SOCIAL STUDIES TEACHERS' PERSPECTIVES OF TECHNOLOGY INTEGRATION

by

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(Under the Direction of John Douglas Hoge)

ABSTRACT

Using a qualitative interview research design, this study investigated social studies teachers' perceptions of technology integration, their use of technology in the classroom (grades 7-12) as well as the impact of technology integration training on their instructional practice. Data were collected through initial and follow-up interviews with 17 social studies teachers who have completed technology integration training and examination of a variety of documents. Participants ranged in age from 23 to 62, and had an average of 11 years of teaching experience. They worked in eight schools with different technology environments.

Social studies teachers reported a variety of visions of technology use in the classroom. Some use technology for its efficiency, some embrace it for the enhancement of their instructional practice and student learning, still others use it for relaxation, and most use it for a combination of purposes. Majority of the participants have integrated technology into their classrooms in many ways, which can be considered as a continuum. Four major methods were described and discussed: teacher-centered, teacher/technology guided, teacher-student negotiated, and student-centered methods. While the student-centered method was believed most desirable, participants believed that it should be done only when and where it fits. Use of

technology affects how teachers teach and how students learn, but it does not produce a radical shift in teachers' teaching styles.

Technology integration training positively affected most of the participants in their instructional practices with technology. However, participants differed in their perceptions of the training as well as the impact their participation had on their instructional practices. There was a new dimension of barriers and participants were facing some new challenges. Despite these, many participants have developed into enthusiastic technology users. They attributed their attitudes and instructional changes as well as their present level of technology use to several factors: InTech training, personal commitment, early success, and learning from different resources. The study suggests that all these factors were working concurrently to help these teachers change and grow into enthusiastic technology users.

INDEX WORDS: Technology Integration, Social Studies, Teacher Perceptions, Teacher Pedagogical Beliefs, Teacher Attitudes, InTech Training, Technology Integration Training

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CHAPTER 1

INTRODUCTION

Introduction and Background of the Study

Over ten million computers have been installed in American classrooms and the total, cumulative technology expenditure for the K-12 system has reached about $7.2 billion by 2001 (Anderson & Becker, 2001). Teachers have been urged to integrate technology into teaching and learning by the media, accrediting organizations, professional associations, fellow teachers, administrators, state and federal departments of education, and parents (Education Week, 1999; International Society for Technology in Education, 2000). However, research studies (Becker, 2001; Cummings, 1998; Office of Technology Assessment-OTA, 1995) have indicated that technology was not being efficiently used in the core school subject areas of secondary school science, social studies, mathematics, and English. Studies (Anderson & Becker, 2001; Ravitz, Becker & Wong, 2000) further reported that social studies teachers were among the least likely to use technology in the curriculum and they were also among the least likely to involve students in higher order thinking activities.

As an interdisciplinary course, social studies draws upon “anthropology, archaeology, economics, geography, history, law, philosophy, political science, psychology, religion, and sociology, as well as appropriate content from the humanities, mathematics, and natural sciences” (National Council for the Social Studies, 1994, p. vii). The primary purpose of social studies is to help young people develop higher order thinking skills to function effectively in an increasingly culturally diverse, democratic society. Within social studies, technology has assumed dual roles, “as both important instructional tools and as objects that have had significant effect on the political, social, economic functioning of American society” (Berson, 1996, p. 486).

It is believed that social studies has the potential to be affected by the impact of technology more than any other content area (Braun & Risinger, 1999; Roblyer & Edwards, 2000), and in many ways social studies teachers are better informed of these ideas than those in other disciplines. However, the social studies curriculum has been little affected by this technology change in the last 20 years (Martorella, 1997; Northup & Rooze, 1990; White, 1988, 1997) and the majority of social studies educators have been reluctant to integrate computers into instruction (Becker, 1986; Berson, 1996; Cummings, 1998; Ehman & Glenn, 1991; White, 1988, 1997). Many researchers have concluded that technology integration encourages problem-solving and higher-order thinking skills (Dede, 1990; Fontana, Dede, White & Cates, 1993; Harris, 1996; Hopson, Simms & Knezek, 2001-2002), and these skills are frequently cited as rationales for incorporating technology into the social studies curriculum (Berson, 1996; Butler & Clouse, 1994; Coleman, King, Ruth & Stary, 2001; Ehman & Glenn, 1991; Fontana et al., 1993; Lancy, 1990; Rooze & Northup, 1989; Rose & Fernlund, 1997; Ryba & Anderson, 1990; Shiveley & Vanfossen, 1999; Yaeger & Morris, 1995).

The reasons most often offered by social studies teachers for not using technology for instructional practice include insufficient training, lack of technical expertise and experience of technology use for instructional purposes, limited awareness of appropriate software, limited availability of computers and software, lack of planning time, and classroom management concerns (Becker, 2001; Berson, 1996; OTA, 1995; Chin & Hortin, 1993; Clark, 1992; Ehman & Glenn, 1991; Northup & Rooze, 1990). Among these, lack of training is cited as the biggest impediment to effective technology integration into curriculum.

Dwyer (1994) noted that technology by itself is not likely to impact on student learning and it is the decisions and actions of well-trained teachers that determine technology's ultimate

instructional effectiveness. Other researchers also argue that technology will continue to remain on the periphery of school life unless teachers develop positive attitudes toward technology and are provided sufficient and appropriate technology training to guide their use of technology in curriculum (Diem, 1997; Dwyer, 1994; Fontana, 1997; Grant, 1996; Wasser, 1996).

As the gatekeeper of classroom change, the teacher has the responsibility to make appropriate use of technology in teaching and learning and to make sure that students are prepared for a digital future (Dawson, Bull & Swain, 2000; Hope, 1998). As Meyers (1999) has noted, one of the mistakes that has been made in implementing educational technology was focusing first on students, rather than on teachers. It is true, if teachers feel skeptical about the power of technology, it is unlikely that they will effectively integrate technology into the curriculum. Therefore, understanding teachers' perceptions of technology integration and knowing what stimulates or inhibits them from effectively using technology in their classrooms is extremely important (Becker, 2001; Byrom, 1997; Dwyer, 1994; Ehman & Glenn, 1991; Fontana, 1997; Hall & Hord, 1984; Hope, 1998; Meyers, 1999; Rice, Wilson & Bagley, 2001; Shaver, 1999; OTA, 1995; Hsiung, 2002; Zhao & Cziko, 2001).

With technology integration increasingly advocated by government, reformers, professors and teachers, many studies exploring teachers' concerns and perceptions of technology infusion into the classroom have been published in recent years (Atkins & Vasu, 2000; Becker, 2001; Cummings, 1998; Keiper, Harwood & Larson, 2000; Kellenberger, 1996; Norum, 1997; Leh, 2000; Owens, Magoun & Anyan, 2000; Milbrath & Kinzie, 2000; Rice et al., 2001; Saye 1998; Snider & Gershner, 1999). However, few studies have investigated in depth how teachers perceive and use technology in the classroom after they have successfully completed required technology integration training, and even fewer have explored how such training affects the

classroom instruction of social studies teachers. Many social studies teachers have attended state initiated in-service technology integration training programs, yet research by Anderson and Becker (2001) indicates that social studies teachers are not using technology as they are expected. Research is needed to explore why this is the case. Many researchers have indicated that there needs to be more qualitative studies that examine teachers' perceptions of and experiences with technology integration (Ehman & Glenn, 1991; Norum, 1997; Pedretti, Mayer-Smith & Woodrow, 1999; Saye, 1998). Given this acknowledged low rate of technology use in social studies curriculum, it seems necessary to investigate social studies teachers' perspectives of technology integration, to understand why and how they use technology in the classroom, and to explore what successes and challenges they encounter in the process of implementing technology-connected lessons. It is unlikely that we will be able to 'measure' social studies teachers' successful use of technology without qualitative studies of their experiences of using it.

For my dissertation, I investigated how middle and high school social studies teachers (grades 7-12) perceived technology integration and how they used technology in the classrooms after they completed Georgia INtegrating TECHnology (InTech) training. Georgia InTech, as the state's primary means of delivering technology training and preparing teachers to integrate technology in the curriculum, has trained nearly 40,000 teachers in the past five years (1998-2002). Although survey research was conducted before and after the InTech training, and two summative Evaluations (Dugas & Adams, 2000, 2001) were done, little follow-up research has been conducted to see how these teachers are using technology in their classrooms. As so many teachers have completed InTech training, more research is needed to investigate how these teachers are using technology after the training and what challenges and successes they have while implementing technology-connected lessons. Considering the lack of technology use in the

social studies curriculum, exploring the perspectives of social studies teachers who have completed technology integration training and learning how they are using technology in the social studies classroom will inform both the technology training program and the social science education program. Their successes in integrating technology will also contribute to the growing body of case literature.

Research Purpose and Research Question

The purpose of this study is to investigate how a purposive sample of social studies teachers perceive technology integration and how they use technology in the social studies classrooms after technology integration training. The research is guided by the following exploratory questions:

1. How do secondary social studies teachers who have had technology integration training perceive technology integration and use technology once they have returned to their classrooms?

   Subquestions:

   1.1 How do social studies teachers perceive technology integration in social studies curriculum?

   1.2 How do these teachers use technology in social studies classrooms?

   1.3 What successes and challenges do these teachers have while designing and teaching technology-connected lessons?

2. How has technology integration training helped social studies teachers achieve their present level of use of technology?

Subquestions:

2.1 Which parts of InTech training are these social studies teachers most using or applying in their classroom instruction? If they are not using it, why?

2.2 What other, non-InTech, sources influenced these teachers' present use of technology in the social studies classroom?

Theoretical Framework

The theoretical framework that guides this study is constructivism. All researchers are guided by a set of beliefs about ontology (what is the nature of reality), epistemology (what is the relationship between the inquirer and the known), and methodology (how do we know the world, or gain knowledge of it) (Denzin & Lincoln, 1994; Guba, 1990; Lincoln & Guba, 1985). The constructivist paradigm works within a relativist ontology (multiple realities exist), a subjectivist epistemology (the inquirer and the inquired create understanding), and a naturalistic set of methodological procedures (Denzin & Lincoln, 1994). Constructivism has now been routinely used by social science researchers in qualitative research and equated with interpretivism (Schwandt, 1994).

The key philosophical assumption of constructivism is the view that reality is constructed by individuals interacting with their social worlds, and human beings do not discover knowledge, rather, they construct or make knowledge (Schwandt, 1994). Constructivists put great emphasis on "the world of experience as it is lived, felt, undergone by social actors" (Schwandt, 1994, p. 125) and they seek to understand this complex world of lived experience from the point of view of those who live it.

Holding the view that knowledge and truth are the result of perspective, constructivists emphasize that reality is pluralistic and understanding of this reality can only be achieved through the interaction between the investigator and the investigated. Therefore, the aim of inquiry is to understand and reconstruct the constructions that the investigator and participants initially hold, and in the process of inquiry, the investigator assumes the role of both participant and facilitator. Research grounded in constructivist paradigm requires: (1) that the study be conducted in a natural setting (Schwandt, 1994; Guba & Lincoln, 1994); (2) that researchers act as the research instrument; and (3) that qualitative methods such as interviewing, participant observation, and documents analysis be used to explore the issues in depth (Guba & Lincoln, 1989).

Constructivism well matches my beliefs about the world and how the world may be understood and studied. It thus informs my study of social studies teachers' perspectives on technology integration in the classroom in the following ways:

First, the goal of constructivism is "an abiding concern for the life world, for the emic point of view, for understanding meaning, for grasping the actor's definition of a situation" (Schwandt, 1994, p. 118). The purpose of my study is to understand how social studies teachers perceive technology use and use technology in their specific world--authentic social studies classrooms; therefore, I try to understand their experience of technology use from their own point of view.

Second, the constructivist paradigm assumes that multiple realities exist, and the investigator and the investigated interact to create understanding (Denzin & Lincoln, 1994). Teachers in my study took the same structured technology integration training. However, multiple or even conflicting perceptions of their training and their use of technology could exist

and all of these realities are potentially meaningful. So it was important for me to be a "passionate participant" actively engaged in facilitating the "multivoice" reconstruction of construction of all my participants in order to better understand their lived experience and to elucidate how they perceive technology integration and how they use technology in their instruction. Through interpreting these multiple socially constructed realities we can better understand how social studies teachers perceive and use technology, and how and why they are successful or unsuccessful in incorporating technology in curriculum.

Third, research grounded in constructivist paradigm requires that the inquiry be done in a natural setting using qualitative research methods such as interview, observation, and document analysis. I pursued my study using qualitative research methods, because these methods allow me to understand the phenomenon from the participants' perspectives in their school and classroom settings. It also allows us to understand the phenomenon about which little is yet known, to develop new perspectives on things already known, or to gain in-depth information that may be difficult to convey quantitatively (Strauss & Corbin, 1990).

This methodology informed the way my study was conducted. In this study, I used multiple qualitative research methods such as open-ended interviews and document analysis to collect my data. I believe this is the appropriate way to understand how social studies teachers perceive and use technology in the classroom and to ensure the trustworthiness of the inquiry.

Definition of Terms

Technology Integration:

According to Reeves (1998), technology integration involves students using the technology as a resource to help them develop higher order thinking, creativity, and research skills. A more comprehensive definition was given by Dockstader (1999): "Technology

integration is using computers effectively and efficiently in the general content areas to allow students to learn how to apply computer skills in meaningful ways; technology integration is incorporating technology in a manner that enhances student learning; using software supported by the business world for real-world applications so students learn to use computers flexibly, purposefully and creatively; having the curriculum drive technology usage, not having technology drive the curriculum; organizing the goals of curriculum and technology into a coordinated, harmonious whole" (p. 1).

InTech Training

INtegrating TECHnology (InTech) is a fifty-hour professional development program to prepare Georgia K-12 teachers to integrate technology in the school curriculum. InTech training is conducted at each of the state's 13 regional technology-training centers. A customized curriculum is used aiming at teachers of all disciplines. The intensive hands-on technology integration training intends to build basic computer skills competency while fostering participant skills in five areas of instructional proficiency: (1) Georgia's Quality Core Curriculum content standards, (2) use of modern technologies, (3) classroom management, (4) new design for instruction, and (5) pedagogical practices (State Data and Research Center, 2002-2003).

Social Studies Teachers:

In this study, social studies teachers refer to grades 7-12 social studies teachers who have completed Georgia InTech technology integration training.

Significance of the Study

Millions of dollars are spent on computers and teacher technology training in American schools every year. Are these investments effective and worthwhile? To what extent are those teachers who have completed technology integration training using technology in their

classrooms? For social studies teachers, what are their primary purposes for infusing technology in their classrooms? How does technology training actually affect their instruction? What successes do these teachers have in using technology for social studies teaching? What barriers are still hindering them from effectively incorporating technology into social studies curriculum? Little research has been conducted to explore these issues. The findings of this study will add to our general understanding of how social studies teachers perceive technology integration, and why and how they use technology in the classroom.

This study of teachers' technology use in the social studies classroom and detailed description of these experiences will contribute to the case literature of technology use in the social studies curriculum. Shulman (1986) and Gudmundsdottir (1990) called for case literature that reflects the cases of experienced teachers, both excellent teachers and their less competent colleagues. This case literature should be able to inform both pre-service and in-service teachers of technology use.

One of the goals of this study is to investigate how participation in InTech training affects teachers' instructional practice. Understanding teachers' perspectives of this training should be able to help improve the technology training program. Knowledge of teachers' experiences and perceptions of technology integration in social studies, especially the barriers teachers are coping with, may inform school administrators that better achievement will be made if teachers are better understood and well supported while infusing technology in the classroom.

Furthermore, this study will also provide social science teachers and educators an opportunity to examine their own perceptions of and experiences with technology use, thus helping them to improve their own practices and their program.

Finally, the study will also inform my fellow teachers in China. Given that Chinese universities and schools are trying to squeeze money from their already limited educational budgets to equip classrooms with technology and train teachers, a better understanding of how American teachers perceive and use technology after technology integration training will make Chinese schoolteachers be more aware of the potential problems in using technology and ensure that technology is appropriately used for teaching and learning.

Summary

This study explores and describes how secondary social studies teachers perceive and use technology in the social studies classroom. The exploratory questions that guide the study are (1) How do secondary social studies teachers who have had technology integration training use technology once they have returned to their classrooms? and (2) How has technology integration training helped social studies teachers achieve their present level of use of technology?

Chapter 1 introduces the study, explains the constructivist theory that guides the study, and describes the purpose for the research. Some terms are defined, and the significance of the study is discussed. Chapter 2 provides a literature review on technology integration in American schools, teachers' perceptions, especially social studies teachers' perceptions and use of technology. Chapter 3 describes the participants as well as the research methodology of the study. Chapters 4 and Chapter 5 describe and discuss the findings of the exploratory study. The final chapter summarizes the findings of this investigation, assesses their implications, and makes recommendations for further research.

CHAPTER 2

LITERATURE REVIEW

The purpose of this study is to investigate how social studies teachers who have completed technology integration training perceive and use technology in the social studies classrooms. This chapter will first provide a brief overview of the status of technology integration in American schools, especially in the discipline of social studies. Then it examines teachers' role change, attitudes, and perceptions of technology integration. Based on that discussion, teachers' views of technology integration training as well as its impact on social studies instruction will be examined. Finally, social studies teachers' ways of using technology to promote higher order thinking in the classroom will be reviewed.

Technology Integration in the Schools

Recent research reports revealed that most American schools have dramatically increased spending on technology. However, this technology is not fully utilized and integrated successfully into school curriculum, nor have staff been trained adequately to use it effectively (Anderson & Becker, 2001; Anderson & Ronnkvist, 1999; Becker, 2001; Diem, 1999; OTA, 1995). It is reported that less than 3% of America's schools are effectively integrating technology into classroom practices (CEO Forum on Education and Technology, 1997).

According to the most recent Teaching, Learning, and Computing (TLC) national survey reports (Anderson & Becker, 2001; Anderson & Ronnkvist, 1999; Becker, 2001), the total technology expenditures for the K-12 American schools have reached $7.2 billion, and over 10 million computers have been installed in classrooms. The TLC survey investigated over 4,000 teachers from grades 4-12 across the nation in five subsets: (1) secondary mathematics teachers; (2) secondary English teachers; (3) secondary science teachers; (4) secondary social studies

teachers; and (5) elementary (grades 4-6) teachers. Researchers found that technology was primarily used in four contexts in schools: (1) computer education courses, (2) business and vocational education courses, (3) elementary exploratory classes, and (4) the use of word-processing to present homework (Becker, 2001). Furthermore, students' use of computers in the secondary core school subject areas was rare (Becker, 2001). English teachers were reported having the highest rate of technology use (24%) in the classroom, followed by science teachers (17%). Social studies teachers and math teachers were among the least likely to use technology (12% and 11% respectively) and the least likely to involve students in higher order thinking activities.

The findings of TLC survey were similar to the national reports by the Office of Technology Assessment (OTA, 1995) and Education Technology Society (ETS, 1997). OTA (1995) says that only 9% of secondary students report using technology for English class, 6-7% for math class, and 3% for social studies. ETS reports that 40% of 4th-grade teachers used computers to teach reading, U. S. history/social studies, and geography while 33% of 8th-grade teachers used computers to teach U. S. history/social studies and geography. Although the reported percentage of teacher use of technology in the classroom varies, one conclusion is clear: American teachers, especially social studies teachers, are not effectively integrating technology into secondary school classrooms.

The TLC research also revealed that compared with teachers of other disciplines, social studies teachers seem to be little affected by school technology investments. Even if they participate in technology training as much as other teachers, they appear not to use what they learn. This study as well as other national surveys did not explain why social studies teachers use technology less than teachers of other subjects, but its finding was certainly in accordance with

what many social studies researchers have found: the discipline of social studies has lagged far behind other core subject areas in the adoption of innovative teaching methods provided by technology (Becker, 1986; Cummings, 1998; Dawson et al., 2000; Martorella, 1997; Northup & Rooze, 1990; Risinger, 1996; White, 1988, 1997).

Teachers have been urged to integrate technology into school curriculum by the media, teacher education accrediting organizations, professional development programs, teachers, parents, administrators, and state and federal departments of education (Education Week, 1999; International Society for Technology in Education, 2000). National reports and literature reviews (Ferguson, 1997; Kulik, 1994; Ringstaff & Kelley, 2002; Schacter, 1999; Sivin-Kachala & Bialo, 1998; Wenglinsky, 1998) all indicated that technology can help improve students' performance on tests and academic work, promote higher-order thinking skills, and increase students' motivation and self concepts. However, it seems clear that most secondary teachers, especially social studies teachers, are not tapping the power of the new technologies to reshape curriculum and instruction. Researchers have been striving to find barriers to teachers' effective use of technology in the classroom.

Barriers to Technology Integration

Many studies have explored the factors that hinder teachers from effectively infusing technology in the curriculum. OTA (1995) listed four main barriers: insufficient teacher training; lack of vision of technology's power for improving teaching and learning; lack of time to prepare and experiment with technology-connected lessons, and inadequate technical support.

TLC researchers found that teachers' philosophies of teaching play a critical role in their use of technology, however, teachers' technical expertise and professional experience in using technology, the number of computers available in their own classroom, as well as their personal

involvement in their profession in and out of school are stronger factors that will determine whether and how teachers will incorporate technology in teaching and learning (Becker, 2001).

Ferguson's literature review (1997) revealed some other factors that led to teachers' infrequent use of technology: (1) lack of tools to measure the types of benefits that technology provides to students; (2) inadequate instructional technology in colleges of education; (3) teacher resistance to the new roles required of them by educational technology; (4) inadequate technology integration training, funding, time, and support; (5) school administrators' resistance to change and reluctance to share leadership responsibilities with teachers; and (6) mixed signals from a public that wants computer technology in the schools but does not want the traditional teacher-student relationship to change.

These barriers have been somewhat recognized by social studies educators and researchers (Berson, 1996; Ehman & Glenn, 1991; Nelson & Aderson, 1996; Schug, 1988; White, 1988, 1997). But more specifically, the reasons most often given by social studies teachers for not using technology in the curriculum focus on: lack of technology integration training related to social studies content, lack of experience of technology use for curriculum purposes, limited awareness of appropriate software, lack of adequate software, and class management concerns (Becker, 2001; Berson, 1996; Ehman & Glenn, 1991; Northup & Rooze, 1990), with lack of training opportunity considered to be the critical component. Another factor that could greatly influence the technology use of social studies teachers is the field of social studies itself. As Nelson and Anderson (1996) remarked, "No teacher can possibly be trained in the disciplines of anthropology, archeology, economics, geography, history, law, philosophy, politics science, psychology, religion and sociology which is intended to make up the social studies" (p. 1).

Whatever the case, it is apparent that inadequate technology integration training is the most common barrier to technology integration (Becker, 2001; Boyd, 1997; Bialo & Soloman, 1997; OTA, 1995; Zehr, 1997). However, there is little research on how teachers use technology after training, how technology integration training impacts their instructional practice, or whether and how the training helps them overcome the known or recognized barriers.

Teachers' Roles in Technology Integration

CEO Forum on Education and Technology Second Annual Report (1997) states:

> To thrive in today's world and tomorrow's workplace, America's students must learn to how to learn, learn how to think, and have a solid understanding of how technology works and what it can do. Teachers hold the key. In fact, teachers are perhaps the single most important factor determining the quality of education.

This statement emphasizes the important role that teachers play in educational change. Without teachers who are knowledgeable about the technology itself and who know how to use it to meet educational goals, technology will continue to remain on the periphery of the school life and tremendous technology spending will continue to have only limited effects (Ferguson, 1997; Grant, 1996). There has been a wide recognition that technology itself will not make a great impact on student achievement without the participation of teachers. Teachers are the most important factor determining the quality of education (Byrom, 1997; CEO Forum, 1998; Dwyer, 1994; Grant, 1996; International Society for Technology in Education – ISTE, 2001; OTA, 1995; Shaver, 1999; Wenglinsky, 1998, 2001). The National Council on the Accreditation of Teacher Education (NCATE, 1997) called on teachers to assume new roles to help students pursue their own inquiries, make use of all types of technologies, especially computers, to gather, organize, and interpret information, and to become reflective and critical about information quality and sources.

Hannafin & Savenye (1993) stated that the interactive nature of the computer makes student-centered inquiry possible and that this capability requires a fundamental change in the role of the teacher. Other researchers also agree that the teacher can no longer be a transmitter of information to relatively passive learners, rather, the teacher should become a guide and a facilitator, providing student with the tools that they need to research, explore, and make meaning (Baylor & Ritchie, 2002; Clark, 1992; Diem, 1999; Ferguson, 1997; Hope, 1998; Kook, 1997; OTA, 1995; Wenglinsky, 1998, 2001).

Ryba and Anderson (1990) divided the teacher's role into five categories: planner, manager, facilitator, guide and participant in technology use. As a planner, the teacher ensures that computers are appropriately incorporated into the curriculum, organizes the learning environment, and assigns students to work collaboratively. As a manager, the teacher ensures that students have equal access to technology and they use appropriate program suited to student ability and specific needs. As a facilitator, the teacher supports students' construction of their own knowledge, helps students set goals for learning, encourages them to explore and reflect upon what they learn. As a guide, the teacher prompts students for new learning, involves students in activities that promote higher order thinking skills, and works with students to apply knowledge and skills in a variety of challenging tasks. As a participant, the teacher collaborates with the students in conducting cognitive learning activities.

These categories of teachers' roles imply that integrating technology into the classroom changes the teacher' traditional role from a dispenser of information to a facilitator of information. This change of role gives students more autonomy in learning and allows greater opportunities for both teachers and students to engage in high quality of learning experiences that generate higher order thinking skills such as synthesizing, interpreting, and hypothesizing (Dede,

1990; Fontana et al., 1993; Harris, 1996; Hopson et al., 2001-2002; Ryba & Anderson, 1990). This new role, of course, requires that teachers become even better prepared in the content area as well as the means by which the content can be presented and acquired.

Maskin (1996) believed that social studies teachers' desire to maintain the traditional role as knowledge holder and dispenser posed the largest impediment to the use of technology in the social studies curriculum. The need to change this traditional role in the information age is extremely important because social studies encompasses the whole fields of social sciences, humanities and even natural sciences. Social studies, as an important nexus for students to assume responsibility in the twenty-first century, is a natural place for students to apply technology skills to solve real world problems. It is consensus that social studies teachers must be life-long learners, facilitators of student learning, and masters of technology (Braun & Risinger, 1999; Diem, 1999; Fontana, 1997; Ehman & Glenn, 1991; Roblyer & Edwards, 2000). Wasser (1996) and (Shaver, 1999) made a point that social studies teachers are not likely to support students to become reflective thinkers through the use of technology resources unless they themselves realize this role change and actually engage in experiences that help them to explore the potential of enhancing student learning with technology. Even when adequate amounts of up-to-date technology are available in the social studies classroom, the technology itself will not result in increased student achievement without social studies teachers' realization of the role change, as they are the key to what happens in the social studies classroom. Despite this recognition of the importance of role change of social studies teachers, there has been little research on how use of technology affects social studies teachers' roles (Berson, 1996; Ehman & Glenn, 1991; Saye, 1998).

Teachers' Attitudes toward Technology

As the teacher plays the key role in classroom change and teachers tend to accept only changes that they perceive facilitate their work (Cuban 1986; Guskey, 1989; Saye, 1998), exploring teachers' beliefs and attitudes toward technology integration is necessary.

Early in 1987 Woodrow observed that the infusion of computer technology into school curriculum has the potential to drastically change educational practices. However, to successfully change traditional instructional practices, teachers must have positive attitudes toward the educational issues involved. If teachers are resistant to the change, the proposed curricular and procedural changes will have a slim chance of success. This is true of any educational innovation, but it is particularly true of technology use in education because the change involves both the acquisitions of new technology skills and pedagogies (Saye 1998; Woodrow, 1987).

Most current research concentrates on the effects of technology on the students. However, according to Owens et al. (2000), the major aspect--teachers' attitudes toward this technology and its utility as a learning tool--is often overlooked. Teachers serve as the gatekeepers of classroom change and teachers' attitudes are significantly related to student achievement. Without teachers' acceptance and commitment to technology use, integration of technology into curriculum is not likely to succeed.

The 1999 report of International Society for Technology and Education noted, "relatively few teachers (20%) report feeling well prepared to integrate technology into classroom instruction" (p. 1). Although computers have been put in the classroom, many teachers are still skeptical of the value computers have provided for teaching and learning. Studies indicate that the level of feelings teachers have toward computer use range from euphoria to uncertainty, to hostility and fear (Berson, 1996; Chin & Hortin, 1993; Saye 1998). Some teachers show little

interest in using instructional technology, while others are obviously resistant to its use. Some positively accept the concept, but feel somewhat bound by lack of training for effective integration (Chin & Hortin, 1993). Still others have ambivalent feelings toward technology. Feelings of uncertainty, hostility and fear naturally lead to many teachers' reluctance or resistance to technological innovation. They will continue to adhere to their traditional practices with which they feel more confident and comfortable.

In 1984, after investigating teachers' perception and use of technology, Elliott, Ingersoll, and Smith (1984) claimed, "in general, there was a positive acceptance of the new technology…but generally, there was no overwhelming eagerness for it. There was much emphasis on making the familiar better" (p. 22). This notion was confirmed by subsequent researchers (Becker, 1986; Berson, 1996; Ehman & Glenn, 1991; Cummings, 1998; Kellenberger, 1996; Northup & Rooze, 1990; Saye 1998; Woodrow, 1987).

Research related to teachers' attitudes toward computers has steadily increased in the last few years (Kellenberger, 1996; Cummings, 1998; Saye, 1998; Owens et al., 2000), but most studies focused on teachers' attitudes in general, and very few studies investigated social studies teachers' attitudes toward technology. In-depth study of how social studies teachers perceive technology and how their attitudes change with technology training and practice is needed.

Nationwide research has repeatedly shown that social studies teachers have a low level of technology use in their classrooms (Anderson & Becker, 2001; Anderson & Ronnkvist, 1999; Becker, 2001; Education Technology Society, 1997; OTA, 1995) and they seem to be little affected by their schools' technology investment and training.

Research has found that social studies teachers/educators have long been reluctant to infuse technology into their curriculum and instruction (Berson, 1996; Cummings, 1998;

Northup & Rooze, 1990; Risinger, 1996; White, 1997). In 1990, Northup and Rooze did a national survey of social studies educators who were members of National Council of Social Studies (NCSS). The study reported that elementary teachers used computers in social studies instruction significantly more often than secondary school teachers. Eighty-four percent of the surveyed teachers indicated that they had access to computers, but only 55% of them with access used computers in instruction. Compared with earlier surveys of social studies teachers' use of technology (Becker, 1986; Schug, 1988), this could be a substantial increase in the use of computers in social studies teaching. However, this increase may be largely attributable to the fact that the respondents, as NCSS members, are more likely to be in the advanced tiers of professional practice than most of the other social studies teachers.

Based on survey questions developed by Northrup and Roose (1990), Pye and Sullivan (2000/2001) investigated 120 middle school social studies teachers in the 537 school districts in Missouri. They found that 73% of the social studies teachers use one or more computer-based instructional strategies on a regular basis in the classroom. Compared with the previous research, Missouri social studies teachers have a higher percentage of technology use in the classroom. However, cautions should be taken when interpreting this data. Two factors may contribute to this significant increase: one is that the 1998 Missouri Middle School Association required that all educational programs be designed to address the needs of young people in facing the unique changes that occur physically, emotionally, socially, and intellectually, and computers were recommended as a way to achieve this goal. Another factor is that with the requirement there has been a greater amount of computer-based instructional applications and software available to

middle school social studies teachers. The research also revealed that teachers' increased use of technology was a response to school district administrative initiatives (Pye & Sullivan, 2000/2001).

Examining the literature on the effectiveness of computer technology in the social studies instruction and learning, Berson (1996), and Ehman and Glenn (1991) concluded that many social studies teachers and educators were willing to use technology, but the majority appears apprehensive regarding the integration of computer technology in the curriculum. These investigators suggested that the cause of this ambivalence may partly be due to the paucity of research supporting the efficacy of computer-based learning in this content area, and the insufficient technology integration training for secondary social studies teachers.

Researchers argue that social studies teachers' fear of technology use will be reduced and their competence and confidence in integrating technology into classroom will be increased only when teachers are provided more technology integration training directly related to the social studies curriculum, and when teacher education coursework integrates technology skills into both methods course and specific content (Keiper, Harwood & Larson, 2000; Pye & Sullivan, 2000/2001).

Teachers' Perceptions of Technology Integration

Becker and Riel (1999) asserted, "how teachers organize their classes to a large extent reflects their beliefs about good teaching" (p. 10). Relatively little research has been conducted to investigate how and why teachers use or fail to use technology (OTA, 1995; Zhao & Cziko, 2001). In the past few years, more researchers have realized the importance of exploring individual classroom teachers' perceptions of technology integration and its influence on their

instructional practice (Cummings, 1998; Dwyer, Ringstaff & Standholtz, 1991; Kellenberger 1996; Owens et al., 2000; Ravitz, Becker & Wong, 2000; Riel & Becker, 2000; Saye, 1998).

Adopting a personal perspective, Saye (1998) explored the meaning of technology innovation for individual secondary school teachers and their classrooms. This longitudinal in-depth study of teachers' dispositions in the classroom suggests that acceptance of instructional technology does not ensure a radical shift in educational practices and there still will be strong resistance to technology use in the classroom. Saye concluded that teachers' personalities and beliefs play the most important role in making decisions about technology use in classrooms.

This idea that teachers' deeply held beliefs could facilitate or stand in the way of instructional change is certainly not new. Saye's research contributes to the evidence that teachers' beliefs about instruction and technology are important factors that determine whether or how teachers will use technology. Educational reformers and policy makers must consider teachers' concerns and needs in planning and implementing technological education reform.

A similar conclusion was reached by the Apple Classrooms of Tomorrow (ACOT) researchers in their ten-year study (1986-1996). ACOT researchers investigated a large number of ACOT teachers at five sites across the nation. The schools selected represent the diverse populations and conditions found in the nation's public schools. The study (Dwyer, 1994) focused on what happens when teachers and students have constant access to technology, especially what changes occur in teachers' beliefs, attitudes, and behaviors in the process of technology integration. Drawing on multiple sources of data, the researchers found that teachers' beliefs and philosophies about teaching were critical in deciding whether they use technology in the classroom. Changing teachers' practices and beliefs is a gradual process.

Similarly, TLC researchers (Anderson & Becker, 2001; Anderson & Ronnkvist, 1999; Becker, 2001) reported that teachers with the constructivist teaching philosophies are stronger users of computers. They are more likely to use technology frequently, creatively, and critically, and exhibit greater technical expertise. These teachers are ready to implement more fundamental changes in teaching, to invent interdisciplinary learning activities that engage students in developing higher order thinking skills such as gathering, analyzing, and synthesizing information. On the other hand, teachers with knowledge transmission-oriented teaching philosophies are more likely to resist technology use in the classroom.

Of course, teachers' change of beliefs, attitudes, and practices cannot be accomplished at one stroke. Exploration of ACOT teachers indicated that teachers went through five basic stages of development on their way to fully integrating technology into curriculum. These five stages were entry, adoption, adaptation, appropriation, and invention (Dwyer, 1994). These stages reveal how teachers gradually changed their beliefs, attitudes, and instructional practices in the process. Over time they replaced their transmission-oriented beliefs with constructivist beliefs, became more willing to experiment with challenging and higher-order thinking tasks for students, and encouraged more collaboration among students.

These researchers pointed out that in the early stages, technology training is critical to the teachers' successful adoption of technology. However, as the development proceeds, teachers need more opportunities to reflect upon what they did and they need to examine their motives for doing so. As Dwyer et al. (1991) remarked, teachers need to "confront their actions and examine their motives; to bring their beliefs to the surface; and to critically reflect on the consequences of their choices, decisions, and actions" (p. 8). Teachers also need more opportunities "for ongoing dialogue about their experiences and for continuous development of their abilities to imagine and

discover more powerful learning experiences for students" (p. 8). Needless to say, ongoing support from colleagues as well as school and district administrators serves as a key component for long-term change to be successful (Dwyer et al., 1991).

