

A COMPARATIVE STUDY OF TEACHERS' PERCEPTIONS OF TRADITIONAL
TEACHING AND TEACHING WITH TECHNOLOGY: PRE-TECHNOLOGY
ERA AND POST-TECHNOLOGY ERA

by

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ABSTRACT

The purpose of this study was to analyze the perceptions of teachers about traditional teaching and teaching with technology in the classroom. The study focused primarily on teachers' perceptions about teaching strategies such as lecture, whole group discussion, drill and practice, and teaching with technology. The quantitative research design was utilized and data were generated from a survey given to certified teachers in two high schools. The data collected were analyzed using a *t*-test and Pearson Correlation test. The two tests were used to determine if there were significant differences in the perceptions of teachers regarding traditional teaching and teaching with technology in the classroom. The findings revealed no significant differences in the perceptions of the teachers across both schools about traditional teaching. The findings did reveal that there were significant findings in the perceptions of teachers across both schools about technology on the subscales of ability and comfort; and belief. Also, this study provides evidence that professional development and more technology are needed in the schools. The results of this study can help educators to focus on improving teaching strategies related to traditional teaching and technology integration that will benefit instruction and the learning process in the classroom.

DEDICATION

This dissertation is dedicated to Michael, my husband, and Justin and Jared, my children. Their love and support has helped me through some difficult days. Many times through the process of writing this dissertation, they would give me the gift of laughter, which brought me through many dark hours. During this journey, my family carried the load and made sacrifices to support me in this endeavor. I am truly thankful to my family for their endless support; I will always love the three of you.

Also, I want to dedicate this dissertation to Lillie Lane, my mother. She has always encouraged me to be the best and inspired me to strive for higher accomplishments. My mother has provided me with the love and support needed to succeed in anything I have aspired to do. I love you Mom!

And finally, this dissertation is dedicated to the memory of my father, Roosevelt Lane, who always instilled in me the importance of a quality education. Thanks Dad; I miss you.

LIST OF ABBREVIATIONS AND SYMBOLS

N	Number of participants
SD	Standard Deviation
Df	Degrees of freedom; number of items free to vary after certain restrictions
Sig	Significance and alpha value
p	The value alpha is set
r	Pearson Correlation
t	Computed value of t -test
n	Number in sample
<	Less than
>	Greater than

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TABLE OF CONTENTS

ABSTRACT	ii
DEDICATION	iii
LIST OF ABBREVIATIONS OR SYMBOLS	iv
ACKNOWLEDGMENTS	v
LIST OF TABLES	ix
LIST OF FIGURES	x
I. INTRODUCTION	1
Statement of the Problem.....	4
Purpose of the Study	5
Research Questions.....	5
Methods.....	6
Significance.....	6
Definition of Terms.....	7
Assumptions.....	9
Limitations	9
Summary	9
II. REVIEW OF LITERATURE	11
Traditional Teaching in Education.....	12
Teachers' Perceptions About Traditional Teaching Methods	16
The Impact of Traditional Teaching on Student Learning.....	18
Technology Integration in Education.....	19

Types of Technology Used in the Classroom	21
Effective Use of Technology in the Classroom	23
Barriers to Technology Integration in Schools	24
Professional Development for Technology Integration	27
Teachers' Beliefs about Technology Integration	28
The Impact Technology has on Student Learning	29
Summary	31
III. RESEARCH DESIGN AND METHODS	33
Research Methods	33
Participants	33
Research Questions	35
Instrumentation	36
Data Collection	37
Data Analysis	37
Summary	41
IV. DATA ANALYSIS	42
Study Design	42
Research Questions	44
Demographic Data	45
Results for Research Questions	52
Results for Research Question 1a	53
Results for Research Question 1b	54
Results for Research Question 2a	55

Results for Research Question 2b.....	56
Results for Research Question 3.....	57
Summary.....	60
V. FINDINGS, RECOMMENDATIONS, AND CONCLUSION.....	61
Overview of the Study.....	61
Research Questions.....	62
Research Question 1.....	62
Research Question 2.....	62
Research Question 3.....	63
Discussion of Findings.....	63
Research Question 1a.....	63
Research Question 1b.....	65
Research Question 2a.....	65
Research Question 2b.....	67
Research Question 3.....	68
Summary.....	70
Recommendations for Practice and Future Research.....	71
Recommendations for Practice.....	71
Recommendations for Future Research.....	72
Conclusions.....	73
REFERENCES.....	75
APPENDIX A: Letter to Building Administrators and Study Explanation.....	84

APPENDIX B: Survey: Teachers' Perceptions About Traditional Teaching Methods and Teaching With Technology	89
APPENDIX C: Informed Consent for a Non-medical Study	95
APPENDIX D: Institutional Review Board Approval	99

LIST OF TABLES

Table	Page
1. Data Management Plan	38
2. Survey Subscales	40
3. Cronbach's Alpha Results	44
4. Schools' Demographic Data	45
5. Students' Demographic Data	46
6. Teachers' Demographic Data	46
7. Technology Tools—East High School (Low-tech) and West High School (High-tech)	48
8. Amount of Technology Use and Traditional Teaching Use	49
9. Hours of Training—Technology and Traditional Teaching	50
10. Developing Skills—Technology Integration and Traditional Teaching	51
11. Science, Technology, or Math Content Area	52
12. Traditional Teaching—Years of Teaching Experience	54
13. Traditional Teaching—Low-tech and High-tech Schools	55
14. Technology Integration—Years of Teaching Experience	56
15. Technology Integration—Low-tech and High-tech Schools	57
16. Descriptive Statistics—Traditional Teaching and Teaching with Technology	58
17. Correlations—Traditional Teaching and Teaching with Technology	59

LIST OF FIGURES

Figure	Page
1. Levels of Digital Divide in Schools (Hohlfeld, Ritzhaupt, Barron, & Kember, 2008)	25

CHAPTER I

INTRODUCTION

Since the beginning of education, people have been looking for ways to improve the learning process for students. Until the 21st century, classroom instruction was primarily delivered through traditional classroom methods. It was the form of education teachers received when they were in school, and it was the method they continued to use once they became teachers. More than two decades ago, the traditional classroom used textbooks, chalkboards, and paper and pencils for teaching and learning. In this environment, information would be introduced to the class through lectures and whole class discussion. During the time students were in class, they would have the opportunity to ask questions on concepts they did not understand. After the teaching process, an assignment was given for the students to demonstrate their knowledge. According to Ram (2008), the students did the exercises in the classroom and the teacher was available to help them with their difficulties. Human interaction between teacher and student is perhaps the greatest advantage of traditional teaching methods. According to Ipatenco (2010), children learn most effectively when they are exposed to teacher-guided instruction, hands-on activities, group work, and a variety of educational resources. Even though students benefit from traditional methods of learning, educators continue to search for better ways to educate children.

Pedagogy in the classroom changed as hands-on activities from calculators to computers were introduced. To this day, technology is seen as the most innovative tool available for improving the education of students. Technology in the classroom is a critical issue, especially

with the push to function at a satisfactory technological level in a global society. National and international statistics indicate that schools around the world are becoming increasingly well-equipped with computer hardware and access to the internet (Wood, Mueller, Willoughby, Specht, & Deyoung, 2005). With schools becoming more equipped with technology, teachers are expected to incorporate the use of technology in their lessons. In the last 25 years, emerging “new technologies” such as computers and the internet have attracted many people to research and focus on improving education with technology (Wang & Reeves, 2003). With the implementation of technology, instruction can be presented many ways and students can have different avenues from which to learn. “The interactive multimedia affordances of contemporary networked computers enable us to think of them not only as media for distributing information, but also as environments capable of fostering the adaptation of student-centered pedagogy” (Wang & Reeves, 2003, p. 50).

An extensive range of technology is now available to teachers. When teachers adopt technology, it requires them to change their teaching methods. In the past, teaching was predominantly communicated through the use of blackboard and learning by the use of paper and pencil. Many teachers use traditional teaching methods because that was the way they were taught when they were in school. Therefore, teaching with technology will require a considerable change in behavior. “Given the diverse range of technologies available, it is useful to consider what affects teachers’ intention to change from this traditional approach and to use technology in teaching” (Pierce & Ball, 2009, p. 299). The use of technology in classrooms has the ability to change teaching, which will potentially enhance students’ learning. While enabling changes to the traditional role of an educator in the classroom, technology also promotes interaction and communication among students and teachers (Levin & Wadmany, 2008;

Raulston, 2009). When technology is implemented in the lesson, teachers are no longer dispensers of information. “In many cases, there is a reported shift in the teacher’s role with teachers assuming the role of facilitator, interacting with students more and conducting fewer whole-group lessons” (Wood et al., 2005, p. 185).

Due to the high demand for students to perform, especially on standardized test, teachers are expected to incorporate new innovations in their classes. Often, these new methods are expected to include technology. Clearly, changes are occurring with respect to the integration of technology in the classroom (Windschitl & Sahl, 2002). Many teachers are not comfortable with integrating technology, because they are not comfortable with their own ability to use technology. This hesitancy to use technology has been attributed to the lack of technical confidence among teachers (Woodbridge, 2004). The lack of technology skills for many teachers may be the result of veteran teachers who started teaching before the push for technology and therefore may not be adequately trained. “Technology integration is not a ‘one size fits all’ (Wepner, Tao, & Ziomek, 2006) where teachers do the same thing for their students or where teachers possess the same specific skills to be competent technology users” (Gorder, 2008, p. 64). Teachers possess the knowledge to instruct about their subject matter, but may not possess the skills to present this knowledge using technology. If teaching with technology is what is best for the students, schools and school systems must help teachers to realize how this can improve their instructional process. The educational model of today was established by a growing cadre of highly trained educators who changed teaching and learning through the integration of technology into the curriculum, according to Gorder (2008).

“According to the U.S. Department of Education (2008), educational technologies have been shown to enrich learning environments and enhance students’ conceptual understanding”

(Raulston, 2009, p. 1). One of the most important factors in the integration of technology is the teachers' ability to incorporate technological activities. Alley and Jansak (2001) stated that the teachers' best strategy is to prepare for teaching and to think creatively while using technology instructional methods. School systems that provide regular support for teachers to use technology usually discover more technology being used because teachers are more comfortable. "Familiarity with computers predicts greater comfort with technology and greater comfort was related to greater integration in the classroom" (Wood et al., 2005, p. 183). When teachers use technology to instruct, students have the opportunity to experience learning through different delivery methods. When integrating technology, it can be used as a source for doing research through the internet, Powerpoint presentations to enhance lectures, math programs to give immediate feedback, and students can type papers instead of hand-writing. Taiwo (2009) stated teachers use technology because it motivates students and offers a different mode of presentation. It also engages students and helps to create a more exciting learning environment.

Statement of the Problem

The course of education has changed significantly over the course of centuries. From a one-room schoolhouse to the multi-faceted buildings of today, education has gone through many changes to teach children in the most effective way. Many years ago, teachers delivered knowledge through traditional teaching methods. According to Arzel (2012), traditional teaching is classroom-based and consists of direct instruction conducted by the teacher. Through this method of instruction, the minds of many scholars as well as ordinary students have been shaped. Times have changed and so has the process of education. The competitive global society has made policy makers and educators search for new innovations for the classroom. Those innovations are integrated through technology. According to Edutopia Staff (2008),

effective technology integration must happen across the curriculum in ways that deepen and enhance the learning process. A large body of literature supports the idea that technology integration is perhaps the best way to instruct (Reynolds & Morgan, 2001; U.S. Department of Education, 2005; Yildirim & Kiraz, 1999; Yildirim, 2000; Zhao & Bryant, 2006). However, classroom instruction is based on teachers' experiences and what they perceive to be the best way to deliver the curriculum for the academic success of their students. This study sought to analyze the perceptions of teachers about traditional teaching versus teaching with technology in the classroom.

Purpose of the Study

Educational researchers agree that teachers' perceptions greatly impact instructional decisions in the classroom (Shavelson, & Stern, 1981; Tillema, 2000). The purpose of this study was to analyze the perceptions of teachers about traditional teaching versus technology integration in the classroom. The researcher analyzed responses from a survey focusing on traditional methods of teaching versus teaching using technology as an instructional and learning tool utilized in the classroom.

Research Questions

The following research questions guided this study:

1. Is there a difference in the perceptions of traditional teaching of
 - a. teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience?
 - b. teachers in low-tech schools and teachers in high-tech schools?
2. Is there a difference in the perceptions of technology integration of teachers

a. with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience?

b. teachers in low-tech schools and teachers in high-tech schools?

3. What is the relationship between teachers' perceptions about traditional teaching and their perceptions of teaching with technology?

Methods

This study used the quantitative research design. The data were generated from a survey. The study took place in one school district located in Central Alabama. The district has six high schools, but only two of the high schools were used for this study. The building principals received a letter of request for permission to use their schools in the study. The participants were certified teachers employed at the two schools selected for the study. After the IRB approval, each certified teacher received an informed letter of consent prior to the actual survey completion day. The surveys were administered during a faculty meeting. Once all data were collected, it was put into an Excel spreadsheet. The Statistical Package for Social Science (SPSS) was used to analyze the data.

Significance

The Alabama Department of Education standards have called for an increase in achievement for education across the curriculum. With the Alabama High School Graduation Exam being phased out, students will be expected to pass end-of-course exams that will count as a percentage of the students' grades. Even though most teachers are more comfortable teaching through traditional methods, technology is a resource that teachers can use to help students reach their ultimate goal of graduating from high school and having success as college students or working adults. It is important for policy makers, educators, and researchers to understand how

teachers and students relate to technology as plans are made for the increased use of technology (Christensen, 1998; Clausen, Britten, & Ring, 2008; Martin, Heller, & Mahmoud, 1992; Raulston, 2009). In today's society, students have had access to technology for the majority of their lives. They have grown up with and become accustomed to the visual stimulation of television, computers, and video games, and they expect technology to be used effectively as part of their learning experience by their teachers in school (Frey & Birnbaum, 2002; Kim, Jain, Westhoff, & Rezabek, 2008). With technology playing such an important role in the academic success of students, studies are needed to determine the perceptions teachers have regarding technology in the classroom. Because teachers' beliefs influence the teaching methods used in their classrooms, this study provides educators with current research regarding teachers' perceptions about traditional methods of teaching, technology integration, and how those perceptions affect teaching methods in the classroom.

Definition of Terms

Barrier, for the purpose of this dissertation, is defined as any condition that makes it difficult to make progress or to achieve an objective (Bingimlas, 2009; Schoepp, 2005). Effective integration of technology in teacher lessons is the objective.

Drill and practice refers to repeated exercises and individual feedback to master a specified learning objective (Tomei, 1998).

High-tech school, for the purpose of this dissertation, is defined as a school equipped with the marvels of interactive technology where integration happens simultaneously in multiple classrooms within the school (Gutierrez-Folch, 2010).

