

7-2010

Interactive Whiteboards and Elementary Students' Writing

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Interactive Whiteboards and Elementary Students' Writing

A thesis submitted in partial fulfillment
of the requirements for the degree of
Masters of Education

By

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2010

Cedarville University

Abstract

This research focused on the use of an interactive whiteboard in two third grade classrooms to assist students in learning to write main ideas and supporting details as introduced through The Six Traits writing model. The study focused on a control group and an experimental group completing similar writing lessons. The experimental groups' lessons centered around the use of an interactive whiteboard and various activities and interactive games to enforce the learning. The results from the study can aid educators in the incorporation of an interactive whiteboard to assist instruction.

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Chapter 1

Review of Research

Technology/Interactive Whiteboards

Technology has drastically changed in the educational setting in the past ten years. Within the classroom, teachers have switched from traditional chalk boards and over head projectors, to the interactive whiteboard. Franklin (2008) stated computer availability and use have increased along with programs that deal with educational technology. Cogill (2002) reported computers use has increased dramatically for the teaching and learning in the classroom. Additionally, Bose (2009) reported technology has shifted young children's learning in profound ways. Gillen, Staarman, Littleton, Mercer, and Twiner (2006) acknowledged those rapid changes in technology have created new possibilities within the pedagogical styles used for instruction. The use of technology has added a dynamic and diverse atmosphere that has changed how children are learning all over the world (Hamzah, Ismail, Tamuri, Embi, & Maimun, 2009). These changes have occurred while using the interactive whiteboard and the availability to access multimodal forms of presentations during lessons (Greiffenhagen, 2002). Encompassed in those changes was strong pressure on educators to use advanced technologies in education (Hamzah et al). Burden (2002) wrote technology has the tremendous potential to alter our educational infrastructure. With the spread of these technologically advanced classrooms, educators are faced with the decision to move forward in technology with the new generation of students and learning or remain unchanged.

While students may have seen technology as a familiar tool for learning, educators are leery; nevertheless, teachers must capitalize on the students' fascinations with this technology (Lisenbee, 2009). In her study, Bose (2009) stated 100% of the teachers were advocates for the implementation of Information and Communication Technology (ICT) in early childhood education programs to stimulate the brain, build strong educational foundations, and strengthen technology. In addition, Hennessey, Deaney, Ruthven & Winterbottom (2007) reported both teachers and students unanimously agreed that when students actively manipulated items on the interactive whiteboard a definite benefit to the students' learning, attitudes, and motivation took place. Educators were encouraged to enhance the positives aspects of technology and foster its use within their classrooms. One way educators have chosen to enhance their teaching is through the use of the interactive whiteboard.

Interactive whiteboards have moved from the board room into the classroom with the promise to promote not only teaching, but also students' learning (Greiffenhagen, 2002). Greiffenhagen, also reported the office and educational classrooms are quite different. While the requirements for the office and the classroom were varied, a large number of schools have chosen to saturate their classrooms with interactive white boards (Beauchamp & Parkinson, 2005; Slay, Sieborger & Hodgkinson-Wiliams, 2008; Smith, Higgins, Wall & Miller, 2005). The use of the interactive whiteboard has quickly begun to inundate the educational setting. Mounce (2008) reported 75% of the classrooms in her study contained an interactive whiteboard. Educators from a wide spectrum of backgrounds have embraced the interactive whiteboard to not only entice students in their

learning, but also to prepare students in desirable technology to sustain the changes and demands of the twenty first century (Somyurek, Atasoy & Ozdemir, 2009).

Research surrounding the use of an interactive whiteboard has recently begun to flourish with small scale projects by teachers, schools, and universities (Smith, Higgins, Wall, & Miller, 2005). While reports varied from study to study, the use of the interactive whiteboard in the educational setting has shown signs of improvement in student attainment. Marzano (2009) showed a 16 percentile point increase in student achievement when an interactive whiteboard was used for instruction. Furthermore, McClaskey and Welch (2009) showed astonishing growth with a young autistic child's language development when lessons were taught using an interactive whiteboard. In addition, Miller, Glover and Averis (2004) studied the use of twelve interactive whiteboards when used in the classroom. The interactive whiteboard contributed understanding within the students of the mathematics teachers in their study and found increased support when the interactive whiteboard's capabilities were understood by those teachers using them. In addition, Marzano stated interactive whiteboards have great potential to enhance teacher pedagogy, create interactive lessons for students, and improve student achievement. Although the research surrounding the use of the interactive whiteboard's influence on student attainment is relatively new, small gains in limited domains have been evident when the interactive whiteboard was used for instruction.

Although interactive whiteboards have been placed within the educational setting rapidly, the question remains as to whether educators have changed their pedagogy styles or simply used interactive whiteboards as a fancy chalkboard. Veen (1993) reported

teachers' beliefs on technology have changed very slowly, and adaptations of technology were used most when educators applied their technology knowledge in accordance with their existing practices. The idea implied educators had advanced technology in classrooms, but failed to adjust or change their existing pedagogy styles. Slay, Sieborger, Hodginson-Williams (2008) reported many teachers were literate in information and communication technologies, but were not competent to transfer those skills into their teaching. In Beauchamp (2004), educators commented that teachers needed to become confident computer users before they could successfully implement the interactive whiteboard in their teaching. Pedagogy has changed with the use of the interactive whiteboard. Educators have used the interactive whiteboard in connection with the computer for images or text to be selected, displayed various games and activities to engage students, and moved and modified those images and texts in ways never before possible (Gillen, Staarman, Littleton, Mercer & Twiner, 2006). Gillen et al., continued with interactive whiteboard's advantages when they stated educators could flip back and forth through current and previously saved lessons, be networked to other information and communication technologies equipment, and allowed flexibility of teaching styles. Ikpeze (2009) summed up integration of technology in the classroom when he stated as new technologies emerge, educators must continue to update their own knowledge to improve technological pedagogical understanding and transfer that knowledge to students.

Advantages for students through the use of an interactive whiteboard in the classrooms were significant. Sprague (2007) reported technology changed the atmosphere of a classroom. Students were more eager and involved with whole group

instruction when the interactive whiteboard was used. The interactive whiteboard was more exciting than the traditional chalkboard and the overhead projector (Beauchamp & Parkinson, 2005). Students in classroom where interactive whiteboards were used, tended to show higher levels of motivation during instructional lessons (Burden, 2002; Merrett & Edwards, 2005; Torff & Tirota, 2009). In support of that detail, Painter, Whiting, and Wolters (2005) reviewed evidence that students' attentiveness and motivation seemed to be more involved and student centered with the use of the interactive whiteboard. Levy (2002) collected data from students who claimed they were more apt to pay attention and focus on the interactive whiteboard than on the blackboard. Mackall (2004) reported classrooms involved with interactive whiteboards were more productive, and students understood basic concepts in a more productive manner. More importantly, the use of the interactive whiteboard widened the scope of activities through the connection to the computer and internet (Beauchamp & Parkinson, 2005). With the support of the projector and the computer, teachers were able to access internet sites, interactive games, or educational movie clips to be projected for the entire class. Miller, Glover and Averis, (2004) interviewed educators who reported when interactive whiteboards were used, teachers used a combination of pedagogical approaches to assist students' varied learning styles. Interactive whiteboards have allowed teachers to organize and manage content more efficiently and effectively (Rudd, 2007). With the integration of the interactive whiteboard into the classroom, there were many possibilities to incorporate learning activities, interactive games, educational videos, and multimedia to engage student and to enhance their learning.

Through continued research, an accommodating atmosphere must be created for the success of the interactive whiteboard. Kent (2004) supported this idea when he reported that school environments must be arranged to promote the facilitation of the interactive whiteboard to increase the learning and teaching in the classroom. Additionally, Kent confirmed the school environment must possess certain characteristics to guarantee the enhancement of the interactive whiteboard to teaching and learning. Those traits began with a commitment from the school's leadership including permanent interactive whiteboards in multiple classrooms, digital input, and time for educators to share and reflect on their use of interactive whiteboards. Franklin (2008) added that strong leadership within a school building was vital for the success of any technology implemented within a school system.

