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ADDRESSING THE BARRIERS TO TECHNOLOGY INTEGRATION: A CASE

STUDY OF A RURAL SCHOOL

By

Beth Ferguson Coghlan

A Dissertation
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
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Despite research which found that using technology in teaching is beneficial to students, few teachers continue to use technology in their instruction. The research literature addressed four barriers to technology infusion by teachers: lack of tools, time, training, and support. Many teachers do not have the equipment to implement technology into their instruction and do not have the time to learn technology skills as well as implement technology into their lessons. Many teachers lack the training to use technology in their instruction and also lack the support from those in the school to infuse technology in their instruction.

A case study of teachers in a small rural school was conducted to examine their change of instruction when they were provided the opportunity to use technology in their instruction by participating in a project which addressed the barriers to technology

infusion. Throughout a three year period, the researcher collected data to assess technology integration by the teachers through interviews, observations, and document analysis.

The teachers' instruction changed very little. To the teachers, the purpose of the project was to create lesson plans. They seemed to see the project as a burden rather than as an opportunity improve their teaching.

The conclusion drawn from the case study was that the barriers addressed in the literature were not the only barriers to technology infusion by teachers. One barrier to technology infusion by these teachers seemed to be their confusion about the purpose of the project. Another barrier for these teachers was their lack of acceptance of the project staff who they considered to be outsiders. The teachers also seemed to lack the motivation to change their teaching which seemed to be a barrier for technology infusion as well.

It is recommended that administrators who would like to see technology used in instruction choose teachers for a project such as this who want to change their teaching. It is also recommended that future projects present the project as an opportunity for change in their instruction. It is also recommended that future projects build positive relationships with the participants.

DEDICATION

I would like to dedicate this research to Seth Neil Coghlan, my wonderful son, who has given me such joy during this difficult process.

ACKNOWLEDGMENTS

I also want to acknowledge the love of my life and my husband, Sam Coghlan, who has given me support through the latter portion of my education. Through the last three years, he has given me a loving and happy life without which this work could not have been completed. Sam has given me encouragement, love, and a soft place to fall.

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CHAPTER I

INTRODUCTION

Researchers have indicated that teachers face four main barriers to technology integration in their teaching: tools, time, training, and support. Teachers who want to use technology in their teaching often become frustrated when they don't have access to appropriate tools of technology to be used in their classroom. Teachers also report that they do not have time to learn new technology or to plan their lessons using technology. Lack of appropriate training is another barrier that teachers face when attempting to use technology. Teachers also lack the necessary support from administrators, peers, and students often resulting in teachers who are reluctant to use technology.

This study will examine how a federally funded project attempted to address these barriers by providing the participating teachers tools for technology use, time for learning and planning technology use, training in technology use, and support for technology use by administrators, peers, and students. By combating these barriers, the project expected to eliminate the reluctance of teachers to use technology in their teaching. This study.

examines the impact of the removal of the barriers on participants in one school involved with this project.

Barriers to Technology Infusion in the Classroom

A report by the Web-Based Education Commission (2000), *The Power of the Internet for Learning,* stated that the use of technology in education has the ability to accomplish important goals in education such as allowing for student centered learning, focusing on the individual strengths and weaknesses of students, and creating an environment that promotes lifelong learning. The report, focusing on Internet use in the classroom, acknowledged that technology is not the solution for all problems schools face, but technology use can be a powerful tool that will assist teachers to open a window for students to explore new and exciting ways to learn.

Cunningham (2003) acknowledged the benefit of student use of technology. She stated that students can use technology to demonstrate learned knowledge in methods other than the traditional test. Students may use technology to demonstrate knowledge as well as to learn the material through various methods of representation. Cunningham also acknowledged the struggles that teachers face including "large classes, limited resources, and the pressures of ensuring that no child is left behind" (p. 71), all of which make integrating technology into the curriculum difficult for teachers.

Although a great deal of research has been conducted on student use of technology, research is needed to examine teachers' use of technology. Chiero (1997) believed this research is needed since teachers who demonstrate proficiency with technology are likely to be a positive model for using technology for educational

purposes. Anderson (2002) expressed disappointment that even though teachers are using technology more than ever, teachers are not using technology more effectively in instruction. Anderson expressed the hope that once teachers understand the prospective benefit of technology, they will develop the desire to use it as a powerful teaching method.

A research report released by the National School Board Foundation (2002), *Are We There Yet?,* confirmed that there is still much work to be done before technology will become an integrated part of learning. The research reported that the focus of school administrators should be how teachers are using the technology, not just getting the technology into the classroom. The report indicated that teachers continued to be unprepared to integrate technology into their teaching even when given adequate access to technology, and the Internet continued to be used as a research tool rather than as a tool to promote interactive teaching, learning, and collaborating.

Research has shown that there four main barriers to technology integration in teaching and learning. One barrier is the lack of tools including hardware, software, electrical outlets, and Internet hook-up (Chiero, 1997; Donlevy & Donlevy, 1997; Hoffman, 1997; Sandholtz, Ringstaff, & Dwyer, 1997; Web-Based Education Commission, 2000). Another powerful deterrent preventing teachers from teaching with technology is lack of time (Chiero, 1997; Donlevy & Donlevy, 1997; Lohman, 2000; National School Board Foundation, 2002; Sandholtz, et al., 1997). Research on barriers to technology infusion by teachers also points to the lack of training or to insufficient training as another barrier of teacher use of technology (Collins, 2000; Donlevy & Donlevy, 1997; Scheffler & Logan, 1999; Schwab & Foa, 2001; Web-Based Education

Commission, 2000). Research has also found that teachers need support in order to effectively use technology in their teaching (Anderson, 2002; Chiero, 1997; Collins, 2000; Hoffman, 1997; Sandholtz, et al., 1997; Schwab & Foa, 2001). These four barriers are discussed at length below.

<u>Tools</u>

Although school administrators and school board members have pushed to have more technology placed in the schools in recent years, the problem of limited access of technology for teachers remain. Over a decade ago, Hasselbring and Tulbert (1991) recognized the problem of too few computers available for teachers to sufficiently use technology in their teaching, and many computers and other technologies found in schools were outdated or were no longer working properly. More recently, Donlevy and Donlevy (1997) stated that many schools possessed too few computers for students to participate in large group activities that involve technology. Labs are also unequipped for whole class instruction. Sandholtz, et al. (1997) also discovered that teachers became frustrated that they did not have the hardware and software needed to implement technology in their teaching after receiving technology training. The Web-Based Education Commission's report (2000), *The Power of the Internet for Learning,* also revealed that the lack of access to the Internet means that millions of students and their families are faced with outdated, deficient technology if they have access to technology at all.

Sandholtz, et al. (1997) found that teachers were unable to share their knowledge of technology with other teachers because of insufficient hardware and software. In this

study, teachers showed little interest in learning technology skills when they knew they would not have the technology to use the new information later in their classrooms. Teachers also felt they had to compete with other teachers to gain access to technology for their classes. Instead of angering other teachers by their constant use of technology, they chose to find ways to teach without using technology.

Teachers became frustrated when they wanted to use technology in their instruction but not enough computers or software were available for students in the class (Hoffman, 1997). Hoffman suggested that administrators should strive to give all students access to uncomplicated, adaptable, user-friendly technology. Hoffman also recommended that teachers be given access to technology providing time for teachers to practice using technology for instructional purposes. He suggested that teachers be given time to review and select technology that will help them integrate technology into their teaching as well as to develop technologically innovative lesson plans.

<div align="center">Time</div>

Lack of time is another barrier named in research that prevents teachers from using technology in the curriculum effectively. Over a decade ago, Kersley and Lynch (1992) stated school administrators often underestimated the time needed by teachers to learn to use technology effectively in their classroom and that administrators did not realize how important hands-on practice is for most people to learn to use new software and hardware. More recently, a survey conducted by the Web-Based Education Commission (2000), *The Power of the Internet for Learning*, found that 82% of teachers questioned cited lack of time to learn and plan how to use the computer in their teaching

as their greatest barrier to using technology in the classroom. In a study conducted to examine environmental inhibitors to informal learning in the workplace, Lohman (2000) also found that lack of time was the most common factor prohibiting learning of new technology reported by participants. According to the survey conducted by the National School Board Foundation (2002), *Are We There Yet?,* 16% of all school districts reported that staff training suffers due to insufficient Internet access time. As expressed by Donlevy and Donlevy (1997), teachers must be given the time to learn of the most recent materials and strategies to implement technology in their teaching.

In a study conducted by Sandhotz, et al. (1997), teachers often complained about lack of time to integrate technology into their teaching. The researchers found that teachers were excited to use technology in their teaching while participating in the training sessions. Once the teachers returned to their teaching jobs, teachers discovered they did not have time to plan and implement the technology skills learned during training. They also did not have time to learn more technology skills; thus, their technology skills did not improve once the training was complete.

<div align="center">Training</div>

Research has shown that merely allocating funds for technological equipment does not lead to widespread teacher use. According to Gordon, quoted in the article "New Digital Divide" (2001), technology is in our schools, but teacher training is almost non-existent. Gordon believed that many people feel that by putting technology in schools, students will immediately benefit. Yet, Gordon stated without adequate training on how to integrate technology into their instruction, students do not benefit regardless of

the quality and quantity of technology. A special assistant to former Secretary of Education Richard Riley and director of the Office of Educational Technology, Linda Roberts (as cited in Fisher, 1999) believed that access to technology is important, but technology alone will never impact student learning. She believed that teachers must have relevant and adequate training in order be become at ease and proficient using technology. Bradley and Russell (1997) stated that past research has shown that a sizable portion of teachers, in spite of possessing technology and minimal training, still felt computer anxiety.   To Bradley and Russell, the benefit of technology can only be possible through teacher competence and comfort.

A decade ago, Kearsley and Lynch (1992) believed that inadequate training of teachers posed a serious problem when teachers and administrators attempted to manage technology in schools; yet, a decade later, Glendinning (2002) quoted statistics from "Tracking Tech Trends" in *Education Week* that schools are spending 87% of funds allocated for technology on hardware and software while spending only 13% on training. Teachers who are not properly trained to utilize technology in the curriculum not only waste important instructional time, but also divert attention from what should be learned (Litvin, 1998). Fisher (1999) agreed that teachers are reluctant to implement new technology into their instruction and try new ways to present material to students because they lack appropriate training.

Over a decade ago, Hasselbring and Tulbert (1991) found that the training available to teachers was focused on teaching how to use the computer instead of how to teach using computers. Currently researchers tend to agree that technology training is limited to software and hardware and does not help teachers use technology as an

instructional tool in the classroom (Anderson, 2002; Gross, Truesdale, & Bielec, 2001).

Gross, et al. (2001) stated that many teachers feel the professional development they

receive on technology is not useful to them in their daily teaching experiences.

Therefore, teachers need to be trained in more constructivist learning strategies that will

promote a change in teacher teaching practices. Professional development should also be

based on strategies that are necessary to design, deliver, manage, and evaluate instruction

(Sheffler & Logan, 1999).

Although staff development has often focused on operational skills, Kearsley and

Lynch (1992) contended that training should focus on how to use technology in the

classroom. Traditional technology training often does not help teachers develop

technology-rich lessons (Vannatta & Beyerbach, 2000).

Karchmer (2000) reported that teachers feel as if most technology training

programs do not meet their needs and do not help them use technology as a teaching tool.

Fisher, Eisenhauer, Schaarsmith, and Smith (1998) contended that in order for teachers to

integrate technology effectively into their teaching, they much learn to create a balance of

training, implementation, and planning. Kumar and Kumar (2003) also suggested that

technology training linking with real-life situations positively change the attitudes and

perceptions of technology integration. The co-director of the University of Virginia's

Center for Technology and Teacher Education, Glen Bull (as cited in Salpeter, 2002),

believed that in order for technology training to be successful, "content [in academic

disciplines] always comes first. While it might seem obvious that technology should be

introduced in a meaningful context, this is rarely done." Bradley and Russell (1997)

recommended that administrators should not only allocate additional funds for training, but also allow teachers to plan and evaluate the training

.

<p style="text-align: center;"><u>Support</u></p>

Another barrier that teachers face when trying to integrate technology into their teaching is lack of support. Simply training teachers is not enough if they have no support once they are in their own classrooms. Teachers benefit from receiving technical and emotional support from administrators, peers, and students. Sandholtz, et al. (1997) found that teachers who showed the most improvement in technology integration were teachers with more support including support from the project coordinators, peers, and administrators. The result of teachers not having adequate support in times of need is teachers becoming discouraged when encountering trouble with technology. They eventually quit attempting to use technology in their teaching.

Administrators

Glennan and Melmed (1996) stated that support for teachers is essential to technology use by teachers. Teachers face problems when attempting technology integration in their classrooms when the administration does not lend support to this endeavor. Sandholtz, et al. (1997) found that one of the most critical factors in determining technology integration by teachers is the level of support by administrators. Even though administrators theoretically supported technology use by teachers, their attitudes varied greatly. Administrators sent strong messages about their attitudes toward technology integration. These attitudes proved to greatly impact the level of change in their schools.