Lecture, for the purpose of this dissertation, is an oral presentation used to transfer new knowledge and skills to promote and stimulate further learning (Held & McKimm, 2009).

Low-tech school, for the purpose of this dissertation, is defined as a school where teachers have limited access to technology and the primary delivery mode of knowledge is teacher-centered (Aguda, 2006).

Professional development means a comprehensive, sustained, and intensive approach to improving teachers' and principals' effectiveness in raising student achievement through the use of technology (National Staff Development Council, 2012).

Support, for the purpose of this dissertation, is to promote the interest or cause; assist, help (Merriam Websters Collegiate Dictionary, 2007). Examples are in-house specialist, technical support, administrative support, and opportunities for training (Sandholtz , Ringstaff, & Dwyer, 1997; Wood et al., 2005).

Teacher-centered, according to Sadker & Zittleman (2006), is a model of instruction transferred from the teacher to the student and the learning process is controlled by the teacher.

Teacher perceptions are the experiences of the world around us and involve both the recognition of environmental stimuli and actions in response to these stimuli (Cherry, 2011).

Technology, for the purpose of this dissertation, refers to computers, computer-related equipment, laptops, and other electronic devices used to improve academic achievement (Bain, 2005).

Technology integration is the process of using technology in teaching and learning (Dockstader, 1999). WCBOE (n.d.) defined *technology integration* as incorporating tools to teach content using effective instructional practices.

Traditional teaching, for the purpose of this dissertation, is teacher-centered, where information is filtered through layers to the students based on what is known by the teacher, (Educational Broadcasting Corporation, 2004).

Whole group discussion is defined as a discussion that involves the teacher and students in an oral exchange of information, with an opportunity for students to verbalize conceptual insight, think aloud, and receive instantaneous responses (Ewens, 2003).

Assumptions

This study was conducted in a Central Alabama school district with six high schools. Only two of the high schools were selected for this study; therefore it was assumed that the sample represented the entire population of this school district. It was also assumed that the participants in the study interpreted each item in the survey appropriately and responded honestly.

Limitations

A limitation of this study was the focus only on teachers' perceptions. There were no observations of teachers in actual practice. Additionally, the data gathered by the researcher were from two schools in the same school district; therefore, the results cannot be generalized outside of this school district.

Summary

This study was focused on traditional teaching methods versus technology integration in the classroom and the perceptions that teachers have concerning the impact on instruction. The document is organized into five chapters. Chapter I consisted of the introduction, statement of the problem, purpose of the study, research questions, significance, definitions, assumptions, and limitations. Chapter II provides a comprehensive literature review related to traditional teaching methods, technology integration, and teachers' beliefs. Chapter III relates to the methods which describe the research design and procedures followed to conduct the study. Chapter IV presents

the results of the data analysis. Chapter V contains the findings, recommendations, and conclusions.

CHAPTER II

REVIEW OF LITERATURE

Education is at a critical stage where educators are trying to determine the path classroom instruction should follow. For centuries, students have been taught from the aspect of a teacher-centered classroom. Teachers who teach using traditional methods are limited to instruction within the boundaries and the resources of the school. Inside those boundaries, teachers give students the benefits of their knowledge of a particular subject as well as life experiences. Besides traditional teaching methods, a classroom instructor teaches many other important life lessons (Willoughby, 2010).

The increased pressure to compete academically in a global society calls for teachers to change the way they instruct. The National Education Technology Plan 2010 calls for applying advanced technologies to the entire education system to improve student learning. With the push for classrooms to integrate technology, teachers are asked to implement new teaching strategies that they may not know how to use. Through professional development and adequate access to technology, the technological changes in education have slowly come over the past 20 years. But has the integration of technology improved student learning or is this just another fad before the next change in education come along? Do teachers feel student achievement has improved with the implementation of technology or was achievement better with traditional teaching methods?

Traditional Teaching in Education

Teacher education programs in most colleges and universities are set up to prepare aspiring young people to become teachers. According to Lowery, Roberts, and Roberts (2011), most teacher education programs have a specific structural context after which they pattern themselves. If most colleges and universities instruct by traditional methods via lecture, blackboard, and drill and practice, then new teachers will usually follow that same pattern. When teachers follow the traditional ways of teaching, their classrooms are usually teacher-centered. According to Sadker & Zittleman (2006), in a teacher-centered model of instruction, knowledge, information, and skills are transferred from the teacher to the student and the learning process is controlled by the teacher. In the traditional classroom, teaching-learning is face-to-face interaction between the teacher and the student, according to Ram (2008). The teacher is concerned with being in control of the learning environment. Through this method, teachers usually find themselves spending a lot of time speaking and explaining the curriculum in their classes. Students are usually required to sit in their seats passively and listen to the teacher (Wang, 2007). Other aspects of traditional teaching, the students are expected to memorize rules, rote vocabulary, and skills from textbooks. In traditional methods of teaching, the teacher plays the most important role in the instructional process. Through this process of teaching, materials are used to present facts and information, and the teacher's teaching style is formal and impersonal (Wang, 2007).

Traditional Teaching Methods

There are several methods of traditional teaching. Lecture, whole group discussion, and drill and practice are three methods that are regularly employed in classrooms.

Lecture. Lecture is a traditional teaching method that is often used in schools. Held and McKimm (2009) defined lecture as a style of teaching used to transfer new knowledge and skills to promote and stimulate further learning. Through this style of teaching, an oral presentation is used to present information or teach people about a particular subject. Lectures are used to convey critical information, history, background, theories, and equations to be developed later in small group settings or during an activity, according to Held and McKimm (2009). Typically, the instructor stands before the class and speaks about information for the students to learn. The students are expected to take notes while listening and very little exchange occurs between the teacher and the students during the lecture (Kelly, 2012). In this style of teaching, the teacher usually controls the activities of the entire class.

There are many advantages to using lecture as a method of teaching. Criticized by educators and methodologists for its typical one-way communication, lectures have nevertheless survived in academia, mainly for their cost-effective way of transmitting factual information to a large audience (Held & McKimm, 2009). According to Kelly (2012), other advantages of lecture as a teaching method are

1. Instructors have greater control over what is being taught because they are the sole source of information in the classroom.
2. Students who are auditory learners find that lectures appeal to their style of learning.
3. Lecture is easier to create than other methods of instruction.
4. Lecture is a familiar method to most teachers because it was typically the way they were taught.
5. Because most college courses are lecture-based, students gain experience in this instructional delivery method.

Just as there are advantages to the lecture format of teaching, there are also disadvantages. Typically these disadvantages involve the students and the lack of engagement causing students to become passive listeners. Other disadvantages of lecture as a teaching method according to Kelly (2012) are

1. Students strong in learning styles other than auditory will have a harder time being engaged by lecture.
2. Students weak in note taking will have trouble understanding what they should remember from the lecture.
3. Students often find lectures boring and easily lose interest.
4. Due to the delivery format, students may not be able to ask questions as they arise during the lecture.
5. Teachers may not get a feel for how much students understand because there is not much opportunity for exchanges during the lecture.

The lecture format of teaching is just one method used in the traditional methods of teaching. When using this method, teachers should be sure that students are trained in note-taking skills. According to Kelly (2012), the teacher should help students understand verbal clues and learn methods of organizing and taking notes so that they will become successful and get the most out of lectures. Teachers should be careful when using this method of teaching and be sure that this method will benefit the most students.

Whole Group Discussion. A modified version of lecture is the whole group discussion. Whole group discussion is defined as a discussion that involves the teacher and students in an oral exchange of information, with an opportunity for students to verbalize conceptual insight, think aloud, and receive instantaneous responses (Ewens, 2003). Through this type of modified

classroom lecture, the focus is shared between the instructor and the students for information transfer. The main advantage in this type of teaching method is interaction between teacher and students. Students have the tendency to remain engaged because they may be called upon during the discussion. Teachers can check for students' understanding and retention through questions and answers, (Kelly, 2012). Students can also benefit from answers that the teacher gives to another individual's question. Ultimately, the teacher and students experience a mutual sense of satisfaction when they discover, overcome, or solve a problem simultaneously (Ram, 2008). There are disadvantages to the whole group discussion. The main disadvantage is the time constraint imposed on the session. According to Ram, the time limitations may prevent prolonged discussions on a particular problem and therefore it may not be solved to the satisfaction of every student in the class. Also, the teacher must set ground rules and if the rules are not enforced there is a possibility that the discussion could quickly go off topic. Besides the time restraint and ground rules, students may also feel uncomfortable with the chance of being put on the spot during the discussion. In this respect, teachers must be good at managing time, facilitating the discussion, and giving the students the topics ahead of time in order to create a successful whole class discussion (Kelly, 2012).

Drill and Practice. Traditional methods of teaching extend beyond lecture and whole group discussion. The format of drill and practice is also a method of traditional teaching. Drill and practice refers to the structured, repetitive review of previously learned concepts to master a specified learning objective (Tomei, 1998). Through repetitive practice, the acquisition of skills and knowledge are promoted and students can do this at their own pace. Lewis (2007) stated that students can solidify newly learned skills when teachers use drill and practice in an effective way. However, if overly used, students may only be learning things in order to get to the next

step and not gaining a full understanding of the material. Using drills for different learning styles can help students integrate various tactics for remembering skills (Lewis, 2007).

There are many advantages and disadvantages to using drill and practice. One advantage it provides is mastery of basic skills for students. According to Lewis (2007), teaching students through various methods such as flashcards or repetitive rewriting can help them use these skills in different environments. The rewriting method can benefit a student by using it with misspelled words. Using flashcards repeatedly can help students who learn visually. Another advantage is that it allows students to build on mastered skills. Lewis stated that in order for students to learn higher level skills, they need to have mastered the basic skills of that same concept. Through drill and practice, the basic skills can become second nature. The disadvantages of drill and practice include students who find it difficult to focus when doing this type of activity too often and students who may have trouble learning. When students are drilled too often, they find the teaching method boring and become distracted easily according to Bardenstein (2012). Also, students may be relying on just remembering in order to take a test and not really understanding the material. Lewis stated that just memorizing and not mastering the material can cause problems later when trying to accomplish more complex tasks.

Teachers' Perceptions About Traditional Teaching Methods

Teacher education programs play a large role in the way teachers instruct in their classrooms. According to Taskin-Can (2011), the way colleges and universities prepare teachers for professional practices may shift or refine the beliefs, knowledge, values, and assumptions that form their personal theories about teaching. Often, teachers believe that students are empty vessels that need information poured into to fill it. According to Covill (2011), lecturing is an effective traditional teaching method for teachers who lecture well and for students who are

audio learners. Teachers also find that traditional methods of teaching, especially lecture, benefit students who are passive learners. Griffin and Cashin (1989) noted that because of the one-way pattern of communication, in which the teacher talks and students listen, the lecture method is ideally suited for covering core material and would thus facilitate factual learning. Teachers also believe that traditional methods of teaching help to keep the class in control. Goldstein and Benassi (2006) stated traditional methods of teaching tend to be structured and the strategy leads to a well-managed and organized classroom.

Teachers also perceive class discussion as another important traditional teaching strategy. This strategy is used by teachers to get students involved in their education. Skilled discussion leaders are excellent at motivating students to take an active role in researching a particular topic or issue for discussion (Goldstein & Benassi, 2006). Many teachers believe that this method is a good way to get students to research a topic and to bring their ideas to the classroom for discussion. Flynn and Klein (2001) stated that student discussions have been found to be more effective if students prepare beforehand. During the discussion, teachers feel that when students have questions, they can answer the questions or guide the discussion so that students will discover the answers for themselves. According to Ram (2008), it is perceived by teachers that students can benefit from answering a student's individual question or by allowing students to experience classroom discussions that will help them to understand the subject. Another aspect of whole group discussion that teachers believe to be beneficial is that it helps to manage the behavior of the class. According to Dreikurs, Grunwald, and Pepper (1982), a group-oriented model which involves students in the discussion process with the teacher guiding the group and following through with the agreed-upon rules and regulations will keep the class focused upon the topic at hand. Many teachers will use whole class discussion to gain greater interaction

between teacher and students. Teachers feel that this is the time that they can check on what students are retaining and what they understand (Kelly, 2012).

Drill and practice is another form of traditional teaching that teachers believe benefits students. Through the drill and practice method, teachers feel that the repetitive mode helps students to achieve mastery level in a subject. Teachers see drill and practice as a method of teaching that helps students to gain knowledge quickly and obtain a full understanding of the material (Lewis, 2007). Teachers also believe that students can learn at higher levels when they master basic skills through drill and practice. The American Psychological Association (2007) stated that effective drill and practice can lead to new knowledge and skills that can later develop into more complex knowledge and skills. It is perceived by teachers that drill and practice help students to acquire expertise in the areas on which they are working. Through these stages, cognitive gains from practice often bring about motivation for more learning, (Kalchman, Moss, & Case, 2001).

The Impact of Traditional Teaching on Student Learning

Until the early 21st century, education was based on traditional methods of teaching. In almost every classroom, students learned by methods of lecturing, whole group discussion, or drill and practice. These methods were used in order to improve the simplest form of students' learning. According to Bracey (1991) and Cuban (1991), American students taught through traditional teaching methods showed increased scores in basic skills such as reading and math. Concern for educational achievement prompted a back-to-basics movement to target learning expectations beyond minimum competencies in the 1970s and 1980s (Campbell, Hombo, & Mazzeo, 2000). This call for back-to-basics showed in those years that learning through traditional methods was what was best for the students. The trends in education during the 1980s

and early 1990s showed an increase in student achievement, according to Campbell et al. (2000). This increase was due to teachers teaching with traditional methods and focusing on improving education in all core subjects. The National Assessment of Educational Progress (NAEP, 1990) reported higher achievement levels in core subjects due to more exposure through traditional methods of teaching. When the amount of time that students are systematically engaged through lecture is increased, whole group discussion or drill and practice, the more students improve their academic achievement.

Technology Integration in Education

Education has gone through many phases to accomplish the goal of improved student achievement. Technology is the catalyst that is now being used to move education forward. In today's society, technology has such a wide existence from home to school to the business world. "Technology has become an indispensable part of individual life in various areas from ATM's to internet connection" (Tingoy & Gulluoglu, 2011, p. 221). Teenagers' use of technology has increased over the past few years. The Internet and mobile technologies have changed the patterns of use for the media creating a generation of teens to whom digital technologies are vital (Arekibo Communications, 2011). Lenhart, Madden, and Hitlin (2005) stated that 87% of teenagers between the ages of 12 and 17 are using the internet. An overwhelming majority of students own at least one personal media device: a desktop or laptop computer, a cell phone, or a Personal Digital Assistant (PDA) (Lenhart et al., 2005). Due to this fact, schools need to recognize the role that technology plays in the lives of students, and realize that computer technology is an effective way to broaden educational opportunities (Bauer & Kenton, 2005; Gorder, 2008).

