basal reader for classroom readings and for selecting worksheets that meet specific skills. Gunning (2008) suggested that teachers need to pick and choose resources from the basal that are useful for their instructional purposes. The professionals in this study did not rely solely on their basals, which allowed for a more balanced approach to learning. In fact, the IWB was often used to address many of the six language arts standards that were discussed in Chapter II. The basal and traditional worksheets were used by students to practice their reading and writing skills. However, the IWB gave students more opportunities to enhance their speaking skills through classroom discussion. In addition, the use of video clips, countless visuals and online text allowed students to interact with a story or concept through listening, viewing and visual representation.

Implications

Based on the evidence presented in chapter four several potential issues can be raised about the use of IWB technology and reading instruction. The teachers in this particular study were able to successfully balance the use of IWB technology with the traditional basal reader. They allowed their students to interactive with the board and they also used it for whole group

instruction. However, they did not rely solely on the IWB to do all the teaching, students were still required to engage in traditional literacy practices. Through interviews and observations it was noted that the IWB was used as an instructional tool that enhanced a basal reading lesson. Each teacher presented information in a very fashionable and organized way, but mentioned that SMART board materials take a significant amount of time to prepare. Their IWB presentations were both visually appealing and useful for classroom instruction, and the amount of time spent creating Notebook files did not take away from what needed to be learned.

Although the teachers in this particular study were able to use the IWB as part of a balanced curriculum, other professions who have an IWB in their classroom may be using them inappropriately. In these cases there are several issues to consider:

1. Is the IWB too time consuming for teachers?
2. Are IWBs actually interactive for students? Or are teachers primarily the ones using it?
3. Are teachers taking full advantage of all the resources that IWBs possess?
4. Are teachers balancing the amount of time spent using the IWB with other forms or instruction, such as hands-on activities?

Other problems can also arise with the increase of IWBs in the classroom. One teacher mentioned that students still enjoyed using the IWB because they were not “jaded” yet. This is a new and exciting tool that most students and teachers are just beginning to be introduced to. Therefore, additional research should be conducted to understand the true advantages of IWB technology and reading instruction. It would be interesting to further explore the following questions:

1. Is the IWB exciting because it is new or is there more to it then just bells and whistles?
2. Will students still be engaged in a lesson that incorporates the use of IWB technology after they have had an IWB in the classroom for several years?

Recommendations

For Teachers

Recommendations can be made for those teachers who rarely use the IWB during reading instruction. IWB technology has undoubtedly changed the ways in which information is presented to students. The purpose of this tool is to provide students with visuals for learning and to extend their knowledge. Although nothing can completely erase traditional literacy practices of reading and writing, new standards seek to prepare students to view information using multiple forms of media. IWB technology has allowed teachers to incorporate new literacy practices into the curriculum through a variety of ways. It is recommended that teachers who have access to IWB technology take full advantage of its dynamic features.

Teachers should use the IWB as an extension to their current instruction. Videos, colorful images and pictures can be used to introduce new vocabulary terms and to provide more visuals when explaining particular themes. The Internet is an amazing tool for teachers who want to provide their students with additional information on an author or text genre. The Internet also provides teachers and students with games that can be used to practice grammar, vocabulary, comprehension and spelling skills. In addition, teachers are recommended to use highlighting features when pointing out the main idea and supporting details of a passage.

Teachers who have access to a document camera are recommended to use it to model ideas and provide demonstrations for students on a regular basis. This tool gives students a clear

understanding of teacher expectations, and can be used to review worksheets and share student work. Teachers who use the basal reader know that vocabulary words are often presented to students in a passage. Although reading words in context is a great strategy for students to recognize unknown words, PowerPoint presentations, pictures, and cloze activities presented on the IWB can give students a greater understanding of new vocabulary terms.

One final recommendation for teachers is to always be willing to try new things. This study revealed that teacher dedication and motivation is a key factor to the success of IWB technology and the teaching of reading. Without a teacher's enthusiastic attitude to try new things, students will never be exposed to learning with the use of technology.

For Administrators

School administrators should be aware of the positive impact that IWBs have on reading instruction. Based on teacher interviews, each of the professional believed in the importance of technology-enriched classrooms. School administrators are the ones who make the decision on whether or not they are going to fund the use of IWB in their school district; therefore they should see first hand how IWBs benefit a learning environment.