Sandholtz, et al. (1997) stated that administrators who supported technology use by teachers provided teachers with time for learning technology skills, showed an interest in what the teachers have learned and what they use, arranged technical support, and shared a vision of change with the teachers. Administrators who desired change provided teachers time for technology training throughout the school year rather than a one-time workshop. This allowed teachers to continue their growth. Administrators did not have to be technology experts to support technology. Administrators who attended the training sessions and showed interest in what the teachers were learning demonstrated to the teachers their support for technology use. Teachers also needed on-going technical support. Sandholtz, et. al. (1997) suggested that administrators invest in technology support rather than additional hardware and software. Although schools have tight budget constraints, administrators should make technology a priority by allocating funding for technology and support. They recommended that administrators and faculty work toward common goals in order to change the attitudes of technology use.

Some administrators do not support technology use when it does not seem to affect test scores. Litvin (1998) warned that it is more difficult to measure the higher level outcomes that students are learning by using technology. Thus, teachers become frustrated when attempting to show administrators that computers are beneficial for the classroom, especially when basic test scores do not increase. Henry Jay Becker (as cited in Litvin, 1998), a classroom technology researcher, stated that there is no good way to measure effective technology integration by teachers. Kearsley and Lynch (1992) stated that administrators respond to pressure from the parents and school board members by

implementing programs that do not directly address the needs of the student. Thus, teachers and students are forced to use technology that has no value to them.

Administrators have a great deal of influence on technology use by teachers. According to Hoffman (1997), when administrators structure the curriculum and the school atmosphere, they have the power to encourage teacher use of technology. They can also encourage technology use by offering teachers incentives to use technology in their teaching. Administrators can exert the most influence by modeling effective instructional technology use (Collins, 2000). Administrators can model technology use with record keeping, communicating, and presenting information using technology (Glendinning, 2002). Glendinning stated that administrator support of technology use can stimulate teachers toward technology use that can have an impact on students.

Peers

Even though administrator support is important, Chuang, Thompson, and Schmidt (2003) and Mulqueen (2001) agreed that the top-down approach to technology training and integration is ineffective. Consequently, Chuang, et al. (2003) found that teachers who participate in one-on-one mentoring programs felt more comfortable learning to use technology and would share ideas and solve problems with other teachers.

Anderson (2002) found that teachers prefer to learn about technology use from their peers rather than by those they perceive as being too technological and as unaware of how teachers teach. Bradley and Russell (1997) stated that administrators and peers have the power to encourage teachers to use technology when teachers feel apprehensive about using new technology.

Many studies have been conducted examining teacher mentoring. Peer mentors can serve a vital role in supporting reluctant technology users. McNally and Martin (1998) believed that mentors are very important to novice teachers since they encourage new teachers to explore new ways to teach effectively and to integrate effective teaching research in their instruction. They found that mentors help novice teachers by offering material resources and emotional support. Mentors who were successful in this study were those who were approachable and willing to listen while addressing the individual needs of the novice teachers. The effective mentors also challenged the new teachers to explored ways to improve their teaching. When dealing with technology use by teachers, the novice technology user is not necessarily the novice teacher. Yet, the same conditions apply for reluctant technology users as with novice teachers in general. The reluctant technology user can benefit from having a mentor in the area of technology use.

Schlager and Fusco (2003) described peer support as "communities of practice." They suggested teachers learn better by putting "knowledge into practice through engagement in practice within a community of practitioners" (p. 205). They believed that teachers who see themselves as stakeholders in the community will view professional development as a way to share ideas and support practice. While formal training enhances learning of technology, ideas are mainly learned through peers rather than professional development sessions. Schlager and Fusco believed that peer support is more influential than organized training to support technology use by teachers.

Sandholtz, et al. (1997) found that teachers are more likely to seek help from their peers than administrators and technical support technicians. In this study, teachers went to other teachers before going to the project coordinator for help troubleshooting

technology problems, for lesson plans ideas, and for emotional support. Teachers can also create ways to entice their reluctant peers to become interested in using technology when no one else can.

Students

Teachers can also gain technical support from students as well as from their peers and administrative staff. According to *Are We There Yet?*, a study by the National School Board Foundation (2002), more than half of the school personnel surveyed stated that students provide technical support in their school districts while students also provide informal training to teachers in software use. According to Burns (2002), some teachers gave up control for the first time and began seeing the students as equal when being trained by students in technology. Once some teachers gave up control in that area, they began to allow students more freedom in other areas such as choice of final product and allowing them to leave the room to conduct research.

An example in which students take a leadership role with teachers in a more formal situation is the Generation www.Y mentoring model. These students are trained to support teachers bring technology into the classroom (Educational Technology Expert Panel, 2000). Students, often an untapped source of support, help teachers use technology for instructional purposes.

Teachers benefited by improving their teaching practice and learning new software. Ninety-two percent of teachers reported using the projects created by the students in their classroom and planned to expand them for future use, and 90% of teachers reported learning more about technology as a result of the project. Ninety-five

percent of teachers reported that students provide a good source of support for technology use in the classroom. Eighty-two percent of the teachers believed that they have changed the way they teach because of this project (Generation YES: Youth and Educators Succeeding, 2003). Students are taking a leadership role using technology, and teachers are benefiting greatly by using this support.

Lack of tools, time, training, and support are four of the most common barriers found in the literature associated with the lack of technology use by teachers in their teaching. CREATE for Mississippi attempted to address these four barriers with the expectation that teachers would begin to integrate educationally appropriate technology into their instruction. This study will explore how overcoming these barriers affected the teachers' uses of technology.

CREATE for Mississippi

The Project

Challenging Regional Educators to Advance Technology in Education (CREATE for Mississippi) was a Technology Innovation Challenge Grant (TICG) funded by the United States Department of Education. The purpose of these TICG projects was to address the lack of technology use by teachers in an ever-growing digital world. The TICG projects addressed barriers for teachers to infuse technology into the curriculum.

The Center for Educational and Training Technology (CETT) was established in 1996 to "enhance the opportunities to further integrate research and education at MSU" (Center for Educational and Training Technology, 2004). CETT was developed to create software that could be used in educational and training environments. The success of

CETT with technology-based projects such as the Tri-State Network Demonstration Project and the Smithsonian's Natural Partners Initiative allowed the center to develop so that teachers and students solve problems found in research.

CREATE for Mississippi was designed to help teachers and students use instructional technology to better prepare students for today's technology demands. CREATE for Mississippi introduced on-site, just-in-time support for teachers in the school systems. Core teachers (one teacher from each core subject of math, science, social studies, and English) were selected from each participating school to receive training and laptops to further their understanding of and use of technology. An educational technologist (ET) was hired at each school to give on-site, just-in-time support to teachers and to work with a group of students (Student Techno Team) who were to supply additional technology support to the teachers. The schools received additional technology from the project to encourage and enhance teacher technology use (CREATE for Mississippi, 2004).

<center>Barriers Addressed by CREATE for Mississippi</center>

The project was initiated to address barriers to technology use by teachers. The following is a brief introduction in general terms to how CREATE for Mississippi addressed a lack of tools, time, training, and support. A full description of the program is presented in Chapter III.

Tools

The funds for the CREATE for Mississippi project supplied a laptop computer for each core teacher and educational technologist. The project also purchased a wireless

laptop cart which contained 15 laptops for each school involved in the project. A technology support cart which contained a computer, wireless keyboard/mouse, a multimedia monitor, printer, scanner, digital camera, and FlexCam was also purchased and given to each participating school. The computers on the technology support cart, wireless laptop carts, and core teacher laptops were equipped with Video-Editing Suite and Microsoft Office XP Professional.

The purpose of these tools was that teachers would not be limited by lack of access to technology. Even though the project could not provide a classroom set of computers for each core teacher, the project provided a laptop cart for each school which could serve many students within one classroom during a period of time. The technology support cart provided teachers and students a variety of technology tools. The laptop computers provided to each core teacher were to allow the teachers to work at home as well as at school to integrate technology in the curriculum.

Time

To provide teachers time to learn use technology and to learn to implement technology into the curriculum, CREATE for Mississippi paid for teacher release time to give teachers time during the school day to gain technology skills and develop lesson plans using technology. These funds were used differently by the school systems. Some teachers were given an extra planning time during the school day. Thus, the schools hired another teacher to teach the classes not being taught by the core teachers during the extra planning time. Other schools used the funds provided by CREATE to pay teachers for their work with CREATE after the school day had ended

Teachers who had release time during the school day spent much of this time taking advantage of the on-site support of the ET and support from other core teachers. Teachers who worked after school hours had more independence to work on technology integration, but these teachers also did not receive as much support from the educational technologist and their peers as those who worked during the school day.

Training

The staff of CETT headed the project and provided on-site and off-site training for four teachers (core teachers) and an educational technologist from each of the four schools participating in the project. The field coordinator for CREATE visited the school often to provide on-site training and support for the teachers and educational technologist. The CREATE staff provided in-depth training sessions on the campus of Mississippi State University for the teachers and educational technologist. The educational technologist provided training for core teachers and other teachers in the school throughout the school day.

The CREATE staff also provided training for administrators and school board members from each school. The administration meetings conducted at Mississippi State University provided information and technology training for the administrators and school board members. The educational technologist provided technology training to the administrators through the school day.

Support

Lack of support was addressed by the project in several ways. The educational technologist was funded by CREATE, but it was considered a school employee, and was

located on the school campus. Thus, the educational technologist provided just-in-time support for teachers and administrators at the school any time during the school day. The project staff planned for the educational technologist to be available to support technology integration for the teachers.

A technology field coordinator, a CREATE staff member, was hired to assist the teachers and educational technologist from the schools with professional development as well. The field coordinator visited the school regularly to provide support to the teachers and the educational technologist. The field coordinator also communicated with the teachers and educational technologist electronically whenever a need arose.

The CREATE staff also made available other members of the staff to help with technical and curricular problems that might arise. These staff members often communicated with the teachers and educational technologist electronically and during the on-site and off-site training sessions.

The creation of the student techno team formed another type of support for teachers since the students provided technical support throughout the school day. The educational technologist trained and supervised the student techno team to ensure adequate support could be given to the teachers whenever the need arose.

By training the core teachers, the project staff members hoped to give the core teachers confidence to not only use technology in their classrooms, but also to provide support to other teachers in the school. As was found in research previously cited, teachers have been a strong source of support for other teachers.

One school district participating in CREATE was the Faulkner County School District (a pseudonym). The administrators of Faulkner County School District saw the

importance of using technology as an educational tool. They have spent a great deal of time and money to ensure that the school has adequate technological resources and the teachers have had training using technology. Yet, the administrators have detected that many teachers are still not comfortable using technology as an educational resource. The administration has been very supportive of the goals of CREATE for Mississippi and the emphasis of teacher use of technology in teaching.

Statement of Purpose

This study was conducted to assess the impact of CREATE for Mississippi on the teachers' use of technology in instruction. The components of the project that will be assessed in this study are the implications of the presence of the educational technologist at the school, the release time for the teachers, the equipment provided by the project, the staff development training for the core teachers, and other barriers identified during the course of this study.

Rationale

Even though research has found that the barriers of tools, time, training, and support exist, little research has been conducted to determine how breaking down these barriers influence teachers' use of technology. Therefore, there is a significant lack of research on attempts to overcome the barriers. Findings from this study can enhance the knowledge of technology integration in education, and can provide administrators and other school decision-makers helpful information regarding overcoming barriers to teacher use of technology in their instruction.

Limitations

This study analyzes only the participants in the CREATE for Mississippi project in a small rural northeast Mississippi school. Therefore, one would be remiss to assume that the conditions of this school are equivalent to other schools.

Another possible limitation, but a definite strength, is the researcher's personal connections with the school. The researcher attended kindergarten and first grade at this school and graduated from high school at a near-by school. The administration and many of the faculty knew the researcher's family well.

Definitions

1.　　Center for Educational Training and Technology (CETT): The staff of Center for Educational Training and Technology established CREATE for Mississippi. The center staff worked closely with the participants of the project and offered on-site and off-site training for the participants.

2.　　Core teachers: A teacher from each of the four core subjects (English, social studies, math, and science) were selected from each participating school to receive technology professional development, extra time to integrate technology into their lessons, equipment to help them integrate technology into their lessons, and to create lesson plans.

3.　　CREATE for Mississippi: Challenging Regional Educators to Advance Technology in Education for Mississippi is a Technology Innovation Challenge Grant funded by the U.S. Department of Education.

4.   CREATE staff: Staff members of CREATE worked out of the office of the Center for Education Training and Technology located on the Mississippi State University and included a project manager, instructional technologist, a field coordinator, curriculum specialist, and webmaster.

5.   Educational technologist (ET): A school-level position funded by CREATE for Mississippi. The ET provided on-site, just-in-time support for teachers integrating technology into their lessons.

6.   Lesson plans: During the 1st and 2nd years of the project, the core teachers were required to produce technology integrated lesson plans in his or her core subject. These lesson plans were edited and reviewed by the CREATE staff and then placed on the CREATE website to be used as a resource by those who accessed the site.