While the school environment is critical for the success of the interactive whiteboard, educators must demonstrate a change in their teaching methods and attitudes when using the interactive whiteboard. Torff and Tirota (2009) argued that teachers' attitudes toward the interactive whiteboard were connected to students' higher levels of motivation. Educators must trust in the technology's effectiveness and pass the same excitement and encouragement to the students. Kent (2004) acknowledged teaching practices needed to change for the technology to be successful. Hennessy, et al., (2007) supported the same idea when they reported existing pedagogical approaches and philosophy appeared to shape the teachers' use of the interactive whiteboard. When educators believed in the usefulness and benefits of the improved technology, those positive attitudes were passed on to the students. Marzano (2009) continued the thought when he wrote that interactive whiteboards have great potential to improve instructive

practices when used effectively within a classroom. Educators have transitioned their instruction from non-interactive teaching to interactive teaching through the use of the interactive whiteboard (Gillen, Staarman, Littleton, Mercer & Twiner, 2006). Educators who have used new technology to enhance the teaching, instruction, and learning within the classroom have opened their minds to the philosophies needed for successful technology implementation.

Writing Instruction

Writing is a critical domain within the educational setting. Baker, Chard, Ketterlin-Geller, Apichatabutra and Daobler (2009) supported the importance of the writing field because writing offered students not only the chance to articulate feelings, but also to reveal knowledge in all subject areas. Within all state Achievement Tests, students must not only understand the material covered within each domain, but also possess the ability to convey their knowledge in written form through short answer and extended response questions. When students have clearly written the learned material, content has been solidified for the student. Fluent writing must not stop in the writing classroom, and educators were urged to develop writing in students for all subject areas. Baker et al., urged educators to support the extension of writing beyond the classroom and recognize the requirement of writing daily in professionals' tasks in all living-wage jobs. Clear and precise writing must be taught to enhance the professionalism of all students. When students were given the correct tools in the writing process, cross-curricula application would promote student learning. Paquette (2009) reported when students received good writing instruction at their level, those students tended to perform better on state tests. Good writing skills are essential to student learning and growth.

When students can adequately express skills, content knowledge, and concepts through written expression in Reading, Science, Health, Mathematics, and Social Studies, learning becomes embedded at a much higher level. Moats, Foorman, and Taylor (2006) stressed the importance of improved writing instruction for all students. Students needed high-quality writing skills to express ideas and knowledge in all subjects. Bittel and Hernandez (2006) affirmed writing was a natural process encompassed within all learning and the importance efficient writing played within the science curriculum. Good writing skills have proven to support success in all subjects for students who have been taught to write properly.

Six Traits Writing Model

The Six Traits writing model was created by teachers in the midst of the 1980s at the Northwest Regional Educational Laboratory, NWREL (Higgins, Miller, & Wegmann, 2006; Jacobson, 2005). Six Traits was developed to find an easier way to get information about students' performance in writing than from a single standardized test (Higgins, Miller, & Wegmann). The six components involved with this writing model are ideas, organization, voice, word choice, sentence fluency, and conventions (Culham, 2006; Jarmer, Kozol, Nelson, & Salsberry, 2000; James, Abbott, & Greenwood, 2001). In addition, Jacobson reports when students and educators concentrate on these specific six traits, both students and teachers share the same language when recognizing, practicing, and assessing students' writings. The Six Traits writing model has specific language and vocabulary to use within its writing instruction. This common language demonstrated between educator and students serves as the base and of understanding for each component. In two separate studies, Culham and Paquette (2009) acknowledged the

same thoughts when they recognized teachers and students who used the Six Traits writing model, shared identical vocabulary, understood and recognized the writing standards and expectations set by the educator, and consistently produced writing passages that would meet particular standards.

Six Traits Writing Components

- Ideas – Within the idea section of Six Traits, the meaning and development of the message/story occurs. Students pay close attention to details, create a narrow topic, develop clarity and a sense of purpose, and notice details students of the same age may not notice. (Culham, 2006)
- Organization – Developed within the organization section is the structure of the piece of writing. Within this section of the Six Traits writing model, students balance chronological pictures with text, group details with the use of sequencing words, create a beginning, middle and ending to the message/story and show cause and effect relationship through problem solving within the story. (Culham, 2006)
- Voice – The voice area within Six Traits is the way an author brings the topic to life. Specific signs of development of voice within a writing piece are recognizing an audience, developing a story with sparkle and individuality, and a sense of what the writer thinks or feels. (Culham, 2006)
- Word choice – Word choice is the specific vocabulary the author chose to express the meaning. Through the use of word choice, the author uses precise or new

words, uses verbs that have energy, and creates memorable words or phrases within the message/story. (Culham, 2006)

- Sentence fluency – Sentence fluency, as developed through Six Traits, is the way in which words and phrases flow throughout the text/story. For primary writers to develop sentence fluency, they must write simple sentences that begin differently. Writers may also use rhythmic language, rhyme and cadence, and a variety of long and short sentences within the message/story. (Culham, 2006)
- Conventions – Conventions, as used in Six Traits, is the mechanical correctness of the writing. The development of conventions in writing focuses on left to right, up to down orientation on the page, distinction between upper and lowercase letters, spacing between words, capitals letters at the beginning of sentences and for proper nouns, punctuation at the end of each sentence and correct spelling for the age of the writer. (Culham, 2006)
- Presentation – Presentation, while not one of the listed Six Traits, is the overall appearance of the writing. Characteristics of presentation centered on overall neatness of the text, handwriting written on the lines, nicely drawn pictures in relationship to the text, the use of margins, and no smudges or cross outs in the text. (Culham, 2006)

There was extensive research surrounding writing styles and techniques used to improve students' ability to write. According to the Writing Strategies at the University of Buffalo School of Graduate Studies, Collins (2010) stated writing can be made easier with correct instructional skills. One such study involved an action research model which

devised ideas and gathered feedback from students surrounding the Six Traits writing model. Bittel and Hernandez (1999-2008) showed students' writing improved through the use of The Six Traits Writing model. Similarly, Jarmar, Kozol, Nelson and Salsberry (2000) reported research growth for students throughout their school building when Six Traits was included within the school's writing curriculum. Another interesting study by Bittel and Hernandez (2006), used the Six Trait writing model and indicated increased writing scores in two of the Six Traits categories. Similarly, Jamer et al., (2000), conducted a study throughout one elementary and showed strong growth in writing when the Six Traits writing model was implemented. In contrast, Schirmer, Bailey, and Fitzgerald's (1999) study involved deaf students, and the results indicated five of the Six Traits areas did not show a significant improvement in students' writing scores. Martin (2007) embarked to support the advantages of the interactive whiteboard in response to Six Traits, but concluded that using the interactive whiteboard was not the most effective way to instruct the students in writing. Within some research studied, the Six Traits writing model has improved students' writings; yet, limited research has surrounded an interactive whiteboard's effectiveness to improve students' writing skills in the educational classroom.

Writing Assessment

Through the use of good modeling, students can be given the opportunity to identify high-quality writing when that writing was placed before them. Perchemlides and Coutant (2004) stated if teachers wanted students to become more advanced writers, then educators had the responsibility to clearly recognize excellent writing.

In addition to model writing in Six Traits, researchers have studied the benefits of using writing rubrics to assist students. Rubrics, or performance based assessments, have been used within education for quite some time (Skillings & Ferrell, 2000). Schirmer, Bailey and Fitzgerald (1999) stated the use of a writing rubric was one strategy that gave the students specific writing instructions, along with expected writing requirements. Andrade, Du, and Wang (2008) reported that when students were exposed to writing criteria through the use of a rubric, there was a positive correlation to a higher quality of writing. Schirmer, Bailey and Fitzgerald developed a study surrounding the use of writing rubrics to assist the writing assessments of deaf fifth and seventh grade students. Throughout the study, educators used the strategy of a writing rubric for specific writing instructions and requirements and concluded when students had an active part in using the writing rubric, their scores tended to reflect a higher understanding. Paquette (2009) used pretest and post-test writing prompts to administer and evaluate student writing using the Six Traits writing rubric. Writing rubrics have played a critical role in students' understanding and expectations of writing requirements and have been proven to improve writing skills.