This philosophical and instructional change was also revealed in a five-year qualitative study of a secondary social studies teacher by Rice et al. (2001). Following this teacher through five years of working to integrate technology, Rice et al. explored how this teacher used technology to transform his classroom from a traditional classroom into a student-centered, collaborative classroom in which he acts as a facilitator rather than a lecturer, and in which he uses constructivist principles. This teacher experienced many of the barriers other teachers confront in the process of integrating technology, however, because of his interest in technology and his belief that students would benefit greatly from technology-connected lessons, he was willing to try to change and critically reflect on his instructional goals and actions, and eventually he was successful in transforming his classroom into a student-centered constructivist classroom, and in helping his students gain new skills or enhancing existing skills in technology, critical thinking, collaboration, presentation, and self-learning.

Roberts's (2003) recent study of how exemplary secondary social studies teachers are using computers and technology in the classroom revealed that teachers make commitment to use technology based on the belief that students and teachers benefit from using technology and this belief "is the first step in a process that produces changes in their practical pedagogy" (Roberts, 2003, P. 229). Roberts proposed four steps that her participants went through in changing practical pedagogy to incorporate computers and technology into the secondary social studies classroom: (1) teachers develop a personal commitment based on their belief that computers enhance student learning; (2) teachers make a personal choice to change their

practical pedagogy; (3) teachers develop and implement technology-connected lessons; and (4) teachers use technology to change the classrooms dynamics (Roberts, 2003, p. 209).

Most of these research studies focused on the exploration of teachers' views of teaching, especially teaching with technology, as well as their instructional change. The researchers seem to all agree that the use of technology is closely related to the teachers' beliefs about teaching and learning, and the more reflective a teacher is about his own philosophy and teaching, the more likely he will integrate technology sensibly (Hsiung, 2002).

Teachers must possess positive attitudes toward technology as well as the ability and resources to teach with technology before they can seamlessly integrate technology into the curriculum (Dwyer, Ringstaff & Standholtz, 1991; Ravitz, Becker & Wong, 2000; Rice et al., 2001; Riel & Becker, 2000). The success of the ACOT teachers, TLC constructivist teachers, and exemplary technology-using teachers (Ertmer, Gopalakrishnan & Ross, 2001; Roberts, 2003) rests substantially on the fact that these teachers were open to change and most important, they had all participated in certain kinds of technology training.

Technology Integration Training

A large body of literature (Berson, 1996; Brooks & Kopp, 1990; Ingram, 1992; OTA, 1995; Redish, 1997; Reynolds & Morgan, 2001; Vagle & College, 1995; White, 1988, 1997; Yaghi, 1997; Yildirim & Kiraz, 1999; Yildirim, 2000) supports the idea that the biggest obstacle to teacher infusion of technology into the classrooms is the lack of adequate teacher training, and that technology training is the major factor that could possibly help teachers develop positive attitudes toward technology and improve the infusion of technology into the classroom.

Research reveals that one-third of elementary and secondary teachers have only 10 hours of computer training (Braun, Fernlund & White, 1998). Without adequate training of how to use

technology, teachers will feel timid and not be able to successfully use computers as a powerful tool to transform instructional practices. It is generally agreed that computer training can lead to both cognitive gains and more positive attitudes toward computers (Amy, 2000; Chin & Hortin 1993; Keiper, Harwood & Larson, 2000; Kelleberger 1996). Once teachers master the skills of the technology and acquire confidence and control over the technology, they will feel prepared to use it in their classroom, and their frustration will be substantially reduced or eliminated (Chin & Hortin, 1993).

It is true, however, that more and more researchers have argued that mastery of basic technology skills through computer training would not ensure the successful integration of technology into the classroom. They maintained that to effectively integrate technology in teaching and learning, teachers need to participate in professional development activities that move them beyond the attainment of basic computer skills, to activities that teach them how to seamlessly integrate technology into curriculum (Baylor & Ritchie, 2002; Diem, 1999; Grant, 1996; Lowther, Bassoppo-Moyo & Morrison, 1998; OTA, 1995; Redish, 1997; Reynolds & Morgan, 2001; Roberts, 2003; VanFossen, 2001; Wenglinsky, 1998).

In her 1997 evaluation report of a one-year technology professional development program, Traci Redish, the creator of the original Georgia InTech, commented, “If teachers lack the knowledge and skills that are necessary to integrate technology effectively into the curriculum, technology may never realize its potential in the classroom” (p. 3). She also noted that access to technology is critical, but it does not guarantee effective utilization, and “if teachers are to optimize their instructional potential and make the most effective use of educational technology, extensive professional development is required” (Redish, 1997, p. 3).

In recent years, many states have started professional development programs to equip teachers with the skills needed to incorporate technology into classroom teaching and learning, mandated the integration of technology in the classroom, and issued a great number of initiatives to encourage technology use (Sheumaker, Slate & Onwuegbuzie, 2001). In 2000, International Society for Technology in Education (ISTE) published its National Educational Technology Standards for Teachers, which clearly states, "All candidates seeking certification or endorsement in teacher preparation should meet educational technology standards" (p.1). National Council on the Accreditation of Teacher Education (NCATE) responded with a similar standards requirement for teachers (2001). Teachers' professional development has since been prominently recognized and funded as an essential component to ensure effective technology use in the classroom (Darling-Hammond, 1999; Jelfs & Colbourn, 2002; King, 2002a, 2002b).

Many studies have revealed that participation in technology integration training can positively change teachers' attitudes toward technology, improve their skills, and provide them with new insights, opportunities, and resources for their students (Anderson & Harris, 1997; Espinosa & Chen, 1996; King, 2002b; MacArthur, Pilato & Peterson, 1995; Rice et al., 1996; Sheumaker et al., 2001; Whelan, Frantz, Guerin & Bienvenu, 1997).

New technology is being introduced so rapidly today that it is very unlikely that a teacher will keep up with it on his or her own. For this reason, professional development of teachers is urgent and important (King, 2002b). Although studies indicate that integrating technology into curriculum is a slow process (Dwyer, 1994; Rice et al., 2001; Roberts, 2003) and teachers' beliefs are hard to change, King (2002b) thinks that a fundamental change of teaching perspectives and practices are possible. Adopting a transformational learning theory introduced by Mezirow (1991), King (2000b) investigated how teachers may experience deep, significant

changes in their perspectives and practices of teaching through professional development in instructional technology. King's study investigated 175 in-service and pre-service teachers enrolled in graduate courses in educational technology for two years. Many aspects of teachers' experience of change were examined such as perspectives of their profession, their role, worldview of education, changes in teaching methods, teacher preparation, research methods, and teacher self-confidence. Analyzing the data from all these aspects, King concluded that teachers changed in all these aspects. Teachers became optimistic about integrating technology and changed their instructional practices. This study is important in that it not only reveals changes these teachers experienced in the process of learning and implementing technology, but also provides evidence that appropriate professional development can transform teachers' perspectives and their practices.

Review of previous research suggests that when designing or conducting a professional development program, teachers' concerns and needs, their beliefs about teaching and learning as well as their views of technology should be the foundation of the training.

Georgia InTech Training Program

Georgia was one of the first states to mandate technology integration in the classroom. In 2001 approximately $21 million of a total $308 million technology budget was allocated for training teachers to integrate technology into the classroom. InTech was recognized by Georgia's A+ Educational Reform Act of 2000 as the primary technology integration training solution for Georgia educators. The InTech staff development framework stresses the active role of teachers in providing technology-based learning activities and strives to equip teachers with skills in five critical areas: (1) connecting technology use with the state core curriculum standards; (2) using technological resources; (3) incorporating these technological resources into new designs for

teaching and learning; (4) developing and using effective classroom management strategies; and (5) blending these components into a new and enhanced classroom pedagogy. Providing teachers with a great variety of technologies, InTech encourages a constructivist shift from teacher-centered to student-centered learning.

Two summative evaluations have been conducted (Dugas & Adams, 2000, 2001) to report on how InTech technology integration training impacts teachers. Using a quantitative research methodology, these studies collected extensive information from over 10, 000 teachers across Georgia that had participated in the InTech professional development program. The survey results indicated that most of the trainees viewed InTech training very positively, feeling more confident and more comfortable about teaching with technology. Many felt that InTech training had greatly increased their knowledge of technology and their ability to use technology in the classroom. However, these studies did not investigate how teachers of different subjects viewed InTech training, nor did they address whether or how these teachers use technology to promote high levels of student learning.

Given that millions of dollars have been invested in staff development, it is important that follow-up studies be conducted to explore whether these InTech trained teachers are integrating technology in their classrooms. Unfortunately, only one follow-up study was found. To determine which specific abilities and teaching strategies are affected by InTech training, Sheumaker, Slate & Onwuegbuzie (2001) selected 68 middle school teachers in two schools of Georgia for comparison, 10 with InTech training and 58 without InTech training. Their survey revealed statistically significant differences between the two groups of teachers. InTech teachers showed increases over non-InTech teachers in student use of technology in classrooms and

teachers' use of presentation software. Sheumaker et al. concluded that InTech training is beneficial to teachers in promoting technology integration.

The result of InTech teachers' greater use of technology and improved software presentation supports previous findings that professional staff development improves teachers' use of instructional technology (Anderson & Harris, 1997; Espinosa & Chen, 1996; King, 2002b; MacArthur, et al., 1995; Whelan et al., 1997). However, one methodological weakness of this research is that the comparable group was too imbalanced (10 InTech teachers compared with 58 non-InTech teachers), and teachers' prior technology competency and uses of technology in instruction were not addressed.

An annual report by Carr, Harrelson, Nichols & Wiggins (2000) implies that InTech plans to gather additional data from participants at three and five years post-training. Given that there is little research, especially qualitative research, on post-training teachers, exploration of how InTech training has affected post-training teachers' instructional practices and what challenges and successes they are facing is now urgent and significant.

Impact of Technology Training on Social Studies Teachers

Although inadequate technology training was found to be the biggest obstacle to technology integration in social studies, a search of the literature found no research specifically investigating the impact of technology training on social studies teachers. Nor is there research exploring how social studies teachers use technology in the classroom after technology integration training. It is still the case that most pre-service and in-service social studies teachers have to participate in general instructional technology class or staff development workshops aimed at teachers of all subjects. As such, they may not be given models of how technology can enhance learning in their field. One solution is for college professors to integrate technology in

their social studies content and methods course so that teachers are well prepared to integrate technology in their own classrooms.

Back in 1984, Glenn and Rawitsch claimed that historically, computers have not belonged in the social studies program, that there was insufficient social studies software, that social studies was not the focus of in-service education on computers, and that the training that does exist failed to meet social studies teachers' needs. Almost 20 years later, the same claims could be made about the status of technology in the field of social studies.

Interviewing 51 social studies teachers in six high schools in Midwest, Schug (1988) examined how these teachers perceived instructional technology as well as technology training. A large proportion of teachers reported having participated in technology training programs, but implied that the training was inadequate. The study revealed that many teachers failed to understand the importance of using the computer as a powerful tool in teaching social studies. Schug suggested that for social studies teachers to change their practice and to use technology in the classroom, intensive efforts should be focused specifically on social studies teachers, and there should be specialized and in-depth training for social studies teachers with a focus on available software and new technology applications related to social studies.

The voice of this classic study still echoes today. VanFossen (2001) did a survey of Indiana secondary social studies teachers' use of the Internet in their teaching. Findings showed that although these social studies teachers have widespread access to the Internet, have had computer training, few teachers in this study were found using Internet for much more than information gathering. The data suggested that frequency of Internet use and formal training on the use of the Internet were closely related as nearly as all (96%) of the higher-frequency users who had Internet training while only slightly more than half of the lower-frequency users had

such training. The former group was significantly more likely to employ Internet for higher-level learning and thinking activities than the later group. VanFossen observed that unless professional development in this area focuses more on development of meaningful social studies teaching and curriculum, the Internet will continue to be underutilized in the social studies curriculum.

Finding that the primary reason for Missouri middle school social studies teachers to use technology was to respond to school districts/school administrative initiative rather than teachers' own will to integrate technology in curriculum, Pye and Sullivan (2000/2001) argued that professional development programs need to offer appropriate opportunities necessary to integrate technology into the social studies classroom, and that professors of social studies contents and methods course need to model the use of technology and integrate technology in their own teaching so that teachers are fully prepared when teaching with technology in their classroom. The same argument was made by other social studies researchers/ educators (Hope, 1997; Keiper, et al., 2000).

Higher Order Thinking, Technology, and Social Studies

Social studies represents a content area that draws on many disciplines. The primary purpose of social studies is to "help young people develop the ability to make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world" (NCSS, p. 3, 1994). This statement shows clearly the importance of promoting critical thinking in social studies curriculum. However, research continuously shows that social studies class is primarily teacher-centered, with lecturing, reading the text, completing questions, and taking tests the dominant activities (Allen & Steven, 1998; Ellis, Fouts & Glenn, 1992), and higher order thinking is not a priority of social studies education (Cuban, 1984; Goodlad, 1984; Newman, 1990, 1991). Even though teachers recognize the importance of

promoting higher order thinking skills in social studies classroom, they seldom take time to either teach students critical thinking skills or engage them in thought-provoking activities (Newmann, 1990, 1991).

TLC national survey (Anderson & Becker, 2001; Anderson & Ronnkvist, 1999; Becker, 2001) reported that social studies teachers were not only among the least likely to use technology in the classroom but also the least likely to engage students in problem-solving and higher order thinking activities, although social studies teachers at high schools pursued more probing questions than did their middle school counterparts. This research did not explain why social studies teachers were less likely to engage in higher order thinking activities than teachers of other subjects.

Back in 1970s and 1980s, Philips (1974) and Rooze (1989) explained why the development of thinking skills was not a focal point of social studies education: (1) teachers are unclear about what high order thinking is; (2) many teachers think that students can not think unless they have learned all the facts they need to think with; (3) teachers believe that highly structured content will automatically result in the development of thinking; (4) teaching for memorization is easy and can be measured accurately; (5) teaching for memorization is traditional and is what their college content professors did (Rooze & Northup, 1989, p. 47-48). These five factors help explain why rote memorization rather than the development of thinking has dominated the social studies classroom.

The most revealing study of the status of higher order thinking in social studies classroom was conducted by Newmann and his research team (1990, 1991). After extensive investigation of social studies teachers at 16 high schools across the country, Newmann and his research team found that there was a conspicuous absence of the promotion of thoughtfulness in social studies

classrooms. They identified five major barriers to the promotion of a thoughtful social studies classroom: (1) teachers have difficulty in defining higher order thinking and in evaluating student performance; (2) the curriculum and testing programs require coverage of large subject contents; (3) the large class size and fixed teaching schedules prevent teachers from giving timely and detailed feedback to students' work; (4) students apparently prefer highly structured teaching with clear and correct answers; and (5) teachers emphasize acquisition of information more than interpretation, analysis, and evaluation of information.

However, research by Newmann's team also indicates that an ideal classroom where thoughtfulness is promoted and appreciated is possible. By comparing teachers at different schools, Newmann and his research team (1990, 1991) found that a higher-level thinking social studies classroom differs from a lower-level thinking social studies classroom in the following dimensions: (1) the teacher makes conscious effort to lead students to explore fewer topics in depth rather than cover large amounts of information superficially; (2) the lesson displays substantive coherence and continuity; (3) the teacher gives students sufficient time to think and respond to questions; (4) the teachers asks challenging questions and assigns challenging tasks; (5) the teacher models thoughtful dispositions as he teaches; (6) students are engaged in the lesson and contribute original ideas in the discussion; (7) students are articulate and germane in asking and answering questions; and (8) students offer explanations and reasons for their conclusions.

Newmann argued that a thoughtful classroom is not possible without a thoughtful teacher modeling these characteristics, and teachers' conception of a thoughtful and powerful learning classroom must be changed in order to cultivate well-informed intelligent decision maker in this rapidly changing world. High order thinking should be the primary emphasis of American

education, especially social science education. Several reasons posed by Rooze in 1989 might still explain why high order thinking is so important today: (1) knowledge of today is not sufficient for the future and solving problems requires thinking; (2) information is constantly changing now, and memorization of factual knowledge today or yesterday will not solve the tomorrow's problem; (3) developing thinking will help students learn facts in a meaningful way; and (4) thinking skills are helpful in learning higher-level knowledge in content subjects.

In social studies, technology plays dual roles, as both an important instructional tool and as an object that has influenced the political, social, and economic functioning of American society (Berson, 1996). These dual roles imply that technology is and should be an integral part of social studies and that technology has the potential to facilitate development of students' higher order thinking and problem-solving skills. Actually, the most commonly cited rationale for integrating technology into social studies curriculum is the belief that technology encourages higher order thinking (Berson, 1996; Butler & Clouse, 1994; Ehman & Glenn, 1991; Fontana et al., 1993; Harris, 1996; Hopson et al., 2001-2002; Lancy, 1990; Rooze & Northup, 1989; Ryba & Anderson, 1990; Shiveley & Vanfossen, 1999; Yaeger & Morris, 1995).

Roblyer and Edwards (2000) observed that as a subject that encompasses the whole area of social sciences, humanities and even as a part of natural sciences, social studies has been affected by the impact of technology perhaps more than any other content area. Not only is there much more to learn about the world than ever before, information is changing constantly and rapidly as well. As a tool in social studies, technology brings the world to the classroom in much more powerful ways than any other traditional educational form such as textbooks, maps, and encyclopedias. Technology, especially the growth of the Internet, offers rich content for the social studies. Braun and Risinger (1999) said, "no subject area in the curriculum is affected

more by the growth of the Internet than the social studies" and "anywhere from 75% to 85% of websites available on the WWW have relevance to one or more of the subject areas typically associated with the social studies curriculum" (p. 27). Such a huge amount of information requires teachers to help students develop critical thinking skills through analyzing, synthesizing, and interpreting information.

The most commonly used traditional instructional technology tools in social studies are drill and practice software, simulations, games, videos, and databases. In the past few years, the Internet has become the favorite of most teachers (Berson, 1996; Becker & Riel, 1999; Braun & Risinger, 1999). The great impact of the Internet on social studies teaching and learning has been universally recognized and the Internet has offered social studies teachers tremendous opportunities to engage students in inquiry learning and thoughtful activities (Braun & Risinger, 1999) and has given students more chances to discuss critical issues and do research projects (Berson, 1996; Clark, 1992; Coleman, King, Ruth & Stary, 2001; Harris, 1996; Hopson et al., 2001-2002).

As the pivotal person in the classroom, the teacher needs to recognize that his or her role must change from the traditional giver of knowledge to a facilitator who provides students with authentic and reflective activities. Teachers should also consider how the new instructional technology could be integrated into social studies curriculum to engage their students in higher order thinking activities.

Summary

This chapter first provided a brief overview of the status of technology integration in American schools, especially in the discipline of social studies. Then teachers' role change, their attitudes and perceptions of technology integration were discussed. Based on that, teachers'

views of technology integration training as well its impact on teachers were examined. Studies on Georgia's InTech training were briefly discussed. Finally, social studies teachers' view of technology integration as well as its impact on promotion of higher order thinking in the social studies classrooms was reviewed.

Previous research on teachers' perspectives of technology, technology integration training, and the new role teachers must assume in technology use found that many teachers have realized that they should shift their traditional role as a knowledge dispenser to an information facilitator. However, few social studies teachers are integrating technology into the curriculum although technology has provided tremendous opportunities for powerful social studies teaching and learning. Lack of adequate training, especially curriculum-connected technology integration training rather than mastery of basic technology skills, poses the biggest barrier to effective and efficient technology use in the classroom. Changes of teachers' perceptions of technology and instructional practices are possible through appropriate professional development in educational technology.

Research indicates that infusing technology into curriculum can foster student problem solving and higher-order thinking skills in the process of seeking and analyzing information, and improving student ability in decision making (Berson, 1996; Harris, 1996; Hopson et al., 2001-2002; Shiveley & Vanfossen, 1999; Yaeger & Morris, 1995). However, higher order thinking is not often promoted in social studies classroom. Researchers believe that technology is the best way to promote higher-order thinking in social studies classroom (Berson, 1994; Clark, 1992; Rooze and Northup, 1989; Ryba and Anderson, 1990; Shiveley & Vanfossen, 1999; Yaeger & Morris, 1995). Teachers need to be trained in how to integrate technology into social studies

curriculum to help students to achieve this higher level of goal (Pye & Sullivan, 2000/2001; VanFossen, 2001).

This review of literature found that most studies related to teachers' perception and technology use focus on teachers in general and that there is little research specifically on social studies teachers. Social studies teachers' role change in using technology, their perspectives of technology integration as well as technology training, their experiences of using technology in social studies classrooms have not been fully explored. No study has explored how InTech trained social studies teachers might use technology after the training, and what successes and challenges they might have in implementing technology-related lessons. Research exploring how social studies teachers might use technology to promote higher order thinking after technology integration training is needed.

CHAPTER 3

METHODOLOGY

Introduction

This research uses a qualitative interview design to investigate how social studies teachers (grades 7-12) perceive technology integration and how they use technology in social studies classrooms after technology integration training. The research was guided by two exploratory questions: (1) How do secondary social studies teachers who have had technology integration training perceive technology integration and use technology once they have returned to their classrooms? and (2) How has technology integration training helped social studies teachers achieve their present level of use of technology? For this research, I chose a qualitative semi-structured interview as the primary method of data collection. Document analysis was used as the supplementary method for collecting data.

This chapter begins with the rationale for the qualitative research design of this study. Following that, the pilot study is briefly described and discussed. Then I describe how I selected the participants, collected data, and analyzed data. The chapter concludes with a discussion of validity, reliability and ethical issues of the research.

Rationale for a Qualitative Interview Design

There are several reasons why I selected a qualitative research design for my study. First, I agree with the constructivist belief that reality is constructed by individuals interacting with their social worlds, and understanding of this reality can only be achieved through the interaction between and among the investigator and the investigated (Schwandt, 1994). Second, qualitative research "implies a direct concern with experience as it is 'lived' or 'felt' or 'undergone'" (Sherman & Webb, 1988, p. 7) and it intends to explore and interpret phenomenon in depth.

Third, since most research studies of teachers' perceptions of technology use quantitative research methods, more qualitative research is needed in this field (Ehman & Glenn, 1991; Norum, 1997). Fourth, but most important, a qualitative research is the most appropriate way to address my research questions and I feel more comfortable and confident in employing qualitative research for my dissertation study. I have taken five qualitative research design courses in my doctoral program, read many qualitative research books and articles, and have done research using qualitative research methods.

More specifically, I chose a qualitative interview study as the major research design of my research because "interviewing is one of the most common and powerful ways in which we try to understand our fellow human beings" (Fontana & Frey, 2000, p. 645). An interview study allows the researcher to enter into the other person's perspective to obtain a special kind of information (Merriam, 1998), to respond to the situation at hand more flexibly, and to explore the phenomenon more profoundly (Silverman, 2001). It is most suited for studying people's understanding of the meanings in their lived world, describing their experiences, and elaborating their own perspectives on their lived worlds (Kvale, 1996). An interview study gives the researcher an opportunity to seek "deep" information and understanding and it enables the researcher to grasp the multiple views, perspectives, and meanings of some activity (Johnson, 2002).

Interviews are necessary when we cannot observe feelings, thoughts, and intentions, and when we cannot observe how people make sense of the world around them (Patton, 1990, 2002). Technology use in schools is a complex issue as it involves many aspects of the school and different teachers have different perceptions of and instructional practices in using technology. Through interviews with the teachers, I am able to understand what motivates these teachers to

use or not to use technology, how they use it, what challenges and successes they have, and finally what factors help teachers achieve their present level of technology use in their classrooms.

Before describing my dissertation research participants, it is necessary to give a brief introduction to the pilot study I did for my dissertation research. This pilot study provides a research background as well as a partial support for my dissertation research.

Pilot Study

A pilot study is a crucial element of a good study design and can provide valuable insights for the researcher (Teijlingen & Hundley, 2001). My pilot study was conducted in the fall of 2002 at one of the state-mandated InTech training centers. This pilot study served as a preliminary investigation of social studies teachers' perceptions and experiences of technology integration. The aim of the study was to understand what social studies teachers learned from the training and how this training impacted their instructional practices. The study was guided by two questions: (1) How do social studies teachers perceive technology integration before and after the training? and (2) How does the training impact their teaching in the classroom?

To approach these questions, qualitative research design was used. The research design incorporated multiple data collection methods: interviews, observations, and examination of documents.

One high school and two middle school social studies teachers were selected for the pilot study. During the four-month training, I observed all their InTech class activities, took field notes, collected their journals, lesson plans and projects, and conducted an interview with each of them at the end of the training.

The research revealed that the participants had very limited use of technology in social studies teaching before the training. After the training, they learned a variety of new technology tools and ideas for social studies teaching, and they believed that this training empowered them in teaching social studies with technology. These participants all experienced some kind of frustration during the training and in classroom practice. However, they all developed positive attitudes toward technology integration and became more confident in infusing technology into the social studies curriculum and in serving as a facilitator for student learning. They believed that technology integration was not just putting computers in the classrooms, but incorporating technology creatively and meaningfully in the curriculum to enhance student learning. However, the research also revealed that participants felt overwhelmed with so much information and they expressed that they need time to practice and apply what they learned at InTech training.

This pilot study provided me an insight into the effects of technology integration training on teachers' attitudes and use of technology. At the same time, it helped me realize that my research focus should be on social studies teachers who have completed the training, as understanding of how these teachers perceive technology integration and how they use technology after they return to their social studies classrooms is a missing piece of the research puzzle. Their perspectives and experiences of using technology after the technology integration training should provide valuable information to social studies teachers who are still struggling with technology. It should also help policymakers, school administrators, social studies educators, and researchers better understand what new barriers and challenges still inhibit teachers from effectively using technology in social studies classrooms, and thus contribute to the literature on how secondary social studies teachers use technology after obtaining necessary technology integration training.

Subjectivity Statement

In doing qualitative research, the researcher serves as the research instrument. Examination of researcher's bias is a necessary step to ensure the validity of the research. In the following part, I described my own research biases and how they might influence my study.

I had been teaching English and social science courses at a Chinese university for many years before I came to the United States. While I used some technology in China, my experience was very limited and my students were highly motivated and well-disciplined college students. I have obtained some teaching experience in U.S. schools by doing presentations and supervising student teachers; however, this experience may not be adequate to familiarize myself with classroom teachers and students. Lack of teaching experience may lead me to overlooking some potential problems related to technology use, such as school structures, student characteristics, or difficulties teachers may encounter in integrating technology into the classroom. To overcome this barrier and enhance the validity of the research, I investigated teachers with different characteristics and who worked in different school settings. As I had established rapport and trust with my participants before and during the interviews, the participants were willing to share their experience with me.

I am a strong advocate of use of technology for teaching and learning, believing that technology will motivate both students and teachers, help enrich the classroom environment, enhance student learning, and help promote students' higher order thinking skills. I also believe that once teachers attended technology integration training and have seen benefits of technology use, they will be willing to use it and use it well. This positive attitude comes from my successful teaching experience with technology and my own expertise in using technology. While working on my Ph.D in social science education, I am also pursuing a Master's degree in instructional

technology. The Master's program of study, as well as my attendance of InTech training and many other technology training workshops has given me plenty of opportunities to learn and use technology. It has helped me develop a strong belief that technology can and should play a very important role in teaching and learning, and that use of technology can promote higher order thinking. However, I realize that my participants may not have had such positive training opportunities and that they are more likely to be engaged in various tasks in their classrooms. My experiences may make me expect too much technology use and fail to recognize the different factors that may affect teachers' use of technology in the authentic classrooms.

I assume that InTech provides teachers with new visions, new resources and opportunities in integrating technology, and teachers should be able to apply the software programs, the pedagogies and transfer the technology skills that they learned at InTech. This may not be true to every participant.

Last but not the least, the teachers may have believed that I am an InTech evaluator as I am investigating how teachers use technology after InTech training and how the training affects their instruction. This may have influenced how honest my participants were with me about their technology use. In my phone calls and email correspondence with my participants, I carefully explained to them the purpose of my research and ensured them that my investigation had nothing to do with evaluating their teaching. During my interview, I was very careful to be interested yet non-judgmental.

Description of Participants and School Settings

Selecting and Contacting Participants

My participants were 17 secondary social studies teachers (in grades 7-12) who successfully completed InTech technology integration training between fall 2001 and spring

2003 at one of the major InTech training centers in Georgia. Over 10 thousand teachers in the state, including social studies teachers, have participated in this state-mandated, 50-hour, curriculum-based technology integration training. It would be ideal to reach all the social studies teachers to give a full and rich description of their instructional beliefs and practices of technology in the social studies classroom, however, it is impossible to investigate all of them due to the time constraints, finance, and energy. In selecting participants, I used three criteria: (1) that participants successfully completed InTech training between fall 2001 and spring 2003; (2) that participants must have been teaching social studies in 7-12 grades in public schools since the completion of the InTech training; and (3) that participants must be drawn from schools within a 45 mile radius about the researcher's institution. The first criterion assumes that these teachers should have had enough time to practice what they had learned at InTech and they are still able to tell fully about their learning experiences in InTech and reflect upon how the training affected their instructional practices since they finished the training.

According to these criteria, a series of steps were involved in identifying these participants. As teachers who attended InTech training were grouped in schools and grade levels (elementary, middle, and high school level) rather than in subjects, the initial step began by examining InTech survey data of all teachers drawn from eight middle and ten high schools in the nearby counties. Then the director of the InTech training center helped me contact the school principals or media specialists to identify social studies teachers from the long list of names. Among them 25 were identified as social studies teachers.

After identifying the potential participants, I directly contacted the principals. Eight schools (4 high schools and 4 middle schools) granted permission for me to conduct the dissertation study. Contact with potential participants was conducted either through their K-12

school email systems or by mail. In each mail and email I introduced my background, the purpose of my research as well as the research procedure. And as a reward, I offered to give lectures about China to their social studies classes.

Except for getting research authority letters from the principals, which was required by the Institution of Research Board, all my contacts went directly to the teachers. Seventeen social studies teachers in eight schools agreed to participate in my study. Most of these schools had two or three participants, which made it possible for me to investigate how teachers in the same school environment perceived and used technology, thus giving readers a clearer picture of teachers' use of technology.

General Characteristics of Participants and School Settings

My 17 participants, six females and eleven males, were predominately white with the exception of one African-American male and one multiracial female. The schools where they taught were mostly rural and suburban schools, varying from technology-rich environments to technology-poor environments. A table was created to give an overview of the participants in the study and to make it possible to compare participant and school characteristics. Participants of the same school are grouped together. The table was arranged from technology-rich schools to technology-poor schools (see Table 3.1).

The participants ranged in age from 22 to 62. There were six middle school teachers and ten high school teachers. Their teaching experience ranged from 1 year to 24 years, with an average of 11 years. More than half of the participants in this study had 10 or more years of teaching while two had less than three years of experience.

The participants taught a variety of social studies subjects including world history, geography, U.S. history, government, economics, psychology, sociology, and Georgia studies.

Table 3.1

Participant Profile Overview

Name	Gender	Age	Years of Experience	Degree	Subjects Taught	Grade Level	School
Miriam	F	45	21	B. A.	World Geography	7	Hillsdale Middle School
Carol	F	32	9	B. A	World History World Geography	10-12	Nunn High School
Mort	M	62	21	B. A	All social studies subjects	9-12	Nunn High School
George	M	35	10	M.Ed.	All social studies subjects	9-12	Comer High School
Kyle	M	37	13	B. A	World Geography U. S. History	10-12	Comer High School
Daniel	M	40	23	B. A.	All social studies subjects	10-12	Comer High School
John	M	34	11	B.A.	Georgia Studies	8	Collins Middle School
Lauren	F	27	5	Sp.	World Geography	7	Collins Middle School
Luke	M	25	3	M.A.	All social studies subjects	9-12	Glenn High School
Steve	M	32	10	B.A.	All social studies subjects	9-12	Glenn High School
Tonya	F	31	10	M.Ed. Sp.	All social studies subjects	9-12	Walden High School
Roger	M	32	10	B.A.	World History World Geography	9-12	Walden High School
Roy	M	23	1	B.A.	World History World Geography	9-12	Walden High School
Ron	M	30	7	B.A.	World Geography	7	Lawrence Middle School
Mark	M	41	4	M.A.	Georgia Studies	8	Lawrence Middle School
Linda	F	43	21	M.Ed.	Georgia Studies	8	Greensville Middle School
Hillary	F	39	9	B.A.	World Geography	7	Greensville Middle School

Sp = Specialist Degree (Ed. S.)

The grade levels the participants taught ranged from 7 to 12. Most of the participants at middle schools taught one social studies subject, and a few taught reading or language arts as well. Almost all the high school teachers were required to teach at least two social studies subjects. Participants in this study represented the diversity of the teaching of social studies across U.S. middle and high schools. Most of the participants had a bachelor's degree in social studies, five had a Master's, and one had a Specialist degree (Ed. S.) in education. Linda is the only one that had a Master's degree in media design (now called instructional technology). Most of the male teachers were coaching at the time of the study.

There was a variety of school settings where the participants worked. The schools ranged in size from 300 students to 1200 students. The four middle schools included students from grades 6-8. The four high schools included grades 9-12. All schools' calendars but two (Nunn High School and Collins High School) are based on a 50-minute block schedule. Table 3.2 displays the school settings, which ranged from technology-rich environments to technology poor environments. In this study, schools where all teachers and students had wireless laptops or had at least five computers in the classroom were referred to as technology-rich schools, whereas the schools that had only one computer lab and one or two computers in the classrooms were defined as technology-poor schools.

Hillsdale middle school, where Miriam worked, was on a three-year grant, which provided all the teachers and students with wireless laptops, and they were urged to use them on a daily basis. Students could take their laptops home. In Nunn High school, where Carol and Mort worked, each classroom was equipped with 8 computers including one for teacher's use. However, this school was under reconstruction, and my participants had just moved into a new building where the technology facilities were not fully installed. Most of the other schools in this

Table 3.2

School Settings

Number	School	Name	# of Classroom Computers	# of Labs (20-32 computers in each lab)	School Size (approximately)
1	Hillsdale Middle	Miriam	Laptops for everyone	2	650
2	Nunn High	Carol	8	2	500
		Mort	8		
3	Comer High	George	2	2	330
		Kyle	2		
		Daniel	2		
4	Collins Middle	John	2	2	450
		Lauren	2		
5	Glenn High	Luke	2	2	700
		Steve	2		
6	Walden High	Tonya	3	1	400
		Roger	2		
		Roy	2		
7	Lawrence Middle	Ron	3	1	550
		Mark	3		
8	Greensville Middle	Linda	2	2	1200
		Hillary	2		

study were similar, mostly two computers in the classroom, one for the teacher, and the other one for the students. All the computers had Internet connections. Most of the schools had one general computer lab for which teachers needed to sigh up. A few had another computer lab specifically for teaching computer skills or vocational education. The number of computers in these labs ranged from 20 to 32. Most of the schools also had 4-8 computers in the media center. A television set, often accompanied by a VCR was installed in most of the classrooms.

Most of the schools had purchased social studies software programs practiced at InTech training and they installed these programs on the computers in the lab. These software programs included Inspiration, Timeliner, and Microsoft Publisher. Nunn High School spent $10,000 purchasing social studies software programs in the past few years. Although there was a great variety in the characteristics of the settings where these participants worked, almost all participants were working in schools where the use of computers and technology was strongly encouraged. One reason for this may be the fact that quite a few of the school administrators had attended InTech training with their teachers.

The previous section described the general characteristics of participants as well as their school settings. However, since participants' characteristics, such as their teaching experience and history of technology use--as well as technology resources they can access--are commonly thought to be related to their use of technology, the following part gives a more detailed description of each participant. Participants in the same school are grouped together to make sure that readers will have a general picture of each participant both as an individual and as a group.