7.   Release time: Originally, release time was proposed by CREATE for Mississippi as time given to the core teachers within the school day to allow them time to integrate technology into their lessons. For many schools, release time occurred after school which allowed core teachers to receive extra money for performing CREATE for Mississippi tasks.

8.   Student techno team: A group of students selected at each school to provide support to teachers and students in the school.

CHAPTER II

METHODOLOGY

This study is a case study of the impact of CREATE for Mississippi on core teachers and other staff within a participating school. The cases were developed based on three years of on-going research which include observations, formal and informal interviews, document analysis, and an on-line survey

Research Design

The research design of this study is case study. According to Yin (2003), a case study is the "preferred strategy when 'how' or 'why' questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context" (p. 1). In answering "how" and "why" questions, the researcher deals with tracking situations over a period of time rather than tracking frequencies of occurrences. When the researcher has no control over the outcomes of events, a case study is the preferred method of examining these events. The case study is a comprehensive strategy that covers the design, data collection, and data analysis of a study.

According to Merriam (2001), a case study can "explain the reasons for a problem, the background of a situation, what happened, and why" while explaining "why" an innovation worked or failed to work" (p. 31). Case study research is different from other types of research strategies by being more concrete and more contextual. A case study is more concrete than abstract because the reader is given a vivid and sensory picture of the situations that occurred. The reader of a case study is allowed to see the findings of the research in context. The situations surrounding the findings are explained in a case study.

A case study of the impact of CREATE for Mississippi on the changes or lack of changes that occurred during the implementation of the project at Faulkner School District will be conducted. The case study will specifically examine the changes in teaching by the four core teachers once CREATE attempted to remove the barriers to technology infusion.

A case study is useful for this type of research since the aim of this study is to answer *how* and *why* the time, tools, training, and support provided by CREATE for Mississippi project affected the participants at Faulkner County School District. The researcher did not impact the outcomes of the project and observed the teacher while they were in their classroom and training workshops.

As an evaluator of the CREATE for Mississippi project, the researcher used a naturalistic approach to research the impact of the project. In a naturalistic research design, the researcher does not attempt to manipulate the program or participants as would be the case in an experimental study. The researcher focuses on understanding the

project processes, document occurrences, and examining the importance of the

outcomes for the participants of the project (Patton, 1987).

Another characteristic of case study research is direct and personal contact with

the participants in their environment. The researcher spent time over three years with the

participants and program staff on a personal level in order to more fully understand the

behavior of those involved in the program (Patton, 1987).

The process to be used for the design, data collection, and analysis is illustrated in

Figure 1. Once the interest in the subject was identified, the researcher selected cases and

data collection methods. The researcher used multiple data sources or triangulation to

gather and analyze the data. According to Merriam (2001), triangulation is "using

multiple investigators, multiple sources of data, or multiple methods to confirm the

emerging findings" (p. 204). The triangulation approach used in this study employed

multiple sources of data to enhance validity and reliability. The data included interviews,

observation, and document analysis (see Figure 2). Once these data were collected, the

researcher analyzed notes, transcripts, and documents. The cases were then written,

conclusions drawn, theories modified, implications developed, and final report written.

Interest in the project's effects on the teachers of the Faulkner County School District

Select cases: core teachers, educational technologist, and administrators at Faulkner County School District

Data collection: observations, formal and informal interviews, and document analysis

Interview core teachers, educational technologist, and administrators

Observe teachers and educational technologist on-site and off-site

Review artifacts: documents, lesson plans, logs, and notes

Analysis field notes, transcripts of interview, and documents

Figure 1. Case Study Method: Design, Data Collection and Analysis

Interviews with core teachers, educational technologist, and administrators

Observations of core teachers, educational technologist, and administrators at professional development sessions on-site and off-site and during the school day

TRIANGULATION

Document analysis of professional development sessions, educational technologist logs, and lesson plans
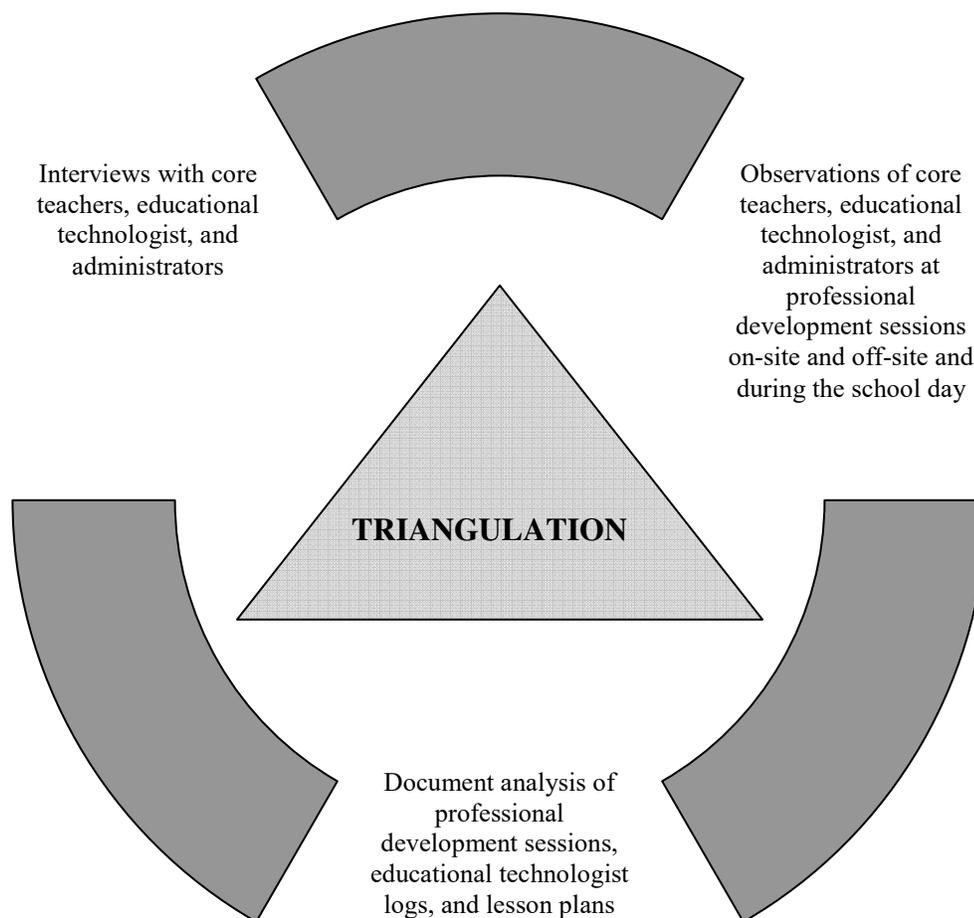
Figure 2. Triangulation

Participants

The participants involved in this study are the superintendent, principal, assistant principal, educational technologist, and four core teachers. The core teachers and educational technologists were chosen for participation in CREATE for Mississippi by

the superintendent. The school was selected by the CREATE staff upon the recommendation of the Mississippi Department of Education.

The superintendent was elected to that position by the people of Faulkner County. She had been in education for many years as first a special education teacher and then as the special education coordinator for all of the schools in Faulkner County.

The principal became the principal of Faulkner Attendance Center during the first year of the project. Before that year, he had served as a teacher, coach, and most recently, an assistant principal in a city school district in a neighboring county.

The assistant principal was the retired superintendent of Faulkner County Schools. Possessing a doctorate in education, he had served many years as a teacher and principal as well as superintendent. Not wanting to give up ties with the school, he was persuaded by the some in the community to serve as an assistant principal.

The educational technologist (ET) was an elementary teacher at Faulkner Attendance Center for three years before taking on this new position in the school. She welcomed the challenges that CREATE for Mississippi brought to her career and showed enthusiasm for her job. Once the ET position was eliminated after funds were no longer available, she began work in another school district in the county teaching students who were academically at-risk of failure.

The four core teachers were experienced teachers who had been working together at Faulkner County Schools for several years. The median number of years' experience of the teachers was 23 years and two of the four teachers grew up in, and have continued to live in, the Faulkner community.

I, too, grew up in Faulkner County. I taught in two Mississippi public schools

for seven consecutive years. I taught grades 7-12 as a teacher of the gifted and learning

challenged, and as an English teacher. I have also taught classes at the university and

community college levels and have supervised student teachers in Mississippi. I received

a Master's degree at Mississippi University for Women in gifted studies and a

Specialist's degree at Mississippi State University in English education (see Curriculum

Vitae in Appendix A).

Data Collection

The data collection includes observations, interviews, and document analysis.

The observations took place during professional development sessions held at the school

and at Mississippi State University, during the school day when the teachers were

teaching, and during meetings between the CREATE staff and the school participants and

during meetings between the school participants. Interviews consisted of formal and

informal interviews conducted at the school, in workshops, and through email. The

documents that were analyzed were CREATE workshop documents, field notes, meeting

notes, lesson plans, and logs submitted to CREATE by the educational technologist.

Data Analysis

Once the data were collected, I began analyzing the data. According to Patton

(1987), the process of constructing case studies occurs in three steps: assemble the raw

case data, construct a case record, and write a case study narrative (p. 149). Thus, my

analysis involved examining the data to find themes and patterns that emerged from the

findings. I also pulled together data and found examples that supported similar

concepts and ideas.

Specifically, I used the constant comparative method of analysis. I used data

collected from interviews, observations, and document analysis of a particular incident or

topic, and compared that information to other interviews, observations, and document

analysis of that or other incidents or topics. These comparisons led to categories, themes,

and topics which were compared to others within and between concepts until a theory

was formed as recommended by Merriam (2001).

CHAPTER III

THE STUDY

CREATE for Mississippi, Challenging Regional Educators to Advance Technology in Education for Mississippi, was a three year project funded through the Technology Innovation Challenge Grant (TICG) program. The TICG program supported technology use in grades K-12. CREATE for Mississippi attempted to break down the barriers found in research to technology use by teachers in the classroom.

During the three years that CREATE for Mississippi was implemented, 12 schools in Mississippi participated in the project. One of these schools, Faulkner County Schools, participated in this project for the three years. As an evaluator for this project, I researched the history of the county, community, and school and spent time interviewing and observing the administrators, the educational technologist, the core teachers, and the student technology team. This study examines the impact of the measures taken to address the barriers to the infusion of technology which affect teacher use of technology.

Technology Innovation Challenge Grants

Technology Innovation Challenge Grants were awarded to projects that demonstrated an innovative plan of technology use in grades kindergarten through 12. The purpose of these projects was to create research-based information for other school districts to use when attempting to incorporate technology use.

The evaluation of these projects was to provide information to the project decision makers to help them improve the project and to provide information to those who funded the project on the project's impact. These projects were funded for three years, and the evaluation was used as a tool to allow the participants to better understand their successes and make improvements during the course of the project. Although this study is not an evaluation of one of these projects, the evaluation process allowed me access to the school participating in the project.

Create for Mississippi

CREATE was funded through TICG to help teachers use technology in their instruction and to generate research-based information for teachers in other school districts to use in their instruction. Those who designed the project developed four missions to accomplish these goals.

Four Missions of the Project

According to the grant proposal, the first mission of CREATE was to provide on-going technology training and support to teachers. The second was to have teachers develop technology-infused lesson plans aligned with state and national standards to be

used in their classrooms and for other teachers in the nation and world to access through the CREATE for Mississippi website. The third mission was to create documents for other school districts to use when trying to support technology infusion by their own teachers. The fourth mission was to extend the project ideas to the community by implementing technology training to community members.

To support the first mission of the School Mentor Model, the project staff planned for four teachers from each school (core teachers) to participate in technology training conducted at Wamba Attendance Center (on-site training) and at Mississippi State University (off-site training). A school board member representative and school administrators were also expected to attend technology training sessions. The educational technologists (ET's) were available at each school throughout the school day to provide on-going and just-in-time support and to train teachers and administrators. The technology field coordinator visited assigned schools regularly to provide on-going training and would be available through electronic communications to provide just-in-time support. In order to sustain the project, the field coordinator worked with the administrators, school board members, and educational technologists to write grants for additional funding to continue the key elements of this project.

The second mission was fulfilled by teachers who developed technology-infused lesson plans to be used in their classrooms and for others to use. The project planned for teachers to work with one another to create these plans and to support one another in the use of curriculum-based technology. Teachers were also expected to implement these lessons in their teaching to offer students an authentic technology learning environment and a variety of assessments. The CREATE staff worked with the teachers helping them

integrate technology into these lesson plans and formatted the lesson plans to be put on the CREATE website. The ET was also expected to help teachers integrate technology into the lesson plans and in their instruction.

The third mission was supported through a website and electronic communications. The website served as a resource for teachers in the state, nation, and world to supply ready-to-use technology-infused lesson plans. The teacher participants supplied the web master with teaching tips, experiences with technology, and instructional information to be placed on the web page to encourage other teachers who visited the site. The CREATE for Mississippi staff planned to create professional development and support guides for teachers. Teachers, administrators, and school board members were also to use teleconferencing, email, and a listserv to communicate with one another electronically.

The fourth mission was to take the materials and knowledge learned from the project and implement technology instruction to community members through the Mississippi State University Extension Service. This was to be done through technology workshop held by the extension personnel and work with youth in Youth at Risk and 4-H programs. This study will not examine this mission.