Technology is so prevalent in schools today that students think that it was always around. The Vocational Education Act of 1963 was passed giving more money to schools to support the use of technology in vocational education (The National Academy of Science, 2000). Technology in schools is fairly recent, and was not truly utilized in the classroom until the late 20th century. It was not until educational technology in schools became an issue that the National Educational Association emphasized the importance of preparing teachers to use technology (Roberts, 1996). When technology was first introduced into schools, it was used for staff purposes. The National Teacher Survey (2005) found that 80% of K-12 teachers are using computers mainly for administrative functions and only more than half are using computers in their routine instruction. Teachers did not have proper training to use technology in their lessons, so they only used it for daily school operations for student attendance and recording grades.

Technology has progressed significantly in the last 20 years. In public and social settings, it is an essential component for everyday life. However, is this component essential in the classroom? On February 15, 1996, President Bill Clinton announced the Technology Literacy Challenge. This challenge was to envision a 21st century where all students are technologically literate. This push for technology in education was based on four goals:

1. Provide all teachers the training and support they need to help students learn through computers and the information superhighway;
 2. Develop effective and engaging software and online learning resources as an integral part of the school curriculum;
 3. Provide access to modern computers for all teachers and students;
 4. Connect every school and classroom in America to the information superhighway.
- (The White House, 1996)

President Clinton also introduced the 21st Century Teachers Initiative on May 29, 1996. The goal of this initiative was to have 100,000 teachers volunteer to work with other teachers to

become proficient in using technology. The Clinton Administration was the starting point for bringing technology awareness to all schools across America, and for making a real push to improve teaching and learning through technology.

Businesses are looking to schools to equip students with the technological skills needed to be successful in the workforce.

The development of information communication technology (ICT) literacy has been identified as a critical mission of educational organizations in order to equip students with the 21st century skills needed for future academic, career, and personal success in global economies and societies. (Hohlfeld, Ritzhaupt, Barron & Kemker, 2008, p.1648; ISTE, 2007; OEDC, 2005; Partnership for 21st Century Skills, 2003)

The Partnership for 21st century Skills (2009) has emerged as the leading advocacy organization focused on infusing 21st century skills into education. This collaboration between business and education has placed a stronger emphasis on implementing technology into classes with a result of higher student achievement. “As information technology has become the measure of successful performance both in the business world, at school as well as in academic areas in recent years, the need to integrate technology within traditional educational activities have emerged” (Tingoy & Gulluoglu, 2011, p. 222).

Types of Technology Used in the Classroom

In today’s society, young people are constantly using some type of electronic device. Because they are connected all the time through text messaging, iPods, social networking websites, and more, it is important that teachers find ways to teach using technology. To keep students engaged in the classroom, teachers must integrate technology and create an interactive learning environment. According to Jasper (2012), keeping students stimulated by using the latest inventions in computers and digital media is the focus of teachers with a desire to integrate technology. Many teachers began integrating technology by using computers and projectors.

These devices enable the teacher to create organized notes for easier student note-taking and slides that can be repeatedly shown (Whitaker, 2012). Also, the teacher is no longer bound to presenting information on the chalk or dry-erase board. The Internet can display web content to an entire class through the use of a projector, making the World Wide Web more beneficial to the teacher (Whitaker, 2012). The Smart board is another form of technology that teachers use to engage students. A smart board is an interactive whiteboard that allows teachers to project and digitally draw on images all with the touch of a finger (Jasper, 2012). Teachers can also manipulate computer functions through the use of a smart board. Smart phones are another technological device that can be integrated into the classroom. According to Hardison (2012), smart phones accompanied with the support of a strong classroom management system, have the potential to bring collaboration, communication, and creativity into the classroom.

As textbooks in the classroom become outdated and new textbooks are too expensive, eReaders have become a viable option for schools. The eReader can be used to read novels, informational texts, and short stories, many which are free for downloading (Rinkel, 2011). Tablets and laptops are fast and easy ways to give students access to the Internet. They can research at their desk or watch videos that are relevant to the curriculum according to Rinkel (2011). Another device that is becoming popular among students and teachers in the classroom is the digital camera. This device can transfer pictures from the camera to the computer, pictures are printed, and are readily available for use, bringing new dimensions to the lessons in the classroom. Because students are so technologically advanced in almost every aspect of their lives, teachers must make sure that their education is equally supported by technology. There are multiple ways to incorporate devices into the curriculum and schools must make every effort to keep the classroom technologically connected (Jasper, 2012).

Effective Use of Technology in the Classroom

“Given the technology driven nature of our global, information based society, lack of technology integration among teachers in American classrooms is a major concern in education today” (Zhao & Bryant, 2006, p. 53). The way technology is viewed will, to a large extent, determine the level and degree of usage. According to Cuban (2001), a technological revolution in teaching and learning has not occurred in the vast majority of American classrooms. Balanskat, Blamire, and Kefala (2006) argued that although educators appear to acknowledge the value of technology in schools, difficulties continue to be encountered during the process of adopting these technologies. Thus, computers are considered to be an ideal way to reform schools (Wang & Reeves, 2003), but there still remains an underlying problem with technology integration in classrooms.

Raulston (2009) stated that technology usage in the classroom can have a tremendous impact on learning. “Dawes’ (2001) view is that new technologies have the potential to support education across the curriculum and provide opportunities for effective communication between teachers and students in ways that have not been possible before” (Bingimlas, 2009, p. 236). With the use of technology, educators offer effective ways to reach different types of learners and assess student understanding through multiple means (Edutopia Staff, 2008). Technology is an avenue that can help teachers motivate their students and engage them in activities that will benefit their learning. Not only does technology support and enhance learning, it creates ways for students to analyze and understand the world around them (Sayparn, 2011).

In schools today, technology serves as an instructional tool for delivering the curriculum and aiding students in the learning process. Although technology offers the potential to enhance and improve the students’ learning experience, there is a lack of consensus on how to combine

computers with other learning tools (Woodbridge, 2004). The basic premise of technology integration is that teachers should incorporate it in their daily instruction. “Effective technology integration is achieved when the use of technology is routine and transparent and when technology supports curricular goals” (Edutopia Staff, 2008, ¶ 2). Access to computers is a key factor in technology integration; however, it is not the only item that is needed. Technology training may be the necessary link that bridges the gap between accessible technology and effective technology integration. Once teachers learn how to use technology and gain skills through professional development opportunities, they can find ways to effectively use it in their classes (Clausen et al., 2008; Raulston, 2009). Even with professional development, teachers still face barriers to implementing technology in their classes.

Barriers to Technology Integration in Schools

Researchers suggest that there may be many barriers to the successful integration of technology in the classroom. Studies have divided the barriers into two categories: extrinsic and intrinsic (Bingimlas, 2009). Ertmer (1999) labeled extrinsic barriers as first order and intrinsic barriers as second order.

First order barriers are those that are extrinsic to teachers and include access to hardware and software, lack of instructional planning time, and insufficient technological and administrative support and training. Second order barriers are intrinsic to teachers and include their personal beliefs about teaching, computers, classroom practices, and resistance to change. (Willis, 2003, ¶ 3)

Extrinsic barriers and intrinsic barriers may have an inverse relationship. That is, as extrinsic barriers increase, intrinsic barriers may decrease (Ertmer, Ottenbreit-Leftwich, & York, 2005). As teachers gain more access to technology, planning time, and technological training, their negative beliefs about technology integration should become less.

The digital divide in schools is based on the level at which schools are in their integration of technology. The extrinsic and intrinsic barriers are important aspects as to how a school assesses its level in relation to the digital divide. Figure 1, created by Hohlfeld et al. (2008), shows the levels of the digital divide in schools. The first level supports the access to technology. The second level addresses how frequently teachers and students use technology in class. The third level is the empowerment of the individual to use technology.

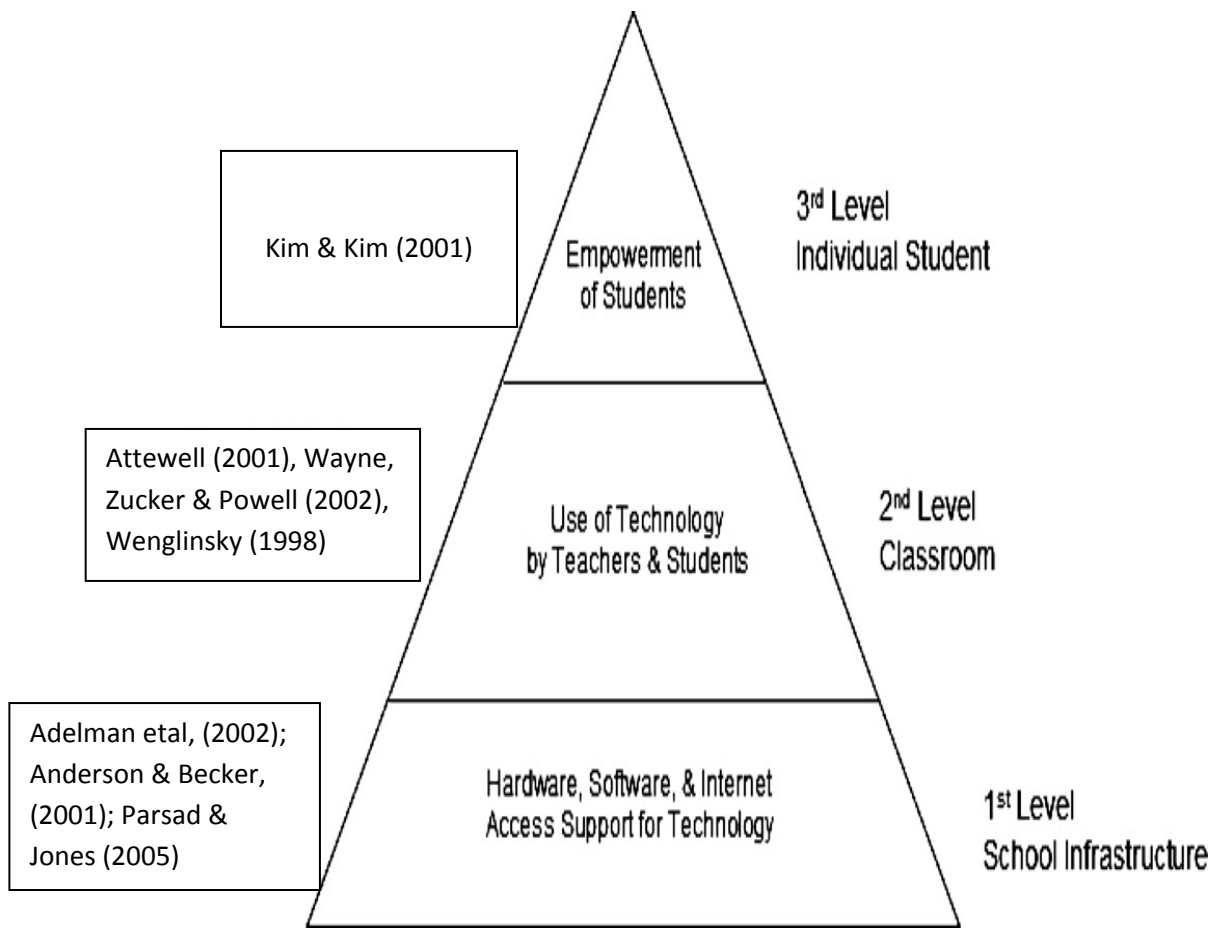


Figure 1. Levels of digital divide in schools (Hohlfeld, Ritzhaupt, Barron, & Kember, 2008)

The first level of the digital divide supports the extrinsic barrier that teachers need access to technology. The second level is related to the intrinsic barriers of teachers' beliefs and attitudes toward technology use, which improves when the first level increases. When the first two levels of the digital divide are met, the third level is empowered, meaning students are prepared with both the technological skills and the abilities to independently make decisions and accomplish personal objectives in efficient ways (Hohlfeld et al., 2008).

Several researchers indicated that one barrier that prevents teachers from using technology in their teaching is lack of confidence (Bingimlas, 2009). Teachers may refrain from integrating technology in their classes because they are uncomfortable with their personal abilities to use technology. Wood et al. (2005) stated that teachers' beliefs, attitudes, and emotions also build the meanings they bring to innovations such as technology integration, and these same beliefs impact the learning environment for their students. Therefore, changing the attitudes of teachers is the first step to promoting technology integration. According to Newhouse (2002), professional development training is needed for teachers to develop appropriate skills, knowledge, and gain positive attitudes regarding the effective use of computers to support learning by their students. Educating teachers in the process of integrating technology into the curriculum must replace the current practice of simply training teachers in computer application and technological skills (Brownell, 1992; Ertmer, 1999; Roblyer, Edwards, & Havriluk, 2000; Schrum, 1999; Simonson & Thompson, 1997; Willis, 2003). If teachers receive the appropriate training and continued support to integrate technology in their classes, the lack of confidence barrier can ultimately be removed.

Professional Development for Technology Integration

“Whether technology should be used in schools is no longer the issue in education. Instead, the current emphasis is ensuring that technology is used effectively to create new opportunities for learning and to promote student achievement” (Rodriquez & Kruth, 2000, ¶ 1). Teachers need to participate in intensive curriculum-based technology training that moves them beyond the attainment of basic computer skills to activities that teach them how to effectively infuse technology into the curriculum (Baylor & Ritchie, 2002; Becker, 2001; Redish, 1997; Reynolds & Morgan, 2001; Roberts, 2003; VanFossen, 2001; Wenglisky, 1998; Zhao & Bryant, 2006). Research found that teachers were highly educated and skilled with using technology, but teachers were not integrating technology on a consistent basis in the teaching and learning process (Bauer & Kenton, 2005; Gorder, 2008).

The NCES reported in 2005 that 83% of public schools with Internet access across the nation indicated that their school district had offered professional development to teachers in their schools on how to integrate the use of the Internet into the curriculum. (Raulston, 2009, p. 214)

In the 21st century, technology aids in teacher instruction and benefits students’ learning.

Professional development for technology integration is conceptualized as the planting and growing of a tree. “The tree grows to maturity as the knowledge, skills, and attitudes of the teachers involved grow through six stages of development: awareness, learning, understanding and application, familiarity and confidence, adaptation, and creative application to new contexts” (Swan et al., 2002, p. 172). As teachers receive the training needed to gain skills and knowledge about integrating technology, they will more often implement technology into their lessons. Teachers’ perceptions and confidence will grow when they are nurtured with ongoing support to use technology consistently in their classes.

The 2006 National Trends Report stated that teacher professional development plays a key role in increasing technology literacy which will help to close the achievement gap. Teachers need to develop skills and confidence in using technology as an instructional strategy. One approach is a professional development model that provides ongoing support that will sustain the process of technology integration and meet the needs of diverse learners (Holland, 2001). Therefore, teachers' professional development in technology should be aimed at technology integration based on the curriculum standards and instruction that supports a student-centered classroom.