Participants' Profiles

Miriam (Hillsdale Middle School)

Miriam is a 7th grade World Geography teacher. She has taught social studies for 21 years and had mainly used overhead projector in her early years. She started using technology such as a VCR and TV about 5 years ago. The laptop project, which started 2 years ago, enabled every student and teacher in her school to have a wireless laptop and be able to use it on a daily basis. Teachers are encouraged to integrate technology into the curriculum as much as possible and students are required to keep a digital notebook on the laptop. Miriam's students did most of their work assignments on their laptops and dropped them into an electronic drop-box (shared folder) where she can pull them up. The availability of wireless laptops made it possible for Miriam to get onto the Internet anytime, to communicate with her students via email, and to give timely feedback on students' work. Miriam taught six classes each day on a 50-minute schedule and she was a competent user of computer technology.

Mort and Carol (Nunn High School)

Teaching is Mort's second career. Mort had worked for the government in the field of satellite communications for 20 years before he became a high school teacher 21 years ago. He first got involved in computers in the 1960s. Being a veteran teacher, Mort has been teaching a variety of social studies subjects to 9-12 graders: world history, world geography, economics, sociology, and psychology. Mort uses technology on a daily basis.

Carol has been teaching world history and world geography since she graduated 9 years ago. She learned some basic computer skills at college and has used some kind of technology for teaching over the years. Feeling confident and comfortable with technology, Carol said she was

able to do whatever she wanted with technology. Both Carol and Mort taught three classes a day on a 90-minute schedule.

Compared with most schools, the school where Mort and Carol work is technology rich, with eight computers in each classroom. However, most of the computers in the classrooms were donated and most are out of date now. Teachers in Nunn High School were required to integrate technology into the classroom in some form about 25% of the time, i.e., three to four times a week. Both Mort and Carol had class webpages where they posted their course syllabus, classroom activities as well as work assignments so that students and their parents could get access at home. The purchase of $10,000 worth social studies software enabled Mort and Carol to access a great variety of social studies software, including Timeliner, Inspiration, Ancient Empires, Middle Ages, Interactive Atlases, and the "Decisions, Decisions" series. Students could get access to the computers in the media center during lunchtime, before, and after school. Most students had computers at home.

George, Daniel, and Kyle (Comer High School)

The school where George, Daniel, and Kyle worked was relatively small, with about 300 students. There were two computer labs, one for general courses, and one for math. It was convenient to use the computer lab. There were two computers and a television set accompanied by VCR in each classroom. The school calendar was based on a 90-minute block schedule. All freshmen must take a computer class and students were allowed go to the computer lab before and after school.

George has been teaching social studies for 10 years. The subjects he taught were U.S. government, U.S. economy, world history, and psychology. George had a Master's degree in

teacher education. He learned computers basically by "piddling with it." He got his Mac computer during his first-year teaching and is still using it. Although he got another PC, he did not feel like using it. George was competent in using computers and had used computers to make newsletters, schedules, signs, and other items for the school.

Kyle has taught social studies for 13 years and now was teaching world geography and U.S. history. Kyle said that he had used an overhead projector, videos, and computers for all these years. He liked to show a video once a week and most of the videos were recorded at home from different TV channels such as the Travel and Discovery channel. Kyle did not feel comfortable with using computers for instructional purposes; therefore, he never took his students to the computer lab for technology-related activities.

Compared with George and Kyle, Daniel was a veteran teacher with 23 years of social studies teaching experience. Like George, he taught U. S. government, U.S. economy, and world history each day. Daniel started using computers about 10 years ago when he received his first classroom computer. Daniel used the TV and VCR regularly. He was very positive about using computers, however, he did not feel confident and competent enough to integrate computer technology into his class. He took his class to the computer lab for technology research activities once every two or three weeks.

Lauren and John (Collins Middle School)

Lauren has been teaching 7th grade world geography for five years since her graduation. She just obtained a Specialist degree (Ed. S.). She was knowledgeable about computers and confident using computers due to her experiences at college and in her Specialist degree

program. She used computers for instructional purposes on a regular basis. Once every two or three weeks Lauren would take her class to the computer lab to do Internet research activities.

Different from Lauren, John seldom used computers in the classroom. John has been teaching 8th grade Georgia Studies for the past 10 years. The only purpose for him to use computers was to make tests and check emails. Like Kyle, John loved to show videos to the class to "reinforce what we are teaching." John had a huge collection of videos in his classroom closet and 90% of them were bought at his own expense or recorded at home.

The middle school where Lauren and John worked was small, with a student population of about 450. It was very convenient for teachers to sign up for the use of the computer labs. Students could get access to the lab during break, and before and after school.

Steve and Luke (Glenn High School)

In the high school where Steve and Luke worked there was a big push for technology integration in the classroom. The school had a three-year technology plan, which strongly encouraged teachers to integrate technology in the classroom. This school was on a 50-minute schedule and it had two computer labs with about 20 computers in each lab. The media center had eight computers. Each classroom was equipped with two computers. Teachers needed to sign up for the use of computer labs.

Steve had 10 years of teaching experience in social studies. He had six classes each day and he taught world history, U.S. economy, U.S. history, and government. During his second-year teaching, when his school started a computer program for accelerated students, Steve served as coordinator of that program and got involved in the lab setting and technology use. Steve took his students to the computer lab at least once a week. Normally his class would have one major

project and several small projects due every three or four weeks that incorporated some sort of technology. Steve felt comfortable with use of technology in the classroom.

Luke started teaching 3 years ago and got his Master's very recently. Like Steve, Luke taught a variety of social studies subjects. Most of his technology skills came from his undergraduate and graduate study. He used technology for planning and instruction on a regular basis. About once a week he would take his class to the computer lab and usually it was on Friday.

Tonya, Roger, and Roy (Walden High School)

The high school where Tonya, Roger, and Roy worked had only one computer lab for general use, and another was for keyboarding class. On average, there were two computers in each classroom. The school encouraged teachers to participate in InTech training and all the social studies teachers had completed InTech training. Teachers need to sign up for computer use in the lab. The school was on a 50-minute schedule.

Tonya had 10 years of teaching experience. Majoring in social studies, Tonya, however, taught English for eight years. She started teaching social studies two years ago and has been using technology in the classroom since then. Tonya had a Master's degree. Tonya taught 9-12th grade world history, civics, and economics each day. Having three computers in her classroom, Tonya used computers, the TV, and VCR for instructional purposes on a regular basis.

Roger started teaching social studies three years ago. Prior to that, he had been teaching English since he graduated from college in 1993. He got his first classroom computer in 1995, but did not use computer technology for instruction until he started teaching world history and world geography. He seldom used the textbook and showed a video to the class once a week.

Roy was a first-year teacher. He taught world history, world geography, and study skills (a lower level class). Thanks to his instructional technology classes at college, Roy felt competent in using technology. Roy used computers for planning and instruction during his first year teaching; however, he felt it was difficult to integrate technology into his classes.

Mark and Ron (Lawrence Middle School)

Mark taught 8th grade Georgia studies. Teaching was his second career. Mark had a Master's degree in political science and has taught social studies for four years. Mark considered himself a lecture and discussion kind of teacher. He showed videos to his class on a weekly basis. Mark was competent in using technology. However, with an access problem in his school, Mark was not able to engage students in doing technology-related activities as much as he wanted. He tried to do four lesson units with technology in the computer lab for a school year, with each one lasting two or three days.

Ron taught 7th grade world geography and has taught social studies for six years. Ron was very active and liked to interact with students in the classroom. He had three computers in the classroom. He used the computers to prepare lessons, make worksheets, and obtain information. He took his classes to the computer lab for Internet research activities once a month. Both Ron and Mark had six classes each day, with an average of 28 students in each class.

Lawrence middle school was on 50-minute schedule. The school had a computer lab with about 25 computers and 15 laptops. Teachers needed to sign up for the computer lab and it was very difficult to secure it at the most convenient time.

Hillary and Linda (Greensville Middle School)

Greensville Middle School where Hillary and Linda worked was the largest among all these schools, with a student population of about 1,200. The school had two computer labs with 32 computers in each lab. Teachers were allowed to use the lab once every nine weeks. Scheduling for use of the computer labs was very competitive.

Hillary was a 7th grade social studies teacher with nine years of teaching experience. She taught four classes every day. She had two computers in her classroom and she was a frequent technology user. She used to use overheads a lot, but now considered the computer as her favorite technology tool.

Linda taught 8th grade Georgia studies and had four classes every day. Linda had 21 years of teaching experience. Although she majored in history, she ended up teaching math for 17 years. She had taught American history and world history at a private school for five years before she came to Greensville High School. Linda had a Master's degree in Media Design (later called Instructional Technology). Linda was proficient in using technology and she used technology for instruction everyday.

Methods of Data Collection

The key concern of qualitative research is understanding the phenomenon of interest from the participants' perspectives, therefore, qualitative inquiry requires a data collection instrument that is sensitive to underlying meaning when gathering and interpreting data (Merriam, 1998). In qualitative research, the researcher serves as the research instrument. Generally qualitative data includes "direct quotations from people about their experiences, opinions, feelings, and knowledge" obtained through interviews; "detailed descriptions of people's activities, behaviors,

actions" recorded in observations; and "excerpts quotations or entire passages" extracted from various types of documents (Patton, 1990, p. 10). Different kinds of data will present different views and perspectives of the phenomenon under investigation as well as enhance the validity and reliability of the research (Patton, 1987, 1990). For this study, I used mainly two strategies to collect my data: interviewing and analyzing a variety of documents, as Patton (1990) remarks, "Multiple sources of information are sought and used because no single source of information can be trusted to provide a comprehensive perspective…" (p. 244).

Conducting the Interview

Semi-structured interviews were conducted with each of the 17 participants. There were two interviews with each of the participants: an initial interview and a follow-up interview. All interviews were conducted with the consent of the participants. Participants were informed of the research topic, the interview purpose, as well as the research procedure before the interviews. The interviews were audio taped and transcribed for data analysis.

All but two interviews were conducted in participants' classrooms during their pre-planning or planning period. The initial interviews were conducted during the first six weeks of the new school year. One of the participants was interviewed in my office, and another was interviewed at her home.

The purpose of the initial interview was to explore participants' perceptions of integrating technology, their experiences of using technology in their classrooms, and how technology integration training and other factors affected their instructional practices. The interviews lasted 50 to 90 minutes. The interview was guided by a semi-structured interview protocol focusing on the two research questions (see APPENDIX C)

Most of my interviews started with questions about the participants' history of technology use. In answering this question, the participants were able to tell when and how they started using technology and what factors contributed to their use of technology. Participants often talked not only about their technology history, but also about their attitudes toward and views of technology, the technology tools they used, and the way they used these tools. Almost all the responses involved computers as the major technology that was being used in the classroom. A few participants also mentioned use of other types of technology such as videos, overheads, scanners, and camcorders.

Participants were then asked to elaborate these responses and pick one or two of the most successful lessons they thought they did with technology and explained it in detail. Participants were also asked about the barriers they encountered in teaching with technology as well as the impact of InTech training on their instructional practices. Those who considered themselves competent and used technology frequently for teaching were asked how they achieved their present level of technology use. Most of the answers to the interview questions were very descriptive and provided great detail. Issues mentioned by one participant were probed with other participants in the same school for clarification and confirmation.

Follow-up interviews were conducted with the participants after sharing with them the interview transcripts and some tentative interpretations derived from the data (see APPENDIX D). After transcribing the interviews, I gave each participant a copy for review, elaboration, and clarification. Based on the transcripts, I invited them to elaborate on some of the important points they mentioned in their previous interviews and to give feedback on the plausibility of my initial interpretation of their interviews. While most of the follow-up interviews were conducted face to face, some were conducted by phone. Since the initial interview, I have been in touch with the

participants by sending them the URLs for websites to aid social studies teaching. The rapport established between me and the participants enabled them to be willing to share their thoughts with me whether in face-to-face interview or phone interview. The follow-up interview helped me collect additional data and enhance the validity of the results. I conducted the follow-up interviews two or three months after the initial interviews in the same school semester so that participants could still remember what they had talked about in their initial interviews.

Collecting Documents

In addition to interviews, I also used document analysis for the study. Documents can provide the researcher with a lot of important information and help the researcher develop a better understanding of the participants' interviews. Documents in this study came from three major sources. First, public documents such as policies and research reports issued by the state educational agencies, including the InTech mission statement and training materials. School website information was also printed as part of these public documents. These public documents, especially the InTech training materials, provided me a considerable amount of information about the specific knowledge, technology skills, and instructional techniques that participants had learned and practiced at InTech. Second, a variety of documents were provided by the participants to help illustrate their experiences of teaching with technology. The nature of these documents varied depending on participants' experiences but they included lesson plans, instructional web pages, teacher prepared materials such as worksheets, handouts, slides from PowerPoint presentations, assignments, and other materials produced using technology. These materials provided information about both content and methods. Third, copies of students' technology-based projects and assignments including slides from student produced PowerPoint presentations, brochures, pictures, and handcrafts were provided. These documents provided

additional information to supplement my interview data and helped me develop further understanding of the research question and the participants (Merriam, 1998).

Data Analysis

Qualitative data analysis is the process of making sense of data, sifting, organizing, cataloging, and determining themes (Holliday, 2002). The process of my data analysis included the following steps: (1) identifying participant and classroom characteristics commonly related to teachers' technology use (e.g. years of teaching, technology use experiences, access to technology resources); (2) reading interview transcripts and documents and then organizing them into retrievable sections; (3) coding the data and classifying the data into categories; (4) connecting the categories and seeking relationships among them using constant comparative analysis method; and (5) creating web diagrams to show the categories and relationships.

My early analysis focused on identifying the potential characteristics about my participants and their classrooms, such as the number of years they have been teaching social studies, what kind of technology experience they had, and what kind of technology resources they had. These characteristics are commonly thought to be related to teachers' use of technology. As the purpose of my study is to investigate how social studies teachers perceive technology integration and how they use technology in their classrooms, analysis of this data added understanding to teachers' beliefs and use of technology. Following this early analysis, I read and reread the interview transcripts, organized them into retrievable sections, which were all lined and numbered.

As qualitative research data analysis is a complex process, data management, especially coding, is very important. Coding is considered as "the heart and soul of whole-text analysis" (Ryan & Bernard, 2000, p. 780) and it involves disaggregating the data, breaking it down into

manageable segments, naming and identifying those segments. In my study, each interview transcript and its related documents were brought together and coded to look for meaningful categories and themes. In this process, color-codes were used on the data to facilitate gaining an overview of the different kinds of topics such as teachers' perceptions, beliefs, instructional practices, and challenges. Recurring words and themes that capture each participant's perceptions, beliefs, and technology use were specifically searched and coded. Throughout the coding process, the guiding questions helped to organize the data and served as a foundation for the data analysis.

On the basis of this coding and categorizing, the constant comparative method (Glazer & Strauss, 1967) was used to compare responses from the various participants. Constant comparative analysis involves comparing one segment of data with another to determine similarities and differences and seeking patterns and themes in the data (Merriam, 1998). Using this method, I first tallied responses from participants in the same school and generated categories by examining and comparing the interview data, trying to identify common themes in the data. And then in the next stage, I compared similarities and differences among these categories generated from the first stage and then compared these categories across schools to find common themes. Some categories were combined with others that had similar properties. All these stages formed a repetitious process of coding, comparing, and refining. Focusing on my research questions, I not only compared themes and categories generated from the interviews but also compared them with themes generated from the documents.

Validity, Reliability, and Ethical Issues

As in any other research, qualitative research is concerned with providing valid and reliable knowledge in an ethical manner (Merriam, 1998). In a qualitative study, the researcher is

the primary instrument for gathering and analyzing data and the researcher usually identifies a small purposive sample to collect data. The rigor is generally achieved by the researcher's presence, the nature of the interaction between researcher and participants, the triangulation of data, the interpretation of perceptions, and rich, thick description (Merriam, 1998).

Internal validity

Internal validity deals with the issue whether the research findings match reality. According to Merriam (1998), qualitative researchers should use some basic strategies to enhance internal validity in their research: triangulation, member checks, long-term or repeated observation at the research site, peer debriefing, participatory research, and examination of researchers' biases (P. 204).

In this study, I followed most of these strategies to enhance the internal validity of my research. The research design included data from multiple sources in addition to initial and follow-up interviews. Although classroom observation was not a part of data collection, five of the participants were observed on how they used technology in their classrooms. Three of the participants had class webpages for instructional purposes. These web pages were examined and analyzed as a part of the data analysis process. During my interview, I collected teachers' lesson plans, work assignments, and student technology-based projects. These documents included teachers' handouts giving details about student projects, rubrics used for grading technology-based projects, and slides from PowerPoint presentations developed by teachers and by students. These additional sources of data enriched what was learned from the interviews and became the basis for additional questions and a greater depth of understanding of what the participant was doing in the classroom. Since most of the interviews were conducted in the participants' classroom, during the interview, many participants showed me their students' projects, which

offered me opportunities to ask more project-related questions and greatly enriched my knowledge of why the participants did the project and how they did it. In this study, participants of different age, gender, ethnicity, educational background, school system, grade level, and years of teaching were examined to ensure there was a diversity of data.

In addition to multiple sources of data, member checks were conducted at the end of the study. Interview transcripts were shared with participants for review, clarification, or confirmation. The tentative interpretations were also taken back to my participants to ask for the plausibility of the results. Besides the member check, I also invited my dissertation committee members as well as my colleagues to comment on the findings that emerged in my data. Finally, to ensure the validity of the research, the researcher needs to examine his or her own biases, that is, the assumptions or beliefs that may influence the study. I had paid great attention to examining my own research biases before and during the research process (see subjectivity statement).

In summary, to enhance the internal validity of my research, I constantly examined my biases and tried to use different data collection methods, member checks, and peer debriefing to ensure my findings were matching the reality.

External Validity

External validity refers to the extent to which the findings of one study can be applied to other situation or groups (Goetz & LeCompte, 1984). Qualitative researchers argue that the qualitative inquiry is for concrete understanding of a specific case or a group of people in great detail (Erickson, 1986; Guba & Lincoln, 1981), and what is learned in a particular situation can be transferred or generalized to similar situations subsequently encountered (Erickson, 1986).

To enhance the generalizability, or the transferability of the results of a qualitative study, qualitative researchers (LeCompte & Preissle, 1993; Merriam, 1998) suggest that the researcher provide a rich, thick, and detailed description of the research context, the researcher's role as well as the participants. The key is for the readers to make that decision on how closely their situations match the research situation. The researcher also needs to describe how typical the event or individual is compared with others in the same environment, so that users can make comparisons with their own situation. Finally, the researcher should use several sites, cases, and situations so that readers can apply the results from these sites and cases to a greater range of other situations.

The primary strategy employed in this study to enhance external validity was the provision of rich and detailed description of my participants as well as the research context so that interested readers will be able to determine how their situations match my research situation and whether the findings can be transferred to their own situations. This chapter has provided details about the settings and the participants so that the reader can determine the appropriate application of the study results. Chapters 4 and 5 contain extensive direct quotes from the participants' interviews. The purpose of these quotes is to provide the reader with data that can be used to determine the applicability of these findings to other situations. Most of the participants provided rich descriptions of their experiences of using technology in the social studies classroom.

Reliability

Reliability refers to the extent to which research findings can be replicated. Qualitative researchers seek to describe and explain the world as those in the world experience it. Reality, according to Lincoln and Guba (1985), is "a multiple of mental constructions…made by humans;

their constructions are on their minds, and they are… accessible to the humans who make them" (p. 295). Since different people may have different interpretations of what is happening, there is no benchmark by which to take repeated measures and establish reliability in the traditional sense (Merriam, 1998). Qualitative researchers suggest replacing "reliability" with "dependability" or "consistency" (Lincoln & Guba, 1985) in examining the results of the data. Researchers need to find whether the findings are consistent with the data collected.

To ensure the dependability of the findings of my study, I used the following three techniques. First, I explained my own assumptions as well as the theory behind my study, my criteria for the selection of participants, a thick description of the participants as well as the research context. Second, I used multiple methods of data collection and analysis to strengthen the reliability of my study. Third, I described in detail how data were collected, how categories were derived, and how decisions were made throughout the inquiry (Merriam, 1998).

Ethical Issues

Ethical decisions have to be made throughout the entire research process. Kale (1996) suggests that qualitative researchers follow professional ethic codes in the seven research stages: thematizing, designing, interview situation, transcription, analysis, verification, and reporting. Special efforts were made to ensure my research was conducted in an ethical manner in all these processes. At the beginning of the study, I clearly informed my participants about the purpose of my research, the main features of the research design as well as any possible risks or benefits from participation in this research. Although some of my participants worked in the same school, and may know that I have interviewed other teachers in their school, no information about other participants' interviews was revealed. Everything was kept confidential.

Throughout the research process, I ensured participants' informed consent, confidentiality, and beneficence. The interviews were tape recorded and carefully transcribed. No real names appeared on transcripts or any documents. Tapes were put in a secure place.

In summary, this study enhances its validity and reliability through rich and thick description of participants' characteristics, school settings, multiple methods of data collection and analysis, and extensive quotes from the participants. Validity and reliability were also sought and enhanced through the naturalistic setting and the use of respondent-relevant terminology (Saye, 1998).

Summary

This study examined social studies teachers' perspectives on technology integration in the social studies classroom. The exploratory questions that guided the study are: (1) How do secondary social studies teachers who have had InTech technology integration training perceive technology integration and use technology once they have returned to their classrooms? and (2) How has technology integration training helped social studies teachers achieve their present level of use of technology?

This chapter described the participants in the study, the school settings where the participants worked, and the qualitative research methodology that was used to conduct the study. Focusing on the research questions, Chapter 4 and 5 present the findings of the research with detailed description of how participants perceive and use technology in the social studies classroom as well as factors that affect teachers' use of technology. Chapter 6 summarizes the findings and makes recommendations for further research.

CHAPTER 4

TECHNOLOGY INTEGRATION IN SOCIAL STUDIES

Introduction

Social studies teachers reported a variety of visions of technology use. Some use technology for its efficiency, some embrace it for the enhancement of their instructional practice and student learning, still others use it for relaxation, and most use it for a combination of purposes. A large majority of the social studies teachers in this study indicated that they have modified their pedagogy to integrate technology in their classrooms for teaching and learning, and they are using technology and computers in many and varied ways. However, some teachers incorporate technology into classrooms more frequently and more successfully than others due to a variety of factors. Most of the participants in this study have successful experiences of integrating technology into the classrooms and they regard student-centered technology-related activities as the most enjoyable and successful lessons. They believe that these activities motivate students in learning social studies and help them develop higher order thinking skills. Most participants are willing to infuse more technology into the classroom. While most of these teachers think that student-centered technology activities are most desirable, they believe that these kinds of activities should be done only when and where they fit. In their daily practice of teaching, they have to face many factors that restrict the use of technology, such as the pressure of time, curriculum, and testing. Use of technology has enriched the learning environment and changed how teachers teach and how students learn, but the change is not drastic. Use of technology does not produce a radical shift in most teachers' teaching styles.

This chapter starts with teachers' visions of technology use in the social studies classroom. Following that, the many and varied ways of how teachers incorporate technology in

social studies teaching and learning are described in detail. It is hoped that the description will contribute to the development of case literature that needs content specific examples of how to use computers and technology for teaching and learning social studies (Shulman, 1986). The chapter ends with how the use of technology impacts teachers' teaching styles.

Teachers' Visions of Technology Integration

Teachers are practical and they tend to use technology only when they believe it will facilitate their work and help students learn better. Participants in this study took part in the InTech training as required for certification regardless of their previous technology skills. As revealed in Chapter 3, most participants were using technology in certain ways. They saw this as a big push from the school as well as the society for integrating technology into the curriculum. However, most participants did mention that they tried to use technology in the classroom not just because they felt they were being pushed to use technology, but mainly because they had experienced the benefits that technology could bring to their teaching.

When asked to describe their perceptions of technology integration, participants offered a variety of visions for using technology in the social studies classrooms. To get more specific common themes, I searched and coded recurring words that captured each participant's perceptions of technology use. Then using constant comparative method, I compared all these words and themes, and then tabulated them to generalize these themes. Three major visions of technology use emerged from this process of data analysis: efficiency, enhancement, and relaxation.

An efficiency-oriented vision was directly related to the time factor which was perceived by most participants as an advantageous use of technology (Saye, 1998). Enhancement encompassed two aspects: enhancement of teachers' classroom instruction and enhancement of

student learning. Relaxation, in the context of this research, means that teachers used technology to give themselves a break from their lecturing and at the same time allow students to have fun while learning. Some participants emphasized the efficiency factor as the primary goal of using technology in the classroom, others focused on using technology to relieve themselves and to give students a time of learning for fun, while still others stressed using technology to improve their instructional practices and student learning. Quite a number of the participants described visions that included all three orientations--efficiency, enhancement, and relaxation. Figure 4.1 shows these three visions. Double arrows are used in this figure to indicate that some participants have overlapping visions of technology use in the social studies classroom. For example, participants who consider efficiency as the primary goal of technology use may also make reference to the use of technology to enhance their classroom instruction, and vise versa. The same is true to participants who hold enhancement or relaxation-oriented visions. The following section will give a detailed description of each of these visions of technology use in the social studies classroom.

Efficiency-Oriented Vision

Participants were considered as having efficiency-oriented visions if they advocated using technology mainly for the purpose of facilitating their paperwork and obtaining information in a more efficient way. Fourteen of the 17 participants, including those who are less enthusiastic about using technology, made some references to this efficiency factor. Among them, nine considered it as their first and foremost purpose of using technology. These participants believed that computer technology has made it possible for them to type out tests, make lesson plans and worksheets, and prepare research activities in much more efficient and effective ways. They believed that use of technology greatly facilitated their work.

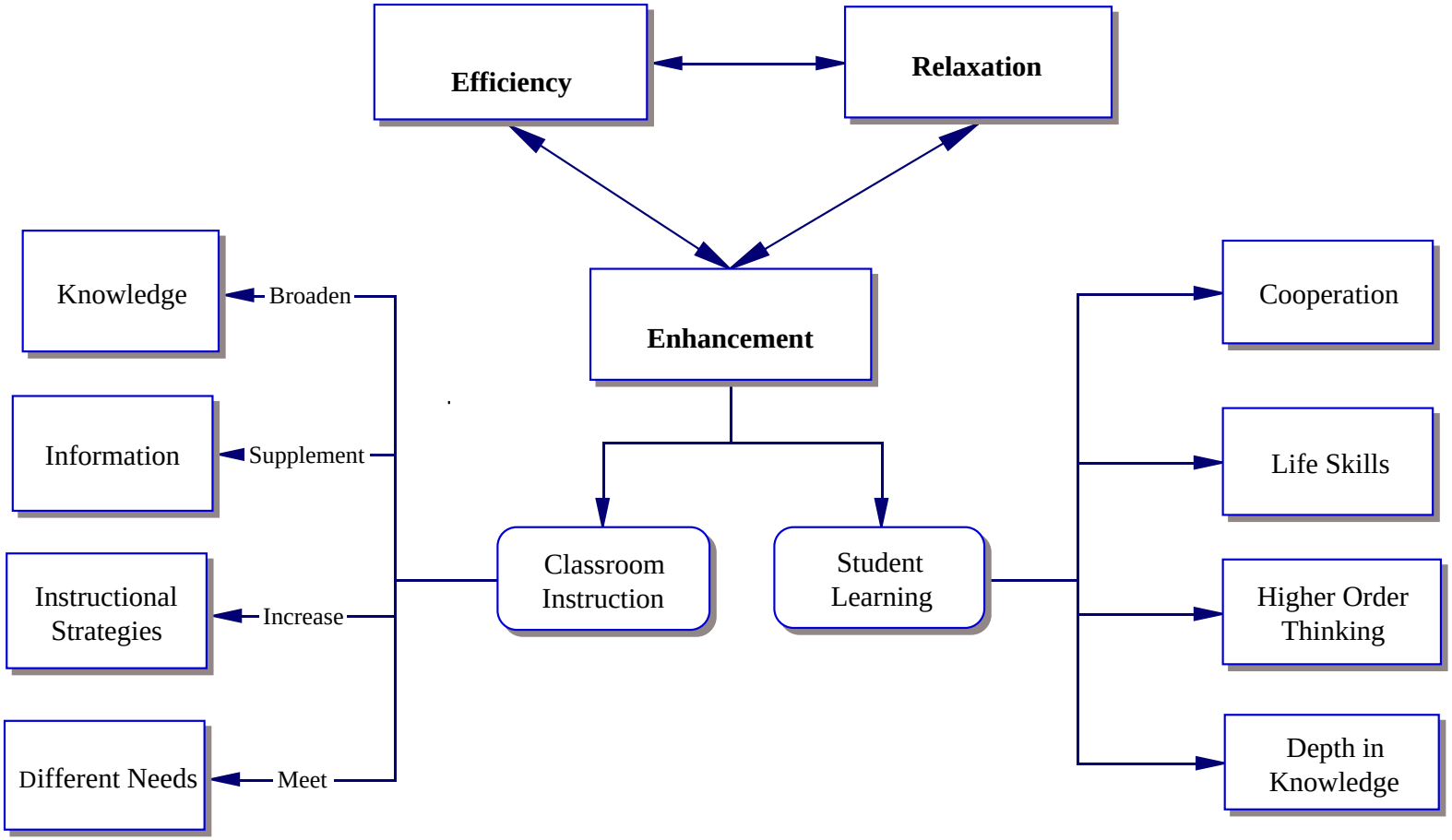


Figure 4.1 Social Studies' Teachers' Visions' of Technology Integration

Paperwork can be tedious for teachers. To Linda, technology integration meant reducing her paperwork and spending more time on student learning. Linda believed that the computer made her job much easier and with the help of technology she could concentrate more on student learning. She explained:

> I think it [technology integration] means using the technology, not just for the kids but for me better to do my job, like with the record keeping, doing my grades on the computer, doing my attendance on the computer, it's a lot quicker to do. And the benefit I get from it personally is that it makes my job easier so that I spend less time on the paperwork, and more time on my kids' working.

When describing his experience of using technology. Kyle gave a similar definition of technology integration:

> I think technology integration is mainly for me to do my work better. I used the computer more for me than for the students. It's helping me as a teacher. It fits my grades, keeps my gradebook. It allows me to change a test quickly instead of typing the whole test, and I just make editing changes. My work becomes much easier with the computer. I think that's the main purpose I use computer.

Among these participants, Miriam was the only one that had a laptop and all her students also had wireless laptops. She claimed that the availability of the laptop made her work much more efficient and she explained:

> [I use a laptop for] record keeping. I don't even keep grades from a paper at all. All my grades are kept there using the program. All attendances are there, all my thoughts are there, and I create my activities from there. I can make it available in the assignment box so that students can pull it up. I connect to the TV for review, play Jeopardy on the TV, all that's because of the laptop. I cannot imagine teaching without it.

The laptop enabled Miriam to organize all of her teaching materials in a digital form which is neat and easily retrievable. Her goal was to eventually get rid of the five file cabinets in her classroom. Miriam said that she was "working on that, half way down getting everything transferred into digital form" so that she will not be "cluttered with paper and can go directly to

the file that I want in a matter of seconds whereas traditional filing things take a little bit more time."

This time benefit was also recognized by Mort. Mort acknowledged that technology was really helping him to make his work more efficient. He mentioned that his favorite software program was a test program called "Test Generator" that came with their textbooks. Mort used it to make almost all his tests, especially world history tests, because

> I can put every question on this test generator and bring up exams in just moments… that will take normally hours to do. That's going to take hours to create the original question bank, but once you find these questions, you get the same questions all over and over again... I can make a 300-question exam in 7 minutes. From the time I start on the computer to the time I finish its print in 7 minutes. And I can print a different test for every child in the class.

These participants saw technology as a convenient tool that could reduce their paperwork, help them keep records and take attendance. Technology helps them make their daily management chores much easier, quicker and more efficiently so that they could spent more time on their students. This time factor was considered most important to these participants in their day-to-day school life.

Because of the importance of time efficiency, most of the participants regarded the use of Internet as their primary way of using technology, as Roger generalized, "it's easy, quick, cheap, and neat." For most of the participants, Internet was considered as an important information source, a living library. They noted that searching the Internet for information was much more efficient and productive than any other resources, especially when they need the answer right away, as Roy said "If students ask me questions that I don't know, and if I have some time, then I will come over to the computer, and I'll look it up." Resorting to the Internet for immediate information has become a common occurrence in a lot of the classrooms.

Ron even equaled integrating technology with "integrating Internet" by saying "I've used [the] Internet. I've been able to get more up-to-date stuff and interesting facts on [the] Internet to use in teaching. [It's] much quicker than looking it up in the encyclopedia and all that stuff. To me, technology integration means integrating [the] Internet."

Participants holding efficiency-oriented visions saw the time benefits not only for themselves but also for their students. One the one hand, teachers' expectations for student essay writing rose because of the ease with which papers could be easily checked, edited, formatted, and printed, but on the other hand, participants believed that they were able to cover more curriculum content and provide students with more information in a shorter time. Roger gave an example to illustrate his experience of technology use and what technology integration meant to him:

> I love using technology, because I have very limited time in my life. I want to do so much for the very limited time I have, and technology allows me as well as my kids to kind of have a quicker access to a lot of things. For example, we watched CNN and hear the speech, then I can get a transcript of the president's speech in 15 seconds. I could read it, edit it, and then handout it out in my class. It took only half an hour, but it used to take me hours and hours to do it. Because of that easy access, I like it. I feel like it gives the kids a lot more access to a lot of more information around the world. Kind of like [at] their fingertips.

Like Roger, many of these participants saw technology integration as a way to facilitate their work and to help students obtain information more easily and quickly. Use of the computer, especially the Internet, was considered the best tool to accomplish this goal both for teachers and students.

Enhancement-Oriented Vision

Participants were classified as having enhancement-oriented visions if they emphasized the importance of using technology to enhance their classroom instruction and student learning.

On the one hand, participants saw technology as a way to broaden student knowledge and supplement textbook information, diversify their instructional strategies, and meet students' different needs, and on the other hand, participants considered use of technology as a strategy to help improve student learning, to move beyond content to support students' development of collaboration, problem solving and critical thinking skills.

Enhancement of Classroom Instruction

Ten of the 17 participants mentioned that they used technology to broaden students' knowledge, and to supplement or even replace textbook information. The textbook was considered by most of these participants as boring, irrelevant, and out of date. This was perhaps the most important reason why these participants would use technology, especially the Internet, to supplement or even replace their textbooks. Roger claimed that he seldom used a textbook in his history class, although he had plenty of books in his classroom. Roger explained:

> I basically don't use textbooks, because they are so boring, so vague and general, and they put everybody to sleep… they never say the truth about anything… So I see the technology as a chance for kids to get out there and to get more perspectives on the world than just what some textbook tells them. Textbook is incredibly conservative, very politically correct. It's not real, and it's not relevant, so it's not exciting for the kids at all.

This comment was echoed by Lauren, a 7th grade social studies teacher. With only two computers in her classroom, she would take students to the computer lab on a regular basis. She thought of technology as something that could supplement or replace the textbook and catch student interest in social studies learning. She even suggested "anyone who has a boring text like us should use technology." When describing her perceptions of technology integration, Lauren mentioned how use of technology could affect student's interest in learning:

> Some of the students kind of shut down when you are in the classroom. They have a textbook, and they are just not interested. But if you go to the lab, and they get

> different pictures, search different places and find information on their own, it just makes it more relevant to them, and they can remember what they've seen more than what they saw on their textbook.

To participants who were teaching government, current issues, or economics, technology, especially the Internet, was considered the best tool to supplement textbook materials. Daniel acknowledged that although the textbook provided a large amount of information, it was out of date. Daniel was teaching government and current issues, and he believed that Internet provided the best way for him to teach current issues because "the information on the web are current, more relevant to students." He wanted to use technology to "get them to be active, more alert, more curious."