Plans for the Project

According to the grant proposal, the CREATE for Mississippi project was designed to be a five-year project. During the first year, four schools in the Mississippi Congressional District (CD) 1 were to participate as pilot schools for the project. These schools were to participate for 3 years. During the second year, four schools from CD2

and four schools from CD 3 were to begin participating in the project for the next three years. During the third year, four schools from CD 4 and four schools from CD 5 were to begin participating in the project for three years (see Figure 3).

Congressional Districts (CD)	Year 1	Year 2	Year 3	Year 4	Year 5
CD 1	▓	▓	▓		
CD 2		▓	▓	▓	
CD 3		▓	▓	▓	
CD 4			▓	▓	▓
CD 5			▓	▓	▓

Figure 3. Planned Years of Involvement of Participating Schools

CREATE for Mississippi was actually funded for only three years and was not funded for the planned amount. The CREATE for Mississippi staff members worked to serve as many schools as possible with the limited funds provided, but the planned level of funds and support were not available after the first year.

During the first year of the project, the four schools in Congressional District 1 were provided funds and support. The funds were used to address barriers of technology use: tools, time, training, and support. The schools received equipment to break down the barrier of lack of tools. The teachers in these schools were provided release time to address the barrier of lack of time. The teachers were also given on-site and off-site training as well as support from the ET and CREATE staff.

During the second year, the project was not funded for the planned amount. CD1 schools continued to receive funds for release time, training, and support for teachers.

The technology equipment (tools) was maintained and upgraded. No more equipment was purchased for CD1 schools. Schools in CD2 received the same level of funding and support as did CD1 in year one. Schools in CD 3 received the funding for tools, time, and ET support for only half of the school year beginning in January. Schools in CD3 received training for the ET's for the entire year.

During the third year, the project no longer funded CD1. Although the former participants at each school continued to receive support form the CREATE staff if they so desired, they no longer received funding for tools, time, training, and ET support. CD2 and CD3 schools continued to receive funding for an ET and training, but the teachers did not receive funding for release time.

Faulkner County Schools was in CD1 at the time of the project. This school received the planned level of funding for tools, release time, training, and support for the first year of the project. They received the teacher laptops, the laptop cart, and the technology support cart. The teachers were provided release time when another teacher was paid to take their classes during their release time. The teachers received training on-site and off-site from the CREATE for Mississippi staff. When the teachers were training off-site, the CREATE project paid for their travel, lodgings, and meals. The position of ET was paid for during this year. During the second year, the school continued to receive the same amount of funding except no more equipment was purchased for the school since they received it the previous year. Funds were not available during the third year of the project to continue at the school with the project. The school received no funding for tools, time, training, and support although the CREATE staff continued to offer the school participants support.

Selection Criteria for Schools

According to the CREATE for Mississippi Procedures Manual (2002), the

schools chosen to participate in the project were chosen based on a list of criteria. The

schools were chosen to represent rural and urban areas with various accreditation levels.

The schools chosen were ones that had received Mississippi Technology Literacy

Challenge Grants and had shown a commitment to technology use by teachers through

the investment of time and money. Schools chosen for this project were recommended

by the Office of Educational Technology, Training, and Support of the Mississippi

Department of Education.

Role of the Participants

CREATE for Mississippi Project

According to the CREATE for Mississippi Procedures Manual (2002), the

CREATE for Mississippi project agreed to provide participating schools with services

and funds designed to promote technology use by teachers. The Memorandum of

Agreement stated that CREATE for Mississippi would provide (a) on-site and off-site

professional development for teachers, administrators, and school board members, (b)

technology support and technology support guides, (c) funding for the ET, (d) assistance

for the ET and core teachers, (e) access to the CREATE for Mississippi website, (f)

CEU's for teachers, and (g) equipment after the school has participate in the project for

one year.

Participating School Districts

According to the CREATE for Mississippi Procedures Manual (2002), the school district agreed to encourage the success of the project. The school district agreed (a) for the technology coordinator, an administrator, a school board member, and an ET to participate in professional development, (b) to allow core teachers time to attend professional development sessions conducted by CREATE and the ET, (c) to require teachers to use the equipment provided by the project, (d) to mandate the formation of a student techno team, (e) to allow the evaluation team to collect data, and (f) to continue the work started by CREATE once the project was no longer active in the school.

Administrators

The administrators were also given standards to encourage the success of the project. The administrators were expected to (a) convey the vision of technology use in teaching and learning to all participants of the project and create a school environment that encourages the use of technology, (b) develop and implement technology plans for their schools and professional development as well as ensure the implementation of the plans and professional development, and (c) model technology use in teaching, learning, and administrative tasks (CREATE for Mississippi Procedures Manuel, 2002).

Educational Technologist

The ET's responsibilities were outlined in the CREATE for Mississippi Procedures Manuel (2002) to ensure the success of the project. The ET was to (a) give

on-site professional development to teachers on hardware, software, and technology

integration, (b) distribute the project materials through electronic means, (c) provide

assistance to teacher, student techno team members, and the CREATE staff needed, (d)

supervise the student techno team, and (d) attend all CREATE for Mississippi

professional development sessions.

Core Teachers

Core teachers also had responsibilities to the project. Core teachers were to (a)

attend all professional development provided by the CREATE staff and ET, (b) create

and pilot technology-infused lesson plans that would be placed on the CREATE for

Mississippi website and ensure that the links in the lesson plans were current, and (c)

communicate electronically with the CREATE staff and other teachers in the project

(CREATE for Mississippi Procedure Manuel, 2002).

Student Techno Team

The student techno team members were to assist teachers by providing technical

and on-site instructional support. They were to help teachers and other students who

needed technology assistance while in class (CREATE for Mississippi Procedure

Manuel, 2002).

Faulkner County and Wamba History

Faulkner County, located in Northeast Mississippi, has a rich history. The

Faulkner Native American tribe, also called the Faulkner Nation, once lived in the area

now known as Northeast Mississippi. The Faulkner Nation did not have clearly defined

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borders of land since they moved where their needs led them. They occupied much of

Northeast Mississippi as well as some of Tennessee and Alabama. They were an

especially brutal tribe that was often at war with neighboring tribes (Works Progress

Administration Source Material for Mississippi, 1936).

On October 20, 1832, the Faulkner Nation signed the Treaty of Wallace Creek

with the United States allowing the country to obtain much of the land that had been

home to the Faulkners. Through the treaty, the Faulkner Nation was allowed to choose

some of this land in which to live. The center of their chosen land, called Old Society,

was located a mile southeast of Old Wamba. Old Society, the first agency established

between the southern Native Americans and the U.S. Government, was once one of the

most ancient settlements of the Old Faulkner Nation. A popular trading post was also

located at Old Wamba making it one of the most traveled places on the Vicksburg Trace

(Works Progress Administration Source Material for Mississippi, 1936).

According to the *Times Post* (1987)*,* the Faulkner County newspaper, Faulkner

County, which reflects the name of the Faulkner Nation, was officially founded on

February 9, 1836, almost 20 years after Mississippi became a state in 1817. Faulkner

County is one of the few counties in the United States to have two county seats. Hoover,

the first county seat of Faulkner County, was incorporated in 1837. The land was

donated to the county in 1836 by Judge Joel Pinson who stipulated that the land be given

only if named after his best friend, Sam Hoover, who was the president of the Republic of

Texas. During adverse weather conditions, many people in the county were not able to

attend important county meetings.   In 1845, Oakland was named the second county seat.

Even though paved roads and automobiles have solved the earlier problem of

transportation to Hoover, Oakland still remains a county seat in Faulkner County.

Faulkner County flourished until the Civil War when over half of the male

population went to war. The Civil War deeply affected the residents of Faulkner County

when half of the men who served in the Civil War either did not return alive or without

serious wounds. Not only was there a considerable loss of life due to the Civil War, but

residents also lost property and wealth during or soon after the war (Works Progress

Administration for Mississippi, 1936).

Oakland was a new town at the time of the Civil War but played an important role

in the war. Since the town hosted a division hospital, many Confederate soldiers were

buried in the Confederate Cemetery in town. The Confederates faced the Union soldiers

in or around Oakland three times: 1862, 1864, and 1865. The town suffered when the

Union soldiers destroyed the town and crops with fire. The soldiers returned home,

which had been flourishing when they left for war, to find their town in ruins (Works

Progress Administration Source Material for Mississippi, 1936).

Many plantations were abandoned after the war because of lack of a labor force

when the slaves were freed. Planters believed that only slaves could plant, cultivate, and

harvest crops. They believed that, without slaves, they could no longer run their farms.

In addition to this misguided belief, the Union Army had burned bridges, fences,

equipment, and the railroads so the planters could not sell their products to the world.

Thus, many planters lost their land and homes because they could not pay their taxes on

their property. Some, eventually, were able to pay back taxes to obtain some of their

land, but more whites became land owners. No longer where the few wealth plantation

owners the only land owners. Former slaves worked for the land owners or became

sharecroppers. Former planters who did not regain their land moved to Hoover and

Oakland to earn a living through other means (Historical Research Project, 1936).

As with many places in the South after the Civil War, Faulkner County was a

place of resentment and bitterness toward Northerners and African-Americans. African-

Americans suffered from racism as the Ku Klux Klan was active. John High

remembered seeing three African-Americans hung by the KKK. Even though he did not

remember their crimes, he said, "after the Negroes were free, they were so independent

and smart, something had to be done." Thus, Faulkner County was stained by fierce and

deadly racism following the Civil War (Historical Research Project, 1936).

In 1812, Wamba was established where two major trails met. The settlement of

Wamba was located a mile from the Old Society of the Faulkner Nation. The Native

Americans had named a creek west of the town "Wamba" meaning "low water" or "low

land." In 1903, the Gulf and Ship Island Railroad built a railroad about four miles west

of Wamba. Thus, the town literally relocated. Town residents moved existing building

by putting them on logs, and oxen pulled the buildings to the new site.

In the early 1900s, a sawmill was built at the west of the town and the railroad

was used to move timber from the town to buyers. At this time, the town was booming

with 26 stores, a sawmill, and 2 cotton gins. Black walnut timber milled at Wamba was

among the first shipments to pass through the Panama Canal.

In the 1950s and 1960s, industry began to move to Wamba. During this time the

main source of income for Wamba residents shifted from small farms and timber to

industry. As automobiles became popular, residents of Wamba began to shop at nearby

towns. Shops in Wamba began to close. Today, the town has few businesses, but the school and churches bind the community together. The residents in this community are fiercely loyal to their community and refuse to let it die (History of Wamba, 2000).

Education in Faulkner County and Wamba

In 1846, legislation was passed establishing a set of standards for the schools throughout the state. Although Hinds County Schools was successful in creating schools similar to today's system, the remainder of the state's schools failed to create uniform schools. In 1867, educators created resolutions calling for a common school for teachers, but this did not take place. The resolutions also called for the legislature to establish free public schools for white children aged 5 to 21 for four months a year. Any incorporated city with 1000 or more people could form a separate school system (Historical Research Project, 1936).

According to the Historical Research Project (1936), education was important to the early Faulkner residents. Schools were formed in each community in Faulkner County when the community was established. These schools were funded by the parents of the students. "Academies of higher order" were functioning in Hoover and Oakland. In the early days of education in Faulkner County, the schools charged tuition for students, and white students who could not afford tuition were supported by a public fund.

The Hoover Academy was formed in 1844. Students came to this school from the county and surrounding areas until the Civil War began. The first normal school in Mississippi was formed in Hoover in 1888. In 1905, the building for the Mississippi

Normal School became Hoover High School. Faulkner County also boasted of the first

Agricultural High School in the world which was established in 1908 and was located in

Bella Village. County Agricultural High School teachers taught boys agricultural

subjects and taught girls rural household arts. These subjects encouraged improvements

of farms and home life (Historical Research Project, 1936).

According to the Historical Research Project (1936), African-Americans attended

public and private schools. The Industrial Institute in Oakland was a community college

that offered courses in education, music, trades, and industries for African-American

students.

The first school to serve the Wamba area was the Runway School, located two

miles east of Old Wamba in the late 1800s. It was a one-room building, and students

were charged tuition to attend. The students were divided into two groups, those who did

not expect to be educated past the elementary grades and those (young white men) who

planned to go college. When the school burned, it was never re-built (Works Progress

Administration Source for Mississippi,1936).

In 1907, the city built a high school which is registered as a Mississippi Landmark

by the Mississippi Department of History and Archives. This school served around 300

local students who were taught academic courses as well as music. Students also

performed plays and concerts for all who attended. The building, which is still owned by

the school district, will soon serve as a community center and administrative offices for

the school district (History of Wamba, 2000).

In 1936, Wamba Consolidated School was built as a Smith-Hughes school.

Smith-Hughes schools were vocational schools that taught students courses in

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agricultural practices and home economics. These schools were established by the

Federal Board of Vocational Education. The 64th Congress passed an act approved on

February 23, 1917, that appropriated salaries for teachers, supervisors, and directors of

agricultural instruction. Standards were developed for vocational education which

included qualifications of the teachers, methods of teaching, supervision of agricultural

practices, and types of courses to be taught at these schools. The students were also

supervised in their work for six months each year. Lawmakers hoped to promote

effective agricultural practices through these schools.