The writing rubrics included in the Six Traits writing model have specific guidelines for points given in a writing assessment ranging from 0 to 5 points according to the details displayed in the passage. For the writing rubric centered on main idea and supporting details (Appendix 1), the following guidelines were set for the assessment. The scores given on the writing rubric were 1 point as a ready or experimenting writer, 2 points meant emerging or exploring writer, 3 points indicated a developing or expanding writer, 4 points meant effective or extending writer, and 5 points indicated the student is a

strong or established writer. Within the Six Traits writing rubric there were specific outlined details for each of the five levels. Students who scored only 1 point indicated the writing piece conveys little meaning, letters were not consistent, letters and words were not completely recognizable, and oral reading would need to occur for the reader to understand the message. A writing piece that scored 2 points showed the writer had one or more ideas present in a general way, letters and words were picked out as clues to the topic, and the reader would get the general idea, but needed assistance from the student who wrote the piece to fully comprehend what the author was trying to convey. For a score of 3 points, the ideas were written in basic sentences, the text contained real words, and basic details of the passage were present and understood by the reader. For a student to get a score of 4 points indicated the writing explained a simple idea or story made up of several sentences on one topic, key details emerged in the writing piece, the writing made sense, however, some details were missing, and the text worked to create a rich topic. For a student's writing piece to score 5 points, the writer showed the ideas were clear and coherent, the text was a well-developed paragraph, the writer demonstrated understanding of the topic through personal experience, and elaboration through interesting details created a meaning for the reader. Within the Six Traits writing model, there are detailed rubrics for each of the six traits. As students learn and develop each trait, the specific rubric is used to assess that precise trait. These clear and detailed levels through the Six Trait writing rubric will score students' writings of various levels from scores ranging from 0 to 5 points.

Standardized Assessment

Cognitive Abilities Test/CogAT

The Cognitive Abilities Test, or CogAT, is a normed reference test that appraises the level and pattern of student's cognitive learning from kindergarten through grade 12. A score being in the 50th percentile is considered average. The test measures both general and specific reasoning abilities of students (A Short Guide, 2002). The Cognitive Abilities Test is given to students as an effective guideline for educators and parents in three areas. First, the test assists teachers in adapting student instruction to meet individual needs in their learning. Specific adaptations of instruction are discussed and given to educators to help build on students' strengths. Secondly, the Cognitive Abilities Test provides a constant measure of students' cognitive development that is not identified in their academic grades. The reasoning skills measured in the Cognitive Abilities Test show that low-achieving students typically have higher reasoning skills than their academic grades indicate (A Short Guide, 2002). Thirdly, the test identifies students predicted levels of academic achievement if they are much higher or lower than their observed levels. When there is a discrepancy between students' academic performance and the Cognitive Abilities Test scores, educators should make use of the information to check for any other difficulty individual students may be experiencing in the educational process.

The Cognitive Abilities Test has two norms. Age norm comparisons begin at age 4 years and 11 months and go through age 18. Age norms compare students' scores with those of other students who are the same age. Grade norms cover kindergarten through grade 12. The scores for grade norms compare students' performances with students who are in the same grade.

The Cognitive Abilities Test has three areas: Verbal Battery, Quantitative Battery, and Nonverbal Battery. The Verbal Battery section of the CogAT assesses students' vocabulary with the comprehension of ideas, effectiveness with verbal memory, and relationships with vocabulary. Statistics show a high correlations between high verbal ability and success in school subjects (A Short Guide, 2002). The second section in the CogAT Test is Quantitative Battery. Within this portion of the test, students are assessed on their reasoning and problem solving skills. The Quantitative Battery section appraises students in abstract reasoning. Students find number patterns and get solutions through numbers and signs. The third section of Cognitive Abilities Test is the Nonverbal Battery. Within this section, there is no reading for the students. Students see geometric shapes that have little direct relationships to the customary school instruction. Students are looking for similarities between given shapes, patterns and relationships between those geometric shapes given to them.

The Cognitive Abilities Test's Verbal Battery section score has been chosen to be used within this study because of the correlation of vocabulary use and understanding in relationship to effective vocabulary used in writing. Students who have a good understanding of vocabulary, write and communicate their thoughts in a more precise manner than those students who have low vocabulary development. Students' ability to reason with words is typically shown in their writings.

Definition of Terms

Baseline - refers to the period of time in which the target behavior is observed and recorded without the new intervention (Wasson, 2005)

Cognitive Abilities Test (CogAT) – appraises the level and pattern of cognitive development of students from kindergarten through grade 12 (Riverside Publishing, 2002)

504 – Rehabilitation Act of 1973 which falls under the civil-rights law to remove barriers and allow students with disabilities to participate without restraint in an attempt to level the playing field so all students can safely pursue the same educational opportunity (Mauro, 2010)

ICT- information and communication technologies (Somyurek, Atasoy, & Ozdemir, 2009)

Interactive Whiteboard – a whiteboard displaying the image from the computer monitor with the surface acting as a giant touch screen (Preston & Mowbra, 2008)

Multimedia – the integration of multiple forms of media (Schmid, 2008)

Multimodality- using more than one semiotic code or channel of communication (Shenton & Pagett, (2007)

Pedagogy – how we teach subject matter to students (Mishra & Koehler, 2009)

Rubrics – a document that articulates the expectations for an assignment by listing the criteria, or what counts, and describing levels of quality from excellent to poor (Andrade, Wang, Du & Akawi, 2009)

Universal Scale Score - a normalized standard score used for all students as the grade norms for CogAT; shows continuous growth for students from kindergarten through grade 12 (Riverside Publishing, 2002)

Verbal Battery – the tasks within this section of the CogAT include verbal classification, sentence completion, and verbal analogies and are good measures of abstract reasoning skills (Riverside Publishing, 2002)

Chapter 2

Introduction to the Study

Statement of Issue

Since the interactive whiteboard boomed into the educational setting, school districts have spent enormous amounts of money on this advanced technology. The mainstreaming of technology into classrooms has given more variety to instructional teaching methods for educators. Numerous studies have been conducted to show the interactive whiteboard's effectiveness, or lack thereof, in educational instruction (Campbell & Mechling, 2009; Mechling, Gast & Krupa, 2007; Smith, Hardman, & Higgins, 2006). Within the research studied, reports varied concerning the success of interactive whiteboards in the attainment of student learning. Hennessy, Ruthven and Brindley (2005) perceived the use of technology as an advantage because through the process of learning, students received immediate feedback, refined editing skills, and self corrected their work. With the increase use of an interactive whiteboard in schools, it is critical to support with data the use of advanced technology or methodology to assist and enhance students in learning. Consequently, educators and administrators alike must

show reliability and responsibility to ensure students master the state standards and show growth and knowledge in writing skills. If technology is to be integrated into the classroom with the use of an interactive whiteboard, then educators and administrators must continue to support the decision to incorporate such technology with reliable and valid research.

Student writing is the subject of this study. According to the three most recent report cards released by the state of Ohio, many school districts have successfully passed the fourth grade writing test (Ohio Department of Education, 2010). In comparison to fourth grade students in similar districts, students in the researcher's school district had the fifth lowest score in the county for the 2008-2009 school year (Ohio Department of Education). For the school year 2007-2008, students within the researcher's county scored sixth among the six similar county schools and for the school year 2006-2007, the same district scored last out of the same county schools. While the percentage of students passing vary from year to year, students within the researcher's district tended to score in the bottom portion in the county according to passing scores. Consequently, because no third grade writing test is given within the state, the fourth grade scores support the focus of this study. Upon closer investigation of the state of Ohio writing report cards, students' writing scores tended to improve to meet state standards as the students moved through high school (Ohio Department of Education). Although students writing scores tended to improve as students move through school, precise writing instruction centered on the use of the interactive whiteboard may enhance the writing skills needed for third grade students within the study to organize their thoughts and write effectively.

Sample

For the purpose of gaining an understanding and awareness of student learning in the area of writing, I am sampling third grade students. Main idea and supporting details, in the writing realm of education, is a critical skill for students to master. Typical third grade students have a difficult time writing on one topic and creating supporting details that pertain to the chosen topic. Students at the third grade level tend to rush through their writing, provide little thought or planning to the writing, give modest effort or concern to their writing, and lack the organizational skills needed to write on one topic. While there is no state achievement test given in the third grade for the researcher's state, as third graders complete the fourth grade, an achievement test will assess their writing skills.