Besides getting access to current information and different perspectives provided on the Internet, Tonya and Mark also made a point that the language of Internet information made it less difficult to students compared with language used in their textbooks:

> I think, it makes it less overwhelming for a lot of them, because the textbooks are difficult for a lot of the students to read. Some high school students aren't at high school level. They are on 5th or 6th grade level. So at times, they get into a history class, they are having a hard time. You have to find other things that they can be successful with still a lot of the contents at the same time. I'm not necessarily saying that Internet is going to be easier for them, but once given, once they've gathered some information, they can use what they've learned…I have seen some websites that are much easier than the textbooks because the information is more concise. Maybe it's categorized, whereas the textbook is not. Maybe the information is in an article form. Most newspapers are written on a 5th grade level, so they feel comfortable with that, whereas the textbook is not. (Tonya)

> With Internet, students are able to really go through and search different documents and different people's interpretations of history, where they're getting different looks at it. Some may be way over some students' heads, where most maybe more gear towards the students and in the language they would better understand. I found it useful because it makes the information sort of in simpler terms that they can understand and not so mumble-jumble, so word-oriented in the textbook and they get lost in them. (Mark)

Linda, Luke, and George also mentioned this language issue. However, advocating use of Internet to replace textbook does not mean that Tonya and Mark no longer used textbooks. Actually due to the accessibility of the computer labs, textbook still dominated most of these classrooms, but the difference is that these participants tried to incorporate Internet information into their teaching to stimulate students' interest in social studies and to expose them to different perspectives of various issues in social studies.

Besides using technology to broaden students' knowledge, most of these participants noted that teachers need to use technology to diversify their instructional strategies and to satisfy students' different learning styles. Eight of them emphasized this as their primary focus. Most of the participants in this study taught four to six classes a day if the school was on a 50-minute schedule or at least three classes if on a 90-minute block schedule. Lecturing all the time often made teachers very tired, and that bored students, too. Mark observed that teachers need to use technology to enrich their classroom teaching so as to make students more engaged in social studies learning:

> Technology is going to make your work easier. Because if I stood here for an hour and half and still talking and lecturing I'll go crazy, and they'll go crazy. And it gives you a different resource to teach the same materials in a different manner, to engage the students a little more than just directly out of the textbook, and give them a little bit more power to do things. They pay attention a little bit more. You've got to make them to use their mind. If the mind is not stimulated, they've got to be somewhere else. They're going to be sleeping, they're going to be looking somewhere else, they're going to be daydreaming, everything probably except what you want them be doing. But if you wisely got them engaged, I mean use of technology allows that. I'm one teacher, I've got anywhere from 20 to 35 kids in the classroom. It's very difficult to make sure every single [one] of them to be engaged the whole time. I know they are all engaged and did learn something when technology is involved.

A similar comment was shared by Linda, Steve, Mort, Ron, Carol, and Luke. Mort, who has taught social studies for 21 years, even joked about himself, "as an old folk, I cannot go

through the day without technology." Mort loved to use technology. Eight computers in his classroom enabled him to use technology on a daily basis. He explained why using technology was so important to him:

> As long as I can find a way to teach each child the way they learn the best, the technology does that for me. Because I only know one way to teach. This way, I'm missing 75% of my students just by talking. But by bringing in technology, I get the kids who learn visually, I reach every learning mode of method available. And that's why technology is useful.

This was recognized by Steve, too. Steve claimed himself as "an interactive lecturer" and he enjoyed being such a teacher. When talking about his perceptions of technology, Steve described how he used technology to enrich his teaching:

> I try to incorporate [technology into] many different areas, for the visual learner, for the hands-on learner, for the group worker, and for the book worker…I try to be varied. Simply because I know not every kid learns the way that I do. One thing I ask my students at the beginning of the year is how they learn best. And I will take those in responses and kind of tailor my class to what they tell me. I don't try to lock in one thing…And my students kind of get used to that, we'll do some projects, work in the lab, lecture notes, go into the book, see things, research things, debate and discuss. I try to use as many techniques as I can. Technology is definitely an important technique that helps me reach more students.

Holding the same belief, Ron gave an even more concise definition of technology integration:

> To me, technology integration means using technology to help teach learners, giving them another option beside the traditional classroom situations, using all avenues for different kinds of kids, because this generation seems to grow up with technology, a lot better than the past generation.

Use of technology doubtlessly helped these participants diversify their instructional strategies and reach more students with different learning styles and academic levels. The traditional classroom that is dominated by textbook reading, worksheets, and teacher-centered lecturing could no longer satisfy both the students and the teachers. Considering this generation

of students grow up with technology, it is understandable that most students are more motivated to learn when the teacher could use a variety of instructional strategies to teach, especially when technology is involved.

Enhancement of Student Learning

Nine of the 17 participants made some references to the vision that teachers need to use technology to move beyond content to support students' development of collaborative ability, problem solving, critical thinking skills, and research ability. It is interesting to notice that when participants were talking about using technology to enhance student learning, they did not specifically refer to students' academic performance, such as the improvement of student testing scores, rather, they emphasized the importance of using technology to cultivate student life skills. This recognition implies that these teachers are willing to help their students obtain the necessary skills to be able to function well in their future work.

One skill that participants wanted their students to develop is the ability to cooperate with other students. Use of technology was seen as an effective way that could help create a collaborative learning environment. Holding this vision and believing "three heads are better than one," Lauren tried to organize her class into groups when doing technology-related activities. Lauren noted that technology has made it possible for students to work on projects more collaboratively and productively. She said, "I want them to work as a group of three with their all brainstorming together to present, to make the best presentation." While Lauren emphasized the importance of producing the best work through collaborative work, Daniel and Roger stressed the necessity of cultivating students with a sense of sharing and a sense of responsibility through collaborative work. Daniel explained:

> I think with technology they are going to become more active learners and be more inspired…and they need help. A lot of their peers are very computer literate,

> so you get their help, my help and so they get, overall, a good collaborative thing for everybody. They don't hesitate to help one another. They just work together. They just go right over and start helping all. They're not just sitting there, not knowing what to do, and not having anything to do. Whereas they're doing worksheets, reading assignment, they are going to be pretty easily distracted or bored with it. I want them to use technology and to learn from each other.

Roger emphasized cultivating students with a collaborative spirit as his focus of using technology. In doing technology related projects, Roger would make sure to "match up most really good with some really bad and put them next to each other and they would work on something together." He believed that "a lot about life is learning how to help other people" and "you learn a lot more than that you do to get A on a project." Therefore, to Roger, "the purpose of using technology is to get some kids to feel some responsibility for some of the other kids in the class."

In addition to the development of student collaborative ability, many participants saw the need to use technology to help students develop problem-solving and higher order thinking skills as well as research ability. Roy firmly believed that social studies was life skills and technology should be used for this purpose:

> If you know how those people live and state their name, that's great because you are supposed to learn from the past. But it is really learn to think, learn to function. Social studies is really just life skills. You just learn the mistakes that people made in the past and things that worked in the past, more than you know what date is that happened…It is important for you to know who came before you, where you came from, the ancestors, how they lived, what they went through to make your life better, and what you need to do…I think technology serves this purpose, and it can do that in many ways: They [students] find information for themselves, they are doing their own presentations with technology, they make the timeline themselves instead of me writing on the board them taking notes or me doing it for them. It fit them. I think they are more pondering to remember if they are actually involved.

This idea was shared by Mort, Steve, and Luke. For them, the primary purpose of social studies was to help students to develop these skills in order to function better when they enter the

society. They believed that it was more important to help students develop higher order thinking skills, knowing where and how to find information than just to remember the facts. They considered use of technology as an appropriate way to accomplish these goals.

> I want my kids to stay awake and stay alert, and want to learn more than anything else. And I want them to walk out of my class, not being an expert in world history or psychology, but knowing where to go to get answers. And technology will do it. They don't have to know all the emperors in Rome, they just have to know where to go and find the list of all the emperors in Rome. That's what I teach my kids, they can use technology to find the answers, and I thoroughly believe that. (Mort)

> My main goal with helping kids use technology is to teach them how to do it, so when they want information down the road they know how to go get it. Knowing where and how to find answers is more important than remembering the facts, to be able to function in the world. That's how I started using technology. (Luke)

Even Kyle and George, who were less enthusiastic about using technology, described their vision of technology integration in their classrooms as helping their students to promote higher order thinking skills. They believed it was necessary for the students to use technology to find information and make decisions of their own:

> To me, technology integration is just seeing them discover information on their own rather than me telling them, have them use higher order thinking that they have learned from, become accessible with the computer, and ponder their thoughts and come to their own conclusion. Textbooks pretty much just list facts, and Internet exposes them to opinion thing that they can make their own decision about their topics. (George)

> As soon as they get out of high school, they got to determine what they do in their future. Never as facts that kind of stuff. But if they are active learners and can think, they can do whatever they need to do. They have to go searching for themselves, and put it all together on their own. I think my purpose of using technology is to help them learn these skills. (Kyle)

These responses suggest that technology was positively seen as an avenue to help improve student learning, especially their life skills such as collaborative ability, problem-

solving, higher order thinking skills, and research ability. These participants felt the obligation to prepare students for entry into a society that demands these skills as well as the familiarity to use technology to accomplish these skills.

It is good to see that teachers who hold teaching and student learning enhancement-oriented visions were willing to use technology to stimulate students' interest in social studies learning, to help students to learn knowledge from different perspectives and in different ways, and to move beyond the content information to support the development of students' ability to make informed and intelligent decisions in this increasingly changing modern society.

Relaxation-Oriented Vision

Social studies teachers, especially high school teachers, usually teach different social studies subjects. More than half of the high school participants in this study taught on a 90-minute block schedule. Lecturing for 90 minutes could be boring to both teachers and students. However, the 90-minute block schedule not only made it possible for teachers to do some lecturing, but also gave them an opportunity to relax when engaging students in technology-related activities. These participants mentioned using technology as a way to release themselves from lecturing and day-to-day routine work. None of the middle school teachers mentioned this.

Daniel taught three social studies classes each day: 12th grade U.S. government, 12th grade U.S. economy, and 10th grade world history. Daniel took his class to the computer lab regularly to do Internet research work. Daniel admitted that he liked to use technology, especially the Internet, basically because when students were engaged in using technology to search for information, he could "have a break from just lecturing all the time." He was grateful that technology gave him this opportunity to "relax for a while," and at the same time he "really enjoy watching them discover things and information there."

A similar remark was made by Mort. Mort was also teaching three courses: world history, psychology, and sociology. Compared with most participants, Mort had every opportunity to rely on technology to help him get through lecturing because of the availability of eight computers in his classroom. He described how technology might be able to help him relax:

> Everything I can do to help me teach these kids I'm going to use…because after a while, you get tired, and you want to catch something that helps you out, something you can lean on. Occasionally I'll lean on technology to help me get through that. I can do this one or two ways. I can lecture for 20 minutes, let them do notes or I get the kids together, [give them] worksheets to go in depth. Two or three kids will work on one computer. And you just sit back and say, OK, technology is doing it today.

Mort believed that students worked best when stimulated and technology was something that motivated students. He used a lot of social studies software in his history class. One of them was the game "Where in the World is Carmen Sandiego?" When talking about this game, Mort reiterated that "I'm letting Carmen Sandiego do the teaching for me. I found something I want the kids to work. And they learn. And I'm just satisfied with I have nothing to do."

Use of technology not only gives teachers a break from lecturing all the time, it also gives students a fun way to learn. Just as teachers might be tired of lecturing, students, too, got tired of being lectured, especially on Friday, when students did not feel like studying. Using technology was considered as an effective way to help teachers get through the day better and to give students a fun learning experience.

Although most participants need to sigh up for the use of technology in the computer lab, if easily available, participants preferred using it on Friday. Six of the participants mentioned that if possible they would take their students to the computer lab on Friday. They said that students did not feel like studying on Friday due to the coming weekend, and technology served as a vehicle to help the teacher relax and help students do some hands-on projects. These participants

mentioned that they would let technology do the teaching for them. And they felt that time went much better when students were engaged in technology activities on Friday. Luke admitted that he took his classes to the computer lab once a week for technology activities, and usually it was on Friday, just because

> On Fridays they [students] don't feel like doing anything because weekend's coming, and so we went to the computer lab. We do something there. It makes the day go a little bit better in the lab. I think they did learn that way.

None of the middle school teachers in this study mentioned using technology to help themselves relax. One possible explanation could be that all middle schools in this study were on a 50-minute schedule and that limited time may make use of technology more difficult. Another reason could be that middle school students may have more management problems than high school students when involved in using technology. A third explanation could be that middle school students, most if not all, were less competent in using technology than high school students. As a result of these last two explanations, instead of getting a break, middle school teachers may become even busier, making sure that students are under control and they will get necessary help to complete their work. More research is needed to explore these potential explanations.

Many participants, especially middle school participants, mentioned the importance of teaching students technology skills, but only Mark made explicit references to helping students learn specific technology skills as his primary purpose of using technology in the classroom:

> The goal of my lessons were five times a year to make sure that they are familiar enough of it. When they do have constant computer access they are not limited by their knowledge of the computer. So actually the lessons I teach are probably as much gear[ed] to being comfortable and familiar with computer uses as content-based since I didn't get to do it that often.

Overlapping Visions

More than half of the participants described visions of technology integration as related to all previous goals and purposes of using technology. This suggests that when using technology, teachers had many concerns and they saw technology as a way to help them become more capable teachers. At the same time, they hoped that technology would be able to help their students learn knowledge better and develop necessary skills in order to function well in the future society.

Steve mentioned a variety of goals of using technology in his classroom. Basically, Steve focused his technology use on: (1) broadening student knowledge to stimulate student interest in social studies; (2) helping students learn content knowledge more effectively and efficiently; and (3) developing students' critical thinking skills by engaging them with in-depth learning. He described these goals of using technology in his classroom:

> My primary way [of using technology] right now is definitely Internet and scavenger hunts to broaden students' knowledge. They allow them to see up-to-date information, sometimes visuals of what we are discussing, to go beyond just what the book is saying, what we were talking about in the class. To summarize, it is to use Internet to supplement information, to spark their interest in social studies, to keep them thinking, to make them go beyond what we are talking about and go deeper. This is the biggest area I'm using technology.

Steve believed that technology "enhances their learning a lot" and with technology "classroom can be more effective." He continued to explain:

> I think, with technology, classroom can be more effective. Simply because the computer technology [is] such a valuable learning tool for our generation today. And I think it taps into something that they are part of it and they enjoy. When you do that, you make your class better, you make your instruction more effective. And I think any time you tap in that, you tap into their world and you tap into the things that interest them, your classes will be better, your instruction will be better, because your students are more involved with it, and they are more involved in the process instead of just sitting back and not involved. And I think

> any time you can involve them in the computer. Technology does involve kids to even a higher level. I think it does enhance student learning when you are able to do and work on things that you want to do.

Steve proclaimed himself to be an "interactive lecturer," and with technology, he believed that he become more interactive with students. Technology did not block his interaction with students, rather it diversified his instructional strategies and made students more involved in learning. Like Steve, Tonya, too, described her multiple visions of technology integration in the social studies classroom:

> I do a technology-related lesson at least once or twice a week. I try to integrate it somehow in most of my lessons, because I think the students are much more interested, and I think it's very important for them to know how to use technology. I think without it they won't be able to compete with other students. I think it makes learning more interesting and worthwhile. The primary purpose for using technology is for me to help them better organize, because in history, there's so much. To help them to get a better visual, to gather information, to get more information, to get more current information, to learn more about current issues, to stay up-dated, and to do research. To me, technology integration means giving the students or allowing the students to broaden their learning and doing whatever it's going to take to help them to be interested in learning. Often times the students aren't interested in social studies. and as using technology will spark their interests, then I think it's worth it. It doesn't mean to limit the content. I don't get away from the content when using technology. I want to make sure that's taught. But being able to take the content and to do different things with technology with that content, to learn the content in depth. (Tonya)

> It also means that the students are comfortable and familiar with using technology, that they are aware that the best resources are out there and know ways to tap into those resources, that they know how to deal with difficulties and realize that there aren't always going to be answers on the Internet, and even answers you find require thought and knowledge to interpret them… that it's not going to make them at who they are, so that's how I see technology integrated into the students, into the person, into the classroom. As for learning, it's a valuable tool…that I can use that computer to learn anything. That's the automatic goal for me to use technology. (Tonya)

What Steve and Tonya shared here was not uncommon. Carol, Mort, Lauren, Linda, Hillary, Roger, Miriam, and Mark all made some references to these visions. It is possible to see that when teachers are using technology, they are not using technology just for the fun of

technology, although many of them do seem to be interested in playing with technology. They see technology as another avenue that opens up more opportunities for students and they hope to use technology to engage students in more meaningful learning.

As defined by Reeves (1998) and Dockstader (1999), technology integration involves students using technology as a resource to help them develop higher order thinking, creativity, and research skills, and it is allowing students to learn how to apply computer skills in meaningful ways. Most of the participants in this study have shown these visions of using technology in the social studies classroom. Although no previous research ever mentioned the relaxation-oriented vision of using technology in the classroom, it was recognized by several participants in this study. They considered use of technology as an important reason or a purpose that they wanted to incorporate technology into their classes. It does not mean that these teachers are lazy or want to do less work. Actually these teachers took use of technology as a way of "killing two birds with one stone." On the one hand, teachers could use technology to diversify their instructional strategies, to have a break from their lecturing; but on the other hand, students were happy to have an opportunity to manipulate technology and they were highly motivated to use technology to learn and to explore information themselves. This vision suggests that these teachers were willing to give student autonomy to discover information and have them learn in a more meaningful and fun way.

Technology Integration in the Social Studies Classroom

The previous section demonstrates that social studies teachers have a variety of visions of technology integration in the social studies classroom. Some participants focused on using technology to facilitate their work as the primary goal, others emphasized the importance of using technology to enhance their classroom instruction and student learning, still others used

technology to take a breath from lecturing and give students a fun learning experience. Findings in Chapter 5 reveal that participation in technology integration training has positively changed most participants' attitudes toward technology, improved their skills, and helped them develop new insights and new ways for teaching social studies. Most of the participants have incorporated technology into their existing pedagogy.

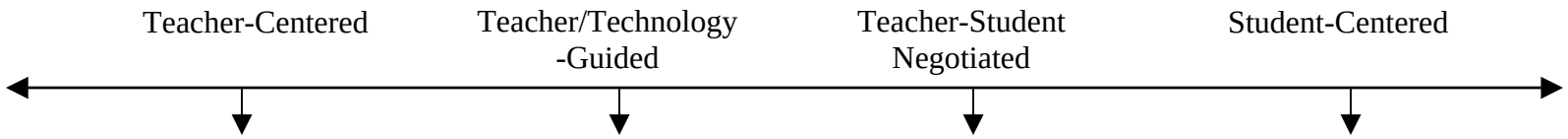
The following section focuses on the many and varied ways that these participants were using technology in their social studies classes. Their successful experiences of integrating technology are explored and discussed.

Data collected during this study were analyzed using constant comparative method (Glaser & Strauss, 1967) beginning with reading the first interview transcript. Recurring words and themes pertaining to how participants are using technology were coded and searched. Then these segmented themes were constantly compared with responses from participants in the same school and across the schools to generate common themes and categories. Analysis of the data showed an interaction among the teacher, the student, and the technology when each kind of instructional method was used. Accompanying this interaction are some related issues around curriculum, technology tools, and classroom organization. Further comparison and continual examination of these categories revealed that teachers were using technology in a variety of ways, and each of the methods was not separate and distinct. As Roberts (2003) observed "there was variation from participant to participant even if almost the same method was being used" (2003, p. 144). This observation made me realize that the ways that these participants were using technology can be considered points on a continuum, which extends from teacher-centered methods to student-centered methods. Ertmer et al. (2001), Roberts (2003), and Saye (1998) came to the same conclusion reporting that teachers' technology use fell along a continuum.

Four major instructional methods emerged from the analysis of the data: teacher-centered methods, teacher/technology-guided methods, teacher-student negotiated methods, and student-centered methods. These instructional methods were placed on the continuum and they were grouped together based on the categories identified about the interaction among the teacher, the student, and the technology as well as related issues. These four methods were not distinctly separated from each other, rather, they composed a range of methods, and there should be more points on this continuum. For the sake of more explicit description and discussion, I labeled them as four methods on this continuum. Table 4.1 shows how participants in this study used technology in the social studies classroom. This chart is adapted from Roberts' chart (2003).

The use of a continuum to report the findings that generated from the analysis seems to be an appropriate way to understand how social studies teachers were using technology in the classroom (Roberts, 2003) and how use of technology might affect teachers' and students' roles in the teaching process. It was hoped that this continuum chart would also help readers better understand the curricular characteristics, the different technology tools used, and the social organization in the classroom when technology was used. Moving through this continuum, teachers' role as a dispenser of knowledge and controller of student learning is reduced while students' role as active learners and inquirer increased. Technology's role as a facilitator for teachers' lecture and presentation changed to facilitator of student-led presentation and inquiry. Accompanying this change are the changes of curricular characteristics from information retention to the development of higher order thinking skills, from teachers' use of a single technology tool to present information to students' use of a variety of technology tools to present their research, and from individual work to more collaborative work.

Table 4.1
Continuum of Technology Use in the Social Studies Classroom



Teacher Role	Use technology to present information & lecture	Create worksheets and research activities using computers and teach prepackaged materials	Set specific requirements and assign topics	Facilitator & collaborator
Student Role	Store information, complete worksheets	Use technology to obtain information or do research	Explore a variety of information using teacher-provided resources	Student led instruction and self-decided Inquiry
Technology Role	Facilitate presentation	Provide content knowledge in place of or supplemental to textbook materials	Provide tool for accessing content information, organizing information and/or presenting findings	Provide tools for inquiry and presentation
Curricular Characteristics	Coverage & fact retention	Comprehension of knowledge	Application of knowledge, knowledge in depth	Application of knowledge, depth, higher order thinking, research-process oriented
Technology Tools Used	PowerPoint	Word Processor, Excel, WebQuests, games, Internet resources	Internet & Web-based resources, PowerPoint, Timeline	Combination of tools: Internet, overhead projector, PowerPoint, Microsoft Publisher, Inspiration, Timeline, digital/video camera
Classroom Organization	Independent work	Individual learning	Individual or collaborative learning	Individual or collaborative learning and teaching

To facilitate the description and discussion, the following section will start with the description of each group of methods that was used by participants, accompanied by how different roles changed, what curriculum characteristics appeared, what technology tools were involved, and how the classroom was organized. Each group of methods was provided with direct quotes from the participants. This section will end with the discussion of how use of technology affects participants' teaching style.

Teacher-Centered Methods

At the teacher-centered end of the continuum, the teacher served as the decision maker in the classroom and controlled the pace of student learning. It was the teacher rather than the student that manipulated the technology. Teachers used technology basically to facilitate their lectures and presentation of information. As in the traditional teacher-centered classroom, the teacher remained the holder and dispenser of knowledge. The teacher decided what content needed to be covered and what procedures needed to be followed in the student learning process. The curriculum focus was on content coverage and fact retention. In this teacher-centered classroom, students were passive learners and their role was to accept the information and store the knowledge. The most common behavior for students was to take notes, respond to questions, and independently complete the worksheets given by the teacher.

Participants in this study mentioned having used a variety of technology tools such as the overhead projector, TV, VCR, and computers; however, most of them referred to computers and computer-related equipment as technology tools used in the classroom. Nine of 17 participants noted that they used computers as a tool to facilitate presentation in their teacher-centered

classrooms on a regular basis. While most participants mentioned using PowerPoint presentation software to help lecture, others used Microsoft Word and then transferred information from the computer onto a TV screen.

It is important to note that use of either PowerPoint or TV for presentation requires some sort of projection device so that information on the computer can be projected onto a larger screen for students to view. Six participants had a Liquid Crystal Display (LCD) that projected information directly onto a large screen on the wall, while three participants used a device that connected their computer to a large TV screen.

Participants mentioned PowerPoint as the most commonly used technology tool to lecture or present information. When Mort claimed that he "couldn't do without technology," he actually meant a PowerPoint presentation. Mort used PowerPoint to present his class notes almost everyday. He explained how he used PowerPoint and why he liked to use it:

> I would use technology to start the morning. When the kids come in, there will be some questions on overhead projector that I made on computer, which is to settle them down, get ready to study. They got to answer these questions to get grade on. Then I do a lot of PowerPoint. A lot of my lectures are on PowerPoint because they can hear me, they can see it, and they have to write it down. So we get into the visual, the auditory learner, and they kind of study from that.

As Mort said here, PowerPoint made it possible for teachers to reach students with different learning styles, enabling them to see and hear at the same time. This benefit was recognized by other participants as well and was considered as the most important reason that they wanted to use PowerPoint to facilitate their instruction.

Another reason offered by participants was that students were not interested in reading textbooks, and PowerPoint presentation helped them get the gist of their textbooks. Several participants made this remark. As a first-year teacher, Roy was still "feeling around teaching"

and did not “feel comfortable enough to engage students in using technology.” However, Roy mentioned that he used PowerPoint almost daily to display his class notes. Roy believed that PowerPoint presentation “works better than making them follow the book” because “students can see them as we discuss them, and we can point out certain things about them. That way they can visual and audio everything at the same time.” Despite this, Roy admitted that he may have overused PowerPoint.

Tonya, too, believed that a PowerPoint presentation worked better than just reading the textbook, and it motivated students more, especially when pictures, figures or charts were included in the presentation. While Tonya, Roy, Steve, Luke, Mort and Carol were able to use an LCD panel to present information, Linda and Miriam displayed their notes on a TV screen. Linda described how she did it:

> I did everything in Word, and I just enlarge the size, and it goes on the screen. I lecture [using] this TV screen. As I am lecturing, they are writing. It doesn’t hold much, maybe about 10 words, but the kids who have visual problem found it really easy.

Participants in this study indicated that they believed that technology, especially the use of PowerPoint, not only enriched their classroom teaching but also helped students of different learning styles to learn the information better. Students were more motivated to learn when technology was used to assist lecturing.

Despite the benefits listed by participants, it is not hard to see that it was the teacher that dominated the classroom, manipulated technology, and controlled the pace of student learning. The teacher still maintained the traditional role of knowledge holder and dispenser and made all the decisions about what content should be included. The students served as passive receivers of knowledge. Their task was mainly to listen to the lecture, take the notes, store the information,

and finish the worksheets. Technology was used to facilitate teachers' lectures and students had no direct involvement in using technology. To a large degree, PowerPoint presentations were used to replace reading the textbook. This, in certain sense, may negatively affect student learning. Students may become even less likely to read texts and related books, or to reflect thoughtfully about the reading. As a result, they may take for granted whatever the teacher presents. In addition, if the PowerPoint program is overused, it may not be as effective as teachers have imagined, as Roy remarked:

> Technology is great when it's not overused. If you don't overuse the program, if you don't overuse the same thing, I think it's effective. If you overuse it, then it's just as ineffective as you don't have technology at all. Because the students are used to it and they just brush it off. You can't get into [a] routine because then they get bored at it. If I mix it up, then it means something different. They get to wonder. And that's really cool.

Teacher/Technology-Guided Methods

The next category on the continuum is teacher/technology-guided methods. In this category, the teacher shifts her role as a knowledge holder and dispenser to become a sort of guide. Instead of directly giving lectures or presenting information, the teacher mainly uses prepackaged materials (e.g., WebQuest, games for test review, and Internet resources) to teach. These prepackaged materials are mainly created by outside individuals and institutions, which can be used to supplement or replace the textbook contents. The primary purpose of using technology is to help students obtain the necessary information from these prepackaged materials. In this category, both the teacher and the student share some control of the technology, but the teacher still controls the pace of student learning, makes the decision of what content should be covered and what assignments should be accomplished. The teacher uses technology to create worksheets, design research activities, and make rubrics to guide student learning. Different from the teacher-centered classroom, here both the teacher and technology play very

important roles in guiding students in the attainment and comprehension of information. To a large degree, the technology served as the teacher to guide student learning. However, the student also has some opportunities to use technology to explore and obtain information. The students' role is to explore computer-based prepackaged materials to obtain information, and then complete the worksheets or activities accompanied with the materials.

WebQuest Inquiry

WebQuests were a popular form of guided inquiry using Internet resources. There are many social studies related WebQuests and nine of the participants mentioned using WebQuests for social studies teaching and learning. However, since WebQuests require more time and computers, only three participants used WebQuests to teach on a regular basis. They were Miriam, Mort, and Carol, all of whom had enough computers in their classrooms. Availability of wireless laptops for everyone enabled Miriam to make the best use of WebQuests to replace or supplement the textbook information which she thought "boring and hard to some students." Miriam said that she liked to use WebQuests because:

> WebQuests kind of guide student inquiry. It would tell them the websites to go to and the information they are seeking. And then they can pull up together with the group and decide what they could do to display what they had gained from knowledge in this area. WebQuest inquiry makes student learning more meaningful.

However, when students were engaged in WebQuest inquiry, they were not left alone. Miriam would monitor them to make sure they were on the right track and she would also make some specific guidelines for the students to follow. Like Miriam, many participants in this study have realized the benefits of WebQuest inquiry. They considered WebQuest as an effective technology-guided research tool and believed that WebQuests provided students with a great

opportunity to explore information and stimulate student interest in learning social studies. Most participants expressed the desire to use WebQuests in their future classes.

Stock Market Game

The most commonly mentioned game was the stock market game, which participants practiced at InTech training. Six high school participants who taught economics reported using this web-based stock market game in their economic classes. These participants engaged their students in doing this game for several weeks or even the whole semester. They considered this activity as one of the most successful lessons they had conducted with technology. Steve and Luke worked in the same school and they both involved their students in this stock market game for about ten weeks. They believed that students benefited greatly from doing this game. Luke described what he did:

> I did the stock marketing game with my economic class. Once we go into the game, I will require them to bring in a list of 25 stocks that they want to research. We go in the computer lab. When they bring in the stocks, and usually everybody will bring them in, and I will leave some newspapers in there during the week. They will look at it, research stocks and learn more about it. We go over everything in here before we go to the computer lab. We talk about stocks, we talk about companies. It'll go usually about 10 weeks. About once a week. 50 minutes each period. They seemed to enjoy it really well. It's probably the most successful lesson we did.

Steve and Daniel made a similar comment. They, too, believed that students learned much about stock market from doing this game, as Steve observed:

> We used Internet stocksquest.com. The kids learned a lot. And it gives everything you want as far as checking, ranking, and the kids really enjoyed it. It's a program that can run for a long time throughout the semester. We can set our own parameters so we are not locked in what they want us to do. And the kids had a good time with it, because that was during our stock market project where they were learning about stock. They were learning about investment, and it gives them a chance to really do it. And they learned a lot. So the Stock Quest was really a program that we enjoyed, and it's been very beneficial to us.

In doing this stock market game, participants tried to tie many issues into it, including government, global affairs, war, and economics, in order to make it more relevant and meaningful to students. They tried to move students beyond the game itself:

> While we are still playing the game, we'll be moving on to gross national product, gross domestic product, all that stuff. So we are not on the stock market itself 10 weeks. It yields some pretty good global ideas, economy, things like that. I made them read stuff about market reports. We talked about how government affects stock market, how the war on Iraq affected the world economy or economics in the United States. When we go to war, what prices are going to rise, what companies are going to drop. And it really works out good. (Luke)

> We were studying cooperation and sales and stocks and see if the stock market is going up or down, how it's been progressing or not progressing over the last three to six months. We go to the Internet, go to various websites, typing Coca Cola, for example, track how its stock is down and try to figure out why its stock is gone way up in the last few months and has dropped in the last few months. How the world economy has affected on that stock. (Daniel)

Participants believed that this game not only enabled teachers to deal with economic issues but also helped improve student higher order thinking skills. Tonya explained:

> They've got to think critically about the decisions they are making, the stocks they are purchasing, why they are doing and what they are doing, why I chose this, what am I going to do now. They have to go beyond just buying, just buying Wal-Mart. They've got to think beyond that. They've got to think what's going to happen to that stock, where is it going? Do I invest for long term or short term? These are a lot of abstract and critical thinking, they've got to do and analyze it, a lot of analyzing.

Participants indicated that in doing this market game, students were not left to their own to operate the computer and play with it, rather, they tried to guide students in their learning process by providing guidelines and worksheets but at the same time move them beyond the content to support development of higher level thinking and a global perspective. Students were

much more active and motivated in learning than they were in a teacher-centered environment. Students had great participation in this technology-connected activity.

In spite of this, the teacher still makes the decision of what materials should be used, what procedures should be followed, and how long learning should take. Students still need to complete the worksheets created by the teacher. In the whole process, technology is used as an prescribed material that can replace or supplement textbook contents. Basically, students were expected to comprehend the information through the exploration activity. The instruction is organized around the individual and cooperative work was not a common phenomenon in most of these classrooms.

Games for Test Review

Besides stock market game, participants also mentioned using games for test review. They believed that using games to help students review for test was a wonderful way to integrate technology into the social studies classes. Miriam, Steve, Luke, Hillary, Mark and Ron all commented that test review games made students much more involved in learning and they recalled more information compared with traditional way of reviewing notes on an overhead projector or completing worksheets. One commonly used program for test review was the computer-based Jeopardy game, which was often operated by the teacher rather than the students. Miriam used the Jeopardy game for almost all her test review classes and claimed that she "cannot imagine teaching without it," although she also commented:

> As much benefit as it is for organization, it doesn't decrease the amount of time of preparation, but actually increases, because you are going to a number of different resources trying to find the best [questions and answers] for students and the best way to present information.

Another favorite review game was the state's high school graduation test game, about which Steve commented "it gives excellent questions that make students critically think through answers. It's not just straight factual knowledge. They have to think through individual questions on that." The difference between these two games was that to play the Jeopardy game the teacher had to create questions and answers while the questions and answers of the graduation test review game were designed and created by an outside agency. These games were usually run by the teacher in the classroom, however, students could download the graduation review game from the school's website and play it at home.

It is not difficult to see that in a teacher-guided classroom, students moved away from being passive learners as they were in a teacher-centered classroom. They had more opportunities to reflect upon the information, manipulate the computer, and explore the prepackaged materials. They were more involved in their learning, even if they were reviewing for the test. Teacher's role also changed. The teacher moved his/her role from knowledge holder and information presenter to a kind of guide. Technology, to some degree, assumed the teacher's role to provide content information and guide students in their information research activity. The primary goal for students was comprehension of knowledge. However, with the help of technology, participants were able to use technology to motivate students and engage students in activities that enabled them to apply their knowledge and develop higher order thinking skills.

Internet Resources

The most commonly used instructional technology tool was the Internet. All participants in this study recognized the great impact of the Internet on social studies teaching and learning and have engaged students in obtaining information using the Internet. Participants noted that compared with textbook materials, the Internet information was much more appealing and

interesting to students with its visuals and graphics. These visuals and graphics made teaching and learning ancient history more interesting. For example, while teaching ancient history, Miriam often spent much time searching the Internet to find appropriate information to replace or supplement the textbook materials. Miriam described how she engaged students in an Egyptian religion inquiry:

> The Egyptian religion inquiry is the one that the kids are most excited. The purpose of the class was to investigate the mythology, the gods and goddess of the ancient Egyptian religion, and I found a website that was just perfect. The kids couldn't get enough of it. They had to go back to it, and they had as much fun as I have with that. They got so much more out of that than there had been a textbook assignment or I just simply lectured to them or even if I had a video [or film]strip, they got more out of that than anything because they could go to different places, and they didn't have to follow the same path. That's where they got their information. There were some ways they can investigate something that's really, more important to them. Things are more exciting to them. That was one of the best experiences.