<h3 style="text-align:center">Faulkner County and Wamba Today</h3>

According to the 1997 population estimates, the total population for Faulkner

County was 18,310 while 5,690, 31.08% of the population, was under the age of 20. In

regard to race and sex, 5,218 of the population were white non-Hispanic males, 5,546

were white non-Hispanic females, 3,481 were black males, 3,938 were black females

while Hispanic, Native American, and Asian males and females made up a significantly

smaller portion of the population (U.S. Census Bureau, 2004).

According to the 1990 Census of Population and Housing for Faulkner County,

13,208 citizens (63%) 16 years old and older were part of the labor force. Of this

number, 71.9% of males 16 and older were participants of the labor force while only

55.5% of females in the same age range were part of the Faulkner County labor force.

The 1990 Census reported that of 7,816 Faulkner County citizens employed, 3,179

worked manufacturing durable goods, 938 worked in retail, 775 worked manufacturing

nondurable goods, and 442 worked in educational services. Most Faulkner County

residents were labeled by the 1990 Census statistics as rural (60.45%) opposed to

39.6% of the population labeled as urban. Eighty-nine percent of the citizens living in

this county were born in Mississippi (U.S. Census Bureau, 2004).

The major source of income for the residents of Faulkner County is farming and

manufacturing. The per capita income is under $12,000 while the state average is

$17,000 and US average is $24,000. Approximately 60% of the population over the age

of 25 does not have a high school diploma. Thus, the average educational level of the

residents of Faulkner County is 10th grade (U.S. Census Bureau, 2004).

<div align="center">The Town</div>

Turning off the two-lane highway between Wallace and Hoover, one sees a small

aging gas station that keeps the locals and visitors in gas and food. Less than a mile on

this road into Wamba, one notices a sign that proudly announces the town of Wamba to

visitors. Beside the sign is a public housing development that appears to be fairly new.

To the right of the road, one sees a well tended public baseball field that suggests that

baseball is a popular pastime of Wamba residents. Since the school does not have a

baseball field, this field is used by the school team.

As one continues on this road, a person comes to a small white wooden building

that houses the superintendent office for Faulkner County Schools. Before turning left

toward the town square, the only grocery store found in the town is located to the right of

the road. Many high school students have earned extra money working at this store

throughout the years. In the center of the town square stands a building that houses the

fire department and library. The square holds a few small businesses such as a bank, a

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restaurant, and family businesses. The largest and most prominent buildings in the town are churches where many residents worship and socialize.

Faulkner County School District Today

Wamba Attendance Center is the only school in the Faulkner County School District.   The other county schools have been consolidated through merger with larger city schools; yet, the people in the Wamba community have fought hard for many years to keep their school. There are only two other schools located in the county, Hoover Municipal Separate School District and Oakland Municipal Separate School District. There are no private schools located in the county. Faulkner Academy, the only private school in the county in recent years, closed in the 1990s.

The residents of the district elect both the school board members and the superintendent of Faulkner County School District officials. On the other hand, the school board members of Hoover and Oakland School Districts are appointed by city administrators and the superintendents are appointed by the school boards.

<u>The School</u>

When walking onto the Wamba campus, one notices that the organization of the buildings does not seem well planned. The original school building appears to have once been a picturesque small school. It is a red brick building with a white painted, wooden entranceway in the middle with windows of classrooms equally distributed on either side. As the school population grew, more building were added in a seemingly random order with little thought as to the appearance of the additions. Some newer buildings are brick while others are wooden. Still others are made of tin.

The floors of rooms in the original building are uneven from years of use. Some of the newer buildings were designed for one use and later made into classrooms which created small, poorly designed classrooms. Nevertheless, the residents of Wamba are proud of their small school. They have fought to keep their community school while other community schools were consolidated into the other two separate school systems in the county.

The building which housed the classrooms for the core teachers was once a shop building. Therefore, the outside was made of yellow tin, and the inside was divided into rooms and a narrow hallway framed with cheap wood. When entering the building, the small office of the assistant principal was to the left. The office also served as a teacher workroom since a copying machine, couch, and telephone were present. The desk used by the assistant principal was shoved against the wall and did not appear to hold any personal effects or important work. The next room on the left was the room where the children had music classes. Facing these two rooms was a wall with a mural of the school mascot and school name.

The hall was L-shaped and once a person turned right at the corner, one cannot help but feel claustrophobic in the narrow hallway that led to the core teachers' rooms. The hall was only wide enough for two elementary students to walk side by side. To the right was a small room that housed a special education classroom, and across from that room was a classroom for the gifted education classes. The core teachers' rooms were in the remainder of the building.

The rooms of the four core teachers were at the end of a short hallway painted white with a colorful whimsical picture painted beside each door indicating the subject

taught in each room. At the end of the hall was a locked door leading to the outside which was also painted with a school theme. The core teachers' rooms were grouped into a square where two of the rooms were on the right side of the hall while the other two were located directly across from them on the left side of the hall. Each teacher had a door leading into the room of the core teacher in the neighboring room.

The classrooms were unusually small, and there was little room to walk between rows of desks. When entering the rooms, one noticed few windows and no storage areas which made the rooms appear dark and junky. The teacher desks were situated only a few feet from the student desks. There was little room to walk between the front rows of desk and the chalkboard, only enough room for one person to walk comfortably. A few windows covered a small portion of the top outer walls. They were small windows in which a short person could not see outside unless he/she stood on a chair or other piece of furniture.

There was little student work on the walls since wall space was minimal. Two chalk boards covered two of the walls while a small bulletin board covered the other. Bookshelves were located on the outer wall where the windows were located. Although each individual teacher situated her desk and student desks in a different design, the other features describe all four core teachers' rooms.

The ET's "office" was located in the original school building. She shared her office with two other school employees, and with objects and boxes that appeared to be in storage. The ET's desk was the second desk on the left. The old wooden floors sloped toward her desk. She did not have a phone, but used the phone that belonged to one of the other employees in the room.

According to the Mississippi Report Card from the Mississippi State Department of Education, Wamba Attendance Center had 39 teachers and 544 students in pre-kindergarten through 12th grade located on one campus. About 75% of the students received free or reduced lunches, which indicated that they lived below or around the poverty level. Wamba Attendance Center received an accreditation level of 3 from the State Department of Education in Mississippi in 1999. According to the May 2000 Terra Nova statewide testing program, the reading scores in grades three through eight were below the state average with 30% of the students scoring in the bottom quartile (Mississippi Department of Education, 2001)

The administrators have used local funds, private donations, grants, and available federal funds to provide students access to technology. There was a computer for each three and half students. This includes computers in the Tech Prep labs. In spite of such low student-to-computer ratio, student use of computers for educational purposes is limited.

The School Participants

<u>Administrators</u>

Denise Donahue, the superintendent of the school, is actively involved in the school and knows the teachers and students well. Denise has lived in Wamba most of her life and considers it home. She began her teaching career as a special education teacher and was the special education coordinator for all three schools in the county before becoming superintendent of Faulkner County Schools. She hopes to return to classroom teaching before she ends her career in education.

Denise is an attractive woman. Her countenance, though friendly, is one of authority and confidence. She dresses professionally in suits and tailored dresses. She shows pride in her community and school through her words and actions.

Denise has an extensive knowledge of the town history and contributes to publications about the town found on websites and small community publications. She heads community events such as the Wamba Homecoming, which is held every five years, and expects the teachers in her school to contribute time and effort to these events. She has pushed for the renovation of the old Wamba High School and has received a large renovation grant and heads fundraising events for the effort. She cannot contain her excitement when speaking of the plans for the old school which includes administrative offices for the school and a community technology center.

Denise is the catalyst for the technology training at the school and has played a large part in obtaining CREATE for Mississippi for the school. She acknowledges that technology integration is important to education. She sees that the world is becoming more technology driven and wants her students to be able to compete with others in the world of business and manufacturing.

She always appeared to be very busy but always gave me time, even when unscheduled. In her small but attractive office, she had placed two wingback maroon cloth-covered chairs beside her desk. She would answer questions about the project in this area. Although the setting was casual, she remained professional.

The principal of Wamba Attendance Center (grades k-12) is Donnie Hemingway. The first year of the project was his first year as principal at this school. He served as an

assistant principal at a neighboring school district before taking the position of

principal at Wamba.

Donnie Hemingway is a former coach in his early forties. He, too, is attractive

and fit. Although he supported the efforts of CREATE for Mississippi, he did not invest

his emotion or time in the endeavor. He did not seem to share Denise's passion for

technology integration. Consequently, I saw very little of him during my visits to the

school. He seemed to always be busy with the daily operations of the school and had

little to contribute to the research of the project. Since he had an assistant principal for

the elementary school, Donnie seemed to concentrate his efforts on the high school.

Dr. Ralph Price, the assistant principal, is a retired superintendent of Faulkner

County Schools. Ralph has a doctorate of education from Mississippi State University.

After retiring as superintendent of Faulkner County Schools, he was asked to serve as

principal when the principal at the time was not able to serve due to health problems.

After Denise hired Donnie as principal of the school, she asked Ralph to be the assistant

principal primarily in charge of the elementary school. After much persuasion, Ralph

agreed. Since he was retired from education, he worked only part-time as an assistant

principal.

Dr. Price was widely respected by the teachers. He is a thin man in his early

sixties who is a chain smoker. He can often be seen a few feet from the school grounds

smoking cigarettes. Dr. Price seems to be a well-rounded individual and presents an air

of intelligence. I have often wondered why he would chose to stay at such as small

school. He possessed a doctorate in education when many superintendents did not. He

could have gone to another school where he would have received more money and more prestige.

Educational Technologist

Anna Poe had been teaching third grade for three years before being becoming the ET. She is from Faulkner County and graduated from Hoover High School. Anna had worked in an area business before going to school at Mississippi State University where she earned a bachelor's degree in elementary education.

Anna Poe is an energetic, slightly heavy woman in her thirties. She is the mother of two small children, and one cannot be around her long without knowing that they are the focus of her life. Yet, she is a hard worker and shows enthusiasm for her job. After ending a bad marriage, Anna returned to college to start a career in education. After her experience with CREATE for Mississippi, Anna is considering returning to college to obtain a master's degree in instructional leadership. She hopes to be a school administrator in the future.

Anna was chosen to be an ET by the superintendent. Denise stated that she choose Anna for this position because she was a hard worker and used technology in her classroom. The decision to take the job was a difficult one for Anna since she loves teaching students. As ET, she considered herself a teacher of teachers and continued to spend time with students teaching them how to use technology. Although most of the ET's at the other participating schools served teachers and students of seventh and eighth grades, Faulkner County School District's ET served teachers and students of fifth and sixth grades. Therefore, Anna faced an elementary setting where an adult must escort

students to other classes and extracurricular activities. In addition, most of these

students had little experience with technology.

Anna took her job seriously. Although we had a friendly and personal

relationship, she never lost sight that I was the evaluator for the project. Anna spent most

of our time together showing me what she had been doing regarding the project. She was

proud of her work, but she also wanted to be presented in a positive light in my reports.

She was protective of her work as well. When she helped the teachers write their lesson

plans that were required for the project, she put her name on them as well as the

individual teachers' names whose responsibility it was to write them. She also expressed

concern when she felt that the CREATE staff took her ideas and presented them as their

own.

Core Teachers

The CREATE for Mississippi project dealt with the students and teachers of 5th

and 6th grades at Wamba Attendance Center. These grades were considered elementary

grades for this school and were treated as such. There were only four teachers who serve

these grades; thus, these were the four core teachers who participated in the project.

These core teachers were also the homeroom teachers for these two grades. The

homeroom sizes averaged 26 students located in very small rooms. Two of the core

teachers had 5 computers in their classrooms while the other two only had 2 computers in

their rooms.

Angela Laurence was the core teacher who represented social studies. She had

been a teacher for 26 years, 25 years at Wamba. Angela taught at Brown, where she did

her student teaching, during her first year of teaching. Angela grew up in Wamba and graduated from Wamba Attendance Center. She obtained her bachelor's degree at Mississippi State University in elementary education after switching her major from secondary education with an emphasis on social studies. Throughout her teaching career, Angela had taught grades four through six and all four core subjects.

Angela is a tall attractive woman in her forties with two young adult sons. Although she is a smoker, Angela does not possess the smoke scared voice that many smokers have. Angela always met me with a beautiful smile and an earnest welcome.

Emily Emerson, Angela's sister, has taught at Wamba for 24 years and was the core teacher for language arts. Emily is also from Wamba and graduated from Wamba Attendance Center. In high school, Emily and her sister played basketball for a Wamba High School team that went to the state finals. Emily decided to become a teacher because she dreamed of becoming a coach. Although Emily obtained her bachelor's degree in elementary education and a master's degree in education from Mississippi State University, Emily's dream of becoming a coach has never been fulfilled. Emily has two children, one of which she had in her mid-thirties.