Teachers' Beliefs about Technology Integration

Funding, equipment, lack of time, and knowledge are known obstacles to successful technology integration (Hardy, 1998; Lam, 2000; Simonsen & Dick, 1997; Taiwo, 2009). A critical component in meeting teachers' technology needs is responding to teachers' beliefs about technologies (Taiwo, 2009). Often teachers' beliefs are influenced by their philosophies. Pierce and Ball (2009) stated that teachers' positive or negative attitudes toward teaching with technology may depend on how they believe such teaching will impact their classrooms. Integrating technology into educational settings will require change. According to Watson (1999), teachers' attitudes are important because teachers' beliefs influence what they do in their classrooms. "Research also reveals that before teachers use technology for instruction they must be personally convinced of its benefits and must see the utility of using a particular technology" (Taiwo, 2009, ¶ 12).

The teacher is the most important ingredient for success when using and integrating technology (Gorder, 2008; Mandell, Sorge, & Russell, 2002). "Technology integration is not about the availability of technology, but more about the teachers' effective use of technology that

makes a difference in reforming the classroom” (Gorder, 2008, p. 65). For technology integration to be successful, teachers must be willing to change their role in the classroom. “When technology is used as a tool, the teacher becomes a facilitator and students take a proactive role in learning” (Taiwo, 2009, ¶ 14). Before technology is used in the classroom, teachers must focus on their students and the impact the technology will have on their learning outcomes. Pierce and Ball (2009) stated that a teacher may perceive that learning to use technology will be an extra burden or distract weaker students from core learning. “Teachers naturally wonder if the benefits of using technology outweigh the extra effort required of them to integrate technology into their instruction” (Sandholtz et al., 1997, p. 3). Teachers are central to the creation of a technology-integrated environment that is learner centered. Teachers who do not integrate technology will create a learning environment that is limited and inequitable (Gorder, 2008).

The Impact Technology has on Student Learning

In the world today, education is not just viewed as schools providing an opportunity for young people to learn, but as an institution predicated on making sure learning is achieved. A study conducted by the U.S. Army Research Institute for Behavioral and Social Sciences, the Consortium Research Fellows Program, and the Boise State University College of Education showed that appropriate use of technology contributes to student learning. With proper implementation, computer technology can transform the classroom, stimulate teacher/student interaction, and create a superior learning environment (Stratham & Torell, 2010). Even though educational developments are still lagging behind industry and businesses, technology has forged its way to touching the lives of school-aged children.

A technology-enriched classroom can have a tremendous impact on the learning styles of students. To aid in the learning process, technology should be used as a tool in an open-ended learning environment, not just as a substitute for presenting material (Morrison & Lowther, 2002). In a technology-enriched classroom, students learn how to learn. They are equipped with the means to find information. The results of a study by V.L. Cohen (2001) indicated that a technology-rich environment promoting collaborative learning affects the learning styles of students. One of the strengths of technology is that it provides an excellent platform where students can access information and then organize, and discover relationships among facts and events. Another strength of technology is that it can provide students with the opportunity to create and present knowledge, permitting teachers to take on the role of facilitator (Mandell et al., 2002).

Technology can often serve as a motivator of learning. Stratham and Torell (2010) stated that computer technology stimulates increased student interaction and encourages cooperative learning, collaboration, problem solving, and student inquiries. “In classrooms where technology is part of the curriculum, students are more likely to initiate learning-based activities, sometimes even directing them” (Apple Computer, Inc, 2002, ¶ 19). When given the opportunity to learn via technology, students respond positively. In general, they actively participate in the learning process and are eager to explore and discover. Technology encourages students to take charge of their education. “By giving students the opportunity to use computers effectively, the focus is placed on empowering students to take an active, participatory role in learning,” (Stratham & Torell, 2010, ¶ 13). When technology plays a major role in the education of students, it helps to instill a love of learning that will help them to reach new heights of achievement not only in school, but throughout their lives (Apple Computer, Inc, 2002).

Another benefit of technology-enriched classrooms is the affect it has on high risk students. When afforded the opportunity, using technology can be less threatening to students who have already experienced failure through traditional teaching methods. Some of the highest gains in achievement come when at-risk students use computers to access learning (Stratham & Torell, 2010). Research states that one important contribution that technology makes is how it affects students' attitudes toward learning. "Studies have shown that when technology is a routine part of their school experience, student attendance improves and dropout rates decline," (Apple Computers, Inc., 2002, ¶ 16). Discipline and student success are also improved in schools that are technology enriched. Stratham and Torell (2010) stated that more students from computer-rich classrooms show better behavior and go on to attend college than students from non-computerized classrooms. When technology is part of the learning environment, many at-risk students show substantial improvement. It is believed by experts that the reasoning for this is that computers provide an individualized curriculum that is customized to the learner's academic needs, (Apple Computer, Inc., 2002). In this environment, at-risk students do not feel threatened and are motivated to perform repetitious tasks.

Summary

Chapter II of this study provided background information about traditional teaching and technology in the classroom. For centuries, education has been a concern of policy-makers, educators, parents, and even students. The main concerns are based on teaching methods and how to improve student achievement through these methods. Through the years, changes have come about in education, but many teachers still deliver classroom instruction through traditional methods. From lecture to whole group discussion to drill and practice, many teachers believe that these teaching methods lead to well-managed and organized classrooms which result in

student achievement in all core subjects. Changes in education have also brought about an increased push to use technology in the classrooms. Many teachers may view technology as an instructional tool, but may have difficulties integrating it into their classes for various reasons. Changing teachers' beliefs about technology may play a key role in increasing its usage and the impact it has on instruction and student achievement.

CHAPTER III

RESEARCH DESIGN AND METHODS

The purpose of this study was to investigate the perceptions of teachers about traditional education and technology integration in the classroom. This study concentrated on teachers' perceptions about traditional teaching methods, technology integration and the impact both have on instruction. In this chapter, the research design, research questions, and procedures are presented. The population for the study is identified and the methods for collecting data and data analysis are described.

Research Methods

This study used a quantitative research design. Johnson and Christensen (2004) defined quantitative research as research based on the collection of data using validated instruments which generates numerical data and usually seeks to establish causal relationships between two or more variables, using statistical methods to test the strength and significance of the relationships. The research method utilized the process of collecting and analyzing data in order to understand a research problem (Creswell, 2005). Data for this research design were generated from a one-time survey. From the data gathered, the researcher sought to understand the experiences from the perspectives of the participants in the study.

Participants

The study took place in one school district in Central Alabama. The district has six high schools with approximately 5100 high school students and 300 high school teachers. The data were collected from only two of the high schools in the district, West High School and East High

School. School names were changed to protect the anonymity of the schools and the teachers. East High School and West High School are rural high schools with different demographics. The criteria for selection of schools were size of schools, number of teachers in the schools with 15 or more years of teaching experience, and the amount of technology in the schools. West High School has 84 certified teachers and approximately half of the teachers have more than 15 years of teaching experience, making it an excellent choice of schools to investigate the teachers who used only traditional methods when they began their teaching careers. This school was also selected because it provides access to five computer labs, three mobile units—two with 30 laptops and the other with 30 Ipads, five computer technology classrooms that can be utilized by other teachers during the teachers' preparation period, four Smart Boards, and every classroom has an LCD projector. For the purpose of this study, West High School is identified as the high-tech school. East High School has 50 certified teachers and approximately one-third have more than 15 years of teaching experience. This school was chosen because it does not have access to several computer labs as do other schools in the school's district. The school has two computer labs. One located in the library and the other is a computer technology classroom. This school has one mobile unit with 25 laptops and 10 LCD projectors that have to be signed out among the 50 teachers. For the purpose of this study, East High School is identified as the low-tech school.

Student demographic data consist of West High School with 1514 students in grades 9 through 12. East High School has 989 students in grades 9 through 12. Ethnicity data of West High School includes 56% Caucasian, 41% African-American, 2% Hispanic, and 1% Asian. East High School consists of 89% Caucasian, 11% African American, 0% Hispanic, and 0% Asian. The teacher demographic data at West High School consist of 93% Caucasian, 6% African American, and 1% Hispanic. The teacher demographic data at East High School consist

of 92% Caucasian and 8% African American. The teacher demographic data also revealed that all teachers at both schools are certified and highly qualified. At West High School, 48% of the teachers have more than 15 years of teaching experience. At East High School, 31% of the teachers have more than 15 years of teaching experience.

Research Questions

The following research questions guided this study:

1. Is there a difference in the perceptions of traditional teaching of
 - a. teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience?
 - b. teachers in low-tech schools and teachers in high-tech schools?
2. Is there a difference in the perceptions of technology integration of teachers
 - a. with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience?
 - b. teachers in low-tech schools and teachers in high-tech schools?
3. What is the relationship between teachers' perceptions about traditional teaching and their perceptions of teaching with technology?

In this study, because the Technology Literacy Challenge announced by President Bill Clinton in 1996, teachers were separated by those that have more than 15 years of teaching experience and those that have 15 years or fewer of teaching experience. This push for technology in schools were based on four goals: to provide all teachers the training and support to instruct using technology, to develop effective software and online resources as part of the curriculum, provide access to technology, and to give every classroom in America access to the

World Wide Web. This challenge was announced 17 years ago with 2 years to implement and is the reason for the division for years of experience to be at 15 years between teachers.

Instrumentation

In this study, a survey (Appendix B) was utilized by the researcher to obtain feedback from participants regarding their perceptions and usage of traditional teaching methods and technology integration. The survey was modeled after an instrument used by Crane (2005) in her dissertation, *The Perceived Impact of Technology of Elementary Classrooms and Teaching*. Crane's study was based on teachers' perceived impact of technology on elementary classrooms and teaching. The Crane document did not address traditional teaching. Crane's survey was field tested with a pilot group of administrators and teachers to ensure validity. In this study, Crane's instrument was used as a guide to construct the items in this survey. Questions pertaining to professional development in Crane's document were removed from the survey and questions pertaining to traditional teaching were constructed to mirror the content and questions pertaining to technology integration. The questions for traditional teaching and technology integration were constructed from the literature review in this study to generate data and address the concepts of this dissertation. The survey used in this dissertation was tested by a panel of five experts from the College of Education to establish validity. The survey consists of 32 Likert-type items using a 5-point scale, "1" Strongly Disagree, "2" Disagree, "3" Neutral, "4" Agree, and "5" Strongly Agree; and 14 questions focusing on demographic data. The survey has two major parts. Part I of the survey contains items addressing traditional teaching and technology integration. Part II of the survey contains items pertaining to demographic data.

Data Collection

Data collection consisted of administering the survey to all the teachers in both schools (n=134). The administration at both schools agreed to participate in the study. A letter (see Appendix A) explaining the purpose and focus of the study along with the survey (see Appendix B) was sent to each schools' principal once approval was received from the Institutional Review Board (IRB). Next, all participants received an informed consent letter (see Appendix C) that explained the study and provided reassurance that their answers would remain confidential and only be used for this study. A waiver of documented consent was requested by the researcher and granted by the IRB (Appendix D). The waiver of documented consent was to eliminate any breach of confidentiality because there would be no way to link the participants to the study. The informed consent letter was given several days before the scheduled faculty meeting to give participants an opportunity to ask questions and to determine if they wanted to participate in the study. The one-time survey was distributed to certified teachers during a faculty meeting and upon completion, collected by the researcher.

Data Analysis

Data from the survey were analyzed using the Statistical Package for Social Science (SPSS) version 19. Frequencies and percentages of the demographic characteristics were compiled and used to present a profile of those individuals who responded to the survey. A multiple comparison *t*-test was used to test the significance of differences for the Research Questions 1 and 2. To determine significance, the alpha value was set at $p < .05$. For Research Question 3, the Pearson correlation test was used to test the significance of differences. To determine significance, the alpha value was set at $p < .01$.

The Data Management Plan shown in Table 1 summarizes the data analysis for each research question. It also shows the survey items, the independent or grouping variables, the dependent variables, and the analysis method used for each question. The independent variables were teaching experience (15 years or fewer or more than 15 years) and the schools' level of technology (low-tech or high-tech). The dependent variables were the average of responses for each of the three subscales for the traditional teaching domain and the average of responses for each of the three subscales for the technology integration domain.

Table 1

Data Management Plan

Research Question	Measure(s)	Independent or Grouping Variables	Dependent Variable	Analysis Method/ Statistical Test
1a	Survey: Part I Items: 1, 4, 5, 6, 8, 10, 13, 14, 15, 18, 20, 21, 23, 27, 28, 31	Teaching Experience 1) 15 yrs or fewer 2) more than 15 yrs	Average of responses for each of the three subscales of traditional teaching domain	Multiple Comparison <i>t</i> -test
1b	Survey: Part I Items: 1, 4, 5, 6, 8, 10, 13, 14, 15, 18, 20, 21, 23, 27, 28, 31	School Technology Level 1) low-tech 2) high-tech	Average of responses for each of the three subscales of traditional teaching domain	Multiple Comparison <i>t</i> -test
2a	Survey: Part I Items: 2, 3, 7, 9, 11, 12, 16, 17, 19, 22, 24, 25, 26, 29, 30, 32 0	Teaching Experience 1) 15 yrs or fewer 2) more than 15 yrs	Average of responses for each of the three subscales of technology integration domain	Multiple Comparison <i>t</i> -test

Table 1 (con't)

Research Question	Measure(s)	Independent or Grouping Variables	Dependent Variable	Analysis Method/ Statistical Test
2b	Survey: Part I Items: 2, 3, 7, 9, 11, 12, 16, 17, 19, 22, 24, 25, 26, 29, 30, 32	School Technology Level 1) low-tech 2) high-tech	Average of responses for each of the three subscales of technology integration domain	Multiple Comparison <i>t</i> -test
3	Survey: Part I Items: 1 – 32		Average of responses for each of the three subscales of traditional teaching domain Average of responses for each of the three subscales of technology integration domain	Pearson Correlation

The survey subscales are presented in Table 2. The subscales show the sub-groups used to categorize the items in the survey. The subscales consist of ability and comfort with traditional teaching, perceived benefits to traditional teaching, and beliefs about classroom instruction with traditional teaching; ability and comfort with teaching with technology, perceived benefits to teaching with technology, and beliefs about classroom instruction when teaching with technology.