Although the availability of the Internet enabled students to conduct a "free search" of information, most participants tended to guide student research for three reasons: (1) it is easier to monitor students; (2) students would know what to do and what they are expected to learn; and (3) the teacher knows what materials are included in these websites and they were able to grade them fairly. Participants, especially middle school participants, all felt that middle school students are hard to monitor and it was necessary to give students more specific guides in obtaining information on the Internet. Mark described what he did:

> I try to limit the access to places I don't want them to go at the public educational setting, because inherently that's what they want to do. They want to go and like they are at home buried in computer searching without mom and dad there. With middle school students, you have to be really careful. There's a lot free searching on the Internet, but sometimes it's not a good thing for middle school students. It's kind of hard to monitor where they are going. Some of the things that I've done in order to get around that is actually creating web links within the text that I want them to read and study. They can travel those web links so that they get a

> sense of freedom of picking different web links. But those web links all contain a kind of program that I created for them. So they travel through different web links but they cannot escape the place…because I know what's written, what material they should be looking at. So it's not like a complete free search, and it's just like a guided free search.

This "guided free" search was advocated by a large majority of the participants in this study. Almost every participant has used this way to guide students in obtaining information. While Mark used computer programs to contain web links within the text, most participants tend to give students two or three specific websites to search for information. Students were not allowed to go to any other websites other than the ones provided by the participants.

Student-Teacher Negotiated Methods

Moving along the continuum, the third category is student-teacher negotiated methods. In this category, both the teacher and students have some control of student learning. The teacher still guides student learning by setting specific requirements, assigning research topics, and providing websites for students to explore, but compared with teacher-guided methods, the student has more opportunity to use technology to explore information, work on projects independently or with groups, and then present the information. More emphasis is laid on students' in-depth knowledge comprehension and application. To a large degree, the student explores the information using teacher-provided websites, and has much opportunity to explore the information, interpret, and present the information. Technology serves basically as a tool for accessing content information, organizing, and presenting information. Although the teacher still uses technology to create worksheets, set research assignments, and make rubrics for the research work, it is the student that mainly manipulates the technology for exploring information and then presenting the information in a specified form. The student has some opportunity to discuss with the teacher how to do the research and how to present the information.

Participants all indicated that the Internet is the primary way they gathered information, and it is also the primary way they engaged their students in searching for information. Most of them mentioned that while they would allow students to manipulate the computer to explore the information, they felt it necessary to guide students' research by setting specific requirements and websites. They wanted to make sure that students would get what they wanted them to get, therefore, they would give students specific websites to explore the information. As an example, Miriam would only allow her students to go to the given websites or the websites which she cleared. Miriam described what she did:

> We did a personal challenge project. I allowed them to choose a scenario that they want to know more about personal challenge. I found a perfect website. I had a form ready that they use to develop at their laptop and they have to plan what they are going to do and the websites they could have, then they went to those websites that they had chosen and that I have cleared, and they actually investigated it.

Like most participants in this study, Miriam believed that students need to be guided in doing Internet research, especially when her students were only seventh graders. She did not want them to feel lost and did not know what to do. This was how Linda guided her 8th graders in doing a courthouse project. For this project, each student was assigned a county and given a list of information to obtain. Using the internet, the students went to the Carl Vincent Institute of Government website where they ran a search for their county. Each student printed a picture of their courthouse, then used the site to find information about the building's history. Some courthouse sites had pictures of the county's previous courthouse while others included maps and historic markers. When the students had completed their research they closed the website and opened Microsoft Word to type their information. The final step of the project was to cut out and

mount the courthouse picture and typed information on construction paper. The students displayed their projects outside the main office at the School. Linda described how they did this project:

> We do Court Houses, county court houses, and every student is assigned a different county. We don't cover them all because there are 159 counties. And they have to find the county on their website, and they have to print out the picture, and for some that is really hard because you got to just print the picture and not all the other stuff with it. And they have questions they have to answer about their courthouse facts, and the things they found interesting. And we displayed them in the hallways. And we had a lot of compliments of that because it was real interesting. In the last week, we took our courthouse and we cut out the pictures and laminated it and made a Christmas tree around us.

Linda provided students with very detailed guidelines for this project. Her lesson plans were in great detail, telling students what website to go to, each step to the certain website, what information should be included. All these activities were conducted in the computer lab.

From this, it is not hard to see that participants in this study still remain in control of the teaching and learning in the classroom. However, the students were highly involved because they were able to use the websites to explore certain topics and were able to present the information using the technology. Students were no longer passive learners and they had some opportunity to make decision about the data and make their own interpretation of the facts.

Although many participants stressed the importance of providing specific websites for students to research information, quite a number of them also emphasized the necessity of developing students' ability to do research on their own. Steve noted that it was very important for students to learn how to do the research and he believed that this was part of the technology. He explained what he did:

> The only classes I do those kind of search [without giving them websites] is where I just say, this is your topic. I allow them to work on computer, where I want them to learn a little bit about searching, about seeking through primary and

> secondary [sources]. The kids have a hard time finding it, and I noticed that. When they search they don't know key words, they don't know how to search, and they can't find exactly what they are looking for, and when they search they get frustrated. And I want them to learn that that's part of technology searching.

Hillary and Roger made a similar comment:

> Sometimes it takes several inquires to find what they are looking for, and a lot of them become intimidated… and that's a problem. That's why I often ask them to go to a specific website where they will find exactly what I want them to find. I think the students need to be guided. But I give them the opportunity as they search, they kind of feel their way through and find the websites they are looking for without me telling them, because they need to learn how to do that. (Hillary)

> They try to find information but they can't find it, so it's a kind of frustration. And that's the part of computer research that they really don't like that. They want to be told, put the address in, click the button, there it is. We did one last year, and "the life of learning to explore," and they were looking for primary documents, diaries, things like that, that talked about life on the seas. They really had to do some search. And they got very frustrated. And I had to talk them through that, don't get frustrated, that's part of the process, it's fine, this is all part of the computer. That was the part they didn't like. I understand that, but they need to learn, they learn how to search and work and understand it's not their fault. They got to research. (Roger)

The importance of developing students' ability to do research was recognized by quite a number of participants. Considering a lot of students often expect teachers to give them a "right or wrong answer" in accumulating knowledge, so do they anticipate teachers to tell them exact steps in using technology. Students need to be given the opportunity to learn, to try and to explore information on their own.

Student-Centered Methods

At the other end of the continuum is the student-centered method. In this category, the student' role has greatly shifted from a passive learner in a teacher-centered classroom to an active information researcher and presenter. The student makes most of the decisions of what topics to research, what contents to cover, and what technology to use to present the research.

The student has much control of his/her learning. The teacher is no longer a transmitter of information to relatively passive learners, rather, the teacher becomes a guide, a facilitator, providing students with the tools that they need to research, explore, and make meaning (Baylor & Ritchie, 2002; Clark, 1992; Diem, 1999; Ferguson, 1997; Hope, 1998; Kook, 1997; OTA, 1995; Wenglinsky, 1998, 2001). As a facilitator, the teacher supports students' construction of their own knowledge and encourages them to explore and reflect upon what they learn. As a guide, the teacher provides some guidance to students' exploration and application of knowledge, prompts students for in-depth learning, and involves them in activities that help them develop higher thinking skills. In this category, technology basically serves as tools for student inquiry and presentation, and the student uses the technology to gather, organize, and interpret information.

Most participants in this study noted that the interactive nature of the technology made student-centered activities possible (Hannafin & Savenye, 1993) and they had engaged students in various student-centered learning activities. More than half of the participants, including those who are resistant to technology use, such as George and Kyle, mentioned involving students in exploring Internet information and making presentations to the class.

Participants reported two major ways of students using technology for presentation of information. One was students teaching to the class about textbook materials, the other was students presenting to the class about their research projects. No matter what form it took, it was found that participants encouraged students to use a variety of technology tools in student-centered classroom, including the Internet, PowerPoint, Microsoft Publisher, Inspiration, Timeliner, and Digital/video cameras. All these technology tools had been practiced at InTech

training. Among these, PowerPoint was mentioned as the most commonly used software for student-led instruction or presentation, and the Internet was considered as the primary way of obtaining information. Students' research projects were often displayed in the form of a brochure using Microsoft Publisher.

Eight of the participants mentioned teaching students how to make PowerPoint presentations and then asking them to make PowerPoint presentations to teach textbook materials to the class. Participants noted that it could be frustrating to teach students how to make a PowerPoint presentation the first time, but once students learned it, they were motivated to do it well. Carol constantly had her students make PowerPoint presentations and what she said reflected the general consensus about the benefits of student-made PowerPoint presentations:

> It's visually appealing to the students, and they are willing to pay attention. That's much more interesting than me standing up and lecturing…and they actually learn by making PowerPoint presentation and then present to the rest of the students.

These participants believed that student-led presentation would benefit students in many ways: first, student-led presentations would force students to read textbook more carefully; second, student-led presentations would help develop students' ability to apply, analyze, and synthesize the textbook materials; third, student-led presentations would encourage more collaboration among students; fourth, student-led presentations would stimulate students' interest in social studies, especially history; fifth, student-led presentation would help students recall the information better; and sixth, student-led presentation would help develop students' sense of pride in their work.

With these beliefs in mind, Tonya regularly had her students teach a lesson or a particular segment of their textbook in her world history class. Tonya would allow students to type

textbook content in their own words in the computer, print it out, and use overhead projector to present to the class, but oftentimes she encouraged them to make a PowerPoint presentation to teach the class. She observed that by doing so students "not only are teaching the history, they are learning to use the technology as well, and they become more interested in history." The same idea was shared by Luke, who also believed that student-led instruction would make them benefit much more than listening to teacher lecturing:

> I often require students to create a PowerPoint out of the book. I'll give them a section of the book, a group of three students. I'll give them a section of the book, maybe two and half pages. They have to get the important facts out and create a PowerPoint presentation with that. And I'll let them teach the class. And that works pretty well.

Luke believed that "when they teach it, they learn more than they did just sit there listening to me talking about it." At the same time, Luke emphasized that student-led presentation does not mean that the teacher would leave students totally on their own. He said that he would serve as a facilitator and an inquirer during the presentation. He wanted to make sure that students "write down what everybody else has said and take notes just like I was talking" and he would then make a test from students' presentations.

While Luke tended to let students teach a small section of the textbook content, Carol would often engage students in presenting information across the chapters. For teachers who are teaching world history, coverage is often a big concern. However, Carol claimed that student-led presentation would allow her to cover larger blocks of materials in a smaller amount of time. Carol said that she was always looking for ways to save time and to expose her students to some major issues of the world. Carol believed that "letting students choose a topic, look for the information and then present it to the class is the best way we teachers make good use of student

time." Carol regularly involved her classes in doing PowerPoint presentations. She described one of the lessons she did with her history class:

> We have a wide variety of different world revolutions beginning the English Civil War to the Industrial Revolution, …and they cover in our world history textbook from chapter 9 to Chapter 13. I split them up into smaller groups of about three or four [students], had the assignment where they saved pictures of the Internet and insert them into their PowerPoint, create a PowerPoint presentation, teaching the class about their particular section, or their particular revolution. And then after that, they create test questions [using Word Processing], and I drew from their test questions to create a revolutions test for our entire class. They also had to create a graphic organizer, in doing that we used Inspiration…they were also required to make a timeline of the major events using Timeliner program. They listened and paid attention to the presentations, into the notes, till they were able to be very successful on the test. While normally it might take me three to four weeks to cover these four chapters, I can now do this one project in a week.

From this example, it is possible to see that Carol's students not only learned more information in a shorter period of time, they also learned to use various technology skills to present the information, to produce a high quality product, and to develop a sense of pride in their work. What is more, student-led presentations enabled more interactions to occur between students and teacher, and between students and students, and students were able to work collaboratively and creatively.

Most of the participants mentioned that they gave students much autonomy to choose a research topic and encouraged them to use a variety of resources to explore the information, and then present the research to the class, however, they also emphasized that they provided some guidance in student research. Tonya described one of the lessons she did with her world history class:

> What we did was I had the students choose a particular war out of a list of wars that I have given them: WWI and WW II, Cold War, the Korean War, the Persian Gulf War, and the present war that was going on [war on Iraq]... Each student was given the opportunity to choose which war they would focus on and I gave them a list of specific information or specific questions they would answer about these

> various wars. First they went to the media center to research the wars, using media such as newspapers, news prints, and then they also went into the computer lab and they used Internet to research information about the various wars. Once they gathered the information, once they were able to answer the questions, then they were to make a PowerPoint presentation for the rest of the class, giving concise information about each of the wars. In the PowerPoint presentations they were to choose various pictures or any symbols that represent each particular war. And then they were to answer when the war began and then prominent people, figures involved in the wars, causes of the wars, causalities…It is amazing how they are much more interested in history when they were able to manipulate and use the computer and be able to present it. They recalled the information data when they used technology.

Besides making PowerPoint presentations, Tonya's students used some other programs such as Microsoft Publisher and Inspiration to make brochures and flyers of these different wars. Tonya commented that students learned much more about these wars through doing this project.

Microsoft Publisher was mentioned by the participants as the most popular tool for students to make flyers or brochures. Steve engaged his classes in doing several big research projects and some small projects each semester. Many were displayed in a brochure form. One of them was the Renaissance Project. Steve described how they did it:

> We've been using the Publisher for several projects, and we used it last year for the Renaissance project. They built a newsletter that basically they called "Enlightened Times." What they had to do is they had to take eight thinkers of that time period, and put their opinions, their ideas on paper to newsletter. They put it together. These are some notable ways to do. I can lecture the information, but there was another way they were able to do the information in a visual way, and they really picked it up with. That was a project they really enjoyed, just building that newsletter in that way using Publisher.

Most of the participants in this study took their students to the computer lab to do the projects although students were also encouraged to do it outside class. Kyle was the only one who asked his class to do the technology-connected projects totally outside the classroom. As one of the few participants who were resistant to technology use, Kyle, seldom used technology for instructional purpose. Although he emphasized that he has gotten used to his teaching style

and did not feel like using technology in the classroom, he admitted that he did have one big project for his world geography class each semester. For this project, students were asked to pick a country and they need to explore the Internet to get much information about the country. Students were then required to make PowerPoint presentation, a poster or a brochure using Microsoft Publisher. At the end of the semester, students were required to display it and orally present it in front of the class. This assignment was given early in the semester and it was not due until very late in the semester. Kyle explained that he did not ask students to do this in class because he had too much to cover and doing this project was time-consuming. The students had the autonomy of deciding what country they choose, what content they want to focus on, where and when he wanted to do project. However, Kyle did not relinquish total control to the students. Kyle gave them at least some criteria he was looking for and frequently reminded students of this project. Kyle explained how he did to help students with this project:

> I'm always telling them if you run into problems that you can't overcome, come to me and we'll try to work it out. I'll help them at the end, but basically I give them the assignment, so they are on their own until I hear that they need help. So I can't say I taught them how to do research, I kind of show them the best one [best examples of previous students], because I really want them to be creative. There's no certain way to do it. There are certain things I'm looking for about the country that need to be into that.

Kyle commented that he did this project with his classes each semester and it was always very successful, because "they learned a lot about how to research, about different cultures, and they are enhancing their computer skills by doing that project. " Kyle was concerned about many students' ability of speaking in public, and he believed that student-led presentation helped students develop speech ability as well, as he said "I really think sometimes we have lost an emphasis of public speaking and being able to speak in front of a group. And this project really forces them to get up to do that."

These previous examples indicated that student-centered activities enabled students to use a great variety of technology tools to present their research. It is obvious that these participants applied some of the technology skills that they learned at InTech for teaching and learning. Student-centered technology activity not only gave students opportunities to use technology to present their knowledge in a more visual and appealing way, it also allowed them to explore some topics to understand history, government or social issues from multiple perspectives. These activities were considered more relevant and meaningful to students.

Tonya had her students conduct a history project, which she called "recording history" and she thought it was very successful. The purpose of the project was to help students learn to appreciate history and be more interested in learning history. For this project, Tonya allowed her students total freedom to focus on what they wanted. She said, "often students are not interested in social studies, history in particular, using technology will spark their interest" and she believed "it's worth doing." She described how her students did this project:

> In World History class, I've allowed my students to use a digital camera to make history of themselves, to recall what's going on now is history for the future. We are making history today and we want to record that history so we'll be able to look back and see what happened. Students used various technology tools to cover different components and they present it to the class. They may not learn as much as content from that, but they do learn the basic appreciation of recording history, understand why we still know about events that happened hundreds of years ago and how people in the old days recorded history. It's really successful in giving them that perspectives and appreciation and understanding of the importance of history and valuing record history learning, so they will continue to learn and understand the impact of what they do. I want to teach more than social studies, try to help them to relate, make it more practical to them.

In the whole process of making this history project, Tonya remained a facilitator and collaborator. She taught students how to use a digital camera and provided students with the necessary technology tools for exploring and analyzing information. Students worked on this

project collaboratively and they would come to her whenever they need help. Both Tonya and students enjoyed doing this project.

Like Tonya, quite a few participants stressed the importance of making history relevant and meaningful to students and they saw technology as a chance to achieve this goal. Mort had his history class conduct several technology-based projects, and he described one of the projects his students did:

> They do a world-wide newscast from the past. They got to use the cameras, the lighting system, and computers to do their research. They put in the combination of all kinds of technology together. I don't give them a day in history, but a time in history, say, 50 or 100 years. Anything around that time in different part of the world. Students form groups to different parts of the world, such as Europe, African, etc. we'll put it together as one newscast. We do the same thing with publishing newspapers. It involves Internet research, Word Processing, and making brochures for publishing.

Mort declared that by doing these projects students learned a great deal about what was going on around the world at a particular time and history made more sense to these students.

More than half of the participants mentioned that they not only engaged students in doing student-led presentations, they also encouraged students to do inquiry-based research using a variety of resources, including primary source materials available on the Internet in order to promote students' higher order thinking skills and civic competence. These participants even delved students into exploring some controversial issues in spite of the filtering system in the school. Linda was one of these participants and she described what she did with her class:

> I did a model legislature [project with my class]. The students are writing bills, and one [is] to write a bill on abortion. Our computers are so bound, we couldn't get into any information site about abortion because it has to do with having babies. And so the kids had to go home and use their own computers to come up with information to back up what they were saying in their bill. Using the Internet helped develop their higher order thinking because they got the research and they had to stand up in front of the rest of the General Assembly and defend their bill.

Linda emphasized that doing this mock legislature not only allowed students to learn to refer to multiple resources for research but also enhanced students' collaborative skills. She continued to described what students did for this project:

> We have some on the computers trying to find books in the library, some on the computers trying to find Internet resources, still others on the computers doing the Encarta and Encyclopedia, and they are rotating through with that. They had to take all that information and get it together. They confirm with their partners, write their bill, and then go through the committee, and the committee had to look at the bills. It was a great thing, and it was based on technology. But it took 10 days.

Linda claimed that "students learned much more about government doing that than anything I could have done. They loved doing it, and they used technology, they used their brains, they used books, and it was worth 10 days." This comment was shared by several participants. Roger could be considered as a typical example. Believing textbook was boring, vague, and general, Roger saw technology, specially the primary source materials available on the Internet as a chance for students to get away from the textbook and find more interesting perspectives on the world. He often asked students to do projects which involved a variety of ways of doing research. He described in detail what they did for one of his projects:

> With my world history class, I do this [technology project] in combination with interviews. Students choose a 20th century war, and they put together a presentation for the class on that war after they've done that. [But] first of all, they found somebody that they know is a veteran of a 20th century war. Once they know who that is in that war, they do research on that war, the causes of it, who is in it, the number of casualties, types of weapons ever used, or some turning points in the war… I used the computer [the Internet] mainly as a kind of historical reference for that… so they can go and find out what are the causes of it, what kind of music was written about the war, what were the anti-war protests about, what the slogan was there, what was the culture during the time, who were important players in the war. They do a presentation to the class about that war. Once they have that background, they go out interviewing somebody and they come up with a bunch of questions. They know what they are talking about, they are not just sitting, they are not ignorant going into this interview. They've done a lot of research, and they know what the war was fought about. That's cool. That's

> what I found to be the most useful to them. And not just useful, it's the easiest to manage also in the classroom of 30 in terms of using it. So that's the best for me for history and geography.

Roger saw technology as a way for students to get access to the current events around the world and to get a whole lot of perspectives. His main goal with helping students use technology was to teach them to think critically and to learn how to do research. He believed that knowing where and how to find answers is more important than remembering the facts, and he wanted to use technology to encourage civic involvement. For this purpose, he often involved students in doing inquiry-based research. He described one of the lessons he did for his world Geography class:

> In our World Geography class, we studied the universal Declaration of Human Rights. We read articles, talked about the origins of Declaration of Human Right. I asked students to research human rights violations around the world. They got on Internet, visiting news services, CNN, different news places around the world. They downloaded articles, printed them out, read them, and presented to class.

Roger commented that this lesson was successful in that students not only learned more about the origin of the Declaration of Human Rights, they developed a sense of responsibility as well as ways to help improve the human rights condition around the world. Rogers noted that his next big project with technology was the "fund raising project." He described what he planned to do:

> I think it would be great for kids to understand the whole idea of fund raising and what kind of things they think are worthy trying to raise money for. Because I like to foster with the kids some kind of benevolence, an idea of looking around meeting needs of people. I like them to have an idea that there are needs on the planet, that if they are educated, they are wealthy, they have responsibility. So I was going to have the kids to research some topic or some cause around the world that people are trying to raise money for. They can get on the Internet, and they could do research on whatever the cause of the topic…and they put together the research they get in front of the class, give a five to ten minutes PowerPoint presentation…they act like they are fund raiser, trying to raise money for this

> cause. The goal is to make a persuasive speech [with pictures, statistics], and students kind of give fake money based on who do the best presentation.

Roger's idea of promoting civic involvement with the help of technology was impressive. Participants like Rogers were using technology to address the purpose of social studies. Technology was not used just for collecting information, it was used actually for cultivating in students a sense of social responsibility, the awareness of bettering society, and the capability of making intelligent decisions when facing critical issues.

With the same view, Daniel engaged his class in doing a simulation, which belongs to the simulation series "Decisions, Decisions." Among all these participants, Daniel was the only one who engaged students in doing some simulations in his social studies class. He described one of the simulations and explained how they did it:

> A couple of weeks ago, we did a simulation called "The Building of the Nations." They went great. In doing this simulation, they got teams of four, there are four focuses, and each one is different. They're all the presidents, they all have to get mindset, but at the same time, they are all in advisor pool. And they all have different perceptions of how he should come to a solution to the problems that they're facing. So it lets them see that we all have to make a good decision in order to do something well…And they got to see how tough it is to have to be put in that position and make decisions. I think they've really got a lot from it…

Mark continued to comment that this simulation helped develop students' critical thinking skills as a citizen:

> I do think it gives them a little bit more. It causes them to think a bit more. I think one of the things we're here for is to get them to use something, use their heads. not just to take what you are giving to them. Once they have been involved in the process they can think through, using higher order thinking skills, things of that nature to help them to come to their conclusion.

All these examples revealed that technology has offered social studies teachers tremendous opportunities to engage students in inquiry learning and thoughtful activities, and technology can be seamlessly integrated into social studies classes to facilitate development of students' higher order thinking and problem-solving skills. In doing student-centered research activities, the participants made a conscious effort to lead students to explore fewer topics in depth, provided students with ample opportunities to think critically about social issues, and made social studies more relevant to students. In using technology, students took an active role in the learning process and they made a lot of decisions about what topics to research and how it could be conducted. Students took on the teacher's role in presenting the materials. In the whole learning process, it was the students rather than the teacher that manipulated technology.

However, using student-centered methods does not mean that students were totally on their own. As previous examples show, most of the participants served as facilitators in the student learning process. To make sure that students get what they need, participants still gave students some criteria to look for to guide their research. Basically, the instruction is focused on helping students understand ideas in depth rather than remembering isolated concepts and facts.

In using student-centered methods, participants assumed new roles to encourage students to pursue their own inquiries, to make use of different types of technology tools to gather, organize, and interpret information, and to become reflective and critical about information. Participants were no longer transmitters of information to relatively passive learners, rather, they became a coach, a guide, a mentor, and a facilitator, providing students with the tools that they need to research, explore, and make meaning (Baylor & Ritchie, 2002; Clark, 1992; Diem, 1999; Ferguson, 1997; Hope, 1998; Kook, 1997; OTA, 1995; Wenglinsky, 1998, 2001). Participants organized the learning environment, assigned students to work collaboratively, and supported

students' construction of their own knowledge. They encouraged students to explore and reflect upon what they learned, involved students in activities that helped develop higher order thinking skills, and worked with other students to apply knowledge and skills in a variety of challenging tasks. In the process of integrating technology in the classroom the teachers' traditional role as a dispenser of information shifted to a facilitator of information. This change of role offered students more autonomy in learning and allowed great opportunities for both teachers and students to engage in high quality of learning experiences that generate higher order thinking skills such as synthesizing, interpreting and hypothesizing (Dede, 1990; Fontana et al., 1993; Harris, 1996; Hopson et al., 2001-2002; Ryba & Anderson, 1990).

It is interesting to notice that in guiding students' research, most of the middle school participants preferred using the student-teacher negotiated methods in doing online research to student-centered methods. Most of the activities were conducted in the classroom or the computer lab so that they could manage students' learning. Most of them would give students specific websites to visit and specific guidelines to follow. On the other hand, high school participants were more likely to engage students in student-centered activities and a lot of the projects were allowed to be conducted outside class. They gave students more autonomy to control their learning and mentored them only when they needed. This suggests that participants at different school levels have somewhat different concerns when involving students in using technology and these concerns affect how they may integrate technology into the classroom.

It is obvious that these participants made conscious efforts to try to integrate technology into their social studies classrooms and they were using technology in a variety of ways. Many examples were offered to show how these teachers were using technology to engage students in exploring information, doing inquiry-based research, and giving student-led presentations. Both

teachers and students enjoyed doing these activities. However, enjoying these activities does not mean that participants will conduct these activities frequently. Use of technology does bring about some changes to many of the participants, but the change may not be as radical as many people would have imagined. The following section deals with the impact of technology use on participants' teaching style.

Impact of Technology Use on Social Studies Teachers' Teaching Style

As the previous section shows, participants in this study offered a large number of examples of student-centered activities in using technology. When asked about their successful lessons of integrating technology, almost all participants mentioned the student-centered technology activities. Most participants expressed a willingness to use technology and they felt that student-centered technology activities were most desirable, yet they concurred that student-centered methods can only be conducted when and where they fit. Participants acknowledged that student-centered activities engaged students in learning knowledge in depth and in advanced problem solving, and they enjoyed doing these student-centered projects with technology. However, participants expressed concerns about when and where they should engage students in doing these kinds of activities.

Most participants with successful experiences of using technology mentioned that they used technology when and where it fit and they considered technology as another resource to enrich their teaching. Although they loved technology and wanted to use it more, they would like to use it flexibly. Most of the participants said that they would use more technology but not necessarily on a daily basis even if they had all the resources available. They emphasized that

whether to use technology to engage students in student-centered activities would depend what content they were teaching, how much time they had, and what was the most important thing at the moment.

Participants noted that although student-centered activities enabled students to explore knowledge in depth and students were motivated in learning, it often took too much time. That is why they often prefer giving students specific information. This thought was shared by 12 of the 17 participants. These participants all expressed that they were positive about integrating technology into the classroom, that they tried to use technology whenever they could, that they would definitely use technology even more if the necessary resources were provided, but they would not replace their teaching with technology. What Tonya said below reflected a general consensus:

> [I will use technology] maybe or maybe not on a daily basis, it just depends what I'm doing, whether I'm introducing the lesson or whether we are in the middle of the lesson, or whether we are at the end of the lesson. There are some days where I just want the students to work on something specific. I would use technology even more, but I wouldn't replace it. I don't think technology replaces the basic textbook, unless the textbook is on the Internet.

These participants emphasized that they did not want to be pushed to use technology and they would use it when necessary since they had already seen the benefits of using technology for teaching and learning. They stressed that teachers should not use technology just for the sake of technology, they need to use technology when it most fits, as George summarized below:

> If it fits, I like to do it, if it doesn't fit, I don't want to try to force it fit. So there are things that I can do, there are things I don't want to try. Technology is just another avenue of that. It depends on what you want them to do, do you want them to do the research, do you want them do the discussion. If I'm doing an assignment where I want them to practice doing research, we can go to the

> computer lab and do some research, try to find it on your own, but if I'm looking for the discussion, I prefer just handing out these stuff, I like them to discuss, not waste time searching the information.

George said that he would "pretty much just use the same" even if he had all the resources available. He would continue to ask students to do some research projects, probably add little things like that over the next few years, but he was not going to change his pedagogy totally. He explained:

> I'm not going to go out of my way to create something just to do it. It's going to have to fit in what I'm trying to do. I'm not just going to try to come up with something cute to do, because I'm not going to waste my time. I've got too much to do. So it just depends on what you are trying to do and what you are trying to accomplish. I think the first thing you need to do is to look at what is the optimal goal of the lesson you teach them, and if it is something where computer will help the kids learn it, and if not, don't fool with it. If so, then use it, and use it well.

Students in George's class traveled "around the world in eighty days" by using technology. For this project, George asked students to create a travel book brochure to go around the world, and go to all the same places Philleas Fogg went and put together like a travel package. Students got to do the things that they did in the book, but instead of by train, or by elephant or by steamer, students could take whatever mode of transportation they wanted to take, but they had to research a different mode of travel twice to get prices. Students explored the Internet, created graphics, and they made a travel book brochure using Microsoft Publisher. In the whole process of doing this project, George allowed students a great deal of freedom to plan the trip and he felt that it worked really well. However, George thought that this project could not be done with every class because it took too much time. He explained:

> We all enjoyed it, but it took some time, that's not something I can do with class time in world history, because I don't have the time to do it. I've got to cover this, this and this. But with my gifted kids I just can do whatever I want. So my problem is the time. It just takes so much time to really do something productive.

Teachers have practical concerns in their teaching, such as time, curriculum, and testing. They accepted technology and enjoyed using technology, however, to them, technology is still something extra, something they can live without, as Linda said:

> We have so much pulling away from our curriculum and time. Somewhere you got to make up for all that time, and a lot of times you got to dump something. When it gets dumped off, it's technology. So for me to make up for the time I've lost with these things that turn my class time, I have no control over it, I have to drop something off. And sometimes it's the videos, sometimes it's our computer day, but usually whatever it is, it is related to the technology, because that's an extra. It gives the students more understanding of what we are studying, but if not necessarily for their survival.

Because of this curriculum, time, and testing issue, Linda felt limited in using technology all the time and she said that it would be impossible for teachers to use technology everyday, especially using technology to conduct student-centered activities. She continued to explain:

> I like technology and I like to use technology, but if I sat down, and dedicated a technology lesson with every chapter, the time it would take would be tremendous. So that's why every year I add new one in. And sometimes I'm scheduled to go to the computer lab, I'll take my name off, because our tests coming up, like the CRCT, and they judge your teaching on how well your kids are doing on CRCT. A lot of technology to me is extra that I can pull in…so I have to make some choices a lot of times, as to how much time I have, and how much the benefit will it be. I think we just
> use it when we can and where we can. I don't think we need to run the computer every second just because it's there. I think, they need to learn beyond that.

After describing all her joys of using technology and her concerns about using technology, Linda gave a kind of summary:

> You have the time issue, and you have the curriculum issue. While you really should be doing, and while you have to cover, and while you have to do. Because a lot of things I really want to get in depth, in issues and background, and I can't, because I have too much to cover. I have 56 objectives on the Study of Georgia, and 180 days to cover them. And you have got 10 days for testing. It's just hard to do, and you kind of get that mind-set when you are teaching. Teach the curriculum! Teach the curriculum! And with all this, they want us students [to have] learning focus, and a lot of use of technology, and they want us to do this,

> they want us to do that, sometimes you go like, when do you want me to teach? Because I'm doing so much fun stuff, that kids aren't getting what the state of Georgia says they must have in order to know about Georgia history.

What Linda said here reflected the thoughts of quite a number of participants. Even if the participants had the technology skills and they were positive about integrating technology into their classes, given the issue of time, curriculum and testing, they must think when and where technology would best fit. As Chapter 5 reveals, most of the participants commented that with the InTech training, they developed positive attitudes toward technology and their competence in integrating technology has been greatly improved. Most participants have infused technology into their social studies classes. Examples provided in the previous sections also indicate that in using technology the role of the teacher, the student as well as technology all changed. Most participants became optimistic about integrating technology and they enjoyed engaging students in doing student-led presentation and inquiry-based research. However, data analysis shows that use of technology does produce some changes to participants' existing pedagogy, but the change is not drastic.

Miriam noted that the laptop project changed totally how she and her students used technology in her class. She was able to communicate with the kids with email whether the students were at home or at school, and she had them do many assignments on the laptops. She was able to involve students in student-centered activities. However, she admitted that most of the times she was using technology to facilitate her lecture and students were using computers to take notes or search for information. Access to laptops does not ensure that teachers will always use student-centered methods.

Steve mentioned that he used technology a lot and had conducted many student-centered activities. He claimed that his teaching style changed, but it was just the technology part. He was using technology to better do what he already did, but he remained the old "interactive lecturer." He explained:

> I'm pretty much an Interactive lecturer. I try to incorporate many different areas, for the visual learner, for the hands-on learner, for the group worker, for the book worker, the one that wants to work on the book. I try to be varied. I try to use as many various techniques as I can. My teaching style is changed, just the technology portion. I think I've always been the same kind of teacher in the last 10 years in regard to varied activities, and in changing things up to meet my kids' needs. But I think with technology, when you have more opportunities and more availability, I have changed into the more technology definitely, but I think I just use the technology to better do what I was already doing.

As Steve expressed, many of the participants were able to use more technology in their classrooms and sometimes engaged students in using technology to obtain information or to do inquiry-based research, but their teaching style did not change that much. Linda described that:

> Some things haven't changed because I always love to lecture. But some things have changed. I try to get the kids to use more technology, in doing things for me, giving them choices where they can go home and use their computer, and have that ability to go out and search. And doing activities where they do have to think more beyond the box, and get higher order thinking. I just used more technology.

Lauren said that her teaching style changed, but at the same time she also mentioned that this change may relate to the different students she taught:

> It's changed. It doesn't really have to do with technology, but you just have to change from depend on your kids. I mean, the students are different every year, so you have to change and teach what's best for them. Some of them don't learn well aurally, they have to see everything, I give them a lot of freedom now in their research project than they used to as far as going there and getting their information. I have done more with technology over the past few years, increase a little bit every year what I do.

Tonya, too, noted that her teaching style was changed. However, she added that the change was related to the different course she taught and the technology tools she used.

> My teaching style is definitely changed. One, because I'm teaching the different subject, but secondly, because I've learned how to integrate technology, so I've been using technology more, whereas before I used the basic tools like projector and VCR, they were more traditional styles of tools.

The data indicates that acceptance of technology does not necessarily ensure a radical change in teacher's instructional practices and there will still be some factors that affect technology use in the social studies classrooms. InTech training did give participants an opportunity to develop their expertise in the use of technology for social studies and most of the participants have incorporated technology into their existing pedagogy in many and varied ways. However, technology integration does not ensure that every participant would accept and use technology in their classroom instruction. Teachers are practical and they have many concerns and they need to think carefully about when and where to use technology, especially to use technology to engage students in student-centered activities. A variety of factors will affect how they are using technology in the classroom. Chapter 5 provides a detailed description of how technology integration training impacted on social studies teachers' use of technology and what barriers and challenges they were facing in designing and implementing technology-connected lessons.

CHAPTER 5

IMPACT OF TECHNOLOGY INTEGRATION TRAINING VS. BARRIERS

Introduction

The major purpose of this study was to explore how social studies teachers who have completed technology integration training perceive and use technology once they have returned to their classrooms. The study was based on the belief that technology integration training can positively affect teachers' attitudes toward technology and encourage the use of technology in the classroom. Chapter 4 dealt with social studies teachers' perceptions of technology integration and the many and varied ways in which they used technology for social studies instruction.