Administrators are recommended to observe classrooms that use the IWB during reading instruction. If school officials see how students respond to new technology and see how a variety of media tools can be used to enhance learning, they can more fully understand why IWB technology should be a part of all classrooms. In addition, for those teachers who are less enthusiastic about receiving technology, administrators should set up professional development workshops to educate them on the basic and more advanced functions of the IWB.

For Designers of Curriculum

Basal textbooks are present in most classroom settings but are not completely accommodating when used with technology. Evidence presented in chapter four suggests that teachers spend a significant amount of time preparing IWB lessons that align with their basal reader. Therefore, it is recommended that curriculum designers and basal publishers create an interactive version of a basal text. This can include an online website or individual disk that teachers can access for whole group instruction and guided reading. These new interactive basals should come complete with pre-made IWB activities for vocabulary, comprehension, fluency, phonics and phonemic awareness. Worksheets sheets should be readily accessible to pull up on the IWB and materials should be colorful and engaging. In addition, the interactive basal should have electronic versions of a story as well as interactive guided reading activities that align with each leveled reader. These ready-made resources would not only be beneficial for teachers, but for students as well.

For Future Research

Based on evidence presented in this study it is recommended that further research be conducted on the use of IWBs during reading instruction. This study has shown that IWB technology has had a positive impact on three specific teachers. However, this is a very small sample size and it omits a significant number of teachers who use IWBs in their classroom. If this study was to be further extended, a larger and more diverse sample of teachers should be interviewed and observed. If a larger and more diverse sample size were chosen then it would provide a broader view of how the IWB can be utilized during reading.

In addition to selecting a larger sample size, more time should be set aside for teacher observations. Ideally a single teacher should be observed for a longer period of time to give an

in-depth overview of how they teach reading and how they integrate the IWB into instruction. A study that focused on the affects of the IWB on learning would be another area for investigation. Future studies should focus on how instructional practices using the IWB may change from the elementary to middle school setting and whether or not these changes affect the way students are used to learning new information. Although the focus of this study was on teacher perceptions, much could be learned from observing and talking with students to examine their perceptions of the benefits of IWB learning. The questions presented in the implications section of this chapter can also be used for further research on the use of IWBs during reading instruction.

Summary

The beginning of this chapter summarized the review of literature and research design for the study of IWB technology and reading instruction. Several conclusions were then made based of teacher interviews and observations. The purpose of this section was to find common trends among teachers' perceptions of IWB technology. Based on interviews and observations there was a consistency of teaching practices among each professional. Each teacher took advantage of their IWB during whole-group reading instructional time and had positive attitudes when discussing the benefits of using the IWB during lessons. After conclusions were made, the final portion of this chapter addressed recommendations for further research as well as recommendations for classroom teachers, designers of curriculum and school administrators. Recommendations for the future uncovered the possibilities of a more extensive research study that involves teachers and students from a variety of school districts. On the other hand, recommendations made for classroom teachers and administrators focused on the research that was presented in this study. Overall, the teachers who participated in this study were extremely self-motivated and willing to engage technology into reading instruction. Their teaching

practices can be used as an example of how the teaching of reading has evolved to include multiple forms of technology.

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APPENDIX A,

Teacher Interview Questions

Teacher Interview Questions

General Reading Instruction Questions

How many years have you been teaching?

What reading series does your school district use?

How often do you use the basal reader?
- Do you use the basal for planning all reading lessons or just select lessons?
- Do you use the leveled readers in the basal series?
- Would you consider the basal to be the center of the reading curriculum or just a part?

Based on your past experiences how has reading instruction changed throughout your teaching experience?
- What did supplementary aides did you originally use to teach reading instruction?
- How have basals changed?
- How has technology influenced reading instruction? How was technology used during reading instruction?

Can you briefly explain your philosophy of teaching reading?

Interactive Whiteboards in the Classroom

What were your initial perceptions of Interactive Whiteboards?
- Were you hesitant to receive one in the classroom?
- Did you think the IWB would impact instruction?

When did you first receive a IWB in your classroom?
- How many years have you had the IWB?
- What time of year did you receive the IWB? (Fall, Winter, Spring Summer)
  - Did you notice a difference in your teaching methods when you received your IWB?

Was it difficult to learn how to use a IWB?
- Did you attend a workshop to learn about the features of a IWB?

On average how often do you use the IWB throughout the day?

What additional features does your IWB unit include?
- (Example Student response system, document camera etc.)

Interactive Whiteboards and Reading Instruction

How often is the IWB used during reading instruction?
- Is it used every day?
- Is it used for the entire lesson of just parts?