Emily Emerson is a tall woman with an athletic build who tends to be more aloof than the other core teachers. She is the only core teacher with an advanced degree, and the other core teachers respect her knowledge of technology, often going to her with questions about technology before asking anyone else. Angela and Emily, the only sister teacher team in CREATE, seem to extremely close. I'm sure that no day passes without them speaking to one another.

Shelly Poole has taught for 28 years, only 7 at Wamba. Shelly was the core teacher for mathematics. Shelly is from a town in a neighboring county and taught at a school there before teaching at Wamba. Although it was unclear why she decided to teach at Wamba, she seemed happy there. Shelly has a bachelor's degree in secondary education from Jackson State University, a historical black college in Jackson, Mississippi. Shelly then returned to college and received another degree in elementary education. Shelly has an adult son and a granddaughter whom she loves dearly.

Shelly Poole is an attractive, energetic woman of medium build. Whenever I saw her, she opened her arms wide as she approached for a warm hug. Shelly had been teaching longer than any of the other core teachers. Although she did not seem to appear to be older than early 50's, she seemed to be the "mother hen" of the group. Shelly was the core teacher that would genuinely want to know how I was doing the minute I passed through the door. Although she understood that I had a job to do, she made the trips to Wamba feel as though I was going to visit friends. By the end of my research there, I knew I was visiting friends whenever I visited.

Lastly, Maya Hughes had taught at Wamba for 13 years and was the core teacher for science. She was from an area close to Wamba, but did not graduate from Wamba. When she began teaching at Wamba, she taught special education classes with an emergency certificate until an elementary position opened for her. Maya has a bachelor's degree in elementary education from Mississippi State University. Maya has no children, but is married to a man who has twin girls whom she loves as her own.

Maya Hughes is a big woman with a big smile. Although she seemed to be suspicious of me at the beginning of the project, she soon gave me a hug and pulled a

chair out for me as soon as I entered the room. She greeted me with such warmth that I enjoyed my visits with her. Maya wanted to discuss problems that she had with the project. She was vocal of her likes and dislikes.

The core teachers were, at first, wary of me. I suspect that people they consider "outsiders" are not especially welcome although the teachers were friendly and helpful. Even though I had some personal background at the school, I was still seen as the evaluator from Mississippi State. It took at least a year before I was able to see them as they really were. I never felt that Emily accepted me, but Angela was friendlier. Yet, Emily and Angela never seemed as genuinely happy to see me as Shelly and Maya.

The teachers were guarded with their conversations regarding CREATE. When I asked prepared questions with a pen and paper, they gave me the answers they thought I wanted to hear and answers they thought they should give. When I spoke to them more in a more relaxed way with no pen and paper or prepared questions, they told me what I perceived to be more truthful. During these informal interviews, they often voiced dissatisfaction about the project. Through observations, I found that they did not use the tools, time, training, and support provided by CREATE for Mississippi in their instruction.

When an email was sent requesting information, the teachers responded as a whole, not as individuals. When I had questions about their feelings of the project, they spoke as one in the interviews. If I tried to interview them individually, they would say that they preferred to be interviewed together.

CREATE for Mississippi in Faulkner County School District

Technology training was not new to the Faulkner County School District teachers when the CREATE for Mississippi project entered the school. Cynthia Jones and Martha Clay, instrumental in development of the CREATE for Mississippi project, worked with the teachers at Wamba providing technology professional development before this project began. Therefore, the teachers and the superintendent had worked with Martha, the CREATE for Mississippi project manager, before CREATE for Mississippi, and many teachers had benefited from the professional development provided by Cynthia and Martha.

Despite the training they had received from Cynthia and Martha in previous years, the core teachers were still technologically unskilled and tentative about using technology in their instruction. Denise stated in public that she chose these teachers because they were veteran teachers who worked well together and were committed to their profession. She jokingly stated that she felt certain that these teachers would continue to work in the school district and would not leave the district because of new marriages or pregnancies.

During the course of the project, I discovered that these teachers had the lowest state testing scores of any other group of teachers in the school. Denise reluctantly agreed that the low test scores were another reason that she chose these teachers to participate in the project. She hoped that the project would inspire better teaching practices and generate excitement by the teachers for teaching.

During the workshops with other schools, the Faulkner County teachers did little socializing with teachers from other schools. They took breaks together, sat together at lunch, and communicated little with others. They seemed to be the most isolated group

of teachers at the workshops. As the years passed, they remained aloof from the other teachers.

The core teachers were born and raised in small rural Northeast Mississippi communities. They chose to remain in that area to work and to raise their families. They tended to be skeptical of those they consider outsiders, especially those in an administrative role. Since the principals and superintendent were from Wamba or from towns close to Wamba, the CREATE staff were "outsiders" in administrative positions. They never seemed to accept the CREATE staff and did not seem to realize that the staff was there to help them.

Because of this skepticism, mistrust of others who are different from them was likely to occur. Issues that occurred specifically with the project were problems with money and miscommunication with members of the staff. The teachers never understood that the implementation of the project and the CREATE staff were there to help them become better teachers. They seemed to believe that the CREATE staff came to criticize them and their teaching in some way. Consequently, they dreaded the visits from the staff. This resentment seemed to affect the work that the teachers did; they only did what was required, little of what was expected, and nothing extra.

As part of the CREATE project, the core teachers and Anna created technology infused lesson plans that were aligned with the district, state, and national standards. These lesson plans were eventually put on the CREATE for Mississippi website to share educational ideas with other teachers in Mississippi and the world. Each teacher created four lessons in their core subject. Some of these lessons were piloted in the author teacher's classroom. For example, students of one core teacher created a *PowerPoint*

presentation to present to the other students in the class based on the content they were studying. The teacher and students were very proud of the students' work on this lesson.

However, the teachers also lost sight of the goals of the project, if they ever understood the goals. Although the purpose of the project was to help them learn to use technology in their teaching to improve their teaching, the teachers thought that the goal of the project was to create lesson plans that infused technology. Throughout the three years of this study, I do not believe they ever believed that the CREATE staff was there to help them, but rather to make them create lesson plans and criticize their teaching. One might conclude that the project was doomed from the beginning since the teachers did not understand the "whole picture."

Eventually, the relationship between the teachers and Anna (ET) became strained. The teachers began to view Anna as "one of them (the CREATE staff)." During the first year, Anna and the teachers seemed to have good working relationships. Over time, I discovered that Anna was doing the majority of the work on the lesson plans. Once Anna was told to encourage the teachers to have a more active role in the lesson plan development, the teachers felt that Anna abandoned them. It seemed to me, Anna seemed to prefer doing the lesson plans herself rather than teach the teachers how to develop them. Thus, the teachers had little experience in creating CREATE for Mississippi lesson plans until the second year. The frustration grew between them to the point where Anna worked with the core teachers very little.

During the first year of the project, the Wamba teachers were the "stars of the show." They had the most to learn about technology and seemed to be making great progress. The CREATE staff praised them and doted on them. Unfortunately, the

perception of the teachers' growth was skewed since much of the work was done by Anna. Also, the teachers were learning technology skills, not integrating technology into their teaching. They were praised by their growth in technology skills during the first year, but during the second year when they showed no interest to use it in their teaching, the praise stopped. The teachers noticed the change and resentment continued to grow.

During the second year of the project, when Anna no longer did the teachers' CREATE for Mississippi lesson plans, the teachers struggled with the project. They began to resent both the project and the people involved with the project. At one point, the CREATE for Mississippi staff met with the superintendent to discuss the lack of quality work by the teachers. After this meeting, the teachers appeared to be working more diligently, but the quality of the work remained poor. The ET and CREATE staff were forced to make major changes in order to put the lesson plans completed by the teachers on the website. After the project had ended (the third year), they were relieved to no longer have to deal with the requirements and the people of CREATE.

The teachers showed little desire to change their teaching and believed that the end of the project signaled the end of the pressure to create technology infused lesson plans that they did not plan to use and the end of making excuses for not using technology in their teaching. They were, in their terms, "off the hook."

Educational Technologist

Tools

During the first year of the project, Anna used the tools provided by CREATE for Mississippi in several ways. She used the laptop that was provided to her daily since it

was the only computer provided for her at the school. She also used the technology support cart to demonstrate to the core teachers how to use various technologies available to them. Anna also used the laptop carts in classroom when the teachers asked her to present technology-infused instruction to their students.

The teachers often had Anna present the technology aspect of their CREATE for Mississippi lesson plans. The CREATE staff hoped that this would serve as a bridge to help the teachers become comfortable using technology in their instruction. Instead, they allowed Anna to use the technology and did not attempt to use it in their instruction.

During the second year of the project, Anna worked with each core teacher's class during the last class period of the day from Monday to Thursday. On Friday of each week, Anna worked with the techno team during this class period. During the first semester, Anna was expected to cover basic academic skills while using technology with the students she taught Monday through Thursday. Anna used the technology support cart and the laptop cart during these classes.

The original plan with these classes was for Anna to use the technology to teach basic skills. Because of their concern with test scores, the administrators told Anna to use this time to teach basic skills measured by the test without the use of technology. Thus, during the second semester, Anna no longer used technology and simply taught the class in a more traditional way. The message that was sent to Anna and the core teachers was that technology only got in the way of real teaching.

During the second year, Anna expressed frustration with the lack of teacher use of the equipment. She stated that the teachers told her that they did not want to use the laptop cart since she would be using it at the end of the day. The teachers said that there

may not be enough power left in the batteries for Anna's classes if they were to use it. When Anna no longer used the technology during the second semester of the second year, the teachers did not explain why they did not use the technology. They simply did not use it.

Time

During the first year of the project, release time for the teachers was an extra planning period throughout the day. Anna met with the teachers every day during this time to teach them new computer skills, find websites for lessons, and develop lesson plans. Anna spent virtually all of her time either training the core teachers or supervising the movements of the students to other classes. She also worked with all of the 5th and 6th grades students by rotating them in groups of four and teaching them computer skills.

Approximate Times	Duties
8:00 am	• Anna supervised moving Emily's students to another class • Anna trained Emily
9:00 am	• Anna supervised moving Emily's students to Emily's class • Anna supervised moving Maya's students to another class • Anna trained Maya
10:00 am	• Anna supervised moving Maya's students to Maya's class
10:10-10:40 am	• Anna trained four students from 5th and 6th grades on using computer skills
10:45 am	• Lunch
11:10 am	• Anna supervised moving Shelly's students to another class • Anna trained Shelly
12:10 pm	• Anna supervised moving Shelly's students to Shelly's class
1:30-2:00 pm	• Anna trained another group of four 5th and 6th grades students on using computer skills
2:05 pm	• Anna supervised moving Marilyn's student to another class • Anna trained Marilyn
3:00 pm	• End of school day

Figure 4. Anna's Schedule During the First Year

Because Anna was once a teacher, she understood the problems that teachers face such as time constraints and the difficulty of managing students when they work on group projects. As is evident on Figure 4, she escorted the students of the teacher who had release time to their next class to give the teacher extra time for CREATE for Mississippi duties. Anna also spent time in the classroom with the teacher and her students when the students worked in groups to give assistance and help with technological problems.

Because of Anna's considerate gestures, it appeared that she had built excellent working and personal relationships with the core teachers and had become a substantial aid to them during the first year.

However, during the second year, the teachers opted to have release time after school. Because of this arrangement, the teachers were paid for their time rather than have an extra planning period for CREATE work. Although the teachers enjoyed the extra money, they had much less time with Anna.

Although the teachers were paid extra for time they spent after school, Anna was not. Since Anna had small children and other obligations after the work day, she stayed with the teachers little after school. Although the teachers could have traded their planning period for their release time and spent time with Anna during the school day, they complained that Anna was unwilling to help them after school. After the amount of time Anna devoted to them during the first year (See Figure 4), I can certainly understand why the teachers felt abandoned by her. As the relationship between Anna and core teachers chilled, the teachers turned to Emily to help them with technology problems.

Training

Anna conducted training for the core teachers, other teachers, and students. She took this job seriously, but made one fatal error with the core teachers. When training the teachers, she showed them where to go and what to do instead of allowing them to do it themselves. The teachers later complained that Anna did everything that she reported to have trained them in; thus, the teachers learned very little with Anna.

During the first year, I initially believed that the teachers were making great progress. They were praised for their technology use and good lesson plans. During the second year, I found that Anna use the technology and wrote the lesson plans. Thus, it was Anna's work, not the teachers' work, given the spot light.

During the second year, Anna vowed not to do the lesson plans for the teachers. This caused great problems. The teachers had not learned the information that Anna had claimed she had taught them. Anna, tired of doing the core teachers' work, pulled back suddenly. The teachers were to sink or swim. They sank.

When this happened, the relationship between Anna and the core teachers became frosty, and the CREATE staff, who now received poor work, put pressure on the teachers to do quality work. The teachers felt they were dumped by the ET and the CREATE staff.

During the second year, Anna conducted little professional development with the core teachers. However, Anna spent much more time with other teachers of the school. The teachers she worked with were those who asked for help. Thus, they wanted help and had a higher motivation to learn. Anna has also conducted professional development workshops for all of the teachers in the school, and these teachers recognize her as someone on campus to assist in troubleshooting and other technology concerns.