Secondary social studies teachers were found much less likely to use technology for instructional purposes than teachers in other disciplines (Anderson & Becker, 2001; Ravitz, Becker & Wong, 2000). Lack of technology integration training was cited as the biggest obstacle to technology integration in social studies curriculum (White, 1988, 1997). Researchers argue that to effectively integrate technology into the curriculum, teachers need to participate in professional development activities that teach them how to integrate technology into the curriculum (Baylor & Ritchie, 2002; Diem, 1999; Grant, 1996; Lowther et al., 1998; OTA, 1995; Redish, 1997; Reynolds & Morgan, 2001; Roberts, 2003; VanFossen, 2001; Wenglinsky, 1998). Considering the poor use of technology in social studies curriculum, it is important to understand how technology integration training affects social studies teachers' instructional practice, what barriers and challenges still exist to inhibit them from effectively using technology, and finally what factors other than technology integration training might help them grow into enthusiastic technology using teachers.

This chapter examines the second research question: how has technology integration training helped social studies teachers achieve their present level of technology use? To answer this question, the data is analyzed and discussed from three lenses: (1) the impact of technology integration training on social studies teachers; (2) barriers and challenges that social studies teachers have encountered while designing and implementing technology-connected lessons and how they cope with them; and (3) factors that have helped participants grow into enthusiastic technology users.

The chapter begins with a description of how technology integration training affects participants in this study. Then it focuses on the barriers and challenges that participants encountered in integrating technology and the strategies they used to cope with these barriers and challenges. The chapter ends with a discussion of the factors that have helped some of the participants grow into enthusiastic technology users.

Impact of Technology Integration Training

Participants in this study varied in age, gender, teaching experience, and technology history as well as classroom setting. Twelve out of the 17 participants indicated that participation in InTech training positively changed their attitudes toward technology, improved their skills, and helped them develop new insights and new ways for teaching social studies. There was no indication that substantial change of technology conditions occurred within participants' classrooms after the InTech training. Computers, software, and classroom ergonomics were not altered much since the training. All participants reported that before the training they had at least one Internet-connected computer and some also had a television set accompanied with VCR in their classrooms. Half of the participants had one more computer after the training. The change was small. However, most participants noted that they had experienced changes in their attitudes

toward technology and the ways in which they used technology in their social studies classrooms. Before the InTech training, the majority limited their use of technology in the classroom to showing videos and the basic use of Microsoft Word, email, and Internet websites. Only four participants mentioned that they used PowerPoint for presentations and Excel for making spreadsheets. No participants ever asked students to use Microsoft Publisher to make brochures. Software programs such as Inspiration and Timeliner were not available at most of these schools, nor were participants aware of these programs.

Participants acknowledged that InTech training exposed them to a great variety of software programs and Web-based resources appropriate for social studies teaching and learning. These included Microsoft Excel, Microsoft Access, PowerPoint, Publisher, Inspiration, Timeliner, and online programs, such as the Stock Market Simulation. All these programs became available at their schools when these participants were attending the InTech training. Participants also learned to use a digital camera and a scanner. Since their training, most participants have not only used these programs for preparing lessons and making worksheets, but also involved students in using these programs to learn textbook-related information and conduct social studies projects. Although the Internet was mentioned as the most commonly used technology tool for obtaining information and doing online research, PowerPoint, Inspiration, Timeliner, and Microsoft Publisher were mentioned as the most successful tools for conducting social studies projects. Five participants, Tonya, Steve, Carol, Linda and Mort claimed that they engaged their students in using camcorders and scanners to do history and geography projects.

InTech training, as revealed in Chapter 4, exposed participants to a great variety of new ideas and insights of how technology can be integrated in the social studies curriculum. It positively affected most of the participants and their instructional practices. However, not every

participant experienced the same degree of change. While most experienced fundamental changes in their attitudes and instructional practices others experienced small or even no changes. Participants also differed in terms of their perceptions of InTech training as well as the impact the participation in the training has on their instructional practice.

Participants entered the training program with different technology backgrounds and these differences influenced their InTech learning experiences. Data analysis revealed that participants who had little use of computer technology for instructional purposes before the training experienced a transformative change in their attitudes and ability to integrate technology into the curriculum. Previously more experienced participants regarded the training as a great opportunity to refresh their skills and update their knowledge, and they were able to use technology in more creative and effective ways. New teachers did not feel that they benefited from technology integration training as much as the other two groups. The following section examines the different impacts the InTech training had on these groups of participants.

Impact on Novice Technology Users

Participation in InTech training was considered as an enlightening and worthwhile experience to participants who were beginners in computer use. Before the training, these participants had a very limited use of technology in the classroom, which generally was confined to the use of overhead projectors and VCRs. Although they had computers in their classrooms, these participants did not make deliberate efforts to use them for instructional purposes. As most traditional teachers who think that they must hold students accountable, these participants were practical and very cautious about using technology. They were reluctant to use their classroom computers because they lacked confidence and this made them feel uncomfortable. Lack of technology skills and fear of failure made them unwilling to try. Most of these participants

expressed that InTech training opened an avenue to them and helped them realize how technology can be used to empower social studies teaching. Their confidence in integrating technology has been greatly improved through the training.

Daniel was such an example. Daniel described himself as "pretty much a novice" before he took the training. He said that he "had a computer in the classroom for about 10 years, and has learned basic things about word processing, knew how to type letters," but other than that he "had no idea how to use it for instruction." Daniel shared what he learned at InTech and thought it as an enlightening experience for him:

> They [instructors at InTech] gave us a lot of things about what to use and how to use resources... You basically get fifty hands-on hours of using different things each time. You did Inspiration one day, you did PowerPoint, Digital cameras, just all sorts of means. [It is] very enlightening to me, because, before, I just really wasn't comfortable, but now it's not a big deal. So I think it's been very beneficial for me as an educator to grow.

Daniel reiterated that InTech training did make him much more familiar with computers and he started using it regularly to better benefit himself and his students.

The same was true of Mort. Having been involved in technology for almost half of his life, Mort admitted that he did not actually use computers for instruction until he went through the InTech training. Mort explained how InTech training changed him and affected how he used technology:

> I needed it [InTech] so badly because I could do simple word processing, I could do slide presentations, but I learned so much more when I was there. I didn't know about spreadsheets and a lot of other stuff until I got into InTech. Now I use spreadsheets and different programs all the time. I use different ways to teach social studies now.

Mort believed that his instructional practices have greatly changed because of the InTech training. He said, "before InTech I used as much technology as I could, but usually slide

projectors, overhead projectors, [and]… videos. History doesn't change that much, but [after InTech training] I used technology more often and in many more ways."

Ron, who used to use technology only for students to have fun, considered InTech training as a transformative learning experience. He described how he changed through the training:

> Before InTech, I wasn't very comfortable with what I was doing. So I hardly did it. Once a quarter we went to the lab for fun. I didn't even give them any assignments for technology use. It's totally different now. Now I'm comfortable with technology myself because I can glance at this screen and know what I'm doing. Encarta, word processing, publisher, those are the basic ones I'm using. We just finished a project. The students searched the Internet for information, typed it in word Processor and made brochures using Publisher. It's wonderful.

Hilary had the similar experience to Ron's. Like Ron, Hilary rarely used technology before the InTech training. For fear of failure, Hilary never tried to use computers for instructional purposes although she had one in her classroom for many years. She said that the skills she learned at InTech made her much more comfortable and confident of using technology and she was now willing to try different technologies for her class. She said that she was much different now thanks to the InTech training:

> I'm sure my teaching has changed a lot because I did learn a lot at InTech. Maybe I did some of the same things, but I just did it to get technology in. I have used more technology and the students are using more technology since I know more. I'm definitely more knowledgeable. I'm willing to try to do different things with
>
> technology. Before, I just start, OH, I can't do that, close the door and didn't try. But I'm now willing to try, and see if I can teach some different concepts dealing with technology.

Not only was Hilary willing to try, but she tried to apply the programs she had learned in InTech to her teaching as well. Hilary mentioned the graphic organizer Inspiration as her favorite

software program. She constantly used it for brainstorming activities and had students use it for making concept maps and for creative writing. She also engaged students in making history timeline using the Timeliner program. Hillary had a large collection of students' technology-related projects and artwork. During our interview, Hillary proudly showed me those projects.

These participants came to the training with very little knowledge of computer programs and limited use of computers for social studies instruction. They were uncomfortable with integrating technology and felt they were being pushed to use technology. Since the InTech training, they have experienced great changes in their attitudes toward technology integration and increased their technology competence and confidence in infusing technology in the social studies curriculum.

Impact on Experienced Technology Users

Even to participants who were more capable of using technology before the training, InTech training proved to be an opportunity to obtain new ideas and new ways of integrating technology into the social studies classroom. Participation in the training was considered a valuable and refreshing experience. Being exposed to a variety of programs and skills, these participants went beyond the basic technology skills and learned to incorporate technology into their classrooms in more efficient and effective ways. Carol, Tonya, Steve, Mark, Lauren, Roger, and Linda all fit into this category.

Carol had used some technology since she graduated from college nine years ago, but she acknowledged that through InTech training, she obtained quite a few new things that she did not know and learned how to better incorporate technology into her lessons. She described how she felt about her InTech experience and how InTech training influenced her teaching:

> I've always been fairly comfortable with computers enough to make it do what I want to do. I've been able to do some simple spreadsheets, things like that, but never to the extent to be able to use all the different programs. Through InTech I learned how to feel little better with PowerPoint, how to use Microsoft Access to a small degree, just some of the other basic programs, and how I actually incorporate that into a lesson. I've used Inspiration and Timeliner for history class. I did some PowerPoint presentations and projects, used Microsoft Access, Microsoft Publisher to publish brochures on religions. And a lot of Internet research. I tried to use a little bit of everything. I incorporated them all into my lessons and facilitate my lessons. I've used the digital camera and created various documents. I really enjoyed the InTech class, where I was able to take some things, get some experiences on some programs that were out there available, that our school here had invested in a lot of the programs taught at InTech. So we were able to come back using it here in the classroom.

To Carol, what she enjoyed most was that a lot of the examples shown at InTech training were related to social studies content:

> I enjoyed my InTech class to the extent that a lot of the examples are social studies examples. Most what we did in class I could bring back and almost apply immediately with my students because I taught social studies.

As an experienced technology user, Carol felt that she benefited a lot from the training. She is using more technology than before and in more effective and creative ways. She mentioned that she would not have attempted some of the lessons she had done if she had not attended the InTech training. She thought the lessons she designed and implemented during her training were successful and she continued to use them over the past two years. She explained:

> I use technology more frequently after InTech training. I probably would not have attempted some of those lesson plans, even really taking the time to design them had I not been in the InTech class. Now I have the lesson plan designed and I've been able to easily modify it to fit different subjects, to put it in when I could use it. I took the class because it was eventually going to be required for my recertification, but there was also that interest, and then I knew just a little bit about it and I wanted to find more so that I can actually create some lesson plans, actually incorporate it and use it. And I'm still doing that every year, using the same lesson plans.

Another participant, Steve, had a lot of experience of using technology before the InTech training. Although he considered the training as a valuable experience to him, his perception was a little bit different. He gave a detailed description of how he tried to make use of the training to improve his skills:

> The InTech was pretty much for the certification, a lot of the things I did know, but more opportunities, more programs, more ways I can use computers for my kids, and as teachers we learn as well. I feel like I benefited a lot from the class. I made it benefit for me, because like there were certain days within InTech, we did things that I already knew, but I feel like I was provided the flexibility if I already knew something, then I could go beyond that to find a way, a new way to use it. If I already knew how to do it, then research and go farther and see how I could use that. Take PowerPoint for example. Not everything about PowerPoint that I know. We went over it, I knew the basics, what I want to go is advanced, what else can I learn about it, because I don't know everything about PowerPoint. So I just went beyond that. If I already knew, I just move on and say it's OK, if I'm going to be here, then let me take advantage of it. So I took advantage of them for me, and it was beneficial to me.

Like Carol and Steve, Tonya and Lauren were competent in using technology. However, they often felt limited in how they could infuse technology. They claimed that InTech training familiarized them with much more software and enabled them to practically and seamlessly incorporate technology into their social studies classrooms. Lauren said that before InTech training, she used the Internet for information but only asked students to write papers using Microsoft Word. Through InTech training, she "learned to do different stuff, such as how to do PowerPoint, use Publisher to make brochure, and all those programs for different activities." She claimed that InTech gave her "more options, more ideas, more ways to use technology for the students." Tonya named even more programs she has used since InTech training and the ways she has used them:

> Before I took the InTech I already knew how to use technology, knew how to use PowerPoint, but I was not very familiar with digital camera and some of the software programs, such as Inspiration. I was unfamiliar with that, so I did learn.

> I've been using Inspiration for the students in history class. I've also used Inspiration in economic class. We look, compare, and contrast the different media, whether the effectiveness of using the television versus the radio, or the newspaper. I've become more familiar with Excel and did teach my students to do it in my economic class. They were given a budget, and they were told how much money they had for all different items they had in their budget. They had to come up with a visual of a pie graph, what they've used in each of the areas of their budget, different things in chart. I thought that training was very valuable. And I have been using a lot of what I learned in InTech.

Tonya was glad that most of the programs that they were taught in InTech were available in her school. She noted that InTech training was beneficial to her and she perceived technology differently from what she used to think:

> Before I probably thought technology as something that is for my personal use if I choose to, I didn't really think as much about integrating as much as I do now. So now I see how effective it can be to integrate it into my classroom, into my lessons.

Mark made the same comment when he tried to explain how InTech affected his teaching:

> Before I would look it upon as more a mature type of work to get this lesson ready, particularly if we can do it everyday it would be something I would be dreading, but after InTech, I could see how it would not be difficult to have a computer lesson every day provided with technology. So that's a big step I would say for myself. Before when I made lessons involved technology, I would seek up help and questions from other people that are familiar. Now I was quite comfortable. Mostly on my own setting up my lessons. So, that's a big step.

All these participants agreed that InTech not only gave them new insights of how to infuse technology into the classroom, but also gave them more comfort and confidence to use technology more effectively. Mark believed that what he obtained most from InTech was the comfort level to integrate technology into his classroom:

> Before InTech training, I was already using a lot of technology in these lessons. With the training, I was able to develop a little bit more. Basically what InTech provided for me was the confidence using the computer and the different functions, the graphic arts, search, charts, and timelines. But the comfort level it gave me in using computer is really the biggest thing I've got out of these InTech lessons. Not the bells and whistles of all the stuff you could do with computer, but just the

> comfort level for myself and what I can do with it. My understanding of the different functions of different programs was certainly improved by the training as well. I do use it more often than I did.

This group of participants had accumulated some experience in teaching and in using technology before the training. The InTech training was required for recertification; however, they all believed that this training was valuable and worthwhile. They were excited that they had been exposed to new insights, new programs, and new ways of using technology and computers for social studies teaching and learning. With this training, they were able to apply many skills and ideas they learned at InTech training to their classrooms. They became much more confident and comfortable in using technology for instructional purposes. InTech training was recognized as a great opportunity to update their knowledge and to benefit themselves as well as their students.

Impact on New Teachers

Compared with some veteran teachers, new teachers could be expected to be more capable of using technology because their teacher educational programs typically incorporated more technology. However, new teachers' use of technology may also be inhibited because they need more time to become familiar with their students' learning capabilities, the contents of their subjects as well as practical teaching strategies before they develop ways to integrate technology into their classrooms. For these reasons, new teachers may not benefit from technology integration training as much as teachers who have had more experience of teaching social studies. This was the case for two participants, Luke and Roy, who, with three years and one year respectively of teaching experience, were relatively new teachers. For both of them, the training itself was good, but they did not feel they benefited much from the training because they were to some degree "repeating what had been taught at college." Despite this, they did mention

that they learned some new programs. Luke emphasized that he has been using the Stock Market simulation, which is a Web-based economic simulation game that he had practiced at InTech, for his economic class over the past two years.

Roy seemed to have a very negative experience at InTech. Roy explained that it was not because the InTech was not good, but mainly because he was in his first-year of teaching while he was taking the training. Roy did not think it a good idea to have new teachers attend the training while they are struggling to survive in the classroom. He described how he felt at the time of the training:

> I got frustrated in InTech. I think it's good for people who have been teaching for a long time and don't know anything about technology. It's good for teachers that taught for a while, maybe set their routine, and have things built on their way, and then they go to InTech, they learn how to integrate more stuff into their classrooms. But it's not good for me, a first year teacher. I have to do all the lesson plans and teach classes with technology and all the stuff, which frustrated me. Because it kind of took me out, I have to sit there trying to plan for my classroom, and I'm writing the lesson plans a day or two in advance. And here I am, I have to teach six different lessons and have to make their criteria, and worry that the lesson plans that I am going to do is not good enough for them. So I got frustrated with it. And it's not that InTech wasn't good, it's just I got frustrated. I got overwhelmed at everything. InTech is not for first year teachers. The first year it's just kind of overwhelming. You got all the stuff thrown at you. You just have to try to figure out what you are going to do in the classroom itself. So I was less prompted to try things last year because I was trying to figure out what was worth the period. I'm not going to try something that I don't feel comfortable to do it when I don't really know what I'm doing anyway. So that got me frustrated last year. I enjoyed it, it has good aspect, but I don't feel I got the most of it because that factor I took it my first year, then I was trying to do everything else.

Despite this frustration at InTech, Roy was able to use some technology in his classroom. Roy wanted to "reach students of different learning styles," therefore, Roy did a lot of PowerPoint presentations in his world history and geography class. He admitted that he "may have overused them." His frustration indicated that new teachers should be given more time to get familiar with their students and their courses, and to reflect on their teaching. As Roy said,

technology integration training may be more beneficial to teachers who have had more teaching experience so that they could infuse what they learned into their classrooms.

Becoming more familiar with new computer programs and being confident in using them in many and varied ways were seen as the most important outcomes of InTech training. However, there are other skills that participants felt that they have learned at InTech and applied to their instruction. These skills include how to deal with students who have different levels of computer skills, how to evaluate websites, and how to conduct web-based research projects. These skills were very important in helping teachers cope with various barriers encountered in social studies classrooms. The later section of this chapter will illustrate how participants applied these skills to cope with these barriers and challenges.

Most of the participants commented that with the training, they developed positive attitudes toward technology and their competence in integrating technology has been greatly improved. However, more than half of the participants felt overwhelmed with InTech training presenting too much information within a single day. They noted that they were not able to practice the skills they learned at InTech because of their own classroom time constraints, and thus they lost many of the skills.

Participants, especially participants who were more competent in using technology, remarked that they would have benefited more from their InTech training if teachers had been divided based on their technology proficiency levels. Doing so would have allowed participants to move beyond their present level and learn new skills and programs.

Most participants were satisfied that skills and programs learned at InTech training were social studies related and they were able to apply what they learned to their classrooms. Only two participants suggested that the training program be more subjected-oriented.

Interviews revealed that most of the participants had no technology training other than the InTech training. The only type of training most have attended since InTech was to learn how to keep student grades and attendance on computers. Daniel described what the training was like, which was common in all the schools except Miriam's school:

> We had workshops on things that we need to do as teachers to make school run more efficiently, like post our grades, and keep attendance that we do through the computer, but not things that would enhance our teaching.

Participants realized that technology develops so rapidly that it is unlikely that they will ever keep up with the latest development. Most of the participants expressed that they would like to have a follow-up training just to refresh, update their knowledge, and learn new programs and new ways of integrating technology into the curriculum.

These findings are consistent with the findings of my pilot study. As in the pilot study, most participants in this study made very limited use of technology in their social studies classrooms before the training. Through the training, participants learned a variety of new technology tools and ideas for social studies teaching. Most were able to apply the skills they learned at InTech to their classrooms and they believed that technology integration training empowered them in how to teach with technology. As revealed in Chapter 4, most participants experienced some successes in implementing technology into the classroom and enjoyed the benefits that technology has brought them in teaching social studies. Most of them became more confident in using technology and serving as a facilitator for student learning. They also realized that technology integration was not just putting computers in the classrooms, but incorporating technology creatively and meaningfully into the curriculum to enhance teaching and learning.

Technology integration training, no doubt, has positively affected most of the participants in terms of their attitudes toward technology, confidence, and competence in using technology

for instructional purpose. Because of this training, they were able to use technology more frequently and more meaningfully. In spite of all these benefits, participants also indicated that they were also facing some barriers and challenges while designing and implementing technology-connected lessons. They reported that the training helped them overcome some of the barriers, but they were challenged with some new problems.

Coping with Barriers

Previous research revealed that social studies teachers have lagged far behind in using technology in the classroom compared with teachers of other disciplines (Anderson & Becker, 2001; Martorella, 1997; Ravitz, Becker & Wong, 2000). The reasons most often given by social studies teachers for not using technology in the curriculum focus on lack of technology integration training related to social studies content, lack of experience of technology use for curriculum purposes, limited awareness of appropriate software, lack of adequate software, and class management concerns (Becker, 2001; Berson, 1996; Ehman & Glenn, 1991; Northup & Rooze, 1990). Among all these barriers, lack of technology integration training is often cited as the biggest impediment to effective technology integration into social studies curriculum (White, 1988, 1997).

As the previous section indicated, InTech training did give participants an opportunity to develop their expertise in the use of technology for social studies. It also exposed them to many well-designed social studies software programs and new ways of teaching social studies. Most of the participants have incorporated technology into their existing pedagogy in many and varied ways. Since a large proportion of the skills and the programs teachers practiced and learned at InTech were related to social studies content, participants were able to apply what they learned at InTech to their social studies classrooms. However, technology integration training does not

ensure that every participant will accept and use technology in their classroom instruction. Teachers are practical and they often have a set of beliefs about teaching and learning that makes it difficult for them to change their instructional practices (Wilson & Bagley, 2001). Teachers' deeply-held pedagogical beliefs could still pose great barrier to technology integration.

Pedagogical Beliefs

In this study, although participants had taken the InTech training and have been exposed to the power of how technology can help teaching and learning, not every participant experienced a fundamental change of their teaching perspectives and practices or was willing to integrate technology into their classroom teaching. To these participants, the desire to maintain the traditional role as knowledge holder and dispenser still remains a large impediment to their use of technology in the classroom. These participants considered technology as an "intruder" (John's word) that inhibited them from directly interacting with students. They felt uncomfortable and uncertain about student learning when they had no control of their students. They felt their authority as sources of knowledge was lost by putting students in front of computers and they did not think that technology would help students learn better. Three participants in this study were less enthusiastic about using technology in the classroom. They were George, Kyle, and John. Among them, John was the most resistant. He said that he "had never seen where computer technology enhances learning," therefore, he "didn't see any meaning using technology." He did not "feel like the students would get anything out of me putting them before a computer." He believed that students took lab time as "game time" and "they didn't learn at all when they were in the lab." Rather, he would like to be in the classroom interacting with students and be their source of knowledge:

> I like interaction with kids. I like to be here. I want to be their source of knowledge. If I don't know the answer to a question, I'll go and find it. I want them to ask me

> questions, and I want to ask them a ton of questions because I want to make sure that I have a pretty good idea that everybody in my class understands what we are talking about before we move on. If you give them an activity to do in the computer lab, what I found is, you got four or five kids are doing them, and the rest of them sit around. It's kind of game, they just sit there, listen there, maybe copying some paper, maybe copying someone else's paper on Internet. They are not learning like that, they are not learning at all.

These participants realized that students were motivated by technology, but having been accustomed to their own teaching style and believing that how they were taught was the best way to teach, they wanted to motivate students themselves. John further explained how he tried to motivate students:

> I'm trying to find ways here, as a teacher, to get to motivate them. Try to find ways, takes the stuff most kids think boring and drudgery, and make it a little bit exciting, make it personal to them, make it fun. They will learn. That's just the way I approach teaching. That's based on a lot of the teachers that influence me. I look back and say, what classes I enjoyed most and learned most from, and it was those types of teachers. So that's kind of how I try to teach my students.

John hold a conservative view of technology use. In explaining it, John said "the way I'm teaching here they are going to get it, then why go in there [and] try to rearrange some way [where] they may not get it? So that's kind of how I feel like about technology, why I don't really use that much."

John and Kyle were resistant to technology use in the classroom, partly because they are comfortable with their way of teaching, and partly because they did not feel very comfortable or confident in using computer-based technology for teaching. As Kyle explained:

> Since InTech I have really not incorporated too much technology into the student use. I did not apply what I learned. I still find [it] very hard to do realistically. I have got used to my style teaching, and I'm kind of slow to change…and more important, I don't feel like I'm proficient enough to do that since I didn't apply skills learned at InTech and have lost them. I haven't found ways for really enhancing my teaching. I've just kind of developed a style that was before technology exploded.

John attributed his infrequent use of technology to the fact that he did not have time to apply what he learned at InTech at that time and he had simply lost it. He, too, acknowledged that he did not feel like he was capable enough to incorporate technology into his classroom.

Among these three participants who were less enthusiastic about integrating technology, George could be an exception. George was more capable in using technology than most of the teachers in his school, as he said:

> I'm fairly computer literate. Most of the people will come to me if they need something done on the computer… I do newsletters for the athletic department, I do school newspapers, a lot of schedules, signs and things.

George used computers personally on a regular basis and had conducted some successful technology-connected lessons in his world geography and history classes, yet he still did not feel technology fit his teaching style. He described his teaching style as "pretty bizarre" and explained it in detail:

> If somebody didn't know me and came in my classroom they would think somebody has escaped the insane asylum, because there is no telling what's going on in my room. I horse around and joke around. In my classroom, it's kind of laid back, it's kind of relaxed that atmosphere, because every teacher develops a teaching style based on their personality. So I have to do what fits my personality when I do, and I think part of that is the technology. I like to entertain when I teach. I like to cut up, and I like to joke around. If they are all at computers, I kind of feel like I'm not getting to play, so I'm bored. If I go to the computer lab, I'm bored and stupid for what I wouldn't have. I hate it, I hate going down there because they are all at computers, and all I do is they put the yellow cards up and I go up and help them. And I hate it! I just absolutely hate it! And I guess part of it is I'm not getting to play. When I'm teaching, I'm playing. I'm having the ball…. I feel like the kids learn that way, and I feel like I do a good job that way. So why I should change with it if what I'm doing is not broke? Why should I fix it if I'm not doing very good teaching in the computer lab? That's one of my weaknesses. On top of that, I got a bad attitude about it and it won't get better.

Having fun through interaction with students and believing that students learn best in this way made George feel very frustrated when being pushed to use technology in the classroom. He

firmly believed that teaching with technology was impractical and purchasing technology was totally a waste of money. Having taught for 10 years, George said that he did not "want anybody to tell me how to teach, unless I've totally screwed up."

George's resistance to the use of technology came from his own experience of learning in an online graduate course. He said, "I've taken college courses over the Internet and I didn't learn anything." George observed that he was the kind of person that learned most from interactions with other people and he did not think that students would actually learn from interaction with computers. Contrary to most participants who felt a duty to prepare students for entry into a society that demanded familiarity with technology, George believed that there was no need to teach students computer skills at school since they will be trained how to use it as soon as they enter their working place.

While technology integration training can positively influence teachers' perspectives and behavior, it does not ensure a tremendous change in everyone. Teachers' long-held pedagogical beliefs and teaching styles may still pose a great impediment to their acceptance and use of technology.

New Dimension of Barriers

Previously reported barriers included lack of experience of technology use for curriculum purposes, limited awareness of appropriate software, lack of adequate hardware and software, and class management concerns. However, having accepted and successfully integrated technology into their classrooms does not mean that participants no longer had problems with access to hardware and software. To many of the participants in this study, these barriers still exist, but they were not reported as major barriers. In fact, there is a new dimension to previously reported barriers, and participants reported facing some new challenges that inhibit them from

effectively using technology for social studies teaching. Data analysis indicated four major barriers confronting the participants: accessibility, overwhelming amount of information for social studies, differing technology ability levels of teachers vs. students and among students, and low-quality student work. Figure 5.1 offers a visual representation of these new barriers.

Accessibility

Lack of access to hardware was reported as a major barrier in previous literature; however, it was not cited as a major problem by the participants in this study. Only four participants, Linda and Hillary in Greensville Middle School, and Mark and Ron in Lawrence Middle School, mentioned lack of access to computer labs as the major barrier to their more frequent and effective use of technology for social studies. Although the other participants did not mention this as the major barrier, that does not mean that they no longer have access problems. Most of the other participants in this study mentioned that they were able to schedule their class in the computer lab if they signed up ahead of time, but they wished that they could have more computers in their own classrooms.

Competent as she was, Linda felt most challenged by not being able to take students to the computer labs for the projects she wanted them to do. She explained her frustration:

> Accessibility is a big problem. Most of the times we studied the lessons and they had to wait for maybe two weeks to get their technology connected projects done, and at this time students have forgotten most of the content. Some kids who have computers at home can do the Internet research and do their projects after the class; however, those who don't [have computers at home] have to type and search in the lab maybe two weeks after the lesson.

Although she had a lot of great ideas and projects that she wanted her students to do, Linda felt very limited in what she could do because teachers in her school were only allowed to use the computer lab for one or two consecutive days every eight or nine weeks. This concern

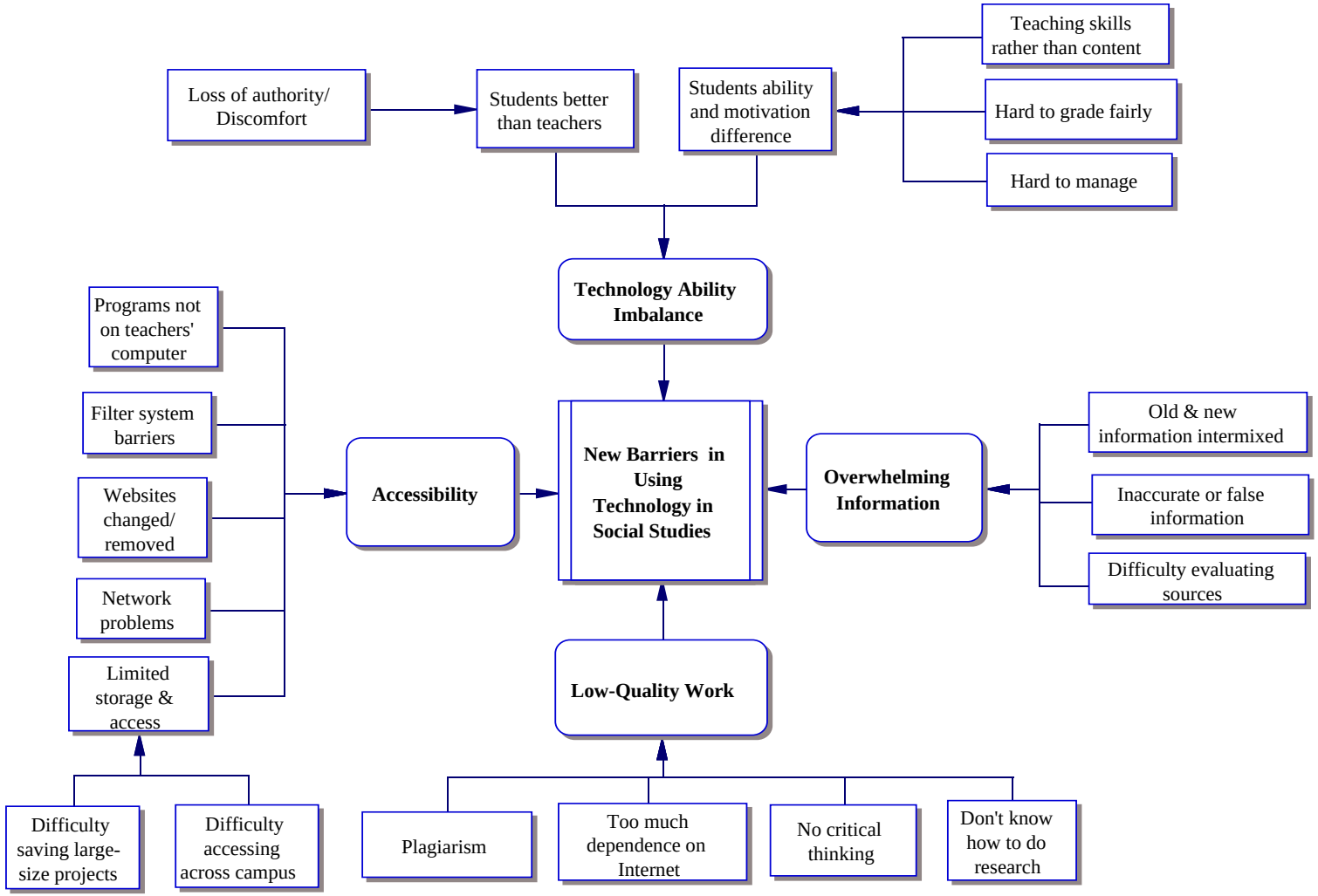


Figure 5.1 New Barriers in Using Technology in Social Studies

Note: : Old barriers (access to hardware and software, class management) were also experienced by most participants

was shared by Hillary, who worked in the same school. Mark expressed the same concern. Mark emphasized that since many teachers in his school were competing for the single computer lab that his school had, he felt it was almost impossible for him to use technology for 150 kids that he taught everyday, even if he loved to "use technology in the classroom as much as possible" and had three computers in his classroom.

Another concern commonly shared by participants is that most of the software programs participants practiced at InTech were purchased by the school and installed on the computers in the lab rather than on the teachers' computers. Participants noted that lack of access to these software programs in their own classrooms limited them in what they could do in their classrooms. Although Mort and Carol had eight computers in their classrooms, they still had to go to the computer lab if they wanted to use these software programs for their classes. The school's explanation was that doing so would keep the classroom computers from breaking down. This lack of access to social studies software programs made Mort and Carol very frustrated. The school also placed many restrictions for the use of the computers. What concerned Carol most was:

> As teachers we can't put anything on the computer without their [the technology person's] approval. We only have access to a certain part. We can't get to the desktop where we can check printers, or we can add or delete software or anything. Everything is password protected. So much so that teachers can't get sometimes to the things that they need to get to.

Mort mentioned that they had a very good software program called Test Generator which was very useful for generating social studies tests and could save lots of time and avoid cheating in testing, however, it was not allowed to be installed on teachers' computers. What Carol and Mort reported indicates that even if teachers have the expertise and the desire to use technology,

their efforts may be thwarted. Providing teachers with a more flexible and supportive technology environment may increase the integration of technology in instruction.

Besides accessibility to software programs, participants reported some other access problems that bothered them in using technology: restricted access to certain social studies-related websites due to the installation of an internal network firewall and Web filtering software, network and logistics problems, unreliable websites, students' lack of access to their work, and the teachers' lack of access to an LCD panel.

The schools' firewall or filtering system, originally used to prevent students from going into websites they are not allowed to view, was reported by twelve participants as an obstacle in doing Internet-related social studies lessons or projects. Steve described the frustrating experience that many teachers had seen in preparing an Internet-connected lesson:

> Schools use different filter programs. You try to get in one website, there's nothing wrong with the website, just the filter that picks that website up. It says, no, you can't get access. Say, you are working at home on something, and you won't be able to use it at school, it won't let you transfer that. It gets somewhat frustrating when you go into the digging, digging and digging, if you did that at home, planned it, but you cannot get it run at school.

This was an issue to social studies teachers since social studies encompasses so many disciplines. The school filtering systems made many social science websites unavailable at school, especially when a controversial issue was involved. Information related to violence, war, or sex was often blocked. Participants became frustrated when they could not gain access to what they wanted. Since many social studies projects involved such issues, the filtering system interfered with student learning. Mort described his experience:

> We are heavily guarded, having so many Firewalls, there are times when my kids can't get to what they want to get to. Websites related with violence, war, sex are blocked. For example, I remember one day, the kids were looking for something on

> a battle that took place in WWI, and we couldn't get there. Rules restrict [us] from it. So I emailed the company that builds Firewalls for us to release this. And it came back and said no, since our system has told us that anything that is related with violent we couldn't get. War is violent, but it's also part of history. The same thing with psychology. When we get into dysfunctions, the kids have to do their research on dysfunction. Some of the kids choose a sexual dysfunction. And you can't get to it. They won't let you get there yet. So that's a problem we do have here in this school with technology.