Table 2

Survey Subscales

Ability and Comfort with Traditional Teaching

- 5. I prefer to teach using traditional methods.
 - 8. Using traditional teaching methods makes me a better teacher.
 - 13. I am comfortable using traditional teaching methods.
 - 15. I have received ongoing support to assist me in utilizing traditional teaching methods.
 - 20. I am good at using traditional teaching methods.
 - 31. My undergraduate and/or graduate courses adequately trained me to use traditional teaching methods.
-

Ability and Comfort with Teaching with Technology

- 3. I am not comfortable using technology.
 - 9. I am good at teaching with technology.
 - 25. I have received ongoing support to assist me in integrating technology in my teaching.
 - 26. Teaching with technology does not make me a better teacher.
 - 29. I prefer to teach using technology.
 - 32. My undergraduate and/or graduate courses adequately trained me to integrate technology.
-

Perceived Benefits to Traditional Teaching

- 1. Students are engaged in the learning process when I used traditional teaching methods.
 - 6. Student discipline improves when I use traditional teaching methods.
 - 10. Time on task does not improve for students when I use traditional teaching methods.
 - 14. Gains in student achievement occur when I use traditional teaching methods.
 - 28. Students are motivated when I use traditional teaching methods.
-

Perceived Benefits to Teaching with Technology

- 2. Students are engaged when I integrate technology in my teaching.
 - 7. Time-on-task improves for students when I integrate technology in my teaching.
 - 12. Student discipline improves when I integrate technology in my teaching.
 - 16. Students are not motivated when I integrate technology in my teaching.
 - 24. Gains in student achievement occur when I integrate technology in my teaching.
-

Table 2 (con't)

Teachers' Beliefs about Classroom Instruction with Traditional Teaching

- 4. My classes are more organized when I use traditional teaching methods.
 - 18. The availability of teaching resources hinders my ability to teach using traditional methods.
 - 21. Using traditional teaching methods does not enable me to be creative in my teaching.
 - 23. Teaching in this era should utilize traditional methods.
 - 27. Traditional teaching methods require more planning than lessons using technology.
-

Teachers' Beliefs about Classroom Instruction when Teaching with Technology

- 11. Technology lessons require more planning than lessons using traditional teaching methods.
 - 17. Teaching in this era should utilize technology.
 - 19. My classes are more organized when I integrate technology.
 - 22. Using technology enables me to be creative in my teaching.
 - 30. The availability of technology resources hinders my ability to integrate technology in my teaching.
-

Summary

This study focused on a comparison between traditional teaching methods and the integration of technology in the classroom. A quantitative research design was utilized to gather the perceptions teachers have about traditional teaching methods versus technology integration. The study examined teachers from two high schools, West High School and East High School, located in the same school district in Central Alabama.

Chapter III presented the research problem, purpose of the study, research questions, research methods, participants, instrumentation, data collection, and data analysis. The results from the data analysis are presented in Chapter IV. The study's findings, implications, recommendations, and conclusions are reported in Chapter V.

CHAPTER IV

DATA ANALYSIS

For many years, the focus in education has been on restructuring schools to improve the academic achievement of students and to exceed accountability standards. For these improvements to occur, many researchers and educators believe that teaching practices must change. In today's education, many strategies are used to translate knowledge. In a teacher-centered classroom, the teacher controls the environment and knowledge is dispensed solely by the teacher (Ram, 2008). In a student-centered classroom, students will take on an active role in their learning which is usually facilitated through the use of technology (Cubukcu, 2012). As changes in education move from traditional teaching methods to strategies using technology integration, the most important aspect is the perceptions of teachers and their beliefs about what is best for the learning success in their classrooms.

Study Design

The purpose of this study was to investigate the perceptions of teachers about traditional teaching versus technology integration in the classroom. This study focused on the perceptions teachers have toward ability and comfort, perceived benefits, and beliefs about traditional teaching and teaching with technology in two schools located in a Central Alabama school district. Data were generated from a survey given to all certified teachers in the two schools. For the purpose of this study, years of teaching experience were separated at 15 years or fewer and more than 15 years. Also, the two schools were selected because of their status as low-tech and high tech school within this school district. Names of the two schools were changed in order

to maintain anonymity. East High School is referred to as the low-tech school, and West High School is the high-tech school.

In this study, the quantitative research design was utilized. The participants were all certified teachers employed at the two high schools selected for the study. Preliminary research about the two high schools revealed that East High School has 50 certified teachers and West High School has 84 certified teachers. The ethnicity of East High School teachers consisted of 92% Caucasian and 8% African American. The ethnicity of West High School teachers consisted of 93% Caucasian, 6% African American, and 1% Hispanic. The demographic data also revealed that all teachers at both schools are highly qualified. Thirty-one percent of the teachers at East High School have more than 15 years of teaching experience. Forty-eight percent of teachers have more than 15 year of teaching experience at West High School.

The participants in the study were asked to complete a 46-item survey (Appendix B). The survey was designed to determine the perceptions teachers have about traditional teaching methods and teaching with technology. The survey used a Likert-type scale with options including “1” strongly disagree, “2” disagree, “3” neutral, “4” agree, and “5” strongly agree. The items in the survey were designed to determine the perceptions of teachers about teaching strategies such as lecture, whole group discussion, drill and practice, and technology integration used in their classrooms. The subscales in the survey were ability and comfort, perceived benefits, and beliefs. To determine validity for each subscale, the Cronbach’s Alpha test was utilized. As shown in Table 3, the validity results for the total sample (N=103) for each subscale was .76 for ability and comfort, .81 for perceived benefits, and .78 for beliefs. Each of the subscales exceeded the recommended minimum of .70 suggested by Johnson and Christensen (2004) for effective items in the survey.

Table 3

Cronbach's Alpha Results

Subscales	Sample Questions	Number of Questions	Cronbach's Alpha
Ability and Comfort	I am comfortable using traditional teaching methods.	12	.76
Perceived Benefits	Students are engaged when I integrate technology in my teaching.	10	.81
Beliefs	Teaching in this era should utilize traditional methods.	10	.78

Research Questions

The following research questions guided this study:

1. Is there a difference in the perceptions of traditional teaching of
 - a. teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience?
 - b. teachers in low-tech schools and teachers in high-tech schools?
2. Is there a difference in the perceptions of technology integration of teachers
 - a. with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience?
 - b. teachers in low-tech schools and teachers in high-tech schools?
3. What is the relationship between teachers' perceptions about traditional teaching and their perceptions of teaching with technology?

Demographic Data

The demographic data for the two schools participating in the study are presented in Table 4. East High School had an enrollment of 989 students in grades 9-12 and 50 certified teachers. West High School had 1514 students enrolled in grades 9-12 and 84 certified teachers.

Table 4

Schools' Demographic Data

	East High School	West High School
Grade Levels	9-12	9-12
Enrollment by School	989	1514
Certified Teachers by School	50	84

The demographic data for the students at the two schools are presented in Table 5. The student demographic data included enrollment, race, and gender. At East High School, the majority of the students were Caucasian at 89% and the other 11% are African American. West High School consisted of 56% Caucasian, 41% African American, 1% Asian, and 2% Hispanic. The ratio of males to females at East High School was 376 to 613. Therefore, the percentage of males is 38% and the percentage of females is 62%. The ratio of males to females at West High School was 621 to 893. Therefore, the percentage of males is 41% and percentage of females is 59%.

Table 5

Students' Demographic Data

	East High School	West High School
Enrollment	989	989
Caucasian	89%	56%
African-American	11%	41%
Asian	0%	1%
Hispanic	0%	2%
Male	38%	41%
Female	62%	59%

The demographic data for the teachers participating in the study are presented in Tables 6 through 11. Table 6 summarizes survey items 1 through 5 and provides the demographic breakdown of teachers at each school participating in the study.

Table 6

Teachers' Demographic Data

	East High School	West High School
Number of Certified Teachers	50	84
Number of Teachers Surveys Returned	32	71
Percent of Returned Surveys	64%	84.5%
Male (Returned Surveys)	6	18
Female (Returned Surveys)	26	53
Caucasian (Returned Surveys)	87.5%	93%
African American (Returned Surveys)	12.5%	7%

Table 6 (con't)

	East High School	West High School
Percent of Teachers Age 40 or <	59%	44%
Percent of Teachers Age 41 or >	41%	56%
Percent of Years of Experience 15 or <	68%	51%
Percent of Years of Experience 16 or >	32%	49%
Percent with Master Degree or Higher	59%	56%

At East High School there were a total of 50 certified teachers employed and West High School had a total of 84 certified teachers. The percentage of teachers completing the survey at each school was 64% (n = 32) from East High School and 84.5% (n = 71) from West High School. The number of males returning surveys from East High School was 6 and 18 from West High School. The number of females returning surveys from East High School was 26 and 53 from West High School. Teacher ethnicity returning surveys from East High School was 87.5% Caucasian and 12.5% African American. The teacher ethnicity returning surveys at West High School was 93% Caucasian and 7% African American. Of the participants responding, 68% had 15 years or fewer of teaching experience at East High School and 51% had 15 years or fewer of teaching experience at West High School. The percentage of respondents with a Master's Degree or higher was 59% at East High School and 56% at West High School.

Table 7 summarizes survey item 6 and shows the types of technology used by teachers in the two schools. The types of technology used included computers/laptops, Smart Boards, electronic tablets, e-readers, smart phones, digital cameras/camcorders, LCD projectors/document cameras, Internet/World Wide Web, learning management systems, and other.

Table 7

Technology Tools—East High School (Low-tech) and West High School (High-tech)

Types of Technology	East High School % of Teacher Use	West High School % of Teacher Use
Computer/Laptops	100%	100%
Smart Boards	34%	30%
Electronic Tablets	44%	54%
e-Readers	46%	34%
Smart Phones	81%	78%
Digital Camera/Camcorder	75%	72%
LCD Projector/Document Camera	81%	87%
Internet/World Wide Web	94%	99%
Learning Management Systems	9%	20%
Other, please specify	3%	10%

One hundred percent of the teachers from both schools use or know how to use a computer. For use with Smart Boards, East High School which is the low-tech school showed a slightly higher percentage of use at 34% than West High School (high-tech) at 30%. Percentage of use of electronic tablets at East High School was 44% and at West High School, 54%. The percentage of use of e-readers at East High School was 46% and at West High School, 34%. Smart phone use at East High School was 81% and at West High School, 78%. Digital camera/camcorder use at East High School was 75% and at West High School, 72%. The percentage of LCD projector/document camera use at East High School was 81% and at West High School, 87%. Internet/World Wide Web use at East High School was 94% and at West High School, 99%. Learning management systems use at East High School was 9% and at West

High School, 20%. Under the “other” category, East High School reported 3% use and West High School reported 10% use with both schools reporting Mobi Interwrite, social media, and graphing calculators as the other types of technology used.

Table 8 summarizes survey items 7 (How often do you use technology in your classroom?) and 9 (How often do you use traditional teaching in your classroom?).

Table 8

Amount of Technology Use and Traditional Teaching Use

How Often	East High School		West High School	
	Technology Integration	Traditional Teaching	Technology Integration	Traditional Teaching
Every day	47%	78%	57.5%	70%
Every other day	15.5%	12.5%	22.5%	21%
Once a week	25%	9.5%	7%	0%
Two or three times a month	0%	0%	3%	6%
Few times a year	12.5%	0%	10%	0%
Not at all	0%	0%	0%	3%

Forty-seven percent of teachers at East High School and 57.5% of teachers at West High School use some form of technology daily. The table also shows that 15.5% of the teachers at East High School and 22.5% of the teachers at West High School use some form of technology at least every other day. Also, 25% of the teachers at East High School and 7% of teachers at West High School use some form of technology at least once a week. Further, 78% of the teachers at East High School and 70% of the teachers at West High School use traditional

teaching in their classes daily. At East High School, 12.5% of the teacher and at West High School, 21% of the teachers use traditional teaching at least every other day.

Table 9 summarizes survey items 8 (Estimate how many hours of technology training you have received in the last year) and 10 (Estimate how many hours of traditional teaching training you have received in the last year).

Table 9

Hours of Training—Technology and Traditional Teaching

Hours	East High School		West High School	
	Technology Integration	Traditional Teaching	Technology Integration	Traditional Teaching
None	3%	16%	18%	45%
1 – 5	53%	53%	51%	27%
6 – 10	25%	25%	13%	11%
11 – 20	9.5%	3%	10%	8.5%
More than 20 hours	9.5%	3%	8%	8.5%

Fifty-six percent of teachers at East High School and 69% of teachers at West High School received 5 or fewer hours of technology training in the last year. Also, 44% of teachers at East High School and 31% of teachers at West High School received 6 or more hours of technology training in the last year. Further, 69% of teachers at East High School and 72% of teachers at West High School received 5 or fewer hours of traditional teaching training in the last year.

Table 10 summarizes survey items 12 (What is the best way for you to develop technology integration skills?) and 13 (What is the best way for you to develop traditional teaching skills?).

Table 10

Developing Skills—Technology Integration and Traditional Teaching

Types of Training	East High School		West High School	
	Technology Integration	Traditional Teaching	Technology Integration	Traditional Teaching
Independently	9%	9%	17%	10%
Professional Development	47%	38%	54%	55%
Collaboration with Colleagues	38%	47%	25%	29.5%
College or Graduate School Courses	6%	6%	4%	5.5%
Other, please specify	0%	0%	0%	0%

Nine percent of the teachers at East High School and 17% of the teachers at West High School believe that the best way to develop technology integration skills is independently. Forty-seven percent of the teachers at East High School and 54% of the teachers at West High School believe that the best way to develop technology integration skills is professional development activities. Thirty-eight percent of the teachers at East High School and 25% of the teachers at West High School believe that the best way to develop technology integration skills is collaboration with colleagues. Six percent of the teachers at East High School and 4% of the teachers at West High School believe that the best way to develop technology integration skills is college or graduate courses. Further, in Table 8, the data for traditional teaching skills development are shown. Nine percent of the teachers at East High School and 10% of the teachers at West High School believe that the best way to develop traditional teaching skills is independently. Thirty-eight percent of the teachers at East High School and 55% of the teachers

at West High School believe that the best way to develop traditional teaching skills is through professional development activities. Forty-seven percent of the teachers at East High School and 29.5% of the teachers at West High School believe that the best way to develop traditional teaching skills is collaboration with colleagues. Six percent of the teachers at East High School and 5.5% of the teachers at West High School believe that the best way to develop traditional teaching skills is college or graduate school courses.

Table 11 summarizes survey item 14 (Do you teach in a Science, Technology, or Math-related content area?). Forty-four percent of the teachers at East High School and 38% of the teachers at West High School teach in a Science, Technology, or Math-related content area.

Table 11

Science, Technology, or Math Content Area

	East High School Science, Technology, or Math	West High School Science, Technology, or Math
Yes	44%	38%
No	56%	62%

Results for Research Questions

Participants' responses to the survey were recorded in an Excel spreadsheet and transferred into the Statistical Package for Social Sciences (SPSS), version 19.0 for analysis. Part I of the survey, which contained 32 Likert-type items, was clustered into three subscales: ability and comfort, perceived benefits, and beliefs. The three subscales were based on the two categories of traditional teaching and teaching with technology. The *t*-test was utilized to analyze the differences between the teachers' perceptions for the subscales in the two categories. To determine significance, the alpha value was set at $p < .05$. The independent variables of

teaching experience (15 years or fewer and more than 15 years) and levels of school technology (low and high) were tested using a *t*-test to determine significant differences between teachers' perceptions about traditional teaching and teaching with technology at the two high schools for Research Questions 1 and 2.