During the second year, there was a high turnover of faculty. Of 43 teachers, there were 8 new teachers for 2001-2002 school year. Anna was concerned that these new teachers would not have technology skills despite all of the training she had conducted the previous year. Since some of those teachers are nearing retirement, Anna was also concerned that they might have little motivation to learn new skills.

Anna had been holding training sessions on the use of software packages for the teachers. She found that her training session on *Microsoft Publisher* was successful due to the excitement of the teachers and the range of skills they learned by doing a calendar project. I visited the school the day after the training session, and Anna was busy working with teachers with the calendars. In retrospect, it seemed that the excitement the teachers appeared to have about technology seemed to be more how they could use the skills for personal use rather than for instructional use. The teachers learned and used the skills, but the skills rarely transferred to their teaching.

Support

Initially, Anna seemed to support the core teachers more than any other ET in the schools. She was with them every day and worked with them a great deal. Even though she did support them, the support ended abruptly when she refused to continue doing the core teachers' lesson plans.

However, Anna became known as the educational technologist throughout the school, and many teachers began to ask for help on an individual basis. A few teachers did this the first year of the project, but Anna began to see the technology reluctant teachers in the school become curious about technology use during the second year.

During the second year, Anna worked with a wider variety of teachers, giving them technology support. Anna also took on a more administrative role as she was asked to perform some administrative tasks.

The Third Year

The funds for an educational technologist were not available during the third year of this study. Consequently, Anna went to a neighboring school in the county where she worked with special populations, students who were at risk for failing academic classes, teen parents, and students who were considered to be economically and academically disadvantaged. In this position, she helped these students with writing and study skills, math, and science.

Anna used technology in small student groups where she helped students use software to help with basic skills and to use the internet. She also helped teachers and students with computer problems in the vocational center and high school. She helped to download software and set up new computers. Anna also designed a book of instructional websites for elementary teachers at her current school. Anna's training as an educational technologist had transferred to her current position at a different school.

ET Response to the Project

When asked about her opinion of the CREATE for Mississippi project, she addressed all four barriers. Anna believed that the training provided for the ET's and core teachers was very helpful. She especially like the handouts that were given at the training sessions and were later available on-line through the CREATE for Mississippi website. Although the training by the CREATE staff focused on the technical aspects of technology use, she believed that her job as an ET was to help teachers integrate technology into the curriculum.

Anna also stated that the technical equipment provided by CREATE was also helpful for her and the teachers. She disagreed with teachers who used the equipment as a babysitter rather than as an educational tool. In retrospect, she believed that the use of tools at Wamba by teachers did not meet its potential because of the disinterest of the teachers to use it for educational purposes.

There was a distinct difference in how the issue of time was addressed during the first and second years of the project. Anna believed that the first year, when the teachers had time during the school day to learn how to use technology in their teaching, worked much better than the second year, when the teachers were paid extra to stay after school. She stated that the one-on-one work that she did with the teachers was productive during the first year; however, she believed that the teachers probably did not need the special attention during the second year since she thought she had taught them a great deal during the first year. She believed that ET's had plenty of time to complete their duties if they were not expected to perform other duties assignment by the administrators for the school.

Anna believed that the support offered by CREATE became more of a burden as the project progressed. She felt that the staff members were more critical than helpful, and she eventually came to dread the visits and emails from the staff. However, she felt that the administration at Wamba was very supportive of the project and technology use. Her role as support of the core teachers was welcomed at times and shunned at times. She felt that the teachers wanted her to write the lesson plans for them, but she couldn't understand why they did not seem to want her help to write them or to help them integrate technology into their teaching.

Overall, Anna believed that the theory behind CREATE was good but should have been monitored more carefully by the project administrators and the school administrators. She believed that the project would have worked better at Wamba had the core teachers been more motivated to take advantage of the project.

Anna seemed to help many teachers at Wamba use technology. Although she was at a different school, she continued to be a faculty member at a public school, and she used the skills she learned while she was an ET to help teachers and students at her current school. If her dream of becoming an administrator is brought to fruition, I expect that she will be supportive of technology use by teachers and students she influences.

Core Teachers

Even though I wanted to interview each teacher individually, the teachers preferred to talk to me as a group. This was a trend that was evident throughout the course of the project. Whenever a question was posed by email to the core teachers by the members of the CREATE staff or by me, one core teacher would reply, and she would answer as though she spoke for all core teachers. They sent emails to the CREATE staff and me as a collective unit. The following responses given by the teachers were the opinions of the group of teachers rather than individual teachers. I present the actions and thoughts of the teachers as a collective group rather than as individuals. Although the teachers were individuals and had small differences evident by their lesson plans, the differences were slight, and it was difficult to discuss them individually.

Even though the teachers wrote lesson plans according to their academic discipline, the lesson plans were similar. This could be because Anna had so much input in the lesson plans during the first year. During the second year of the project, the teachers imitated the ideas in the previous lesson plans and did not develop innovative technology infused lesson plans.

Tools

During the first year of the project, the teachers gave the appearance of using the technology provided for them. There were some instances where they used the technology in their teaching with Anna's aid. This technology use was sporadic and seemed to be done only to pilot a lesson plan which was a requirement of the project. They told the CREATE staff when technology was used in their teaching so that the CREATE staff could see it being used. Even then, Anna was the one who actually used the technology during this particular visit by the CREATE staff.

Yet, the excitement that the teachers felt when they used technology in their teaching seemed genuine. Unfortunately, most of these technology-infused lessons were done with the assistance of, if not totally done by, Anna. The initial belief was that if the teachers eased into the use of technology, they would begin to use it on their own. This was not to be.

During the second year of the project, the teachers made excuses about why they did not use the technology support cart. The technology support cart, which appeared to be used as a very dusty bookcase, was not used because they stated that a piece of equipment on it did not work. The laptops given to each teacher stayed at their homes;

thus, I have no way to verify that they were used. I did note that the student

assignments hung on the wall used technology little, if at all. I concluded, based on

interviews, observations and document analysis, that the equipment was used very little

and only when the teachers were encouraged strongly by the administrators to use it.

Time

During the first year of the project, release time for the core teachers was an extra

planning period during the day when they would have taught social studies. Thus, the

release time money had provided Faulkner County School District with another teacher to

teach 5th and 6th grade social studies. The core teachers enjoyed having the release time

during the school day. Since the teachers were initially uncomfortable with technology,

Anna used the release time to teach the core teachers basic computers skills. Anna also

used this time with them to help them with the lesson plans that were a requirement of the

CREATE project. Yet, the time given to the teachers for technology integration did not

seem to affect their teaching.

During the second year of the project, the teacher release time was after school.

To the teachers, they were given money to complete their CREATE for Mississippi duties

not to integrate technology in their teaching. Since Anna no longer worked with them,

they struggled to complete lesson plans that were required, and would often not stay after

school as planned because they had other responsibilities. Despite the problems they

encountered by having release time after school, they all stated that they preferred to have

release time after school. They seemed to like the extra money, although it appeared that

they did not use the time for technology integration in their classes, but for the development of lesson plans to be submitted.

Having release time after school seemed to generate resentment toward the CREATE staff. Since the CREATE staff became frustrated that little appeared to be done during the teacher's paid release time, they made it clear to the teachers that they were being paid additional monies, and it was expected they would create appropriate lesson plans. The teachers saw this as yet another money issue. To the teachers, the CREATE staff did not have to face a class every day and were not expected to perform additional duties after the school day. The core teachers understood that the CREATE staff members were former classroom teachers, but the core teachers considered the work of the CREATE staff to be less than their work and the compensation to be greater. I am sure that they felt this way about me as well, but since I was more of an insider, they seemed to be happy for me that I had such a job.

During the third year, the teachers did not have release time funded. Even though they missed the extra money they received from CREATE, they did not miss what they saw as the intrusion on their lives. They felt free from bondage.

Training

During the first year of the project, the teachers seemed to be more comfortable with on-site professional development with the ET than off-site professional development held at MSU. The teachers did not mingle extensively with teachers from other schools and, at times, felt that teachers from other schools were shown more favor. Some core

teachers from Wamba did not attend those off-site professional development sessions. On the other hand, the teachers did seem to benefit greatly from the on-site professional development and appeared to be very comfortable with Anna. Unfortunately, the professional development they received from Anna did not lead to technology infusion.

During the second year of the project, the teachers continued to attend professional development sessions off-site at Mississippi State University. There was little indication that they used the information that they learned at the sessions for their teaching. Professional development sessions with Anna slowly dwindled to none. Because the core teachers resented Anna for not helping them with their lesson plans and for not staying after school to help them, they no longer asked for her help. If they needed help with technology, they would ask Emily, one of the core teachers, for help. Since they seemed to use technology only in their lesson plans to be turned into CREATE, they did not require or request extensive training.

Support

These teachers were a close-knit group who relied on one another for support. During the first year, it appeared that they allowed Anna into their group, but one may ascertain that since Anna completed their lessons plans for them during the first year, they may have only used her for this purpose. When Anna refused to do the lesson plans in the second year for them, they became withdrawn from her. Thus, Anna discontinued seeing them in any capacity, and her effectiveness with these particular teachers ended abruptly.

Since the core teachers were expected to know basic computer skills and to have gained some advance computer skills through the workshops provided by the CREATE staff, Anna spent more time with other teachers than with the core teachers during the second year. Yet, the core teachers did not seem to understand that Anna could not devote as much time to them as she did during the first year of the project when they had release time during the school day.

Teacher Response to the Project

The core teachers liked the release time after school rather than during the school day. They believed that they benefited by working together after school and enjoyed the peer input. They also stated that when working after school, they were not forced to stop working in the middle of something as they were during the school day.

The teachers stated that they enjoyed having the equipment provided by CREATE for Mississippi. They said that they had everything available to them whenever they needed it even though they were forced to put two students to a laptop since there were not enough for an entire class. The teachers also stated that they enjoyed having the laptop computers provided for the core teachers and used them at home.

The teachers were not positive about the training they received by the CREATE staff at Mississippi State University. They stated that the all day training sessions were not helpful to them because there was too much information thrown at them at one time. They often felt "lost" during the sessions and seemed to know less about technology when they started the project than other core teachers from other schools. They felt frustrated and overwhelmed by the information given to them on the off-site training

sessions. The core teachers had much more positive experiences with on-site training with the CREATE staff and with Anna even though they said that they felt much more comfortable learning about technology from their peer, the core teacher who knew the most about technology use. They preferred to learn about technology from Emily who, they said, was more patient than Anna and had a more hands-on teaching approach.

The core teachers stated that they had a great deal of support from their administrators, the techno team, and the CREATE staff. They stated their administrators provided the teachers the time they needed and were supportive when they had to go to off-site training sessions. The techno team helped them during the first and second years of the project by finding websites and helping other students when they used technology in the classroom. There was no techno team during the third year. The CREATE staff offered support by answering any question the teachers had quickly and effectively.

The teachers said that there were lasting effects of CREATE at their school. They contended that they knew much more about technology because of CREATE. They also stated that the lesson plans that are on the CREATE for Mississippi website were also helpful to them. When asked how their teaching had changed because of CREATE for Mississippi, they stated that they used technology in some of their lessons such as units on Mt. Everest and the solar system. They used math and reading software and have students find information from the internet rather than using an encyclopedia. They said that the students used the laptop cart and the technology cart although they didn't specify how or how often.

Administrator Response to the Project

Denise Donahue felt strongly that technology use by teachers is beneficial to students; therefore, she pushed technology use in her school. Even though Denise believed that technology will not make weak teachers into strong teachers, she did choose the core teachers for this project because they were weak teachers. Even though this is a contradiction, one may assume that she hoped the training provided by the CREATE staff and the ET would improve the core teachers' teaching skills and breathe new life into their teaching practices.

Denise addressed the issue of time, tools, training, and support that CREATE provided to the teachers. She believed that the teachers benefited more by having extra time during the day. She believed that time remains an issue that needs to be addressed in the future.

Denise believed that the barrier of lack of technology had been sufficiently addressed. She believed that the teachers at her school had adequate access to technology. She stated that this barrier to technology use was no longer an issue in Faulkner County Schools.

Denise said that CREATE for Mississippi provided the training that the teachers needed. CREATE for Mississippi continued to train teachers at Wamba once a month during the spring semester and then throughout the summer. Denise continued to fund technology training for her teachers.

After the project ended, Denise stated that lack of support was still an issue since the ET position was no longer funded by CREATE for Mississippi. The school district

simply could not afford to fund this position without external funding. No other person in the school provided similar technology support.

Denise seemed to admit that her choice of teachers as core teachers was flawed. When asked how the project could have been more successful in her school, she stated that training all teachers instead of four teachers would have made more of an impact. She also stated that the project may have been more successful if teachers were trained by teachers rather than by the CREATE staff.

The project's plan of the mentor-model was exactly what Denise described. The plan when choosing four core teachers was that these teachers would teach other teachers how to infuse technology into their instruction. Had the core teachers been leaders in their school and not so isolated from the other teachers because of location and personal choice, the project may have had a greater and more lasting impact on the teachers as well as the school.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter begins with a summary of the literature, the purpose of the study, the research design, and the case study. This followed by conclusions drawn from the case study, and recommendations for practice and further research.