Scope of the Study and Delimitations

In this study, I will collect data centered on the use of the interactive whiteboard within the educational setting. I will track specific academic gains in writing centered on the concept of main ideas and supporting details from the Six Traits writing model and look for evidence to support the use of an interactive whiteboard during third grade writing lessons. I plan to examine the similarities and differences surrounding an experimental group and a control group when Six Traits writing instruction is supplemented with the use of an interactive whiteboard with the experimental group and the use of the dry erase board or chalkboards with the control group. Students identified with a learning disability will not be used within the study in order to create two evenly comparable classrooms. Furthermore, students identified with a 504 will not be included in the study as well. Students identified with a 504 in education do not meet the specific

classification of an IEP. Those students not meeting the requirement of an Individualized Education Plan may have a disability referring to physical or mental impairments that limits one or more life activities. A 504 spells out modifications and accommodations for individual students and those accommodating students will not be included within the study.

Students' second grade Cognitive Abilities Test, CogAT, scores will be used for the comparison of the control group and experimental group. The Verbal Battery section of the Cognitive Abilities Test will be used because of its relationship to written language and an expression of ideas. The verbal section includes sentence completion and verbal analogies. Students who do well in the verbal section tend to do well academically when they are encouraged to write about what they are learning. Within the verbal battery section of the score, the USS, *Universal Scale Score*, is a normalized standard score used for students as the grade norms for the Cognitive Abilities Test and shows continuous growth for students from kindergarten through grade 12.

Included within the study will be two separate third grade classrooms. Both instructors of each classroom will teach similar concepts of the Six Traits writing model. The study will occur during a two week time frame in the second semester of the school year. Those ten days will take place without scheduled interruptions of Spring Break or teacher in-service days.

Although six components create the framework within the Six Traits writing model, only the area of main idea and supporting details will be assessed within this study. Typically, students in the third grade struggle with not only writing on one topic, but also choosing supporting details and vivid verbs with energy within the structure of

the chosen topic. Students will concentrate on only one component of the Six Traits writing model.

Both the experimental group and the control group will be shown a writing rubric to use as their guide during each writing assignment for the lessons. This student-friendly scoring rubric, entitled *My First Scoring Guide – Idea* ([Appendix 2](#)), will use three levels for students. The students' writing rubric is used as a guide to assist students in their writing and contains only three levels. In contrast to the teachers' scoring rubric, these levels do not have scores but guidelines to assist students when writing. The beginning level will help students to understand details are missing, details are not clear, and students are still looking for a specific topic. For the second, or developing level, students will see they are on their way in writing, they show some general ideas, and their topic may be too large. For the final level, strong, students will be able to recognize they know many details about the topic, their writing has fascinating ideas, and they have chosen a topic small enough for them to handle. Students will be able to use this Six Traits rubric to assist them in their understanding and development of the writing assignment.

The area of main ideas and supporting details in writing is the content area for the study. Within the realm of main idea and supporting details, students will write on one topic and keep all supporting details focused on the chosen topic. Supporting details will be clear, complete, and well-developed. Students will display a clear focus in their writing and ideas will be thorough and well balanced.

Only two third grade classrooms will be chosen because of their close proximity, willingness to complete lessons, and agreement of the supporting teachers to work

closely together with each lesson to present similar content with and without the use of an interactive whiteboard. The educator of both the control group and the experimental group will work closely together to ensure instruction to both the experimental group and control group be kept comparable in content area. Both educators plan to use identical, preselected children's books for each of the lessons.

Technology has driven the educational environment of a classroom in a very critical way. Educators are encouraged to use technology in daily instruction to engage and motivate the students and to enhance the learning environment. Cogill, (2002) stated the interactive whiteboard was intended with the purpose of whole class learning. I believe the interactive whiteboard is the best tool to assist students in their writing collectively.

Research Question

1. Does the use of the interactive whiteboard increase third grade students' writing scores in the area of main idea and supporting details when graded using the Six Traits writing model rubric?

This study will focus on the positive gains surrounding the use of the interactive whiteboard during eight writing lessons in two third grade classrooms.

Chapter 3

Methodology

Given the available research surrounding the interactive whiteboard in the educational classroom and the need to understand its benefits to students' learning, this study will focus on students' writing in an elementary setting. Students will be exposed to various games, interactions, and activities that move toward the incorporation of an interactive whiteboard into writing lessons centered around main idea and supporting details.

The study will last just over two weeks. Each writing lesson will take place within a 60 minute period and will center on the introduction and review of main idea and supporting details in writing. Students in the control group will experience the writing lessons without the incorporation of the interactive whiteboard. Students in the control group will experience traditional lessons using the dry erase board and teacher created activities. Those students in the experimental group will experience similar lessons through the incorporation of the interactive whiteboard and games designed with main ideas and supporting details created and used through Smart Notebook 10. Smart

Notebook 10 is the software installed on the computer that goes with the interactive whiteboard with a variety of pre-created games. Educators need to then incorporate the subject matter intended for student learning.

To begin the study, students in both the control group and the experimental group will complete a writing assignment with the assistance of pictures as their prompts. The pictures will be of various individuals doing a wide range of activities. Students will select a picture as the basis of their story and write about the person or event in the picture. Students in both groups will also be shown the writing rubric used within Six Traits writing model, *My First Scoring Guide – Idea*, to use as a guide in their writing. The experimental group will have pictures projected through the interactive whiteboard, while the control group will have the same pictures printed on paper for them to use. This first written assignment will serve as the baseline data for each classroom and will serve as a point of comparison between the two groups in addition to the Cognitive Abilities Test Verbal Battery scores. Upon completion, these writing samples will be scored using the teacher's writing rubric within the Six Traits writing model. Two experienced educators will score the writing pieces separately for both the experimental and control groups, and the scores will be added together to attain individual student sum scores and class average sum scores.

After the prewriting assessment, students in both groups will experience eight main idea and supporting details writing lessons. Lessons will begin with the integration of children's literature. As demonstrated by Culham, (2006) the main idea supporting details trait will unfold and develop through the use of story books, pictures, graphic organizers, and writing models to aid students in details for the their writing. Hampton

(2009) encouraged students' writing to relate to picture books in which students read. In support of the same practice, Paquette (2007) stated the use of quality literature in the classroom gave students advantages in their writing. Once the literature is used, students within the control group will begin the writing lessons without the interactive whiteboard. Students within the experimental group will begin the interactive activities through the interactive whiteboard to begin the writing lessons.

One Six Traits instructor, Jacobson, (2005) provided examples of literature educators could use to enhance the writing models. Through her recommendation, some of those books will be used for the study. Students in the control group will complete each lesson through story books, writing models on the dry erase board, and positive teacher-student interaction. Students in the experimental group will complete those same lessons using the same children's books, but incorporate the interactive whiteboard using sounds, interactive games, visuals, graphic organizers, and writing models to be used by the students.

For the first lesson involving the experimental group, students will have the book, *Growl! A Book About Bears* by Melvin Berger, read to them. After reading the book orally, students will complete the graphic organizer on the interactive whiteboard to complete the story web with supporting details from the story about bears. Students will write to fill in the web using the interactive whiteboard. When a correct supporting detail will be written, a positive sound will be played to reward the correct answer. The positive reinforcement will give students immediate feedback. If an incorrect supporting detail is written on the interactive whiteboard, a sound bite of encouragement will be played for students to try again. For the control group, students will have the book,

Growl! A Book About Bear! by Melvin Berger, read to them orally. Students will create a story web using supporting details from the story. This story web will be written on the dry erase board with in the classroom by the teacher in the control group. Students within the control group will follow the same procedures as the experimental group without the use of the interactive whiteboard.