Results for Research Question 1a

There is no significant difference in the perceptions about traditional teaching between teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience.

The results for Question 1a pertaining to teachers' perceptions of the traditional teaching by years of experience (survey items 1, 4, 5, 6, 8, 10, 13, 14, 15, 18, 20, 21, 23, 27, 28, 31) are reported in Table 12. The ability and comfort subscale showed no significant difference ($t: -1.178; p: .242$) between the perceptions of teachers with 15 years or fewer of teaching experience and teachers with more than 15 years of teaching experience. The mean for teachers with 15 years or fewer of teaching experience was 3.615 and the mean for teachers with more than 15 years of teaching experience was 3.735. The perceived benefits subscale showed no significant difference ($t: -1.967; p: .052$) between the perceptions of teachers with 15 years or fewer of teaching experience and teachers with more than 15 years of teaching experience. The mean for teachers with 15 years or fewer of teaching experience was 3.196 and the mean for teachers with more than 15 years of teaching experience was 3.367. The beliefs subscale showed no significant difference ($t: .403; p: .688$) between the perceptions of teachers with 15 years or fewer of teaching experience and teachers with more than 15 years of teaching experience. The mean for teachers with 15 years or fewer of teaching experience was 2.906 and the mean for teachers with more than 15 years of teaching experience was 2.876. The data are for the participants from both schools.

Table 12

Traditional Teaching—Years of Teaching Experience

	15 years or fewer			More than 15 years			Independent <i>t</i> -test		
	N	Mean	SD	N	Mean	SD	<i>t</i>	df	Sig.
Ability and Comfort	54	3.165	.452	49	3.735	.571	-1.178	100	.242
Perceived Benefits	54	3.196	.481	49	3.367	.388	-1.967	100	.052
Beliefs	54	2.906	.286	49	2.878	.412	.403	100	.688

Results for Research Question 1b

There is no significant difference in the perceptions about traditional teaching between teachers in low-tech schools and teachers in high-tech schools.

The results for Question 1B pertaining to teacher perceptions of traditional teaching in low-tech and high-tech schools (survey items 2, 3, 7, 9, 11, 12, 16, 17, 19, 22, 24, 25, 26, 29, 30, 32) are reported in Table 13. The ability and comfort subscale showed no significant difference ($t: -1.183; p: .240$) between the perceptions of teachers teaching in the low-tech school and teachers teaching in the high-tech school. The mean for teachers from the low-tech school was 3.581 and the mean for teachers from the high-tech school was 3.710. The perceived benefits subscale showed no significant difference ($t: -1.690; p: .094$) between the perceptions of teachers teaching in the low-tech school and teachers teaching in the high-tech school. The mean for teachers from the low-tech school was 3.169 and the mean for teachers from the high-tech school was 3.327. The beliefs subscale showed no significant difference ($t: -1.120; p: .905$) between the perceptions of teachers teaching in the low-tech school and teachers teaching in the high-tech

school. The mean for teachers from the low-tech school was 2.885 and the mean for teachers from the high-tech school was 2.894.

Table 13

Traditional Teaching—Low-tech and High-tech Schools

	Low-tech East High School			High-tech West High School			Independent <i>t</i> -test		
	N	Mean	SD	N	Mean	SD	<i>t</i>	df	Sig.
Ability and Comfort	32	3.581	.504	71	3.710	.514	-1.183	101	.240
Perceived Benefits	32	3.169	.469	71	3.327	.425	-1.690	101	.094
Beliefs	32	2.885	.304	71	2.894	.370	-.120	101	.905

Results for Research Question 2a

There were significant differences in the perceptions about technology integration between teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience on the subscales of ability and comfort; and beliefs. There was no significant difference between the perceptions of teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience on the subscale of perceived benefits.

The results for Question 2a are reported in Table 14. The ability and comfort subscale showed significant differences ($t: 4.009; p: .000^*$) between the perceptions of teachers with 15 years or fewer of teaching experience and teachers with more than 15 years of teaching experience. The mean for the teachers with 15 years or fewer of teaching experience was 3.155 and the mean for teachers with more than 15 years of teaching experience was 2.829. The

perceived benefits subscale showed no significant difference ($t: 1.688; p: .094$) between the perceptions of teachers with 15 years or fewer of teaching experience and teachers with more than 15 years of teaching experience. The mean for the teachers with 15 years or fewer of teaching experience was 3.464 and the mean for teachers with more than 15 years of teaching experience was 3.314. The beliefs subscale showed significant differences ($t: 2.404; p: .018^*$) between the perceptions of teachers with 15 years or fewer of teaching experience and teachers with more than 15 years of teaching experience. The mean for the teachers with 15 years or fewer of teaching experience was 3.723 and the mean for teachers with more than 15 years of teaching experience was 3.490.

Table 14

Technology Integration—Years of Teaching Experience

	15 years or fewer			More than 15 years			Independent <i>t</i> -test		
	N	Mean	SD	N	Mean	SD	<i>t</i>	df	Sig.
Ability and Comfort	54	3.155	.448	49	2.829	.365	4.009	100	.000*
Perceived Benefits	54	3.464	.424	49	3.314	.473	1.688	100	.094
Beliefs	54	3.723	.526	49	3.490	.448	2.404	100	.018*

Results for Research Question 2b

There was no significant difference in the perceptions about technology integration between teachers in low-tech schools and teachers in high-tech schools.

The results for Question 2b are reported in Table 15. The ability and comfort subscale showed no significant difference ($t: .890; p: .376$) between the perceptions of teachers teaching

in the low-tech school and teachers teaching in the high-tech school. The mean for teachers from the low-tech school was 3.050 and the mean for teachers from the high-tech school was 2.966. The perceived benefits subscale showed no significant difference ($t: .969; p: .335$) between the perceptions of teachers teaching in the low-tech school and teachers teaching in the high-tech school. The mean for teachers from the low-tech school was 3.456 and the mean for teachers from the high-tech school was 3.363. The beliefs subscale showed no significant difference ($t: 1.623; p: .108$) between the perceptions of teachers teaching in the low-tech school and teachers teaching in the high-tech school. The mean for teachers from the low-tech school was 3.724 and the mean for teachers from the high-tech school was 3.552.

Table 15

Technology Integration—Low-tech and High-tech Schools

	Low-tech East High School			High-tech West High School			Independent <i>t</i> -test		
	N	Mean	SD	N	Mean	SD	<i>t</i>	df	Sig.
Ability and Comfort	32	3.050	.437	71	2.966	.445	.890	101	.376
Perceived Benefits	32	3.456	.306	71	3.363	.501	.969	101	.335
Beliefs	32	3.724	.498	71	3.552	.499	1.623	101	.108

Results for Research Question 3

There was a significant relationship between traditional teaching and teaching with technology on the subscale of ability and comfort. There was no significant relationship between traditional teaching and teaching with technology on the subscales of perceived benefits and beliefs.

Descriptive statistics related to Question 3 are reported in Table 16. The data were analyzed for traditional teaching using the subscales of ability and comfort, perceived benefits, and beliefs. The mean for the subscale of ability and comfort in the category of traditional teaching was 3.670. The mean for the subscale of perceived benefits in the category of traditional teaching was 3.278. The mean for the subscale of beliefs in the category of traditional teaching was 2.892. The data were analyzed for teaching with technology using the subscales of ability and comfort, perceived benefits, and beliefs. The mean for the subscale of ability and comfort in the category of teaching with technology was 2.992. The mean for the subscale of perceived benefits in the category of teaching with technology was 3.392. The mean for the subscale of beliefs in the category of teaching with technology was 3.605.

Table 16

Descriptive Statistics—Traditional Teaching and Teaching With Technology

	Mean	Std. Deviation	N
Traditional Teaching Ability and Comfort	3.670	.512	103
Traditional Teaching Perceived Benefits	3.278	.443	103
Traditional Teaching Beliefs	2.892	.349	103
Technology Ability and Comfort	2.992	.442	103
Teaching with Technology Perceived Benefits	3.392	.450	103
Teaching with Technology Beliefs	3.605	.503	103

A Pearson Correlation Test was used to analyze Question 3. The alpha value was set at $p < .01$. Table 17 reports the results of the correlation analysis of Question 3. The subscales of ability and comfort, perceived benefits, and beliefs for each category were analyzed to determine if there was a correlation between traditional teaching and teaching with technology. There was a negative correlation between traditional teaching and teaching with technology on the subscale of ability and comfort ($r: -.294; p: .003^*$). The negative correlation shows that as teachers are more comfortable with traditional teaching, they are less comfortable with teaching with technology. There was a negative correlation between traditional teaching and teaching with technology on the subscale of perceived benefits ($r: -.164; p: .097$). The negative correlation shows that the more teachers perceive that there are benefits to traditional teaching, the less they perceive there are benefits to teaching with technology in the classroom. There was a positive correlation between traditional teaching and teaching with technology on the subscale of beliefs ($r: .007; p: .947$). The positive correlation shows that the more teachers believe that their classrooms are enhanced by traditional teaching, the less they believe their classrooms are enhanced by teaching with technology.

Table 17

Correlations—Traditional Teaching and Teaching with Technology

	r	Sig.	N
Traditional Teaching Versus Teaching With Technology Ability and Comfort	-.294	.003*	103
Traditional Teaching Versus Teaching With Technology Perceived Benefits	-.164	.097	103

Table 17 (con't)

Traditional Teaching Versus Teaching With Technology Beliefs	.007	.947	103
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Summary

Chapter IV presented the results of the analysis of data collected from two high schools located in the same school district in Central Alabama. For Question 1, there was no significant difference between the perceptions of teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience, as well as teachers from the low-tech and high-tech schools regarding traditional teaching. For Question 2, there were significant differences between perceptions of the teachers' with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience on the subscales of ability and comfort and beliefs, but no significant difference on the subscale of perceived benefits about teaching with technology. Also, for Question 2, there was no significant difference between the perceptions of teachers from the low-tech and high-tech schools regarding technology. For Question 3, there was a negative correlation between traditional teaching and teaching with technology on the subscale of ability and comfort and perceived benefits. However, there was a positive correlation between traditional teaching and teaching with technology on the subscale of beliefs.

Chapter IV presented the results of the SPSS analysis of the data collected from the two high schools in this study. Chapter V will report a discussion of the findings, recommendations, and conclusion.

CHAPTER V

FINDINGS, RECOMMENDATIONS, AND CONCLUSION

Veteran teachers as well as novice teachers enter the beginning of each school year with preconceived notions about teaching strategies they will use in their classrooms. Often the teaching strategies used in classrooms are based on the experiences and training teachers received as they prepared to become teachers. Over the years, changes in education have been promoted to improve the academic success of students and to prepare them for society. The No Child Left Behind Act (NCLB), a government mandate, focused on changes in education that implemented the integration of technology to improve teaching and learning, and to establish significant accountability measures for public schools by the year 2014 (Berends, 2004). Through these changes, some teachers may have found the need to change their perceptions about teaching strategies they use in their classrooms. Many changes incorporated technology integration which required a shift from the traditional teaching practice. The purpose of this study was to analyze the perceptions of teachers regarding traditional teaching and teaching with technology in the classroom. This chapter presents a discussion of the findings and implications and provides recommendations for future research.

Overview of the Study

The purpose of this study was to analyze the perceptions of teachers about traditional teaching versus teaching with technology in the classroom. Specifically, the study explored the perceptions of teachers with 15 years or fewer of teaching experience and teachers with more than 15 years of teaching experience. Also, the study explored the perceptions of teachers in a

low-tech school and a high-tech school. Data were generated from a survey given to all certified teachers in two high schools in the same school district located in Central Alabama. The survey consisted of 32 Likert-type items and 14 demographic items. The 32 Likert-type items were used to analyze the perceptions of teachers pertaining to the subscales of ability and comfort, perceived benefits, and beliefs.

Research Questions

Research Question 1

Is there a difference in the perceptions of traditional teaching of

- a. teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience?
- b. teachers in low-tech schools and teachers in high-tech schools?

For Question 1a, the results showed that there were no significant differences between the perceptions of teachers with more than 15 years of teaching experience compared to teachers with 15 years or fewer of teaching experience pertaining to traditional teaching. For Question 1b, the results showed that there were no significant differences between the perceptions of teachers in the low-tech school and the teachers in the high-tech school pertaining to traditional teaching.

Research Question 2

Is there a difference in the perceptions of teaching with technology of

- a. teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience?
- b. teachers in low-tech schools and teachers in high-tech schools?

For Question 2a, there were significant differences in the perceptions about technology integration between teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience. The significant differences pertained to the subscales of ability and comfort, and beliefs. For the subscale of perceived benefits, there was no significant difference between the perceptions of teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience. For Question 2b, the results showed that there were no significant differences between the perceptions of teachers in the low-tech school and the teachers in the high-tech school pertaining to teaching with technology.

Research Question 3

What is the relationship between teachers' perceptions about traditional teaching and their perceptions of teaching with technology?

For Question 3, the results showed that there was a negative correlation in the relationship of traditional teaching compared to teaching with technology in the subscale of ability and comfort and perceived benefits. On the subscale of beliefs, the results showed a positive correlation in the relationship of traditional teaching compared to teaching with technology.

Discussion of Findings

Teachers' beliefs have such an influence on the methods of teaching strategies used in their classrooms. This investigation provides educators with current research about the perceptions teachers have about traditional teaching methods versus teaching with technology.

Research Question 1a

Is there a difference in the perceptions of traditional teaching of teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience?

The results in this study showed that there was no significant difference between the perceptions of teachers with more than 15 years of teaching experience compared to teachers with 15 years or fewer of teaching experience pertaining to traditional teaching. According to Lowery et al. (2011), most colleges and universities train aspiring teachers through a teacher-centered instructional process on which most teachers will model themselves. Teachers with more than 15 years of teaching experience, as well as teachers with fewer than 15 years of teaching experience, have been trained in the same way through lecture and whole class discussion. This study also showed that teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience believe that they have been adequately trained in their undergraduate and/or graduate courses to teach using traditional methods (ability and comfort subscale). It is reasonable that their perceptions about their abilities to teach traditionally in their classes are the same.

A study by Campbell et al. (2000) showed increases in student achievement when teachers taught using traditional methods. Higher achievement levels were reported in the National Assessment of Educational Progress due to more time on task through traditional methods of teaching. In this study, teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience agreed that there are gains in student achievement when teaching with traditional methods (perceived benefits subscale). Also, the majority of the teachers in this study agreed that time on task for students improved when they used traditional teaching methods (perceived benefits subscale). It is reasonable that teachers' perceptions about the benefits of teaching traditionally are the same.