Summary

Although research showed that students benefit from the use of instructional technology, it also indicated that there were four main barriers to technology infusion by teachers. These barriers were lack of time, lack of tools, lack of training, and lack of support.

In the literature, teachers claimed that they were inhibited from using technology because they lack the tools to do so (Chiero, 1997; Donlevy & Donlevy, 1997; Hoffman, 1997; Sandholtz, Ringstaff, & Dwyer, 1997; Web-Based Education Commission, 2000). Teachers often had limited access to the internet, technology, and instructional software. They became frustrated when they received technology training and returned to their classrooms were they could not implement their new knowledge because of a lack of

technology. If technology where available, there was not enough for a whole class of students to use it effectively

Teachers documented in the literature also faced frustration when they did not have enough time to integrate technology into their instruction (Chiero, 1997; Donlevy & Donlevy, 1997; Lohman, 2000; National School Board Foundation, 2002; Sandholtz, et al., 1997). They stated that they did not have time to learn how to use technology for instructional means nor did they have time to plan technology infused lesson plans. After returning from technology training, teachers who wanted to use technology simply did not have time to plan and implement their new skills into their teaching.

Lack of training was another barrier to technology infusion cited by teachers in the research literature (Collins, 2000; Donlevy & Donlevy, 1997; Scheffler & Logan, 1999; Schwab & Foa, 2001; Web-Based Education Commission, 2000). When money for technology was allocated in the schools, administrators preferred to buy equipment and software rather than spend the money on teacher training. As a result, teachers were given technology without the training they needed to use it. Those who were given training were trained how to use the technology, not how to integrate it into their instruction.

Another, barrier to technology infusion identified in the literature was lack of support (Anderson, 2002; Chiero, 1997; Collins, 2000; Hoffman, 1997; Sandholtz, et al., 1997; Schwab & Foa, 2001). Teachers felt that they did not have support from administrators and peers for technology integration. Research showed that teachers were more likely to use technology in their instruction when they felt support from administrators, peers, and even students.

CREATE for Mississippi addressed these barriers by providing teachers with equipment and software (addressing lack of tools), release time for technology infusion (addressing lack of time), on-site and off-site training (addressing lack of training), and on-site just-in-time support through the ET position (addressing lack of support). CREATE for Mississippi provide funds for equipment, release time, and the ET while providing training and support for the teachers through the CREATE for Mississippi staff.

The study was conducted to assess how the teaching of the teachers in the Faulkner County School District changed since the barriers to technology teaching infusion were addressed. The research was conducted to add to the literature on the barriers to technology infusion by teachers. The research design used in this study was a case study. I focused on a situation in a real life context, and the research answered "how" and "why" questions about the event. Data from interviews, observations and document analysis were used to generate the findings of the study.

The participants of the study were the superintendent, principal, assistant principal, educational technologist, and four core teachers from the Faulkner County School District. The study focused on the change of teaching by the teachers. Data were collected from the teachers, administrators, and educational technologist to assess the use of technology in the teachers' instruction.

I found that despite the barriers being addressed, the teachers did not change their teaching significantly. Even though they were provided access to technology, they did not use it in their instruction. They were provided time, but they did not use it for technology integration into their teaching. Even though they were provided training, it

did not seem to change their teaching. They were provided just-in-time support, but they did not utilize it for technology infusion, but rather for lesson plan development.

Results of this research suggest that there are barriers to technology infusion by teachers other than those identified by the research and those addressed by the CREATE for Mississippi project. The teachers did not recognize the goals of the project, and they developed resentment towards those involved in the project which may have influenced their willingness to change. They did not appear motivated to change their teaching.

Conclusions

Although the barriers to technology infusion by teachers were addressed by CREATE for Mississippi, the teachers did not change their teaching styles. They very rarely used the tools provided by the project for instruction. The teachers used their release time to fulfill requirements for the project, specifically the required lesson plans. They used the training in their teaching very little, although they did use it to complete the required lesson plans. They used the support of the ET to get her to help them with their lesson plans during the first year and use the support very little during the second year. Therefore, the barriers addressed in the literature are not the only barriers to technology infusion.

Even though the goal of the project was for the teachers to use technology in their instruction, the teachers began to consider that their role as core teachers was to create lesson plans. They believed they were given release time to create lesson plans for the project, not as time to infuse technology into their instruction. To them, the project became what they had to do for the project, not what the project could do for their

teaching. Instead of embracing the opportunity to improve their teaching through the use of technology, they were relieved when the project was over. Thus, one barrier to technology infusion by these teachers not identified in the literature was their confusion about the purpose the project.

Because it was difficult for the core teachers to accept those they considered outsiders, the relationships with the project staff were strained. They only seemed to accept those they considered similar to them. Even though the ET was a teacher there before gaining the position, the teachers began to see her as an outsider who sided with the project staff. The teachers began to resent the project and the people of the project. Their growth was slowed, if not blocked, by these feelings. The teachers' mistrust of those they consider to be outsiders was another barrier to technology infusion.

Another factor that could have affected the lack of growth by the teachers was that they were chosen for this project because the test scores of their students were very low. The superintendent chose them hoping to encourage better teaching practices. Instead, the tools, time, training, and support provided to the teachers did not appear to influence their teaching. Even though they were provided the opportunity to change their teaching, they did not recognize the value of technology integration. The teachers had also been teaching for many years and did not appear to want to change their teaching. Another barrier to technology integration not mentioned in the literature is motivation. The teachers were not motivated to change their teaching, and change did not occur.

Recommendations

Administrators who would like to implement a technology infusion project should choose teachers who want to change the way they teach. It is recommended that the administrators focus on teachers who want to improve their instruction and those who would take a leadership role at the school.

Future projects attempting to change teacher instruction through technology infusion should focus on teacher instruction rather than equipment and skills. It is recommended that these projects make clear to the schools and teachers that the goal is changing teacher instruction.

Although it is difficult to change the teaching of teachers who do not want to change, it is recommended that the project staff present the project as an opportunity for improvement. The teachers seemed to view the project as extra work.

It is recommended that the staff focus more on how to integrate technology into their teaching and less on technology skills. This will not be easy to accomplish when individual skills do not seem sufficient to master the skills needed for the infusion of technology into instruction.

The teachers in this study became resentful of the project staff. It is recommended that the project staff working on a project like this in the future develop positive relationships with participants. This many well prove to be more difficult than teaching technology skills.

The results of this study suggest other topics for additional research. The study of the role of principals in the motivation of teachers to change their teaching would better explain how and why teachers change their teaching. The study of other

teachers who were given time, tools, training, and support whose teaching changed

would give a researcher a better understanding of why change occurred. A study of

resistant to change by teachers would explain why the teachers in this study did not

change their teaching. The study of teachers' attitudes toward outsiders who provide

training versus peers who provide training would also contribute to the understanding of

teacher change. A study of the characteristics of teachers who seem to benefit most from

technology training would help administrators choose teachers who would most profit

from the training.

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APPENDIX A

CURRICULUM VITAE OF RESEARCHER

Curriculum Vitae

Beth Ferguson Coghlan
2137 County Lake Road
Starkville, MS 39759
662-323-9955
bnf6@ra.msstate.edu

Educational Background:
Doctor of Philosophy (Anticipated 2004)
- Mississippi State University
- Major area: Curriculum and Instruction
- Minor area: Instructional Technology
- Dissertation Title: Overcoming Barriers to Technology Infusion: A Case Study of CREATE for Mississippi Faulkner county Schools

Educational Specialist (1999)
- Mississippi State University
- Major Area: Education
- Minor Area: English
- Special Problem: Examining the Holocaust through Adolescent Literature

Master of Education (1997)
- Mississippi University for Women
- Major Area: Education
- Minor Area: Gifted Education
- Internship: Taught at the Mississippi Governor's School at the Mississippi University for Women

Bachelor of Science (1993)
- Delta State University
- Major Area: Education
- Minor Area: English

Professional Experience:

2003-2004   *Instructor*   *East Mississippi Community College*
- Tutored students in English
- Taught English Composition I and Developmental English II
- Planned and prepared for instruction
- Maintained student records
- Managed class activities
- Evaluated student learning and instructional effectiveness

2002-2004	*Instructor*	*Mississippi State University*

- Taught Methods of Teaching Language Arts to pre-service and in-service teachers
- Taught Writing for Thinking
- Taught Planning and Managing Learning
- Planned and prepared for instruction
- Maintained student records
- Managed class activities
- Evaluated student learning and instructional effectiveness
- Supervised student teachers

2001-2003	*Research Associate*	*Mississippi State University*

- Served on the evaluation team for the CREATE for Mississippi Project working with public schools in Mississippi
- Maintained evaluation records and reports for CREATE for Mississippi Project
- Compiled, analyzed and presented results to staff members and at national and international conferences
- Identified problems, diagnosed contributing factors, and determined corrective actions
- Maintained close personal contact with participants of the project
- Observed and interviewed participants

2000-2001	*Graduate Assistant*	*Mississippi State University*

- Served on the evaluation team for the CREATE for Mississippi Project working with one school
- Maintained evaluation records and reports for CREATE for Mississippi Project
- Compiled, analyzed and presented results to staff members and at national and international conferences
- Maintained close personal contact with participants of the project
- Observed and interviewed participants

2000	*Instructor*	*Sylvan Learning Center, Tupelo, MS*

- Planned for instruction
- Assigned lessons and corrected work
- Assisted students on various levels in math, reading, and study skills

1995-2000	*Teacher*	*Lee County Schools, Tupelo, MS*

- Planned and prepared for instruction

- Assigned lessons and corrected class work
- Administered tests to evaluate pupil progress, recorded results and issued reports to inform parents of progress
- Maintained discipline in classroom
- Met with parents to discuss student progress and problems
- Participated in faculty and professional meetings
- Counseled students in adjustment and academic areas
- Identified problems, diagnosed causes, and determined corrective actions

1993-1995   *Teacher*   *Faulkner Attendance Center, Wamba, MS*
- Planned for instruction
- Assigned lessons and corrected class work
- Administered tests to evaluate pupil progress, recorded results and issued reports to inform parents of progress
- Maintained discipline in classroom
- Met with parents to discuss student progress and problems
- Participated in faculty and professional meetings
- Counseled students in adjustment and academic areas
- Identified problems, diagnosed causes, and determined corrective actions

Publications:

2002   "Teaching Technology Infusion to In-Service Teachers: A Case Study," published in the Proceedings of the annual meetings of the Society for Information Technology in Teacher Education. Co-authors: Stephanie Davidson, Dwight Hare, Melissa Nail, and Mike Lehman.

2001   "Investigating the Benefits of the Educational Technologist in the Middle School Environment: A Qualitative Study," paper published in the Proceedings of the annual meeting of the Society for Information Technology in Teacher Education. Co-authors: Melissa Nail, Stephanie Davidson, Dwight Hare, and Mike Lehman

Professional Paper Presentations:

2002   "Teaching Technology Infusion to In-Service Teachers: A Case Study," paper presented at the annual meeting of the Society for Information Technology in Teacher Education. Co-authors: Stephanie Davidson, Dwight Hare, Melissa Nail, and Mike Lehman

2002   "Strategies in Qualitative Research," paper presented at the conference for Methodological Issues and Practices in Using QSR Nvivo and NUD*IST,

London, England. Co-authors: Mike Lehman, Dwight Hare, Melissa Nail, and Stephanie Davidson

2001   "Investigating the Significance of the Role of the Educational Technologist in the Middle School Environment," paper presented at the annual meeting of the Southwest Educational Research Association. Co-authors: Stephanie Davidson, Dwight Hare, Melissa Nail, and Mike Lehman

2001   "Investigating the Benefits of the Educational Technologist in the Middle School Environment: A Qualitative Study," paper presented at the annual meeting of the Society for Information Technology in Teacher Education. Co-authors: Melissa Nail, Stephanie Davidson, Dwight Hare, and Mike Lehman

Papers Under Review:

2003   "Beyond the Digital Divide: Technology Integration in the Middle School Classroom," paper submitted for presentation at the annual meeting of Ed-Media World Conference on Educational Multimedia, Hypermedia, and Telecommunications. Co-authors: Stephanie Davidson and Dwight Hare

Grants:

2003   United States Department of Education, Fund for the Improvement of Postsecondary Education. Written with Stephanie Davidson and Dwight Hare. Under review.

2002   Renewal grant for CREATE for Mississippi. Written with lead evaluator, Dwight Hare.   Funded 100,000

2001   Renewal grant for CREATE for Mississippi. Written with lead evaluator, Dwight Hare. Funded 200,000

Professional Service:

2003   Served on an interview search committee as a graduate representative at MSU.

2002   Served as a volunteer tutor at Armstrong Middle School, Starkville, MS.

2001   Served on the application review committee for the Mississippi School of Math and Science.

2000   Served on the interview committee for the Mississippi School of Math and Science.

1998   Served on the interview committee for the Mississippi School of Math and Science.

Professional Activities:

2000-2003   CREATE for Mississippi. Attended numerous training sessions for classroom teachers using technology

2000   START Institute. Attended a series of training sessions on technology training procedures.