For the second lesson, students in the experimental group will review main idea and supporting details through the use of the interactive game on the whiteboard. Students will decide if the given sentence is a main idea or a supporting detail and move the statement to the correct bag. On the interactive whiteboard will be three bags. One of them will be labeled "main idea", the second one will be labeled "supporting details", and the last one will be "closing detail". If the student's answer is correct, students will receive an immediate positive response through the use of sound bites on the interactive whiteboard. After the interactive game is played, students will view a picture projected on the interactive whiteboard and choose a character from within the picture. Students will be grouped according the character in which they chose. Those smaller groups will write details on the interactive whiteboard to support the character. Once the details are chosen, students will create the sentences and the narrative surrounding the chosen character. The teacher will model the writing process and assist the students in the correct format and style of good writing. Routman (1999) reports one effective teaching strategy in which the teacher models writing for students by thinking aloud and writing the story with grouped students. In addition, Pytash (2008) states when students observe the development of the written product and hear the thought process from an experienced teacher, they benefit in their own writing development. For the second lesson in the

control group, students will play the game of main idea and supporting details made from sentence strips and brown bags, similar to those projected on the interactive whiteboard. The students will view the same picture on printed paper, select one of the characters, group themselves according to the character and create supporting details to go with the character. As with the experimental group, the teacher and students in the control group will model the writing process together and produce a writing example for the students to witness.

For lessons three through eight, students will complete activities similar to the first two lessons using books, interactive games, writing models, and writing rubrics to assist them in creating their practice writing samples. Other books to be used in the study include *Tacky the Penguin* by Helen Lester, *When I am Old with You* by Angela Johnson, *Goldilocks and the Three Bears* retold and illustrated by Jan Brett, *We Share Everything* by Robert Munsch, *Firefighters* by Robert Maass, and *The True Story of the Three Little Pigs* as told to Jon Scieszka . Students will use the books to generate main ideas and supporting details for their writing samples. For both the control group and the experimental group, students will complete similar activities with each of the selected books. The difference in the lessons for the control group and the experimental group will be the use of an interactive whiteboard for the games to be played, responses heard, written interaction of students, sound bites of immediate feedback, and teacher-students writing examples.

As the writing process continues throughout the lessons, identical steps will occur in both the control group and experimental group for students to begin the journey as independent writers. Through the use of the interactive whiteboard for the experimental

group and vivid pictures for the control group, students in both groups will create individual writing samples. The interactive games that will be used for the experimental group will be developed through games provided through the software program Smart Notebook 10.

Once the eight instructional lessons are completed, both the experimental group and control group will view pictures to generate a writing topic; the control group will observe a paper copy and the experimental group will view a picture projected to the interactive whiteboard. The students' final main idea and supporting detail writing sample will be completed independently for final assessment. After the writing prompt is projected or presented to the students, students will then select their chosen character and begin the writing process. Students within both the experimental group and control group will have a copy of the Six Traits writing model rubric to assist them in the requirements of the writing assignment. These final writing samples will be scored according to the Six Traits writing rubric used for the collection of the baseline data prior to the eight lessons. The same two educators will score the final writing assignments. The scores attained from both scorers for each student within the study will be added together for both the baseline sum and final sum scores.

Once the baseline and the final data have been collected, the researcher for the study will compare the initial baseline and final scores. The researcher will compare the degree of change for the experimental group and the control group. Also, the researcher will use the data from both groups and run a t-test of statistical significance. It is within the t-test where the researcher will identify any statistical significance of the use of an interactive whiteboard in the teaching of main idea and supporting details in writing to

third grade students. Using the Cognitive Abilities Verbal Battery scores, the educator will look for growth in student writing for students with scores below 165 and those students who scored above 165.

Chapter 4

Results and Analysis

The results of the study surrounding the use of the interactive whiteboard to enhance third grade writing skills were intriguing. The incorporation of technology, such as the interactive whiteboard, into the educational setting would seem to encourage and promote growth in student learning, however, the results from this experiment did not support the idea of student attainment that was repeatedly presented in the literature reviewed prior to this study.

Population of the Study

The setting of the study is a rural, public elementary school in Ohio with a current enrollment of 385 students. Student population within this public elementary school is 92.9% Caucasian non-Hispanic and 3.1 multiracial. Roughly 27.3% of the students are economically disadvantaged, and 7.3% of the student population is diagnosed with learning disabilities.

The study sample for the research project consisted of 38 third-grade students in two classrooms. The student sample size is limited due to the number of student participants within to the control group and the experimental group. Both the experimental group and the control group consist of male and female students. Contained in the experimental group, are four students with Individualized Educational Plans, IEP.

These IEP students are not included within the study to create a more balanced comparison between both the control group and the experimental group. Within the experimental group, 94% of the students are Caucasian not of Hispanic origin and roughly 6% are considered Asian/Pacific Islander. The control group consisted of 95% Caucasian not of Hispanic origin and 5% Multiracial. There are no students within the control group who are identified with learning disabilities. Therefore, all students in the control group are included within the study. Both the control group and the experimental group are similar in national origin.

The Cognitive Abilities Test's Verbal Battery scores varied from the control group to the experimental group. Students in the control group had Cognitive Abilities Verbal Battery scores ranging from 123 as the lowest to 204 as the highest. There were seven students in the control group who had a score of 164 in the Verbal Battery section. The average score for students in the control group was 161.79. In comparison, students within the experimental group had Cognitive Abilities Test Verbal Battery scores ranging from 138 as the lowest to 191 as the highest score. Students within the experimental group had an average Verbal Battery score of 166.64.

Students within the experimental group and the control group consisted of a similar Cognitive Abilities Verbal Battery scores for the study. Although the study consisted of a small number of students within two classrooms, not all students had a Cognitive Abilities Verbal Battery score from second grade. Only scores available in each student's file were documented for the writing study. The scores contained in Table 1 were based upon the Verbal Battery section from the Cognitive Abilities Test given to students prior to third grade. Both groups, as shown in Table 1, have very similar

average scores yet the scores are spread out from the mean. Students in both groups had comparable scores that worked well for the study. The average score for the Verbal Battery sections for both the experimental group and the control group were similar. The experimental group's average Verbal Battery score was 166.64, while the control group's average Verbal Battery score was 161.79. The comparison of the two classes prior to the study shows the $p \geq .05$ so there is no statistical significance to the difference in the Cognitive Abilities Test scores of the students used in this writing study.

Table 1

Experimental and Control Groups' Standardized Scores

	<u>Experimental</u> <u>Standardized Scores</u>	<u>Control</u> <u>Standardized Scores</u>
	164	164
	145	130
	166	142
	187	164
	191	159
	166	174
	152	164
	171	152
	180	204
	174	183
	161	164
	156	164
	171	164
	149	164
		177
		152
		174
		156
		123
Averages	166.64	161.79
Standard Deviation	13.67	18.16
P Value	0.686	

Therefore, the students' written verbal abilities within both the experimental group and the control group are comparable to each other.

Baseline writing scores for the experimental group and the control group were added together from each of the two assessors of the study to get the base sum average scores for both groups.

Table 2

Experimental and Control Groups' Baseline Sum Scores

	<u>Base Sum Experimental</u>	<u>Base Sum Control</u>
	6.4	5.8
	6.2	5.2
	6.4	5.4
	7	7
	6.2	8
	7.8	6.4
	6	7
	7.2	7.2
	6.4	8
	7.0	5.4
	5.6	8
	7.0	6.2
	5.4	6.2
	6.6	8
	5.8	8
		6.6
		7.2
		8
		7
		6.8
		6.4
		6.6
Averages	6.47	6.84
Standard Deviation	0.65	0.92
P Value	0.855	

The prewriting scores, as shown in Table 2, describe the first writing assignment scores based on the Six Traits writing scale. Students within the experimental group began the study with an average score of 6.47 based on the scores given by both assessors.

Students within the control group had an average score of 6.84. In comparison to Table 1, the control group had a lower Verbal Battery score than the experimental group on the Cognitive Abilities Test, but produced a slightly higher baseline writing sum score to begin the study. While the control group did begin the main idea and supporting detail writing study with a somewhat higher baseline sum score than the experimental group, the $p \geq .05$ so there was no statistical difference of the baseline sum scores for the writing study so the null hypothesis is not rejected. The student populations for the control group and the experimental group show little difference in baseline writing scores and therefore create a good quality sampling mean for the two classes.