Research also showed that teachers believe that teaching traditionally helps to keep their classes in control leading to a well-managed and organized class, according to Sadker &

Zittleman (2006). In this study, teachers in both experience categories believed that their classes are more organized, because they can be creative and they have the resources needed to teach traditionally (beliefs subscale). The findings in this study support the assumption that veteran teachers and novice teachers have the same perceptions about traditional teaching methods in regard to beliefs about classroom instruction.

Research Question 1b

Is there a difference in the perceptions of traditional teaching of teachers in the low-tech school and teachers in the high-tech school?

The results in this study showed that there was no significant difference between the perceptions of teachers in the low-tech school and teachers in the high-tech school pertaining to traditional teaching. According to Lowery et al. (2011), teachers are mainly trained to teach through traditional methods and they will usually pattern their teaching style after the methods in which they were trained. According to Dreikurs et al. (1982), teachers will use teacher-guided instruction, then allow whole-class discussion to facilitate interaction between the teacher and students. Because teachers today are using these same traditional strategies in their classes, the amount of technology in the school does not affect this interaction. In this study, teachers in the low-tech school and teachers in the high-tech school had the same perceptions about traditional teaching, because they were comfortable teaching traditionally and preferred to teach in that manner.

Research Question 2a

Is there a difference in the perceptions of technology integration of teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience?

The results in this study showed that there were significant differences between the perceptions of teachers with more than 15 years of teaching experience compared to teachers with 15 years

or fewer of teaching experience pertaining to teaching with technology on the subscales of ability and comfort; and beliefs. There were no significant differences between the perceptions of teachers with more than 15 years of teaching experience compared to teachers with 15 years or fewer of teaching experience on the subscale of perceived benefits.

Technology has become the vehicle that many politicians, educators, and researchers believe should be used to move education forward in the 21st Century. The National Teacher Survey (2005) found that most teachers only use technology for administrative purposes because they have not been properly trained to use technology in their lessons. In this study, according to the data analysis, the majority of the teachers with more than 15 years of teaching experience believed that their undergraduate and/or graduate courses did not adequately train them to integrate technology into their lessons (ability and comfort subscale). Due to the lack of training in teaching with technology, teachers in this study with more than 15 years of teaching experience preferred not to teach using technology, because they were not comfortable teaching with technology (ability and comfort subscale). The teachers with 15 years or fewer of teaching experience in this study reported they were comfortable with their abilities to teach with technology in their lessons, and believe that teaching with technology made them a better teacher (ability and comfort subscale). These teachers will use technology because they are comfortable and prefer to teach with technology (ability and comfort subscale).

The integration of technology is influenced by teachers' beliefs about classroom instruction when technology is used (Pierce & Ball, 2009). In this study, the majority of teachers with more than 15 years of teaching experience believed that lessons using technology require more planning than lessons using traditional teaching methods (beliefs subscale). This belief

may be consistent with the belief that they have not received ongoing support to assist them in integrating technology in their classes (ability and comfort subscale).

Teachers in both categories of teaching experience perceived technology to be beneficial to the learning process of students. According to Stratham and Torell (2010), student interaction is increased and student inquiries and problem solving is encouraged when technology is implemented in the learning environment. The data analysis in this study showed that teachers with more than 15 years of teaching experience and teachers with 15 years or fewer of teaching experience felt that students' discipline improves, time on task improves, and gains in student achievement occur when technology is integrated into the classroom (perceive benefits subscale). The findings in this study support the assumption that teachers in both teaching experience categories believe that teaching with technology is beneficial to students and helps to engage them in the learning environment.

Research Question 2b

Is there a difference in the perceptions of technology integration of teachers in the low-tech school and teachers in the high-tech school?

The results in this study showed that there was no significant difference in the perceptions of teachers in the low-tech school compared to teachers in the high-tech school.

The integration of technology is an important teaching strategy for schools today. Intensive curriculum-based technology training that effectively instructs on how to implement activities into lesson plans is what teachers in the 21st Century need to infuse technology into their classes (Zhao & Bryant, 2006). In this study, the majority of teachers from the low-tech school and the high tech-school did not believe that they had received the ongoing training needed to successfully integrate technology into their teaching (ability and comfort subscale). When technology becomes a routine part of the learning environment, students benefit

academically. Research shows that an important contribution that technology makes is the effect it has on students' attitudes toward learning and the improvement of discipline and student success in technology enriched schools (Stratham & Torell, 2010). In this study, teachers in the high-tech school as well as teachers in the low-tech school perceived that students are motivated to learn and discipline problems are not as prevalent when technology is a part of the learning process (perceived benefits subscale). Another strength of technology is it allows the teacher to take on the role of facilitator and gives students an opportunity to be creative in their learning (Mandell et al., 2002). Teachers in the low-tech and high-tech schools agreed that they can be more creative in their classes when using technology (beliefs subscale). Curricula can be more customized to the individual learner's academic needs. Teachers in the low-tech and high-tech school also believed that their classes are more organized when technology is integrated (beliefs subscale). However, teachers in the low-tech school believed that the availability of resources hinders their ability to integrate technology in their teaching (beliefs subscale). In this study, it was reasonable to assume that teachers in the low-tech school and teachers in the high-tech school had the same perceptions about technology integration. In their classes, teachers believe that technology can be beneficial to instruction as well as student learning especially if the low-tech school receives the technology needed.

Research Question 3

What is the relationship between teachers' perceptions about traditional teaching and their perceptions of teaching with technology?

The results in this study showed that there was a negative correlation in the relationship between teachers' perceptions about traditional teaching and teaching with technology on the subscales of ability and comfort and perceived benefits. Results also showed there was a positive correlation

in the relationship between teachers' perceptions about traditional teaching and teaching with technology on the subscale of beliefs.

The call for new teaching strategies that integrate technology has generated mixed feelings among teachers in the education profession. Most educators are able to identify the relevance of incorporating technology within their lessons, but still have a sense of resistance to integrate. A major concern in education today is the lack of technology integration among teachers in American classrooms (Zhao & Bryant, 2006). Teachers' resistance to implement technology is due to the lack of training to teach with technology and the comfort zone created when they teach traditionally (subscale ability and comfort with traditional teaching and teaching with technology). Because teachers do not receive the ongoing support needed to implement technology, they are not comfortable with their abilities to use technology and prefer not to integrate technology in their classrooms.

This study shows that the teachers in both schools perceive that there are benefits to teaching traditionally and benefits to teaching with technology for the learning success of students. The integration of technology into traditional methods of teaching has the potential to support education across the curriculum and provide opportunities for effective communication between teachers and students (Bingimlas, 2009). Results of this study show when students are engaged in learning by using technology to investigate and using the traditional method of whole group discussion to communicate what they have learned, gains in student achievement will occur from the collaboration of traditional teaching and technology integration (perceived benefits subscale for traditional teaching and teaching with technology). When teachers forged a relationship between traditional teaching and technology integration, students are engaged in the

learning process, they spend more time on task, and they are motivated to learn (perceived benefits subscale for traditional teaching and teaching with technology).

Teachers' beliefs play a critical role in the teaching-learning environment in classrooms. When determining the instructional strategies for their classes, teachers refer to their prior experiences which helped to form their beliefs (Chen, 2008). Even though data results in this study showed that the majority of teachers prefer to teach traditionally, they do believe that technology can enhance the learning process in their classrooms. The data analysis in this study also showed that teachers believe that teaching traditionally and teaching with technology should take place in this era (beliefs subscale for traditional teaching and teaching with technology).

Summary

This study was based on the perceptions teachers have about traditional teaching and teaching with technology in the classroom. The researcher sought to determine which teaching method teachers believed to be more beneficial to the teaching and learning process in classrooms. After reviewing the data analysis report, it is evident that a combination of traditional teaching and technology integration will create a classroom that will support academic achievement. Although this study did not directly ask teachers if they are currently using traditional teaching with technology, they were asked about ways to develop technology integration skills. From the data, the researcher has determined that teachers are willing to do training to effectively integrate technology into their teaching. The Learning Task Force (2004) stated that technology alone is not the answer to the challenges facing education, but with technology, teachers will have more resources, can individualize instruction, and give students more opportunities to be life-long learners.

Recommendations for Practice and Future Research

This study investigated the perceptions of teachers about traditional teaching methods versus teaching with technology in the classroom. The researcher sought to determine which method teachers perceived to be more useful in the classroom. This section offers recommendations for practice and research drawn from the results of the study.

Recommendations for Practice

One of the major findings in this study was that teachers with more than 15 years of teaching experience are not comfortable using technology in their classrooms. Also, the majority of the teachers (81.2%) in the low-tech school believed that the lack of availability of technology resources hindered their ability to integrate technology in their teaching. If teachers who began teaching before the push for technology could receive professional development to strengthen their technology skills and develop strategies to integrate technology in their teaching, it could help them to change teaching practices in their classrooms and prepare students for the 21st Century. The same changes in the low-tech school could happen if more technology became available. Teachers with more than 15 years of teaching experience and teachers in the low-tech school who received more professional development and who had more access to technology would be able to bring new life into the teaching experience. Teachers burnt out on teaching traditionally would have new ways to implement fresh ideas. If these teachers could receive the training needed and the access to technology needed, they could connect curriculum and pedagogy to develop learning experiences that integrate technology in the classroom (Mishra & Koehler, 2006). Recommendations for practice are as follows:

1. Teachers who are not confident in their abilities to integrate technology into their lessons should receive professional development and ongoing support from their schools and the central office.

a. Professional development should provide a knowledge base that will ensure technology planning based on teaching and learning with technology.

b. Professional development should provide a baseline for solving technical issues.

c. Professional development should provide ongoing support to stay abreast of new technological innovations.

2. School administrators and/or the central office should equip all schools with enough technology to effectively implement technology in the schools.

a. They should provide technologies to achieve the identified learning goals.

b. There should be a commitment to provide continuous funding for new technologies, technical support, software, and ongoing training.

3. Schools should conduct evaluations to assess benefits of technology integration and traditional teaching in schools.

a. Evaluations should ensure that teaching with technology or traditional teaching is meeting the needs of the students.

b. Evaluations should assess that professional development is meeting the needs of the teachers.

Recommendations for Future Research

The findings in this study showed that while there were no significant differences in teachers' perceptions about traditional teaching, there are significant differences in their perceptions about teaching with technology. As findings in this study were explored, ideas for

expanding and continuing the study surfaced. Recommendations for further research are as follows:

1. This study was limited to one school system and only two high schools were used. The study should be conducted in other school systems and more high schools across the state to determine if similar results are reported in the findings.
2. A longitudinal research study could be undertaken to compare traditional teaching to teaching with technology to see how each teaching method affects student achievement of classroom grades and standardized test.
3. This study only focused on quantitative data using a survey to collect data. Future studies could use qualitative data using individual interviews, focus groups, observations, and written responses to collect data.
4. Further research could be conducted by investigating administrators and central office staff to analyze their perceptions about traditional teaching and teaching with technology and to establish how they would enable teachers to receive professional development and access to technology.
5. A study investigating the perceptions of students about traditional teaching methods and teaching with technology should be conducted to determine which method they perceive to be more beneficial in the classroom.

Conclusion

In a world that is constantly changing, so is the educational process. Over the past several decades, society has implemented a life-style supported by electronic devices in every aspect of it. In the 21st century, computers, laptops, smart phones, tablets, and other devices are used to connect the world at home and in business. Since education is the catalyst used to

prepare people for the workforce, it should use technology to facilitate that preparation. The job market expects students to have the skills needed to be successful in the workplace. In the classroom today, there are teachers who began teaching before the push for technology and still teach using only traditional methods. These teachers still use these methods because they have not received the necessary training to use technology effectively in the classroom. Also, there are schools that do not have the technology needed for teachers to be equipped to use technology in their lessons. In today's information age, most jobs demand technological skills (Partnership for 21st Century Skills, 2008/2009). Teachers must begin utilizing technology in the classroom to help improve the learning process for students. School districts must be sure to give teachers the training and access to technology needed to help them prepare students to become productive citizens in a global society.

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APPENDIX A

Letter to Building Administration and Study Explanation

Dear Principals,

Enclosed are the survey and informed consent letter to be distributed to all certified teachers in your building. This is part of the “A COMPARATIVE STUDY OF TEACHERS’ PERCEPTIONS OF TRADITIONAL TEACHING AND TEACHING WITH TECHNOLOGY: PRE-TECHNOLOGY ERA AND POST-TECHNOLOGY ERA” dissertation study I am conducting as a requirement for the doctoral program at The University of Alabama.

As mentioned in one of our previous discussions, participation will require a small amount of time that can be done during a faculty meeting. The first hand-out to the teachers is an informed consent letter that explains the study and gives information on who to contact if there are any questions. The second hand out is a one-time survey that should take teachers approximately 15 minutes to complete. Please assure your staff that their answers will remain confidential. All responses will be combined to provide descriptive statistics.

I will attend one of your faculty meetings to distribute the survey and answer any questions the teachers may have. Teachers should complete and return the surveys to the envelope provided at the faculty meeting. I request your help in encouraging all teachers to participate so that maximum data is gathered which is critical to the success of this study.

Upon completion of this study, the school may request a complete report of the results. Please stress my appreciation to the faculty for their participation in this endeavor. Thank you for your support and for allowing your school to be a part of my study. If you have any questions, you may contact Dr. Angela Benson (my dissertation Chairperson) at (205)348-7824 or me at (205)366-1439 or (205)242-2693.

Sincerely,

Cynthia Simpson
Doctoral Student
The University of Alabama

Enclosure: Informed Consent Letter and Surveys

Study Explanation

Research shows that education is always changing in order to improve student achievement. Over two decades ago, classroom instruction was presented through traditional methods such as lecture, whole group discussion, and drill and practice. In recent times, research has shown that technology is the format needed in schools for students to be successful in a global society. National and international statistics show that schools around the world are becoming increasingly well equipped with computer hardware and access to the internet (Wood, Mueller, Willoughby, Specht, & Deyoung, 2005). Studies about traditional teaching versus technology integration in the classroom are needed to determine teachers' perceptions about each method and the impact on instruction and student learning. The purpose of this study is to analyze the perceptions of teachers' about traditional teaching versus technology integration in the classroom. This study is driven by the overarching question: Which instructional practice, traditional teaching or technology integration effectively impacts the instructional process? The following are the research questions for this study:

1. Is there a difference in the perceptions of traditional teaching of
 - a. teachers with more than 15 years of teaching experience and teachers with 15 years or less of teaching experience?
 - b. teachers in low-tech schools and teachers in high-tech schools?
2. Is there a difference in the perceptions of technology integration of
 - a. teachers with more than 15 years of teaching experience and teachers with 15 years or less of teaching experience?
 - b. teachers in low-tech schools and teachers in high-tech schools?
3. What is the relationship between teachers' perceptions about traditional teaching and their perceptions of teaching with technology?

This information will be obtained by a survey. This study hopes to uncover the perceptions of teachers about traditional teaching methods, technology integration, and the impact on instruction.