This concern was voiced by Linda when she talked about how she tried to involve her students in using the Internet for research but they could not do it because of the filtering system. She described one of the instances:

> I did a model legislature, and the students were writing bills. And one [was] to write a bill on abortion. Our computers are so bound that we couldn't get into any information sites about abortion because it has to do with having babies. And so the kids had to go home and use their own computers to come up with information to back up what they were saying in their bill.

Ehman (2002) talked about the impact that filtering systems might have on social studies instruction. He said that one possible explanation of why secondary social studies teachers are not using this technology was because it "has to do with controversial issues in social studies content intersecting with school, community and teacher fears about inappropriate web use by students" (p. 5). This fear might lead social studies teachers to "conclude that the potential problems are not worth the risk of including Internet use, whatever its instructional and learning potential "(Ehman, 2002, p. 5). This fear was recognized by five of the participants, especially new teachers.

Roy provided another illustration of the fear of new teachers to the use of Internet for instruction. Being a first year teacher and still "feeling around" about his teaching style, he did a lot of PowerPoint presentations in his class. However, he felt hesitant to include activities that required students to do Internet research. He explained:

> When you spend five minutes or more trying to fix the problem, you lose them. They start going off to other websites, and you start worrying about them. I got to fix this problem while I'll have to watch them to ensure nothing happens with them. It's just a big hassle. That's probably the biggest reason why I don't use [Internet] technology more. It's because if something goes wrong, I've got to worry [that] the technology [activity] will probably end up with the students getting in trouble.

This kind of concern has made many schools in this study require a permission from parents to let their children use the Internet. Most parents would give this permission, but for some reason, some students did not get their parents' permission. In a certain sense, this challenged teachers' judgment about whether it is legal to let these students sit in front of the computers with classmates who had the required permission. Five of the participants expressed this concern. Linda's statement below reflected this general concern of these teachers:

> Students have to get their parents' permission to use Internet. Some parents do not allow their kids to be online at school. Some of the students say that their parents allow them to use Internet, but they didn't give me their parents' permission. I won't let them go online. When the other students are online in the lab, these kids sit beside them. I don't know if it's legal. That's a problem.

A second generation technology problem (Roberts, 2003) was reported as a serious impediment to Internet use by most of the participants in this study. Participants complained that their schools' network often broke down or ran extremely slow when students were all on the Internet or visited the same website. This was the number one problem reported by Miriam, who worked in a school where all teachers and students were equipped with a wireless laptop and it was used on a daily basis. Not knowing exactly what caused the problem, Miriam explained:

> We've got too many technology problems… they break the laptops. The network is too small, that's probably the number one thing. We are on the networks, students are researching, and five minutes after they try to go into the websites, they are still waiting for the [site to] load. Things like that happen. Or they are just simply putting in their password, and five minutes have gone by, and it still hasn't opened up completely.

Facing this problem, many times Miriam had to ask students to close their laptops and do things some other way because “we won’t get anything [done] if we are waiting for the technology.” That was Miriam’s major frustration. Miriam also mentioned another network problem that bothered her, her students, and their parents. As required, the students in her class would do digital notebooks and assignments using the laptops. They had no difficulty opening the required file at school but somehow they were not able to open these same files at home. There were reports that files would disappear, and nobody was sure why. Miriam felt very frustrated that technology itself was not keeping up to her expectation.

This type of network problem may increasingly become a major issue to technology users. Like Miriam, Linda, too, felt frustrated when she could not get the work done because of network problems. To deal with this problem, Linda said that she always had to have a back-up plan to ensure the class could still go on.

Along with network breakdowns, unreliability of websites was reported by all participants as a common inhibitor of technology use. Websites were constantly changing, and websites that worked well last year, last semester, or even a few days ago were often removed or changed. Failure in getting access to these desired websites made some web-based social studies activities impossible.

Another barrier that affected whether and how participants would use technology was the issue of where students could best save their work so that they could access it again from anywhere on campus. Most schools did not allow students to save directly on the computer. Even when they could, students were not able to continue to work on projects elsewhere when other students occupied the computer. Participants mentioned that social studies projects often took too much time to complete. Since not all students had computers at home and students had limited

time for doing their projects in the computer lab, participants felt hesitant to engage students in doing computer-based projects. Connected with this problem was the requirement that students do a disk virus check each time they went to the computer lab or media center to work on their projects. This often delayed teachers in doing what they wanted to do. Carol explained what happened:

> Students all have individual disks that's given to them by the media center that they are to use in the media center. That becomes another issue with the possibility of viruses from home, they really discourage students bring in disk from home unless they do the virus check. You have to run the virus scan before you can use it there. Sometimes that holds you up in doing what you want to do.

Another barrier that inhibited teachers from using technology more effectively is that some of the computers at school were extremely old. This was the case in Mort's and Carol's school. Although they each had eight computers in their classrooms, these computers were donated by one person and they were badly out of date. Mort explained:

> All eight computers in this classroom were from one man. [They run] Windows 95, [and one] out of date. I can't do anything at home on my computer and bring it to school and use it. Most kids have computers, and the kids who choose to work at home and then bring their work to school to print it out or to show me on the screen, it won't work because of the difference. We need to update our equipment. And it's just not economically feasible to do it.

In addition to these access problems, lack of access to an LCD panel or projector in the classroom prevented many participants from using technology. Participants wanted to project their notes on the computer onto the large screen in the classroom and present some Internet information so that students with different learning styles would be able to learn in a more visual way. Most participants desired to have a LCD panel installed in their classroom so that they could make PowerPoint presentations to enrich their instruction and reach students with more visual learning styles.

Overwhelming Information for Social Studies

Social studies has been more affected by the growth of the Internet than any subject area in the curriculum and 75% to 85% of websites available on the Internet are related to social studies (Braun & Risinger, 1999). The Internet, with its easy access to large amounts of information and primary source documents, was attractive to all participants and was reported as the primary technology tool for social studies teaching. Almost all the participants used Internet and web-based resources to facilitate their teaching; however, they also felt overwhelmed with the tremendous amount of information found on the web. Busy as they were, they had to spend much time searching, evaluating, and checking out the information they really wanted to use. Students, too, were frustrated with this overwhelming information when they were asked to do Internet research. Many participants mentioned this problem, saying that assignments that they thought would be very simple and effective turned out to be very complex and frustrating. Tonya had such an experience with her 9th grade civics class.

> I thought it would be a very effective lesson in that they were given a set of questions about their Georgia leaders; for example, their Congressperson and their representatives, and they were to find whom these people are using the Internet and using different search engines, and I gave them choices of the persons for them to use. For some of my students, it became a difficult task, which you would think it'd be very simple. But because the Internet has so much information, it was often difficult for them to determine which years these people are actually in office. Some of my students became discouraged and they didn't want to keep looking, which I thought, initially was a very simple task. Very discouraging for some of them. Maybe had I narrowed down to more specific websites, they might not have been so frustrated. So that's what I learned from that as a teacher that using the Internet can become overwhelming for students. It's overwhelming for adults, too.

Tonya's experience was not uncommon. Roger, who taught in the same school, seldom used textbooks for his class. He considered the Internet as the best research tool and constantly used the Internet information to supplement or replace the textbook, which he thought was boring, out of date, and too general. However, he felt disappointed and oftentimes he did not

know what to do when facing the tremendous amount of information found there, especially in history. He explained the situation:

> I found that there are a lot of history resources on the Internet, and overwhelming, in fact, which is also one of the hard things I have, because things are constantly changing on the Internet, because there's so much out there. It's overwhelming for me to get on the Internet and typing in, something like the Holocaust, and that's like four million websites. It can be overwhelming how much information is there.

The overwhelming amount of information was cited by John and Kyle as one of the major reasons that they did not like to use the Internet. John explained:

> There's tons of information out there, but the bottom line is when you teach the history class, you cover such a broad spectrum from the beginning of prehistorical era to current, that's a lot to cover. The bottom line is you don't have time to look at all that information, it's too much. So you have to narrow down to what is most important things are, and I just don't see where computer can help you do that.

Kyle made a similar comment:

> Really [you can find] any social studies thing on the web. In some ways, that can be just overwhelming. It would be like having a library full of books on geography and U.S. history, but you have to have a goal once you get that information. There's so much information out there, but trying to teach them to learn something with that information is just another thing.

Kyle believed that "learning is more than just having a ton of information." To him, the most important thing was "you want them to learn things," and he did not see how teachers could teach with so much information there.

This situation, together with the unreliability of some websites posed challenge to teachers. Teachers may have mistyped the URL for a website in the past and were never able to access to it again. Linda described her experience, which was echoed by several other participants:

> There are a lot of websites out there, but it takes a tremendous amount of time to find it and to check it out. And in the next year, you go back, the websites gone or it's changed. Or I have mistyped in the name of the website on the worksheet, as I go back the next year, it's gone. And I can't find it out. I had to start searching all over again or trying other combinations to make it work.

Further, a lot of the information on the web is inaccurate or out of date. Participants were discouraged when they found a lot of the information was either personal opinion or the information was of low quality. Steve noted that he had hard time deciphering true information because "some guys have web page put on there, it's just sort of opinion, and you'll have to go through it and decide." George expressed the same concern. He explained what happened:

> Sometimes I've clicked on something, trying to see what it was, but it turned out to be some high school term papers that are put on Internet. I want to make sure they are websites that you can be fairly certain it's accurate information.

Teachers are practical and they will incorporate technology into their practical pedagogy only when they believe that technology facilitates their work. The Internet is good because it provides a huge amount of valuable information for social studies teaching, but on the other hand, it also frustrates them with its overwhelming information.

In coping with these barriers and challenges, quite a number of participants mentioned several skills they learned at InTech. The first one was how to evaluate website information. The second was to make sure to give students specific websites when involving students in doing online research. The third was to start with small, specific topics.

Carol said that she used to be overwhelmed when facing so much information on the Internet and had no idea how to choose a valid site. She was glad that she learned through InTech training how to evaluate the websites and that made her feel much better. Hillary, Tonya, and Daniel made the similar comments.

Almost all the participants noted that they gave students specific websites to visit and this activity was often accompanied with a worksheet to make sure students were on task and learned the information. They checked these websites before class to make sure they were still working. Steve described how he did it:

> I always do scavenger hunts. I will send the kids in with the guide, where I want them to go, where I want them to research topics that we discovered. Those Internet sites change so much that I have to go back and redo it. So if I want to do an Internet website or Internet search on a particular topic or some topics we're in, and I will go specifically, and I will go to there a day before and check them out physically. I have to give them the exact sites where I want them to be. And so many times between one day or next day, they moved. So I basically have to go through that within that week to build where I want students to go.

What Steve described was common to most of the participants. Daniel gave an even briefer summary:

> When facing overwhelming sources, I'll be very specific about what I expect them to find. Check the site beforehand myself and realize what's available and pick up things I want them to get in, leave the things we don't want to get.

Roger further commented that when he was teaching history he started to "get kids to research very small topics on the computers, have them do very specific things, so they could see why it was the kind of information he could get off the Internet." In doing so, he would "give students a website, a kind of worksheet or chart so that they could go through and work through." He said the primary reason was that he "had very limited amount of time for the class and had the same expectations for all the kids."

The Internet has provided social studies teachers with a great resource for obtaining information and for doing research; however, as the previous section indicates, social studies teachers are also faced with the challenge of the overwhelming amount of information it provides. There is nothing that teachers can do about this huge amount of information out there,

but at least, they could take some time to evaluate the information and make sure that students would go to specific websites for their assignments or projects.

Technology Ability Imbalance

Almost all the participants in this study mentioned imbalanced technology ability levels as the biggest challenge in integrating technology in their classrooms. Imbalanced technology ability refers to the ability of the teacher vs. the ability of the class, and the varying ability levels within the class itself. Some students were very familiar with computers, and they were motivated to learn and move very fast, while others were very poor at computers, and they took much longer than others. This posed a challenge when students only had a limited time in the computer lab.

Kyle was one of the few participants who were less enthusiastic about technology. He admitted that he did not apply the skills he learned at InTech, therefore, he did not feel confident and comfortable with teaching social studies with technology. He explained:

> Part of the reason is, the InTech perspective, I think, is every student is well behaved, comes in eager to learn, but in the real classroom, that's not the case. You have to spend so much time on discipline that it's hard to move forward and get going on. It's like taking a group down to the computer lab where you have to deal with other kind of stuff. Not everybody is an eager learner. It's just not be an ideal situation as far as your student population. Like AP classes, they really get involved on the computer, more so than just a general school population class. They are competent in using technology and they are eager to learn, but the other students are different.

Facing this challenge, Kyle felt more comfortable with his old teaching style, which he believed most appropriate to his students. This was the case to both capable and less capable teachers in technology use. Even if they were competent in using technology and willing to help

students, participants still felt challenged by technology imbalances. Roger explained his frustration:

> My biggest challenge is that I have kids totally not motivated to totally motivated. I have classes where some kids are totally self-motivated, need very little guidance, very independent, need no help at all, what they've done is amazing while some kids are not motivated at all, apathetic, no computer skills, [and I] have to pull them along with other kids.

Since students were different in their technology competence, in their motivation in using technology and in their performance, Roger felt it was hard to give students appropriate work and measure them fairly. He said:

> I've got to meet this person here but not expect a lower standard. They can't do mediocre, less work and still get the same grade. You've got to measure their achievement fairly. If [it's] too challenging, this person will accomplish nothing; but if [it's] too easy, that person will be totally bored.

The data analysis revealed that this was a greater problem in middle schools than in high schools. Linda described a typical situation in a middle school social studies classroom:

> Some of the students seldom use computer and they do not have computers at home, and their computer skills are really poor. They type one finger after another; they don't have the basic keyboarding skills, which slow down the pace of the lesson. On the other hand, I have kids who have keyboarding skills, they are really great, they will move along a lot faster, and they get finished and you've got to entertain them.

Therefore, to Linda, the biggest challenge was how to proceed with the lesson with these imbalanced groups of students. What Linda tried to do was to pair students with different computer skills. She did see much sharing between the students, but she also noted that the student who was more competent in using technology tended to take over the computer during the technology-related activities and that frustrated her as well.

Half of the participants mentioned that they got the idea of pairing students from InTech training. These participants felt challenged when students had different levels of computer skills. Most of the participants saw pairing students with different computer skills as a solution. Roger considered pairing students up not only as an effective way to solve that problem but also a way to cultivate in students a sense of responsibility. He explained his purpose and how he did it:

> I have students of different levels. It's hard to do. If I make it too challenging, this person will accomplish nothing. If it's too easy, this person over here is totally bored. But it's the whole spectrum. There were times when I'll pair it up. I give them a survey and said who knows how to do the Internet. I ask them all these things about the computers, here is self reading of 1 to 10 in terms of how good you are with computer, and I would match up most really good with some really bad and put them next to each other and they would work on something together. Because I think a lot about life is learning how to help other people, and I think you learn a lot more than that you do to get A on a project, so that's being good they kind of get those kind of help some of the kids to feel some responsibility for some of the other kids in the class. I got this idea from InTech.

This way of paring students up in doing technology-related activities was mentioned by Linda, Hillary, Steve, Tonya, and Lauren. They all felt that it was very important to pair students in doing online research, especially when there were not enough computers available. They were glad that many students were willing to share and to help each other when grouped.

To teach students skills can be frustrating. Hillary taught four classes with an average of 33 students in each of her class. She felt that it was really hard to try to teach them technology skills. She explained:

> It's such a headache to try to teach those kids PowerPoint presentation. If you have 10 kids in your class, you might be able to do [it]. But if you have a large class and a lot of kids don't know how to do that, it's hard. I've even tried teaching half of the class and tell that half to go to teach the other half. That was OK, if you can stand enough, the noise and things. But I think that's one way you can go at it. But it's hard to teach them all. And maybe sometimes I will think, oh, that's just too hard; I'm going to deal with it, instead of trying it. I don't always do the PowerPoint,

> different things, I mean, all those that they just never get that. I just won't do it, but sometimes I do, a lot of times I don't. But I think that's a fear, sometimes it's tough to teach them.

This comment was shared by Lauren, who also had a large number of students with different computer skills:

> They don't all get it at the same time. They don't all understand what they are doing at the same time. Some of them have already known how to do it, but some of them have absolutely no idea. You have to take more time with them to explain it.

Students' lack of training in computer use was mentioned as number one problem by most middle school participants. For Miriam, there was another problem that accompanied with this lack of training. In her school, there was a big push that the students would keep digital notebook, and everything was stored in their document file for their notebooks. Miriam found that it was hard for students of certain learning styles or lower level students to study from a digital notebook. She shared her concern with me:

> I think it's hard for them to study from a digital notebook, just the effort of going in, and opening it up, and closing that page, and opening another one. Some of them are not motivated or there's not enough structure at home to make sure that they'll follow through whereas if they have paper style notebook, they could just have it in front and pull through it. I have a number of students, all different range of students, ask "Mrs. Miriam, is it OK if I print my work?" because they are more comfortable still with the paper style. Parents asked me to allow them to print out.

Most participants taught students not only of different computer ability levels but also students of different academic levels. Linda described what she had to deal with while using technology in different classes:

> I teach different types of classes: the regular class and success class [actually lower level class]. Students in regular class are moving fast and they generally

> don’t have much difficulty in operating the computer, searching the Internet and obtaining information. The success students are slow in understanding and obtaining stuff.

Linda said that she taught differently with different classes. For the success class, she always tried to make sure that they understood the questions and had some copies of the information in hand.

Many participants in this study shared this concern and observed that teachers should attend to students of different learning styles in using technology, but at the same time, students should be provided with more technology training so that teachers could focus more on teaching the content rather than on teaching students computer skills.

Roberts (2003) identified students’ lack of technology training as one of the barriers that could inhibit teachers from using technology. Participants in this study also believed that students’ lack of technology training was an important barrier to conducting a successful lesson with technology. To ensure teaching and learning with technology to be successful, both teachers and students need to be competent in using technology.

Students of this generation have grown up with technology and they love it. Many are competent in using technology. Participants, especially participants who worked in high schools, felt that they were facing a new challenge: many students were more capable than they were in using technology. Several teachers of this study reported that they enjoyed being the source of student knowledge and being the authority in the classroom. When their authority is threatened, they feel uncomfortable. They may be unwilling to use technology in order not to embarrass themselves in front of their students.

Four participants in this study shared this concern with me. Daniel, who was eager to learn and to use technology in his teaching, said that he was hesitant to use it sometimes because of this. He explained:

> Students I teach are far more proficient in technology than I am, because they grew up with computers and video games, that kind of thing. And I didn't. I have to learn it as an adult which is harder to do. I try to catch up to them, and see how it would work in the classroom, so it's a learning process for me. But it's changing so fast, and there's so much that it's hard [for me] to stay abreast and be comfortable enough to lead other people. I feel silly trying to lead students who know more about it than I do, which is often the case.

Almost all participants recognized this challenge. However, most understood that this "dot com generation" (a nickname given by one participant) grew up with technology and felt that teachers should try to accommodate this fact. They were willing to learn with students and improve their skills so as to teach them better. This was the key to Carol's success in dealing with students who were more capable in technology than she was:

> I'm one that's willing to try, not be scared of computer just because you don't know enough about it and that students know more about it than you do. I'm willing to say, OK, you know more about this than I do and add, then go for it, add it, put it in, go to whatever height you can go to. And because part of my vision of education is that we continuously improve ourselves and advance ourselves, and we don't just stick to what's comfortable. I hope that I never become stagnant. I want constantly be doing things to improve myself, and prove the education that I can give these children, whatever children I have.

Low-Quality Work

All participants in this study mentioned use of the Internet as the primary way to supplement or replace textbook information or do computer-based research projects. They believed that use of the Internet was much quicker and easier compared with the traditional ways of doing research. However, some participants were worried that students were becoming too dependent on the Internet for research and some students produced low-quality work as a result

of overreliance on the Internet. Plagiarism occurred in many students' research papers. Participants complained that students would go to the Internet or web-based resources, simply copy and paste, and then submit that material as their research paper. George described what happened to his students:

> I gave them a list about 10 or 15 Native Americans or people that have some connections since Native Americans, and they had to profile on that person. [It's] kind of a little biography. They went to the Internet, looked this person up on encyclopedia.com, and they would edit it, copy the entire text, and then go to the Microsoft Word edit and paste, change the fond so that they looked like they typed it and turned it in. And I got four kids doing; they are all word for word exactly the same paper. That's not research, that's plagiarism. But kids were like "we look up on the Internet." It's not research. It's just taking an easy way out.

George expressed deep concern about students' overreliance on the use of the Internet for research, saying, "My problem was not with the kids using the Internet; my problem is the kids using only the Internet." This concern, to some degree, prohibited him from using the Internet more frequently. Daniel made the same point. He also found some of his students would directly copy and paste information from the websites and he felt "hard to monitor them."

Besides this issue of plagiarism, George was also worried that technology may have helped degrade students' language. He said that sometimes he would "get kids who type out a beautiful paper but it's grammatically horrible." He felt that teachers seem to teach students how to word process, but not teaching them proper use of language. Luke echoed this comment by saying, "computer does make their writing look neat with all its functions, but I don't think it helps improve their writing skills."

Chapter 4 described how use of technology might help students develop higher order thinking skills. However, some participants voiced concern that students' overreliance on the

Internet for research prohibited them from developing higher order thinking skills because they too easily accepted the Internet information as truth without thinking critically about it.

Linda said that when engaging students in doing research activities using the Internet, she always tried to move students beyond just acquiring information and give them questions to think and write about. However, she found that easy access to the Internet information made students "lazy" and fail to develop higher order thinking. She found inaccurate information in students' work and exactly the same sentences appeared in several students' papers. Linda loved technology and believed that the Internet was good in that students can get stuff easily and they are motivated by it, but she did not think it helps students think. She explained the reason:

> With the Internet, it's just so easy to get information, because the information is already there. They can get the answer so easily, often they don't think about it and they accept what people said there. They are so easily to agree with what others have said. They don't bother to think about it. In the past, you had to read different books, go to different information, and you think about it and come to your conclusion.

The same reason was given by John to explain why he did not want to use technology in his class. He, too, found some students copy Internet information in their research papers without giving credits to the authors.

Roger seldom used textbook in his world history class, rather, he used the Internet frequently for information and ideas. However, he considered the Internet as "a powerful tool for research, the easiest and quickest research tool, but not the best resource for research." He claimed that the Internet produced mediocre work and he did not think that students would actually learn. He explained:

> Internet is not a substitute for hearing other people talk about their perspectives; it's not a substitute for reading books about a topic. It's just another tool. I think it gives very quick access to a lot of things on the planet. It makes things look pretty. I

> actually think it produces mediocrity. I think there's something very deceiving about technology because it makes things appear really grand, and wow, PowerPoint, wow, bullets, background, little picture, little things, and this doesn't mean you're learning anything. It just means you can cut and paste. I'm not so sure that's real learning. I'm not so sure. I'd rather have a profound conversation with the students about something and question something, and for them to be honest about things that they experience, read a book that opens their eyes. I think it's a useful resource, but I'm far from thinking it's the best resource we have in education. It's like a screwdriver. It's a decent screwdriver. You get pliers, hammer, saw, and once a while you would use a screwdriver, so it's kind of like technology. So I think there is far too much emphasis on it. I think it's a kind of new trend.

Technology has made plagiarism more possible in writing research papers. Several participants mentioned that in order to prevent students from copying and pasting information from the Internet, they would require students to use other resources as well. What George said below was echoed by these participants:

> I will let them use maybe one or two websites, but I require something else as well, whether it being a magazine article, a newspaper article, interview, just let them realize that there is more than one way to do research.

A Challenge for Teachers New to the Social Studies Discipline

New teachers could be as competent as veteran teachers in using technology because of the recent changes in teacher training programs that incorporated technology classes, but lack of teaching experience in their specific field may also inhibit them from more effective use of technology in instruction. Two participants in this study mentioned lack of social studies content knowledge or lack of teaching experience in social studies as a great barrier to their effective use of technology in their classrooms.

Roy was a second-year teacher and was competent in using technology for personal use. He did many PowerPoint presentations in his class. However, as he just started teaching, he felt that lack of teaching experience prohibited him from more effectively using technology, especially the use of the Internet for students. Roy described his concern:

> Last year I put all my classroom notes and stuff on PowerPoint. I gave PowerPoint presentations, which were probably overused. Last year was my first year teaching, so I have to feel around things. I don't really have the ability to do [technology] here as much as taking a class to the computer lab and let them find the information themselves.

Different from Roy, Roger was a veteran teacher with 10 years of teaching experience. But he was new to social studies. This was his third year of teaching social studies. Prior to that, he was teaching English. Roger was capable of using technology and tried to incorporate technology into his classrooms as much as possible, but he felt that lack of social studies content knowledge was an obstacle to a more effective teaching with technology. He explained:

> I feel right now my biggest obstacle is not how much or how little technology I'm using in the classroom, but my own grasp of history. I switched from English to history. I think if I have been history for longer it [InTech training] would have helped a lot more. Because I feel like I'm doing a lot of learning right now. I'm not saying we are not doing any learning, but I feel like the last couple of years it's kind of me getting a handle on my subjects also.

In summary, the above section described the impact of technology integration on the participants as well as the barriers and challenges these participants have encountered in developing and implementing technology-connected lessons since the InTech training. Data analysis revealed that the technology integration training positively changed most participants' attitudes toward technology, improved their skills, and provided them with new insights, opportunities, and resources for teaching social studies. Participants applied many skills they learned at InTech to their classroom teaching and they were willing to incorporate more technology into their classrooms. However, not every participant changed his or her attitudes and instructional practices because of the training. The research found that pedagogical beliefs some participants held still posed an obstacle to their acceptance and use of technology. Being equipped with technology skills does not mean that teachers no longer face barriers and

challenges. This research indicates that some old barriers still exist, such as access to hardware and software, but they were not regarded as major barriers. Participants were coping with a new array of barriers which inhibited them from effectively integrating technology into the curriculum. These barriers included: accessibility, overwhelming amount of information for social studies, differing technology ability levels of teachers vs. students and among students, and low-quality student work. In terms of accessibility, failure to get access to social studies related web information because of school filtering system was considered as the biggest barrier. Confronting these barriers and challenges, some participants were hesitant or even reluctant to use technology for instructional purpose, but most of the participants were willing to cope with these barriers and use technology to benefit themselves as well as their students.

Despite these barriers, quite a number of the participants have developed into regular technology users. These participants were enthusiastic about using technology and have incorporated technology into their existing pedagogical practice on a regular basis. Data analysis revealed that these participants worked in a variety of technology environments, and their years of teaching social studies also varied. It was found that participants who worked in technology-rich environment were likely to use technology more frequently and they were more optimistic about using technology. The following section of this chapter deals with the factors that have helped these participants achieved their present level of using technology in the social studies classrooms.

Growing into Enthusiastic Technology Users

The study of ACOT teachers (Dwyer, 1994) revealed that teachers went through five basic stages of development on their way to fully integrating technology into curriculum. These five stages included entry, adoption, adaptation, appropriation, and invention (Dwyer, 1994).

These stages reveal how teachers gradually changed their beliefs, attitudes and instructional practices in the process. Over time they changed their pedagogical beliefs and became more willing to experiment with challenging and higher-order thinking tasks for students and to encourage more collaboration among students.

Roberts's (2002) recent study of how exemplary social studies teachers are using computers and technology in the classroom suggested a process that teachers went through in changing practical pedagogy to incorporate computers and technology into their classrooms. This process involves four steps: (1) teachers develop a personal commitment based on their belief that computers enhance student learning; (2) teachers make a personal choice to change their practical pedagogy; (3) teachers develop and implement technology-connected lessons; and (4) teachers use technology to change the classrooms dynamics (Roberts, 2003, p. 209).

These four steps often take a long time to complete. Analysis of my participants' perceptions of how they grew in their technology use indicated a somewhat different but much shorter process. This process was similar to what King (2002b) reported in her study. King's study of pre-service and in-service teachers enrolled in graduate courses in educational technology for two years revealed that teachers experienced transformative change in their perspectives on technology and instructional practices through the program of study. This change may partly result because these teachers had much more opportunities to learn and use technology during their program of study. Although participants in my study did not experience such a long period of technology integration training, it is clear that most participants have positively changed their attitudes toward technology and incorporated technology into their social studies classes. But different from King's participants, not every participant experienced a

revolutionary change in their classroom instruction. Some participants experienced small or no changes in their classroom practices while others experienced more dramatic changes.

As indicated in previous chapter and the first section of this chapter, quite a number of the participants have successfully incorporated technology into their social studies classrooms and were able to use technology creatively and meaningfully on a regular basis. This group of participants could be considered enthusiastic technology users. It is interesting to notice that most of these participants did not think themselves as exemplary technology users. They acknowledged that they were competent in using technology but still feel limited in their knowledge about current technology. It is understandable considering technology is growing so fast and no one is likely to keep up with the development. Most of these participants attributed their attitude and instructional change as well as their present level of technology use to the following factors: InTech training, personal commitment, early success, and learning from different resources. Data analysis revealed that enthusiastic technology users in this study went through a process that these factors were basically working concurrently rather than one step after another. Figure 5.2 shows the factors that have helped these teachers to grow into enthusiastic technology users. The following sections further explain the contents of Figure 5.2.

InTech Training

Different from traditional technology training which focuses on basic computer skills, InTech training was distinguished in several aspects: (1) the training moved participants beyond the attainment of basic computer skill to activities that teach them how to seamlessly integrate technology into curriculum, especially the social studies curriculum; (2) participants were given plenty of time to learn and practice the skills both at the training center and at their schools (50-hour hands-on training plus four technology-connected lessons which must be designed and

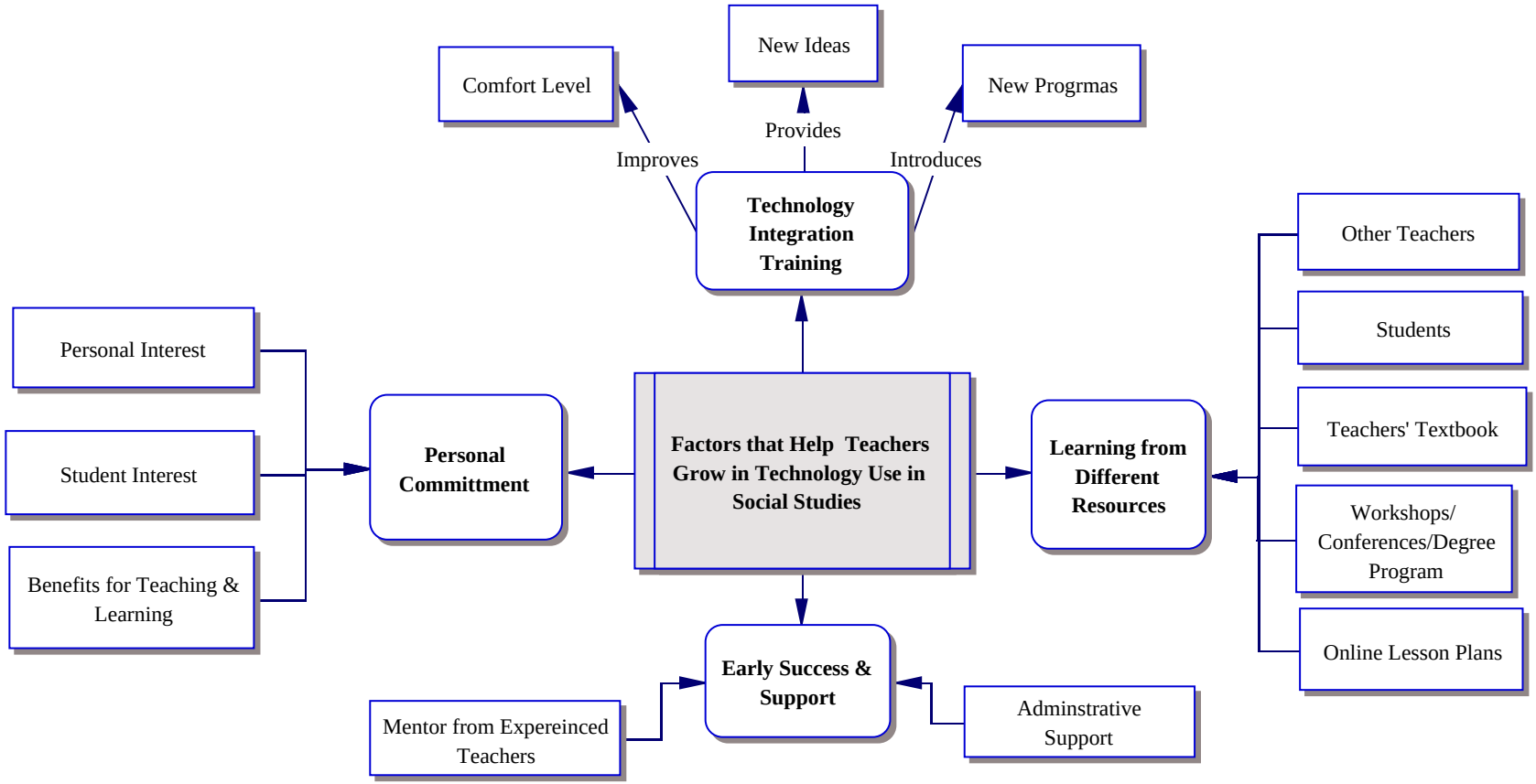


Figure 5.2 Factors that Help Teachers Grow in Technology Use in Social Studies

implemented in the classroom); (3) the involvement of teams of teachers from each school so that participants in the same school could teach and learn from each other. These characteristics were recognized by most of the participants.

As the first section of this chapter shows, InTech training did provide participants with new ideas and new ways of integrating technology into the social studies curriculum. It also exposed participants to a great variety of well-designed social studies software programs. Most of the participants have improved their technology ability and comfort level of using technology in the classroom through InTech training.

Other than InTech training, most of the participants reported that they had no technology training in their schools to help develop their skills in using technology for instruction. The only computer training at these schools was to train teachers how to use certain programs to keep grades and take attendance. What Daniel said was typical to most of the schools:

> We only had workshops on things that we need to do as teachers to make school run more efficiently, like post our grades and keep attendance that we do through the computer, but not things that would enhance our teaching.

Among these participants, Miriam was the only one who was able to receive other kinds of technology training besides InTech training. That was mainly because of the laptop program in her school. She talked about the training in her school:

> We have workshops here in our school. They (the company that provided the grant for the laptop program) would have people come through periodically and work with us and show us new things about the technology. They're basically showing us some of the highlights of the features they offered through Net-schools. So that was helpful. I can do all of that by simply learning from the technology representatives who are also faculty members here, and I learned directly from them. We really had a great opportunity. Mr. X, who is our librarian this year, used to be our main tech person. Every Tuesday he offers what he calls technology seminars. Sometimes it

> will be something that he set up, and other times by teacher request, so we always all have an avenue to go and get more information. I feel like within this school community, we are very supportive.

Miriam was lucky to have these constant supports to help her continuously improve her skills in integrating technology. To most of the participants, InTech was the only one that they could get, therefore, most participants considered InTech training as the critical step to develop their skills and learn to integrate technology into the curriculum.

As most of these participants expressed, especially those who were new to technology at the time of the training, technology integration training was the first and most important step that helped them to really think about technology integration and make attempts to use technology for teaching social studies. However, participants also mentioned that other factors helped them grow in technology skills together with the training. This indicates that to become better technology users, teachers need to have other resources to help them apply the skills they learned and continue to develop their expertise in using technology.

Personal Commitment

Another important factor for technology integration was that the participants were willing to make personal commitment to try and practice the skills they learned at InTech. They were motivated to learn and try not only because they themselves were interested in technology, but also because they realized that technology was part of their students' life and they wanted to meet their needs. They willingly spent time practicing and trying the new ideas or strategies that they had learned.