Table 3 shows the final sum scores for the students within the experimental group who experienced the eight writing lessons with the use of the interactive whiteboard and those students in the control group who experienced the same eight writing lessons without the use of the interactive whiteboard. Students' final writing scores in both the experimental and control groups were added together from both assessors to obtain the final sum scores. Students within the experimental group had a final sum score 6.33 while those students within the control group had a final sum score of 6.90. Those students in the experimental group who used the interactive whiteboard to foster their learning in the writing of main idea and supporting details saw a decline in their writing scores from the beginning to the end of the study. The experimental group saw writing

scores go down from 6.47 to 6.33 points; while students in the control group saw their writing scores improve slightly from roughly 6.84 points for baseline sum scores to 6.90 final sum writing scores. The final sum scores for both the experimental group and the control group show a $p \geq .05$ so the writing study would indicate there is no statistical significance in the final writing scores for both the experimental group and the control group. Students in neither the control group nor the experimental groups exhibited the gains in main idea and supporting details writing during the eight lessons.

Table 3

Experimental and Control Groups' Final Sum Scores

	<u>Final Sum Experimental</u>	<u>Final Sum Control</u>
	6.2	6.6
	6.2	4.6
	5.6	5.2
	7.6	7.6
	7.6	9.0
	7.4	7.0
	4.4	7.0
	6.2	7.4
	6.2	7.8
	6.6	7.8
	5.8	6.8
	8.0	6.4
	5.8	7.4
	5.8	6.0
	5.6	7.4
		6.8
		7.8
		7.0
		7.4
		5.8
		6.2
Averages	6.33	6.90
Standard Deviation	0.96	0.99
P Value	0.927	

The interactive whiteboard was not a contributing factor to the improvement of students' writing skills within the experimental group.

Table 4, shown below, identifies the writing growth of the students within the experimental group from the beginning of the main idea and supporting detail writing study to the end of the study. Students' base sum scores and final sum scores are listed on the table. Students within the experimental group began the study with an average sum score of 6.47 and completed the study with an average score of 6.33.

Table 4

Experimental Group's Baseline Sum and Final Sum Scores

	<u>Base Sum</u> <u>Experimental</u>	<u>Final Sum</u> <u>Experimental</u>
	6.4	6.2
	6.2	6.2
	6.4	5.6
	7.0	7.6
	6.2	7.6
	7.8	7.4
	6.0	4.4
	7.2	6.2
	6.4	6.2
	7.0	6.6
	5.6	5.8
	7.0	8.0
	5.4	5.8
	6.6	5.8
	5.8	5.6
Averages	6.47	6.33
Standard Deviation	0.65	0.96
P Value	0.608	

Upon closer inspection, nine out of the fifteen students within the experimental group showed a decrease in main idea and supporting details writing scores, one student stayed the same from the baseline sum score to the final sum score, and five students showed gains in their writing. These scores indicate the final scores for the experimental group did not improve from those scores given at the beginning of the writing study. Students who completed writing lessons with the interactive whiteboard showed no signs of writing growth throughout the duration of the study. The $p \geq .05$ so there was no statistical significant difference with students' writing scores through the use of the interactive whiteboard. Students in neither the control group nor the experimental group showed high gains in their main idea and supporting detail writing.

Table 5 records the writing growth of students within the control group, those students who did not use the interactive whiteboard, from the beginning of the study to the end of the study. Students' beginning sum scores and final sum scores are shown on this table. Students within the control group began the writing study with an average combined score of 6.84 points. Students within the control group completed the main idea and supporting detail writing study with an average combined writing score of 6.90 points. Students within the control group had eleven students demonstrated improvement of their writing scores in main idea and supporting details from the baseline sum data to the final sum data, one student showed no growth from baseline to final sum scores, and nine students decreased their writing scores from the beginning of the study to the end of the study. In addition, writing scores for students within the control group showed a slight growth from the beginning of the study to end of the study. However, the $p \geq .05$ and it indicates no statistical significance for students' writing on main ideas and

supporting details without the use of the interactive whiteboard for eight writing lessons completed in this study.

Table 5

Control Group's Baseline Sum and Final Sum Scores

	<u>Base Sum Control</u>	<u>Final Sum Control</u>
	5.8	6.6
	5.2	4.6
	5.4	5.2
	7.0	7.6
	8.0	9.0
	6.4	7.0
	7.0	7.0
	7.2	7.4
	8.0	7.8
	5.4	7.8
	8.0	6.8
	6.2	6.4
	6.2	7.4
	8.0	6.0
	8.0	7.4
	6.6	6.8
	7.2	7.8
	8.0	7.0
	7.0	7.4
	6.8	5.8
	6.4	6.2
Averages	6.84	6.90
Standard Deviation	0.92	0.99
P Value	0.435	

To continue the study of the results of students' baseline sum scores and final sum scores for writing in the area of main idea and supporting details, the positive or negative

differences of students' baseline and final scores for the experimental group and the control group are shown in Table 6. Students within the experimental group, those who experienced the interactive whiteboard, earned an average decline in their main idea and supporting details writing of -0.13 from the beginning to the end of the study. Students within the control group, those who did not use the interactive whiteboard, earned an average growth in their main idea and supporting details writing of 0.06 within the same time frame of the writing study.

Table 6

Control and Experimental Groups Differences In Baseline and Final Sum Scores

	<u>Experimental</u>	<u>Control</u>
	-0.2	0.8
	0.0	-0.6
	-0.8	-0.2
	0.6	0.6
	1.4	1.0
	-0.4	0.6
	-1.6	0.0
	-1.0	0.2
	-0.2	-0.2
	-0.4	2.4
	0.2	-1.2
	1.0	0.2
	0.4	1.2
	-0.8	-2.0
	-0.2	-0.6
		0.2
		0.6
		-1.0
		0.4
		-1.0
		-0.2
Averages	-0.13	0.06
Standard Deviation	0.78	0.96
P Value	0.599	

With a $p \geq .05$ there is no statistical significance in the difference of the base sum scores and final sum scores for the experimental group and the control group. Thus, the study on writing of main idea and supporting details using the Six Traits writing model and the interactive whiteboard for writing instruction indicates very little writing growth for either group.

An additional t- test was run using students' Cognitive Abilities Verbal Battery scores to recognize patterns of learning or growth for students with high or low verbal scores. Students were placed within one of two groups based on their Verbal Battery scores. Students with a Cognitive Abilities Test Verbal Battery score below 165 were put into one group and those students with a score above 165 were placed into a second group. The purpose of this test was to see if students with a high or low Cognitive Abilities Test Verbal Battery score performed superior with or without the use of an interactive whiteboard for the writing of main idea and supporting details. The scores for students with Cognitive Abilities Test Verbal Battery scores below 165 are shown in Table 7. The base sum average scores start out somewhat different for the control group, 6.98 points, versus the experimental group, 6.10 points. However, the control group tended to perform closer to their starting score than the experimental group. The experimental group dropped in writing scores from the beginning to the end of the study by roughly -0.5 points. Students with Cognitive Abilities Test Verbal Battery scores below 165 consistently performed to their baseline scores. The $p \geq .05$ for both the baseline average scores and the final average scores. However, the students' growth within the control group improved writing scores in the main idea and supporting details writing lessons, while students within the experimental group declined in their writing

scores. Table 7 shows the students in both groups and the differences from their baseline sum scores and their final sum scores and the p value for each of the three individual sections.

Table 7

Students With CogAT Scores Below 165

	<u>Experimental</u>	<u>Control</u>	<u>P Value</u>
Baseline Average	6.10	6.98	0.93
Final Average	5.60	6.89	0.96
Difference	-0.50	-0.09	0.65

An interesting pattern developed within the group that had Cognitive Abilities Test scores below 165. 100% of all the students within the experimental group either stayed the same or had declining scores in their writing skills from the beginning of the study to the end. No students in the experimental group with a Cognitive Abilities Test score below 165 had an increase of writing in the area of main idea and supporting details with the use of the interactive whiteboard. While the number of students in the experimental group with Cognitive Abilities Test Verbal Battery with scores below 165 were low, a consistent pattern of no growth showed up within the study. However, of the seventeen students within this group, three out of the six lowest Cognitive Abilities Test Verbal Battery scores were in the experimental group. In comparison, there were seven students in the control group that had Verbal Battery scores of 164, just barely making the cutoff score for this group and having the highest scores for this group. Students within the control group with Cognitive Abilities Test scores of 165 or below numbered thirteen students. Of these thirteen students, only five of them showed growth from the beginning of the study to the end of the study. Students in the control group stayed

relatively the same from the baseline sum writing assignment to the final sum writing assignment.