Study Procedures

Participants in the study will be teachers selected from two high schools in a Central Alabama school district. Permission to conduct the study has been granted from the district's

superintendent. The schools were selected based on proximity to the researcher and school characteristics. The projected number of participants for the survey will be 130 to 140. The survey will be distributed and completed by teachers at one of their faculty meeting. The study will be conducted by the researcher who is a doctoral student at the University of Alabama and supervised by her dissertation chairperson, Dr. Angela Benson.

Study Background

The study of teacher perceptions about traditional teaching methods and technology integration in the classroom could help identify the areas of weaknesses teachers have with classroom instruction, problems with professional development, and the perceived impact on student learning. With both methods playing such an important role in the academic success of students, studies are needed to determine the perceptions teachers have toward traditional teaching methods and technology integration in the classroom. It is important for policy makers, educators, and researchers to understand how teachers and students relate to traditional teaching methods and technology as plans are made for the improvement of student learning (Christensen, 1998; Clausen, Britten, & Ring, 2008; Martin, Heller, & Mahmoud, 1992; Raulston, 2009).

Subject Population

The population for the study will be teachers selected from two high schools in a district located in Central Alabama. The schools selected were based on proximity to the researcher, years of teaching experience, and the amount of technology in each school. The projected number of participants for the survey will be 130 – 140. The population will include both male and female subjects for all ages and races. There are no known vulnerable populations in the study nor will any populations be excluded.

Subject Recruitment Methods

A letter to the principal and informed consent letters was delivered to each principal of each school. The informed consent letters were distributed to each teacher. There will not be advertising for the study nor will any health or invasive personal information be collected.

Risks

There are no known risks to the study. Time to complete the survey is the only known risk. Subjects may stop participating in the study at any time.

Benefits

Benefits in the study will be discovering the perceptions of teachers toward traditional teaching methods and technology integration in the classroom and what if any improvements can be made to enhance the process of instruction in the classroom and student achievement.

Privacy and Confidentiality

Surveys will be coded for privacy and confidentiality. The goal of the study is to obtain themes of beliefs and practices among teachers, therefore individual names will not be provided.

However, if the need arises, participants will be given code names. Persons having access to the data will be limited to the researcher and dissertation chairperson. The help of a statistician will be enlisted for the statistical analysis of the survey. The statistician should not have any reason to need personal information of the participants. Paper copies and of the data will be kept for future references.

Incentives and Compensation

The study does not offer incentives to participants nor is there any financial cost to them. Any cost incurred in the study will be paid by the researcher.

Informed Consent Process

Participants will receive an informed consent letter which describes the study and explains participants' rights. Participants' consent will be obtained by the participants completing and turning in the survey. There will not be any written consent that may link the participants to the study. Each participant is an independent adult employed in the school system and should be capable of providing their own consent.

APPENDIX B

Survey: Teachers' Perceptions about Traditional Teaching Methods and Teaching With Technology

Thank you for agreeing to complete this survey. Your responses are very important to the research being conducted on technology and teaching. Anonymity is assured.

PART I

The items in Part I are intended to assess the perceptions of teachers about traditional teaching methods versus technology integration and the impact in the classroom. For this survey,

- Traditional teaching methods include lecture, whole class discussions, and drill and practice (with limited use of technology).
- Technology integration includes the implementation of electronic devices for teaching and learning (consistent use of technology the majority of the time).

Please respond to the following 32 statements using a five point scale: “1” Strongly Disagree, “2” Disagree, “3” Neutral, “4” Agree, and “5” Strongly Agree. Please circle the appropriate number.

	SD	D	N	A	SA
1. Students are engaged in the learning process when I use traditional teaching methods.	1	2	3	4	5
2. Students are engaged when I integrate technology in my teaching.	1	2	3	4	5
3. I am not comfortable using technology.	1	2	3	4	5
4. My classes are more organized when I use traditional teaching methods.	1	2	3	4	5
5. I prefer to teach using traditional methods.	1	2	3	4	5
6. Student discipline improves when I use traditional teaching methods.	1	2	3	4	5
7. Time-on-task improves for students when I integrate technology in my teaching.	1	2	3	4	5
8. Using traditional teaching methods makes me a better teacher.	1	2	3	4	5
9. I am good at teaching with technology.	1	2	3	4	5
10. Time-on-task does not improve for students when I use traditional teaching methods.	1	2	3	4	5
11. Technology lessons require more planning than lessons using traditional teaching methods.	1	2	3	4	5
12. Student discipline improves when I integrate technology in my teaching.	1	2	3	4	5
13. I am comfortable using traditional teaching methods.	1	2	3	4	5
14. Gains in student achievement occur when I use traditional teaching methods.	1	2	3	4	5
15. I have received ongoing support to assist me in utilizing traditional teaching methods.	1	2	3	4	5

16. Students are not motivated when I integrate technology in my teaching.	1	2	3	4	5
17. Teaching in this era should utilize technology.	1	2	3	4	5
18. The availability of teaching resources hinders my ability to teach using traditional methods.	1	2	3	4	5
19. My classes are more organized when I integrate technology.	1	2	3	4	5
20. I am good at using traditional teaching methods.	1	2	3	4	5
21. Using traditional teaching methods does not enable me to be creative in my teaching.	1	2	3	4	5
22. Using technology enables me to be creative in my teaching.	1	2	3	4	5
23. Teaching in this era should utilize traditional methods.	1	2	3	4	5
24. Gains in student achievement occur when I integrate technology in my teaching.	1	2	3	4	5
25. I have received ongoing support to assist me in integrating technology in my teaching.	1	2	3	4	5
26. Teaching with technology does not make me a better teacher.	1	2	3	4	5
27. Traditional teaching methods require more planning than lessons using technology.	1	2	3	4	5
28. Students are motivated when I use traditional teaching methods.	1	2	3	4	5
29. I prefer to teach using technology.	1	2	3	4	5
30. The availability of technology resources hinders my ability to integrate technology in my teaching.	1	2	3	4	5
31. My undergraduate and/or graduate courses adequately trained me to use traditional teaching methods.	1	2	3	4	5
32. My undergraduate and/or graduate courses adequately trained me to integrate technology.	1	2	3	4	5

Thank you for responding to the questions on traditional teaching and teaching with technology. Please continue to complete Part II.

Part II: Demographic Questions

Please take a moment to complete the following demographic items. Be assured that these items will be used only for general collective purposes and in no way be used to identify any individual. Place an X in the blank that corresponds to your answer.

1. What is your age?

21 – 30

31 – 40

41 – 50

51 – 60

61 or older

2. How many years have you been in the teaching profession?

1 – 5

6 – 10

11 – 15

16 or more

3. How many years have you been at this school?

1 – 5

6 – 10

11 – 15

16 or more

4. What is your gender?

Male

Female

5. What is your race?

White

Black

Other

Please continue to the next page.

6. Which technology tools do you use or know how to use? Mark all that apply.
- Computers/laptops
 - Smart Boards
 - Tablets
 - eReaders
 - Smart Phones
 - Digital Camera/Camcorder
 - LCD Projector/Document Camera
 - Internet/World Wide Web
 - Learning Management Systems
 - Other, please specify _____
7. How often do you use technology in your classroom?
- Everyday
 - Every other day
 - Once a week
 - Two or three times a month
 - Few times a year
 - Not at all
8. Estimate how many hours of technology training you have received in the last year.
- None
 - 1 – 5
 - 6 – 10
 - 11 – 20
 - More than 20 hours
9. How often do you use traditional teaching methods in your classroom?
- Everyday
 - Every other day
 - Once a week
 - Two or three times a month
 - Few times a year
 - Not at all

Please continue to the next page.

10. Estimate how many hours of traditional teaching training you have received in the last year.

- None
- 1 – 5
- 6 – 10
- 11 – 20
- More than 20 hours

11. What is your highest degree in college?

- Bachelor's
- Master's
- Educational Specialist
- Doctorate

12. What is the best way for you to develop technology integration skills?

- Independently
- Professional Development Activities
- Collaboration with Colleagues
- College or Graduate School Courses
- Other, please specify _____

13. What is the best way for you to develop traditional teaching skills?

- Independently
- Professional Development Activities
- Collaboration with Colleagues
- College or Graduate School Courses
- Other, please specify _____

14. Do you teach in a science, technology, or math related content area?

- Yes
- No

Thank you very much for taking time to complete this survey! Your responses, pooled with those of many other teachers, will provide important insight into traditional teaching and teaching utilizing technology in the classroom.

APPENDIX C

Informed Consent for a Non-medical Study

Study Title: A COMPARATIVE STUDY OF TEACHERS' PERCEPTIONS OF TRADITIONAL TEACHING AND TEACHING WITH TECHNOLOGY: PRE-TECHNOLOGY ERA AND POST-TECHNOLOGY ERA

Investigator's Name: Cynthia Simpson

Position: Doctoral Student

Institution: The University of Alabama

You are being asked to take part in a research study. This study is called A Comparative Study of Teachers' Perceptions of Traditional Teaching and Teaching with Technology: Pre-Technology Era and Post-Technology Era. The study is being done by Cynthia Simpson, who is a graduate student at the University of Alabama. Mrs. Simpson is being supervised by Dr. Angela Benson who is a professor of Educational Leadership, Policy and Technology at the University of Alabama.

Is the researcher being paid for this study?

No, this study is part of the requirement for the doctoral degree at The University of Alabama.

Is this research developing a product that will be sold, and if so, will the investigator profit from it?

No, this study is not for developing a product and the researcher will not profit from it.

What is this study about? What is the investigator trying to learn?

This study is being done to find out the perceptions of teachers about traditional teaching methods versus technology integration in the classroom.

Why is this study important or useful?

This study is important because it will help educators know the perceptions of teachers about traditional teaching methods versus technology integration in the classroom. The results will show which teaching method teachers perceive to be more beneficial to the success of student achievement. It will also show if more technology is needed in low-tech schools and if more training is needed for teachers with more than 15 years of teaching experience.

Why have I been asked to be in this study?

You have been asked to be in this study because you are currently a practicing classroom teacher.

How many people will be in this study?

About 150 other people will be in this study.

What will I be asked to do in this study?

You will be asked to complete a one-time survey with 32 Likert-type items and 14 demographic questions.

How much time will I spend being in this study?

The survey should take approximately 15 minutes to complete.

Will being in this study cost me anything?

The only cost to you from this study is your time.

Will I be compensated for being in this study?

You will not be compensated for being in this study.

What are the risks (dangers and harms) to me if I am in this study?

There are little or no risks foreseen to participants in this study.

What are the benefits (good things) that may happen if I am in this study?

There are no direct benefits to you.

What are the benefits to science or society?

This study will help school districts to be more helpful in the learning process of students.

How will my privacy be protected?

All information will be kept confidential. The investigator will be the only person with access to your information.

How will my confidentiality be protected?

All questionnaires will be assigned a number, and the information will be referred to by that number. Also, there will not be any signed consent forms to link the participants to the study.

What are the alternatives to being in this study? Do I have other choices?

The alternative to being in this study is not to participate.

What are my rights as a participant in this study?

Taking part in this study is voluntary. It is your free choice. You can refuse to participate. If you start the study, you can stop at any time. There will be no effect on your relations with the University of Alabama.

Who do I call if I have questions or problems?

If you have questions, concerns, or complaints about the study right now, please ask them. If you have questions, concerns, or complaints about the study later on, please call the investigator (Cynthia Simpson) at 205-366-1439 or 205-242-2693 or the dissertation chairperson (Dr. Angela Benson) at 205-348-7824.

If you have questions about your rights as a person in a research study, call Ms. Tanta Myles, the Research Compliance Officer of the University, at 205-348-8461 or toll free at 1-877-820-3066.

You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCO_Welcome.html or email the Research Compliance office at participantoutreach@bama.ua.edu.

After you participate, you are encouraged to complete the survey for research participants that is online at the outreach website or you may ask the investigator for a copy of it and mail it to the University Office for Research Compliance, Box 870127, 358 Rose Administration Building, Tuscaloosa, AL 35487-0127.

I understand that by completing and turning in this survey, that will serve as my consent to participate in this study.

I have read this informed consent letter. I have had a chance to ask questions. I agree to take part in this study. I will receive a copy of this informed consent letter to keep.

Signature of Investigator

Date

APPENDIX D

Institutional Review Board Approval

April 5, 2013

Office for Research
Institutional Review Board for the
Protection of Human Subjects



Cynthia Simpson
ELPTS
College of Education
The University of Alabama

Re: IRB # EX-13-CM-034 "A Comparative Study of Teachers' Perceptions of Traditional Teaching and Teaching with Technology: Pre-Technology Era and Post-Technology Era"

Dear Ms. Simpson:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your protocol has been given exempt approval according to 45 CFR part 46.101(b)(2) as outlined below:

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
(i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and
(ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Your application will expire on April 4, 2014. If your research will continue beyond this date, complete the relevant portions of Continuing Review and Closure Form. If you wish to modify the application, complete the Modification of an Approved Protocol Form. When the study closes, complete the appropriate portions of FORM: Continuing Review and Closure.

Should you need to submit any further correspondence regarding this proposal, please include the assigned IRB application number.

Good luck with your research.

Sincerely,



Carpantato T. Myles, MSM, CIM
Director & Research Compliance Officer
Office for Research Compliance
The University of Alabama



358 Rose Administration Building
Box 870177
Tuscaloosa, Alabama 35487-0127
(205) 348-8461
fax (205) 348-7189
TOLL FREE (877) 870-1066

IRB Project #:

EX-13-CA-034

APR 26 2013

UNIVERSITY OF ALABAMA
INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS
REQUEST FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS

I. Identifying information

	Principal Investigator	Second Investigator	Third Investigator
Names:	Cynthia Simpson		
Department:	Educational Leadership, Policy, and Technology Studies		
College:			
University:	The University of Alabama		
Address:	2615 Englewood Dr, Tuscaloosa, AL 35405		
Telephone:	205-366-1439		
FAX:			
E-mail:	lanesimp@bellsouth.net		

Title of Research Project: A Comparative Study of Teachers' Perceptions of Traditional Teaching and Teaching with Technology: Pre-Technology Era and Post-Technology Era

Date Submitted: March 18, 2013
Funding Source: None

Type of Proposal New Revision Renewal Completed Exempt

Please attach a renewal application

Please attach a continuing review of studies form

Please enter the original IRB # at the top of the page

UA faculty or staff member signature: _____

II. NOTIFICATION OF IRB ACTION (to be completed by IRB):

Type of Review: _____ Full board _____ Expedited

IRB Action:

Rejected Date: _____

Tabled Pending Revisions Date: _____

Approved Pending Revisions Date: _____

Approved-this proposal complies with University and federal regulations for the protection of human subjects.

Approval is effective until the following date: 4/4/14.5

Items approved: _____ Research protocol (dated _____)

_____ Informed consent (dated _____)

_____ Recruitment materials (dated _____)

_____ Other (dated _____)

Approval signature: _____ Date: 4/5/2013