When used during reading instruction, what advantage does the IWB have over the normal whiteboard?
- How is the IWB used?
  - Is it used for whole-group instruction, small group instruction or both?
  - Is it used to model ideas?
  - Does using the IWB affect the pace of a lesson? How so?
  - Do the students get the opportunity to use the IWB?

Do you create your own resources for the IWB?
- If so what types of resources have you created?
- Do you use the basal reading series when creating resources for the IWB?
  - In what way?

What features are used most often on the IWB during reading instruction?
- -Examples (Internet, PowerPoint, Student Response System, Videos etc).
- During reading instruction do you use the SMART board to:
  - Prepare lessons ahead of time
  - Pull up web-based resources
  - Explain concepts through video clips
  - Demonstrate student work
  - Manipulate text (highlighting text, using the Cloze procedure, moving text)
  - Save notes for future lessons

What particular skills can be taught using the IWB and how?
- Comprehension skills
- Vocabulary skills
- Spelling
- Fluency
- Oral language skills
- Listening skills
- Writing skills

How Interactive Whiteboard Technology Affects Student Learning

Does the IWB increase student learning during reading instruction?
- Is student participation in the classroom effected by IWBs?
- Are students involved in more active learning when the IWB is used?
- How do the students use the IWB during reading instruction?
- Does the IWB increase group discussions during reading instruction?

Does the IWB increase student attainment? Why do you believe this?

How has the IWB changed reading instruction?
Are their certain disadvantages to using the IWB?

APPENDIX B.

Teacher Consent Forms

December 16, 2009

To Whom It May Concern:

My name is Meghan Fox and I am a graduate student in the Masters in Reading program at Bowling Green State University. I am currently working on my master's thesis which seeks to address teacher perceptions of interactive whiteboard technology and reading instruction. I would like to ask for your approval to interview you and observe your classroom for three days during the month of January (2010).

The benefit of this study is to address the importance of using technology, in the form of interactive whiteboards, to enhance the teaching of reading. Interactive whiteboards are commonly used to engage students in the learning process. Through active learning students should receive the support needed to be successful in the process of reading. Interactive whiteboards are a culminating tool of new literacy ideas. That is to say, they bring into alignment a number of tools, such as in the internet, electronic books, as well as an abundance of other tools that can be used to engage authentic literature and provide skills-based practice with whole-class instruction. Students that use the interactive whiteboards during reading instruction should find themselves as active participants in a lesson that gives them a better understanding of principals and concepts taught during reading.

If you chose to participate you will be interviewed one afternoon for an hour and observed for three days. The observations will take place throughout the day. All data will be collected through notes and tape recordings. This information will be kept confidential and a pseudonym will be used to protect your identify. Although I will know your identity, this information will not be shared with my committee members or readers.

You will begin your involvement in this study by signing a letter of consent. You will be asked not to share information regarding the interview questions with other collegues and you are also encouraged not to alter your teachering style for the observation sessions. The timeline for this research project will begin in the middle of January and last about three and a half weeks. However, since more then one teacher has been selected for this research you will only be asked to participate in one afternoon interview, three observation days and a possible follow-up interview. The tentative timeline for your participate in this study is listed below. You are requested to participate in one of the following sessions upon agreement to participate.

Sessions	**Interview/ First Observation**	**Second Observation**	**Third Observation**	**Follow-Up Interview**
Session One	Monday Week one	Tuesday Week one	Wednesday Week one	Monday Week two
Session Two	Monday Week two	Tuesday Week two	Wednesday Week two	Monday Week three
Session Three	Monday Week three	Tuesday Week three	Wednesday Week three	Monday Week four

This study contains no risks and your name along with your school name will not be used. Participation is completely voluntary, meaning you can discontinue participation in this research at anytime without penalty. If you have questions about the conduct of this study or your rights as a research participant, you may contact the Chair of Bowling Green State University's Human Subjects Review Board at (419) 372-7716 (hsrb@bgsu.edu). In addition my advisor, Dr. Cindy Hendricks, can be reached at 419-372-7341 (cindyg@bgsu.edu). Also please feel free to contact me at 440-749-4802 (mkfox@bgsu.edu) for further questioning regarding the nature of this study.

If you agree with the information above and wish to participate in this study please provide the following information below.

Interactive Whiteboards and Reading Instruction Research Project

I _____have read the letter of consent and I am allowing Ms. Fox to interview and observe me in my third grade classroom.

Sincerely,

_____
(signature)

Name Printed: _____

School District:_____

Email:_____

Phone Number:_____