The writing scores of students with a Cognitive Abilities Test Verbal Battery score higher than 165 are shown in Table 8. Within this t-test, the researcher was looking for one group, the experimental group or the control group, to show growth with or without the use of the interactive whiteboard in the main idea and supporting details writing lessons. While the hope was the use of the interactive whiteboard would foster and confirm growth in students' writing, there was no statistical significance in either the experimental group or the control group within this main idea and supporting detail writing study. Students within the control group with a Cognitive Abilities Test Verbal Battery score higher than 165 did show improvement after the writing lessons and the students within the experimental group actually declined in the writing scores following the eight writing lessons. Within the experimental group, 75% of students showed a decrease in writing scores after the writing lessons with the use of an interactive whiteboard. Within the control group, half of the students improved while the other half declined in their writing scores. Neither the experimental group nor the control group with Cognitive Abilities Test Verbal Battery scores higher than 165 produced a statistically significance change in their main idea and supporting details writing with or without the use of the interactive whiteboard.

Table 8

Students With CogAT Scores Higher Than 165

	<u>Experimental</u>	<u>Control</u>	<u>P Value</u>
Baseline Average	6.83	7.08	0.66
Final Average	6.63	7.24	0.88

Difference	-0.20	0.16	0.22
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The results of the study conclude that the interactive whiteboard did not enhance the students' writing skills surrounding main idea and supporting details. Students within the experimental group did not show the growth expected with the use of an interactive whiteboard. Students' writing skills in the area of main idea and supporting details actually decreased according to the writing rubric used from the Six Traits writing model. The students within the control group showed a slight growth in the writing of main idea and supporting details. As shown in Table 6, the experimental group had an average decrease of -0.13 points from their baseline sum scores to their final sum scores. Students within the control group showed a comparison in the baseline sum scores and final sum scores with an increase of 0.06. Therefore, the eight writing lessons dealing with main idea and supporting details surrounding the interactive whiteboard did not show the increase of writing for the third grade students involved within this particular study.

Chapter 5

Discussion and Implications

Literature is abundant surrounding the use of technology in an educational setting to enhance, involve, and motivate students. School districts across the country have incorporated the use of an interactive whiteboard to boost and improve the learning that is taking place in today's classrooms (Nightingale, 2006). Gillen, Staarman, Littleton, Mercer and Twiner (2006) stated the goal of introducing the interactive whiteboard into the classroom by both the policy makers and the manufacturers was to increase student attainment. Kennewell, Tanner, Jones and Beauchamp (2008) reiterate the fact that schools are focusing on the interactive whiteboard in hopes they will show improvements in students' learning in classrooms where they are being used. Greiffenhagen (2002) presented information about the interactive whiteboard being introduced into education with the promise to improve not only teachers' instruction but also students' learning. Many educators have incorporated the interactive whiteboard into the classroom for very young students. Lisenbee (2009) stated that four and five year old students saw technology, or the interactive whiteboard, as an essential and identifiable tool for their learning. In one study, Preston and Mowbray (2008) productively used interactive whiteboards in their science classes with kindergarteners. Kent (2004) reported on one kindergarten classroom that conducted lessons on symmetry using the interactive whiteboard to fully examine the exact line of symmetry. School districts around the world continue to spend an immense amount of money to place interactive whiteboards and other new technology into existing classrooms with the hopes they will raise student

attainment among school age children (Hall & Higgins, 2005). However, educators and school districts alike must be data driven in today's society to support the use of technology and to show evidence of an improvement of students' learning for the money being spent.

Writing was one area in which the researchers wanted to see growth. Students of all grade levels need the ability to write and express their thoughts in all subject areas. Baker, Chard, Ketterlin-Geller, Apichatabutra and Dobler (2009) stated writing was the one domain in education in which students can not only express their opinions, but also demonstrate their knowledge on any other subject area. With organized and improved writing skills, students will be able to show growth and understand in not only writing, but also in Science, Social Studies, Health, Mathematics, and Reading. Moats, Foorman, and Taylor (2006) confirmed in their study the dire need for improved writing instruction of students who are at risk in the classroom. Therefore, quality research must be conducted to support the various technological changes taking place in school districts around the world.

The results from this study on third grade writing skills indicate the use of an interactive whiteboard did not improve third grade writing in main idea and supporting details. Students within the experimental group did not show the gains expected to support the use of the interactive whiteboard for writing. While the students in the experimental group showed excitement, motivation, and enthusiasm while using the interactive whiteboard, the proof of student attainment was not evident in their writing scores. Those students within the control group did show a slight, but not statistically significant, improvement in their writing skills surrounding the area of main idea and

supporting details without the use of the interactive whiteboard. Students in the control group did not experience the interactive whiteboard during the third grade, but may have experienced its use in second grade. Students within this study showed limited writing growth from the beginning to the end of the study.

Data is critical in education. Good data and quality research will encourage both administrators and educators to continue down instructional paths that advance learning for students. The data obtained from this study encourages me as an educator to continue studies surrounding not only the interactive whiteboard, but also specific writing instructions and methodologies that will improve students' writing. Quality instruction and methodologies are vital for students' learning.

Much insight has been put into technology in the past fifteen years. As Christian educators we must obtain the technological knowledge and the understanding by which the rest of the world is driven. We must appreciate the world in which God has created and placed us in to serve, and I believe we need to educate ourselves in all areas, including technology, to gain the knowledge to best serve him. Christians must be excellent in all that we do and to use accurate data to enhance our teaching will benefit the students' learning. Ikpeze (2009), stated with the emergence of new technology as educators, we must continue to update our own knowledge and the knowledge of our students in order to improve our daily instruction. As professionals trying to constantly improve students' ability to gain the knowledge to become successful learners, we must use research data to drive our instruction with the purpose of getting God's full potential from ourselves and our students.

The literature surrounding the interactive whiteboard varies according to what has been read. While much literature surrounds the positive outcomes that go along with the interactive whiteboard, there was also literature that questions the role technology has played on students' learning. Nightingale (2006) completed a two year study where 85% of the educators believed interactive whiteboards would improve students' scores, however, the boards have no noticeable impact on student scores. Hall and Higgins (2005) studied a group of 10-11 year old students and found that while the interactive whiteboard is definitely engaging, gains reported from the technology itself may be lost when there are malfunctions with the technology or teachers are not adequately prepared prior to using it. While the interactive whiteboard is exciting and motivational, it is still relatively new in the educational setting and data centered around student attainment is not abundant.

The excitement and newness of an interactive whiteboard may play a key in its success in the classroom. However, the excitement single-handedly may not foster the learning that is desired by administrators, educators, and parents. Hennessy, Deane, Ruthven and Winterbottom (2007) stressed that the motivation, involvement, and active manipulation may not be what students need to improve their learning. In one study, Hennessy, Ruthven and Brindley (2005) stated educator's pedagogy and teaching methods remained the same under a small coating of technological fluff and while the technology is understood by the teachers, it is rarely integrated into the classroom teaching successfully. Beauchamp and Parkinson (2005) wondered if once the students' excitement of the interactive whiteboard wore off, would students then become less attentive to the teacher during regular instruction. Both students and educators are

intrigued with the possibilities an interactive whiteboard has with information and communication technologies, but as educators we must understand the true payback of using technology with the students.

One might question the researcher's incorporation of activities with the interactive whiteboard at a very basic level with the use of the software program SMART Notebook 10. The newness and excitement of advanced technology guided the study of using an interactive whiteboard with third graders. Understanding the importance of writing at the elementary level also directed the study. Each writing lesson was created using software on SMART Notebook 10. These interactive lessons were very simple and basic compared to the true potential an interactive whiteboard has, and may have lacked the creativity an interactive whiteboard novice may have been able to integrate. However, the basic use may actually be considered a strength. Students within the experimental group were excited and thrilled to manipulate the games and activities created on the interactive whiteboard. Students did not fully understand the variety of activities that could have been created. The educators in both the experimental group and the control group were thrilled about possibilities an interactive whiteboard could add to a classroom and wanted to document that the new technology as more than just a entertaining and exciting tool for teachers and students. The outcome of the study changes the focus from an interactive whiteboard, to finding a tool or methodology that will enhance and increase students' writing.

Students within both the experimental group and the control group were exposed to very similar lessons. The educators in the experimental group and the control group discussed each lesson and worked daily to provide lessons focused on the goal to improve

students' writing scores in the area of main idea and supporting details. Both educators felt the need to find instructional strategies, methodologies, or tools to enhance the students' writing strengths and weaknesses.

The population size within the study was limited. There are only three third grade classrooms within the researcher's building. Of those three classrooms, only one had access to a permanent interactive whiteboard. Therefore, only two classes were used within the writing study. Students with a current 504 or IEP, individual educational plan, were not included in the study. Because five students with a 504 or Individualized Educational Plan were not used in the study, the number of students within the experimental group remained small. Another limitation to the study was the lack of Cognitive Abilities Test Verbal Battery scores for all students in the control group and the experimental group. Students who transferred from another elementary school into the researcher's building at some time during their second or third grade school years did not have the information available in their school file. This lack of information kept the number of students low in the CogAT part of the study. Also, one student from within the control group never completed the independent writing assignments to be scored. Of the 38 students in both the control group and the experimental group, at times there were only 37 scores because not all students fulfilled the writing obligation. After group instruction and group writing took place and students were encouraged to complete the independent writing assignments, one student's motivation to complete the work was not evident in the study.

Once the study had been set to ten days and the researcher was to begin the study, a change had to take place. During the scheduled day to gather baseline data prior to

Spring Break, students within the researcher's school district had an unexpected snow day that kept the educators from gathering the baseline data for the study. Because this snow day occurred, the length of the lessons was shortened by one day because the baseline data was then collected on the first day of the study rather than before the writing lessons were to begin. After the instructional lessons started, the students within the research school missed another day of school because of a water main break in the elementary building. Therefore, the writing lessons that were to occur without interruption had two uncontrollable changes during the study.

The inter-rater reliability of the two scorers in the research was monitored for consistency. Both scorers practiced on previous writing assignment when using the Six Traits writing rubric. When the writing scores were completed, the scorers discussed the criteria and work together to obtain the goal and understand expectations of students' writings. When the writing assignments were being scored and the scores were larger than .6 away from each other, both educators chose to put the students' narratives back into the stack to reassess. Although, after the students' writing assignments were reassessed for the second time, the students' individual writing scores rarely changed from how the assessors had first graded their narratives using the Six Traits writing rubric.

Together, both assessors for the study have over 34 years of teaching experience. One teacher has spent her entire teaching experience in a regular education classroom; while the second assessor has spent her 12 years as an intervention specialist. While both assessors have worked with many of the same students, the individual differences in

educational experience may have contributed to the differences in students' expectations for writing.

The Six Traits writing model was used within the study. Six Traits was a new program for educators in both the experimental group and the control group. Neither educator had attended workshops to gain information about the writing program nor experienced Six Traits from experts. Both educators read and studied the information from various workbooks surrounding the Six Traits writing model. While both educators were fully committed to successfully using the Six Traits writing model and studied to fully understand the methods, attending workshops to hear and see from experts may have benefited both them.

Students within the study used the Six Traits writing model rubric to assist them in understanding the expectations for their writing. Students in neither the experimental group nor the control group used or practiced using writing rubrics prior to this writing study. Students in both the control group and the experimental group had seen rubrics used on various lessons and activities for grading purposes throughout the school year, but had not used them in their own writing. This lack of experience with writing rubrics may have contributed to a lack of usefulness in this study. Students may demonstrate more benefits of using writing rubrics when they are exposed to them for a longer period of time and are shown how to successfully use them to assist their writing.

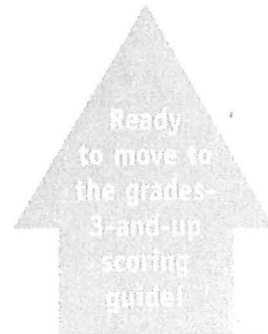
The length of the main idea and supporting details writing study consisted of only ten days. Of those ten school days, one day was used for the collection of baseline data and one was used for the collection of the final data in the study. With six different writing elements within the Six Traits writing model, educators could spend additional

time delving into details surrounding each of the six traits. Educators may possibly expend added instructional time on each of the six traits to create more in depth and detailed lessons for each of the traits. Once each trait was introduced, practiced, and repeatedly reviewed, students could continue to review those skills throughout the course of an entire school year. Educators may choose to spend the time needed to reinforce quality writing from the beginning of a school year to the end of a school year rather than a shortened time frame of just ten instructional days. A yearlong study in which students were repeatedly exposed to the Six Traits writing model and permitted to use the interactive whiteboard over a long period of time, may foster growth in writing that could occur in more than a couple week study.

Suggestions for further research would center around the interactive whiteboard and the effect it has on students and their learning. Educators may choose to study the effects technology has on student attainment and to recognize if one particular educational domain proves to be more successful with an interactive whiteboard than in main idea and supporting details writing. Educators may choose to examine the use of an interactive whiteboard in additional educational domains to see if student attainment happens in areas other than writing. Another suggestion for further study may lead educators to examine attitudes of colleagues who have experienced the interactive whiteboard and what training they have been able to attend. Continued research needs to be conducted to support the use of technology in the classroom. With the integration of the interactive whiteboard, educators must pursue an active role in the study of technology and its benefits for students. I would suggest creating more in depth interactive whiteboard lessons that go beyond the basic tools of SMART Notebook 10.

There is more potential to the interactive whiteboard than what the researcher fully understands and comprehends. . With the newness and novelty of the interactive whiteboard depleting, educators need to understand the changes in students, their attitudes about learning, and the educational purpose centered on the incorporation of an interactive whiteboard into a classroom.

Primary Writing Assessment Scoring Guides



The Primary Scoring Guide

Ideas

Established

5

- The idea is clear and coherent.
- The text is a well-developed paragraph.
- Elaboration through interesting details creates meaning for the reader.
- The writer shows understanding of the topic through personal experience or research.
- Pictures (if present) enhance the key ideas but aren't necessary for comprehension.

Extending

4

- The writing works by itself to explain a simple idea or story.
- The writing is made up of several sentences on one topic.
- Key details begin to surface.
- The writing makes sense, but some information may be missing or irrelevant.
- Pictures and text work harmoniously to create a rich treatment of the topic.

Expanding

3

- The idea is written in a basic sentence.
- A simple statement with somewhat detailed pictures captures the topic.
- Basic details are present in the text; the illustrations work to enhance the main idea.
- The text contains real words.
- Text and picture are understandable to the reader.

Exploring

2

- One or more ideas are present in the most general way.
- Letters and words can be picked out as clues to the topic.
- The drawing helps to clarify the idea.
- The text is composed of simple, recognizable letters with some early attempts at words.
- The reader gets the basic idea but needs the writer's assistance to comprehend it fully.

Ready to Begin

1

- The piece conveys little meaning.
- Real-life objects show up in drawings.
- Drawings may not be completely recognizable.
- Letters are not consistent or standard.
- An oral reading by the writer is needed to understand the message.

Student-Friendly Scoring Guides

My First Scoring Guide Ideas

<p style="text-align: center;">Strong</p>	<p>I've Got it!</p> <ul style="list-style-type: none"> * I know A LOT about this topic. * My writing is bursting with fascinating details. * I've picked a topic small enough to handle.
<p style="text-align: center;">Developing</p>	<p>On My Way</p> <ul style="list-style-type: none"> * I know enough to get a good start. * Some of my details are too general. * My topic might be a little too big.
<p style="text-align: center;">Beginning</p>	<p>Just Beginning</p> <ul style="list-style-type: none"> * I haven't figured out what to say. * The details aren't clear. * I'm still thinking and looking for a topic.

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