Many participants mentioned that they knew for sure that if they were not trying to practice the skills they learned and making efforts to use them, they were very likely to lose those abilities. This was exactly what happened to Kyle and John, who were less enthusiastic

about using technology and emphasized that they had been accustomed to their teaching style. They admitted that they were not confident of using technology basically because they did not practice what they learned at InTech and they had lost those skills.

Participants who became enthusiastic technology users were willing to try and practice new programs and new strategies. They all agreed that being open to change and willing to try was the key to their success. Tonya described how she tried to improve her technology ability during and after the InTech training by saying "I spent much time in learning more, practicing on my own, just trying it out, trying different programs or software." Steve made a similar comment when he was talking about his experience of trying and practicing skills he learned:

> I'm just trying to do what I can do, and add and build. As you go, just not be overwhelming, because I can't do so much. It takes step by step, add something, each for weeks, and do a lot of things. I think that is what it takes. You just can't go and rebound everything immediately and a lot of people get
>
> frustrated because they want to build up transmission to it immediately, you can't do that. You just have to have patience.

This was his own experience but he thought it could be a good suggestion for those who are still struggling in using technology. Steve firmly believed in the benefits of integrating technology into the curriculum and regarded the willingness to try as the most important key to further growth. Based on his own experience, Steve summarized, "You have to have a willingness to try, a willingness to take some risk, and step up your comfort zone. You have to be willing to do that."

This willingness to try was the key to many participants' success in dealing with barriers and challenges in using technology, and in developing their ability and expertise in social studies teaching. However, participants noted that this willingness to try also depends on how successful

teachers were in their early attempts in using technology and how much support they could get from their colleagues and administrators at that time.

Early Success and Support

Research of ACOT teachers (Dwyer, 1994) revealed that even though teachers are different in using technology, there are some similarities regarding how they handle and overcome these conflicts. “The significant difference lies in the kinds of support provided by colleagues and administrators” (Dwyer, 1994, p. 2). Data analysis in this study also indicated that whether participants would use more technology largely depended on how successful they were when they started using technology and how supportive their colleagues and administrators were when things were not working well. Almost all participants in this study commented that their school administrators were very supportive of technology integration and they even felt being pushed to use technology.

Enthusiastic technology users in this study attributed their growth to the early successes they had. They believed that early success would make teachers more willing to try and to experiment; otherwise, they would just give up trying. What Mark said reflected a general consensus:

> If something they do is technology-based, if it really goes well, then they are willing to try others. But they need some success, they need early success. If they get that early success, then they are eager, more willing to go beyond.

Steve firmly believed that teachers need to have support from their experienced colleagues or a mentor as well as administrative support in their early attempts. Based on his own experience as well as other’s, Steve explained how important to have these supports:

> It is important to have a mentor. To have someone that you see trying that before or they can give you some examples or can just lead you, especially when you’re first

> starting off. To help you try things, and to help you go to the source of the problems that you like to face when you first go into technology and be able to say, "It looks OK. Everyone faces problems, it's all right." …It is also important to have the administration that supports technology, that doesn't have a problem with you when you work on something with technology and it blocks. It doesn't work, it doesn't come out where you wanted them to, and the administration that supports says "That's OK, we are taking to put more technology in and we try something and it just doesn't work as well you want it, it's OK." Then you know it's important, you have that kind of support. You know you have the support, you know you can attempt to try and feel not pressured or threatened by that, but feel comfortable enough to try, and to step up your comfort zone.

Like Steve and Mark, all these enthusiastic technology users emphasized the importance of early success in using technology for instructional purposes. They believed that early success would lead to more experiments and more success while "failures would lead to setbacks, even temporary cessation of new strategies" (Dwyer, 1994. p. 2).

Lack of early success could partially explain why John, Roy, and Kyle were less enthusiastic about technology integration. None of them had a successful experience in their early efforts in using technology. John failed at his first attempt and that experience negatively influenced how he perceived technology:

> For the InTech required lesson plan, I did one for Georgia History, but it wasn't good at all. I think that was the first one I did. I can't remember what we did, but I remember they didn't go very well. It's going to take one day, but end up with two days. I didn't think it was very useful and getting anything across to them.

Roy, too, felt frustrated that he was not able to succeed in those early attempts of InTech lesson plans he designed:

> I didn't do a single InTech lesson that it went the way that was planned. Always something happened. I don't know if it was the technology problem, or it just come out of the instruction that was going on. There was always something to check. I taught three classes a day, and the three classes haven't gone exactly what I have planned.

While John and Roy conducted their technology-related lessons in the computer lab, Kyle's first InTech lesson was done in the classroom, where there was only one computer for 25 students. He described what happened:

> In U.S. history, I had them look up, get facts about certain Civil War battles on websites. And they had to come up and used these at one time, and that just did not work. Some people took quite a long time just to find the site where they can get the information. And we had only one computer. So we had take turns. Some people were up here for 30 minutes, trying to find the information, it slowed everything else down, and I didn't like the project done.

Based on her own experience, Lauren observed that it was very important for novice technology users to ask for help when facing a problem. She suggested that teachers should try small things first to ensure an early success, and then work on big stuff. She said:

> I think they just need to try, and if they are scared to get it done, they are not going to do it. You have to know how to do it to be able to teach, how to use whatever programs you want them to use. Most people have technology expert in their school,
>
> they could come in and help them to get through it. I think they just need to start with small stuff and then just work up to big stuff. I didn't start with PowerPoint, that's a big thing.

Lauren's comment was not uncommon. Actually most of the participants talked about the importance of early success in using technology. It was this early success that enabled them to see how they could teach differently and how technology could facilitate their teaching. It was also this early success that motivated them to make more attempts and become more successful in integrating technology into the curriculum. Mentor and support play a very important role in the process of making changes, particularly when the change alters teachers' professional identity and their role in the classroom.

Technology integration training exposed participants to new programs and new ideas of using technology, and improved their comfort level in using technology. Equipped with

technology skills and teaching strategies they learned, participants made personal commitment to try and practice what they learned. In this process, it is important for participants to experience early success and support from colleagues and administrators. To continue to grow in their knowledge and competence, participants also made efforts to learn new technology skills and teaching strategies from a variety of resources.

Learning from Different Resources

As the previous section shows, technology training is a key ingredient to participants' successful use of technology, however, as they progress, they need to examine their actions and motives, and they also "need more opportunities for ongoing dialogue about their experiences and for continuous development for their abilities to imagine and discover more powerful learning experiences for student" (Dwyer, 1994, p. 8). Data analysis of these participants' technology use experiences reveal that participants who became successful technology users were constantly reflecting the consequence of their actions, and they were open to change and challenges, and eager to learn from different resources to improve their skills in integrating technology into their classes. Tonya explained:

> I always think about what I've done in class and what I've learned from others. Problems we have, or other experiences of what the students may want to do, so I just pull from different resources, from different experiences, and different tools.

Just like Tonya, successful participants in this study willingly and constantly reflected upon their experience of using technology and at the same time actively sought for new avenues to develop expertise in using technology. Most of them mentioned learning from the following resources besides InTech training: colleagues either at the same school or different schools, their students who are more capable of using technology, tips from the teacher's textbook, conferences and degree programs, and finally online lesson plan database.

Learning from and sharing with colleagues.

The first commonly mentioned resource was learning from colleagues at the same school or different schools. Participants noted that the InTech training equipped them with necessary skills and knowledge in infusing technology in social studies and it also enabled them to discuss technology issues with other teachers in the same school. They observed that knowing what other were doing often inspired them in what they could do with technology for their own classes. Knowing what problems other teachers encountered helped them avoid similar problems and try alternative ways. Because of this, most participants considered learning from colleague as an important way to improve their own skills. What Miriam said below was echoed by six of the participants:

> Because of the laptop project, there are a lot of things going on here. I was learning from another social studies teacher across the hall, which is our tech people, and I've learned a lot from him, so I was learning through other avenues besides InTech.

Participants were learning not only from teachers in their own discipline, but also teachers in other disciplines. Participants all acknowledged that they benefited most from communicating with more technologically knowledgeable colleagues. Hillary described how she benefited from sharing ideas with her colleagues:

> I think it's very important to try to use the skills you have learned. I've used some, but I still feel I need to know more. In our team, Mrs. G used a lot of technology [in social studies]. Ms. H, too, in science though. Mrs. C [language arts] in the next door, she uses some. I think you will benefit a lot if your teammates are knowledgeable and use technology frequently, and you can always share ideas with them.

Even George and Lauren, who considered themselves more capable in using technology than most teachers in their schools, would sometimes turn to their colleagues for help. As Lauren

said, “I just try to use it a lot, and I get better at it. I learned a lot from other people here. If I have a question, I just go and ask, they know what I need to get done.”

Steve emphasized that it was very important to listen to what other people were doing, but it was also important to share your own experience with other teachers. As the team leader, Steve was willing to share with his colleagues and encouraged them to share with other people. He believed that sharing with colleges would benefit both sides and it was the key to more success:

> If someone tries something and it works, or if they get information regarding something, we pass it on. We think that’s important when we pass information on. we don’t just hold on to it. We even email each other some wonderful websites we found. I think that’s great when teachers email each other the websites, telling them “this is what I found, this is what I’m using. It looks like broadening the avenues for your kids.”

Teachers work in an isolated culture and it is often difficult for them to be informed of creative ways of using technology and keep updated to the latest development of technology. Willingness to learn from colleagues and share with colleagues is definitely helpful and decisive in developing their technology skills and conducting their teaching with technology more effectively and efficiently. Learning from experiences of each other can alleviate discomfort and anxiety and improve confidence of using technology.

Learning from students.

Muskin (1996) proposed that social studies teachers’ desire to maintain the traditional role as knowledge holder and dispenser posed great impediment to the use of technology in social studies classrooms. It is not hard to imagine that teachers will feel uncomfortable when they confront students who are more capable than they are in using technology in the classroom. However, enthusiastic technology users in this study recognized this challenge and were willing

to accommodate this reality. They responded to this challenge by learning from students or working with students to figure out possible technology problems.

Steve said that he was " not intimidated by computers," and his students knew that he "learn with them and they are willing to share what they know." Mort, the oldest participant in this study, claimed that "a lot of these kids know they are so far ahead of me, but they are eager to share and I learned so much from these kids."

Tonya speculated that she was always open to challenge and willing to work with students. She believed this helped her become much more comfortable and confident in using technology for instruction. With this disposition, she did not think she ever felt frustrated in using technology:

> I can't really recall a period where I became totally frustrated. I think this is because I was OK with technology. I was pretty confident and knew what I have learned. And if something didn't work out, I will be OK and try to figure it out together with students.

As Tonya and Steve, this group of participants did not feel timid when facing difficulties, nor did they feel shamed when learning from students. They observed that students were highly motivated when they were able to share their skills with their teachers and their fellow students. They, too, benefited greatly from working with their students.

Making use of teacher's textbook.

Most participants considered their social studies textbooks to be boring, out of date, and too general. This was cited as one of the primary reasons that participants wanted to use technology, especially Internet, in their classrooms to supplement or even replace information in their textbooks. Three participants mentioned teacher's textbook as a kind of useful resource.

There were some good tips on the teacher's textbook on how to integrate technology into the curriculum. They successfully applied some of them to their classes.

Learning from conferences and degree programs.

As indicated in the previous sections, most of the schools did not provide workshops or training sessions to help teachers to integrate technology other than the InTech training. However, three participants did mention that they were able to attend some regional or national professional conferences to learn additional creative ideas for integrating technology into social studies curriculum. Tonya was one of these three. She felt that most of the time teachers in the same school seemed busy and it was hard to know what they were doing exactly. She explained:

> You can get ideas from other social studies teachers in the school, and it's a valuable resource. But the thing is that you often work [with them] in the same area, so you don't feel what they are doing.

Tonya preferred going to conference to attend desired sessions because she believed she could benefit much more:

> It allows you to interact with others, see what they are doing that we may use it successfully in our own classroom. When you go to a conference, you are actually having the time to sit down and talk and benefit.

Apart from conferences, a degree program of study will help teachers learn more technology skills. Three of the participants, Luke, Lauren, and Tonya, were able to obtain their Master's or Specialist degrees during and after the InTech training. These programs of study enabled them to learn more skills and practice those skills in their classrooms. Participation in conferences and degree programs definitely will better prepare teachers to integrate technology into the curriculum.

InTech Lesson Plan Database and Online Lesson Plans

InTech training program has established a lesson plan database for all of the K-12 subjects. Social studies lesson plans constituted the largest database. These lesson plans were designed and implemented by teachers who attended InTech training and they were posted to give other teachers ideas of how technology could be integrated into the curriculum. Most of the enthusiastic technology users bookmarked this database and made use of them. Linda admitted that most of her ideas were from these social studies lesson plans posted on this database. She put these lesson plans in her folder and tried to integrate them into her lessons. Linda believed that these lesson plans often inspired her to do her lessons even better. To those who complained that they did not know how technology could be integrated in social studies class, this database could be a worthwhile resource to see how their colleagues are using technology for instructional purpose.

More than half of these participants mentioned that they tried to use a web-based lesson plan. These lesson plans were usually designed by university professors, reputable institutions, or experienced teachers. With 75-80% of the online information related to social science, it is not hard to imagine that there are thousands of lesson plans for social studies. Participants claimed that with the technology skills they obtained from InTech, they were able to make changes or adjustment to these lesson plans and applied them creatively to their own classroom teaching.

Summary

Chapter 5 focused on the second research question, "how technology integration helped social studies teachers achieve their present level of technology use." The data were analyzed and discussed from three perspectives: (1) How did technology integration training affect social studies teachers? (2) What are the barriers and challenges that still inhibit teachers from

effectively using technology and how are they coping with them? and (3) What are the factors that have helped some of these teachers develop into enthusiastic technology users?

Thirteen of the participants have shown that the InTech training exerted a strong and positive influence on how they perceived technology and how they used technology. They acknowledged that InTech training provided them with new insights and new strategies to teach social studies and their comfort levels were greatly improved through the training. They were able to apply what they learned at InTech training and have incorporated technology into their social studies class in many and varied ways. However, not all participants changed their attitudes toward technology or their instructional practice. While some participants experienced small or even no changes, others experienced more substantial changes. Participants commented that they would have benefited more if the InTech training program had divided the class based on their technology ability or on subjects. They wished to attend follow-up training or workshops to refresh their skills, update their knowledge and learn new programs and strategies for teaching social studies. More research is needed to discover if follow-up training would produce more drastic change of teachers' instructional practices.

As indicated in this chapter, technology integration training exposed participants to a considerable number of social studies software programs and creative ways to infuse technology into their classes. Through designing and implementing technology-connected lesson plans, participants were able to develop their expertise in using technology for instructional purposes. However, technology integration training does not ensure that participants would no longer face barriers. School and classroom technology conditions did not change much following the training. Participants were still facing barriers such as lack of access to the computer lab and certain software programs. However, they were not reported as major barriers. Participants

reported a new array of barriers. These included: accessibility, the overwhelming amount of information for social studies, differing technology ability levels of teachers vs. students and among students, and low-quality student work. In terms of accessibility, failure to get access to social studies related web information because of the school's filtering system was considered as the biggest barrier. Confronting these barriers, participants felt frustrated, but most were willing to cope with them to make technology benefit both themselves and their students.

Despite these barriers, more than half of the participants became frequent technology users in the social studies classroom. These participants were enthusiastic about technology use and have incorporated technology into their existing pedagogical practice on a regular basis. They considered themselves to be competent technology users. They attributed their growth in technology use to mainly four factors: InTech training, personal commitment, early success, and learning from different resources. Data analysis revealed that these enthusiastic technology users went through a process in which these factors were working concurrently rather than one step after another.

Most of these participants expressed that technology integration training was the first and most important step that helped them really think about technology integration and make attempts to use technology for teaching social studies. However, it is not enough. It is similarly important that the participants make personal commitment and be willing to try and apply the skills they learned at InTech or elsewhere. They were motivated to learn and try not only because they themselves were interested in technology, but also because they understood that technology was part of students' lives and both teachers and students could benefit from using technology. They willingly spent time practicing and trying new ideas or strategies that they had learned. In the process of developing and implementing technology-connected lessons, it is important for

participants to experience early success and gain support from colleagues and administrators. To continue to grow in their knowledge and competence, participants also need to make efforts to learn new technology skills and teaching strategies from different resources.

In explaining why secondary social studies teachers have not adopted technology, Ehman (2002) made three speculations: (1) social studies teachers' overreliance on textbooks to cover contents; (2) social studies was less valued than other subjects; (3) controversial issues in social studies contents made it harder for teachers to include web resources. The findings of this research have shown that participants in this study still rely on textbooks for instruction, but most have also incorporated technology, mainly Internet resources, into their teaching to supplement or even replace the textbook information. No participants mentioned that social studies was less valued than other disciplines. But it is true that some schools did have computer labs specifically for math or vocational/business education. Participants did express a concern that was in accordance with Ehman's third speculation. One finding worth noticing is that while some teachers, especially middle school teachers, feared inappropriate Internet use by students, other participants were willing to include Internet resources to engage students in exploring controversial issues in social studies and to help students develop higher order thinking skills.

Chapter 4 described social studies teachers' perceptions of technology integration and the ways in which they used technology in their social studies classrooms. Chapter 5 dealt with the impact of technology integration training on social studies teachers, the barriers and challenges that teachers have encountered in using technology, and the factors that helped participants achieve their present level of technology use. In Chapter 6, the conclusions are presented with recommendations for future and practice.

CHAPTER 6

CONCLUSIONS

The primary purpose of this study was to explore how social studies teachers who have completed technology integration training perceive and use technology once they have returned to their classrooms. Chapter 4 described and discussed social studies teachers' visions of technology integration and the various ways of using technology in the social studies classrooms. Chapter 5 discussed the impact of technology integration training on social studies teachers' instructional practices as well as the barriers they have to cope with in designing and implementing technology-connected lessons. The purpose of this chapter is to present a summary of these findings and a discussion of the meaning of these findings for future research. Recommendations for future research will also be made.

Summary of Findings and Discussion

Teachers' Visions of Technology Integration

Participants reported a variety of visions of technology use in the classroom. Some use technology for its efficiency, some embrace it for the enhancement of their instructional practice and student learning, still others use it for relaxation, and most use it for a combination of purposes. First, the efficiency-oriented vision was directly related to the time factor, which most participants perceived as an advantageous use of technology (Saye, 1998). Teachers who hold this vision saw technology as a convenient tool to facilitate their paperwork and to help both students and themselves obtain information in a more efficient way. Teachers' expectations for student essay writing rose because of the ease with which papers could be easily checked, edited, formatted, and printed. They believed that use of technology, especially the Internet, would enable teachers to cover more subject matter and provide students with more information in a shorter time. Second, teachers with an enhancement-oriented vision of technology integration

tended to consider using technology to improve their classroom instruction and student learning as the primary goal. On the one hand, participants saw technology as a way to broaden student knowledge and supplement textbook information, diversify their instructional strategies, and reach students with different learning styles. On the other hand, participants considered use of technology as a strategy to help improve student learning, and as a way to move beyond content to support students' development of collaborative ability, problem solving, and critical thinking skills. These teachers were willing to use technology to stimulate students' interest in social studies, to help students learn knowledge from different perspectives and in different ways, and to use technology to help develop students' ability to make informed and intelligent decisions in this increasingly changing modern society. Third, teachers holding relaxation-oriented vision considered technology as a fun substitute for their own instruction. They believed that teachers could use technology to enjoy a break from their lecturing and at the same time allow students to have a fun time in learning. Using technology was considered as an effective way to help teachers get through the day better especially on Friday, when students did not feel like studying, and to give students a fun learning experience.

It was found that many teachers described visions of technology integration that included all these orientations. This suggests that when using technology, teachers had many concerns and they saw technology as a way to help them become more capable teachers. At the same time, they hoped that technology would be able to help their students better learn knowledge and develop the necessary skills required to function well in the future society. Researchers defined technology integration as a resource to help students develop higher order thinking, creativity, and research skills (Dockstader, 1999; Reeves, 1998). Most of the participants in this study have shown these visions of using technology in the social studies classrooms. Although several

teachers mentioned embracing a relaxation-oriented vision as an important reason for using technology, it does not mean that these teachers were lazy or they wanted to do less work. Actually these teachers recognized the reality that students were motivated to learn with technology, and they were willing to use technology to diversify their instructional strategies, give students an opportunity to manipulate technology, and learn the knowledge in a more meaningful and fun way.

Technology Use in the Social Studies Classroom

Analysis of the data showed a constant interaction among the teacher, the student, and the technology when each kind of instructional method was used. Accompanying this interaction were some related issues around the curriculum, technology tools, and classroom organization. Continual comparison and examination of these categories revealed that teachers were using technology in a variety of ways, and each of the methods was not sharply distinct. Observation and examination of how these teachers were using technology made me come to the same conclusion as Ertmer et al. (2001), Roberts (2003), and Saye (1998), who all described the ways that teachers were using technology as a kind of continuum. The many and varied ways were considered as points on a continuum, which extends from teacher-centered methods to student-centered methods. The use of a continuum to report the findings seemed appropriate to help readers to understand how social studies teachers were using technology in the classroom.

Four major instructional methods emerged from the analysis of the data: teacher-centered methods, teacher/technology-guided methods, teacher-student negotiated methods, and student-centered methods. As a continuum, they were placed in relationship to each other and grouped based on the categories identified about the interaction among the teacher, the student, the technology as well as related issues. Moving through this continuum, teachers' role as a

knowledge holder and dispenser was reduced while students' role as active learners and inquirers increased. Technology's role as the teachers' facilitator for lecture and presentation changed to become an enabler of student-led presentation and inquiry. Accompanying this change were the changes of curricular characteristics from information retention to the development of higher order thinking skills, from teachers' use of a single technology tool to present information to students' use of a combination of technology tools to present their research, and from individual work to more collaborative work.

In the category of teacher-centered methods, teachers mainly used technology to facilitate their lecture and presentation of information, and PowerPoint was the most commonly used technology tool for this purpose. Participants believed that PowerPoint presentation enabled them to reach students of different learning styles, helped students get the gist of their textbook information, and motivated learning social studies. However, it is not hard to see that when teacher-centered methods were used, it was the teacher that dominated the classroom, manipulated technology, and controlled the pace of students' learning. The students served as the passive receivers of knowledge. Their task was mainly to listen and absorb the presented information, and to finish their worksheets.

In the category of teacher/technology-guided methods, participants shifted their role as a knowledge holders and dispensers to become a guide. Instead of using technology to give a direct lecture or presentation of information, these teachers mainly used prepackaged materials to supplement or replace textbook materials. These prepackaged materials included WebQuests, simulations for economics, games for test review, and some specific web-based resources. Teachers used technology to create worksheets and design instructional activities and the students also had some opportunities to use technology to discover and obtain information in

order to complete the worksheets given by the teacher. Teachers still controlled the pace of student learning and made decisions concerning what content should be covered. To a certain degree, the technology assumed the teachers' role to guide students in the attainment and comprehension of knowledge. Classroom activities were generally organized individually. Although the research activities were centered on acquisition of information, it should be also recognized that the use of WebQuests, simulations and games, and certain web-based resources motivated students in learning the information and helped teachers develop students' higher order thinking skills.

Moving along the continuum, the third category is student-teacher negotiated methods. In this category, teachers guided students' research by setting specific requirements, assigning research topics, and providing specific websites for students to explore, but students had more opportunities to use technology to discover information, to work on projects using technology independently or with groups, and then to present the information. More emphasis was placed on students' in-depth comprehension and application of the knowledge. Technology served basically as a tool for accessing, organizing, and presenting information. The Internet was used as the primary way for students to gather information. Posters, PowerPoint presentations and timelines (created using Timeliner software) were some common ways of presenting the information.

In the category of student-centered methods, students' role greatly shifted toward being active information explorers and presenters. Students were able to make many decisions about their research topics and the ways to present their research. Participant teachers mainly served as guides or facilitators, providing students with the tools that they needed to research, explore, and make meaning (Baylor & Ritchie, 2002; Clark, 1992; Diem, 1999; Ferguson, 1997; Hope, 1998;

Kook, 1997; OTA, 1995; Wenglinsky, 1998, 2001). They supported students' construction of their own knowledge and encouraged them to explore and reflect upon what they learned. They provided guidance necessary to students' exploration and application of knowledge and involved them in in-depth learning for the purpose of developing their creativity, research ability, and higher thinking skills. Collaborative groups of students were encouraged to refer to not only web-based resources but also other resources to gather information and then organize, interpret, and present the information using a combination of technology tools. In conducting student-centered research activities, participants made conscious efforts to lead students to explore fewer topics in depth, provided students with ample opportunities to think critically about social issues, and made social studies more relevant to students.

The technology continuum presented above indicates that technology offered participants a variety of opportunities for improving their social studies teaching and learning. They used technology to facilitate their work, to increase their instructional strategies, and to encourage students to use technology to explore and present information. Participants in this study offered a great number of examples of technology use in their social studies classrooms. Many of the participants were able to engage students in student-centered, research-based inquiry to help develop their creativity, research ability, higher order thinking as well as civic competence. A few participants encouraged students to use primary sources available on the Internet, however, such examples were limited. The examples provided by the participants in this study do not encompass all of the kinds of instructional methods available. There could be more points on the continuum.

It is important to note that in guiding students' online research, most of the middle school participants preferred using student-teacher negotiated methods to student-centered methods.

Most activities involved in technology use were conducted in the classroom or the computer lab under the participants' guidance and observation for the purpose of management. Most of these participants would give students specific websites to visit and specific guidelines to follow. High school participants, on the other hand, were more likely to engage students in student-centered activities and many of the projects were conducted outside class. They gave students more autonomy to control their learning and mentored them only when needed. This suggests that participants at different school levels had somewhat different concerns when involving students in technology use and that these concerns affect how they preferred to integrate technology into the classroom.

Despite all these advantages, this research indicates that participants were not engaging students in student-centered activities on a regular basis. Participants offered a great number of examples of student-centered activities in using technology and they considered these activities as the most successful lessons they did with technology. However, they concurred that student-centered activities should only be done when and where they fit. While some participants claimed that use of technology enabled them to cover more information in a shorter period of time, most participants emphasized that a student-oriented technology-connected lesson took a much longer time than a teacher-centered lesson. Even if they were willing to integrate technology in the classroom and had all necessary resources available, they needed to consider what content they were teaching, how much time they had, and what was the most important objective at the moment. Time, curriculum, and testing were important factors that affected whether they would use student-centered, technology-connected lessons. Willingness to use technology and positive experiences were related to participants' increased use of technology and to more creative use of technology, but they do not ensure that teachers will replace their

teaching with technology. Use of technology does lead to some changes to teachers' teaching styles, but it does not produce a fundamental change.

Impact of Technology Integration Training

Technology integration training exposed participants to a great variety of new ideas and insights into how technology can be integrated into the social studies curriculum. It positively affected most of the participants in their instructional practices with technology. However, it is important to notice that not every participant experienced the same degree of change. While most experienced great changes in their attitudes toward technology and in the use of technology in the classroom, some experienced little or no change. Participants differed in terms of their perceptions of technology integration training as well as the impact their participation had on their instructional practices. Participants entered the training program with different technology backgrounds and these differences influenced their InTech learning experiences. Participants who had little use of computer technology for instructional purposes before the training experienced a transformative change in their attitudes and ability to integrate technology into the curriculum. Previously more experienced participants regarded the training as a great opportunity to refresh their skills and update their knowledge, and they were able to use technology in more creative and effective ways. New teachers did not feel that they benefited from technology integration training as much as the other two groups.

Becoming familiar with some computer programs and being confident in using them in many and varied ways were seen as the most important outcomes of InTech training. Most of the participants were able to apply the skills they had learned at InTech to their classrooms. These skills were important in helping them cope with barriers encountered in social studies

classrooms. However, participants also felt overwhelmed with InTech training presenting too much information within a single day. Failure to practice caused some participants to lose certain skills.

Most of the participants were satisfied that skills and programs they had learned at InTech training were very much social studies related and they were able to apply what they learned to their classrooms. However, teachers, especially those who were more experienced in technology use would have benefited more if they were grouped by skill level rather than by grade level. Doing so would have allowed participants to move beyond their present level and learn new skills and programs. While most participants increased their use of technology as a result of the technology integration training, follow-up training would be necessary to help these participants to refresh and update their knowledge, to learn new programs and new ways of integrating technology into the curriculum.

Technology integration training has positively affected most of the participants in terms of their attitudes toward technology, confidence, and competence in using technology for social studies instructional purposes. As a result of this training, they were able to use technology more frequently and more meaningfully. However, technology integration training does not ensure that every participant will accept and use technology as expected.

Identifying and Coping with Barriers

Technology integration training does not ensure that every participant will accept and use technology for instructional purposes. A few participants' deeply-held pedagogical beliefs still posed a big barrier to their use of technology. Their desire to maintain the traditional role as a knowledge holder and dispenser remained strong, even if they had successful experiences of integrating technology in the classroom.

Acceptance of technology and being successful in using technology do not mean that participants no longer had barriers in integrating technology into their social studies classes. There is a new dimension to previously reported barriers, and participants were facing some new challenges. Lack of access to needed software programs in classroom computers limited both participants' and their students' use of technology. Other access barriers included restricted access to certain social studies-related websites caused by the schools' filtering systems, unreliable websites, students' lack of access to their work across campus, and the teachers' lack of access to an LCD panel.

The filtering system, to some degree, led some participants to "conclude that the potential problems are not worth the risk of including Internet use, whatever its instructional and learning potential "(Ehman, 2002, p. 5). This was recognized by many participants as one of the biggest impediments to engaging students in controversial issue-related research in social studies. School filtering systems have both positive and negative aspects. While they help prevent students from going to inappropriate websites, they damage social studies teaching and learning in some ways. Schools should make Internet filtering more flexible so that teachers can teach about controversial issues content. Network breakdown, a second-generation technology problem (Roberts, 2003), posed another threat and had the potential of becoming an increasing problem in the use of the Internet for teaching and learning.

Almost all the participants used Internet information and web-based resources to facilitate their teaching; however, the tremendous amount of information on the web also overwhelmed them. Participants had to spend much time searching, evaluating, and checking out

information they wanted to use. Students, too, were frustrated with the overwhelming amount of information when doing Internet research. The unreliability of certain websites could make the situation even worse.

Many participants saw imbalanced technology ability among students as a barrier. Participants found it difficult to engage students of different technology levels in the activities they planned and these differentials also made it difficult to grade students fairly. Students, especially middle school students, need to have more technology training in order for teachers to conduct successful technology lessons. Participants, especially those who worked in high schools, were facing a new challenge: many students were more competent than they are in using technology. While some felt frustrated, most adjusted to the fact that this generation of students grew up with technology and they were willing to learn with and from students.

Most participants used the Internet as the primary source for students to gather information for worksheets and research projects. A problem associated with this was that many students were becoming too dependent on Internet for research and some produced low-quality work as a result of overreliance on the Internet. Plagiarism occurred in many students' research papers. Teachers seemed to send students the message that the Internet was the only valid and best resource for information, as a result, many students took information on the Internet as truth and they did not think about it critically. This overreliance on Internet information, to some degree, reduced students' chances to develop critical thinking skills. Teachers, ultimately, are responsible for students' low quality work. Teachers should tell students to use other information sources such as books, newspapers, magazines, videos, and audio recordings besides the Internet resources.

Ehman (2002) offered three speculations to explain why secondary social studies teachers have not adopted technology: (1) social studies teachers' overreliance on textbooks to cover content; (2) social studies was less valued in competing with other subjects; and (3) controversial issues in social studies made it harder for teachers to include web resources. The findings of this research have shown that participants in this study still rely on textbooks for instruction when they are not using technology, but most have made efforts to incorporate technology, mainly Internet resources, into their teaching to supplement or even replace the textbook information. No participants mentioned that social studies was less valued compared with other disciplines, however, it is true that some schools had computer labs and programs specifically for other disciplines. Participants did express the concern that filtering programs limited their access to legitimate, issue-oriented websites, a finding that is in accordance with Ehman's third speculation. It is necessary to note that while some teachers, especially middle school teachers, feared inappropriate Internet use by students, other participants were willing to include Internet resources to engage students in exploring controversial issues in social studies and to help students develop higher order thinking skills. More research is needed to investigate to what degree school filter systems affect how social studies teachers use technology for issue-centered instruction.

Factors that Help Teachers Grow into Enthusiastic Technology Users

Despite these barriers and challenges, quite a number of participants have developed into enthusiastic technology users. These participants were enthusiastic about using technology and they have incorporated technology into their existing pedagogical practice on a regular basis. Although participants who worked in technology-rich environments were likely to use technology more frequently, they were more optimistic about using technology, and their ways of using technology were not much different from those in less technology-rich environments.

Participants who were enthusiastic technology users attributed their attitude and instructional change as well as their present level of technology use to several factors: InTech training, personal commitment, early success, and learning from different resources. To become enthusiastic technology users, they went through a process where these factors were basically working concurrently rather than one step after another. Technology integration training is the most important step to help teachers seriously think about technology integration and make attempts to use technology for instructional purposes in social studies. It is equally important that participants are willing to make a personal commitment to try and practice the new skills, ideas, and strategies they have learned. This willingness to try is the key to teachers' success in dealing with old and new barriers and in developing their ability and expertise in teaching social studies with technology. This willingness to try also depends on how successful these teachers are in their early attempts in using technology and how much support they get from their colleagues and administrators. To continue to grow in their knowledge and competence, participants also needed to make conscious and persistent efforts to learn new technology skills and teaching strategies from a variety of resources. More research is needed to confirm the existence of this concurrent process. A better understanding of how teachers who have undergone technology integration training are using technology and how they develop into enthusiastic technology users will help both social studies teachers and educators as well as the instructors of technology integration training institutions.

Recommendations for Further Research

This study used a qualitative interview design to investigate how social studies teachers perceive technology integration and how they use technology in social studies classrooms after technology integration training. Further research using a participant observation approach would

allow researchers to see more clearly what is happening in the classroom and to understand the situation from a holistic and comprehensive perspective. Since the findings of this study were influenced by a variety of characteristics and since observations in many settings would be difficult, it would be ideal if several researchers were collaborating in such a research project.

Second, more research is needed to investigate how teachers in technology-rich school environments are using technology on a daily basis. In this study, only one participant worked in a school where all teachers and students had laptops and were required to use technology on a daily basis. More research in this kind of environment needs to be done to see how social studies teachers use technology for instructional purposes and how daily use of technology affects students' learning.

Third, more research is needed to investigate how teachers who have adequate number (6-10) of up-to-date computers in their classrooms are using technology and how they engage students in collaborative work using technology. Two participants in this study worked in a school where there were eight computers in each classroom. However, most of these computers were out of date. More research is needed to examine how teachers are using software programs when all necessary software programs are installed on their classroom computers. Such examples would definitely contribute to the case literature on how teachers are using technology in their classrooms.

Fourth, there must be a deeper understanding of the impact of students' lack of training on teachers' perception and use of technology. The findings of this research reveals that different technology ability levels among students, especially middle school students, frustrated teachers and made them reluctant to use technology-connected lessons in more effective and productive ways. Available research focuses on how teacher's lack of technology training inhibits effective

use of technology, but few studies have investigated how students' technology skills affects teachers' use of technology in the classroom. A deeper knowledge of this would help both schools and training programs design strategies to improve this situation. It seems that lack of student training and different technology ability levels was a bigger problem for middle school teachers than their high school counterparts, when implementing student-centered research activities. More research is needed to confirm this finding.

Fifth, more research is needed to explore how social studies teachers are using technology to help improve students' civic involvement. A few participants in this study offered some examples of how they used technology to help students develop civic competence, however, these examples are too few and too limited. As the primary purpose of social studies is to promote students' civic competence, more examples are needed to contribute to the case literature on how social studies teachers are using technology to promote students' civic competence and engage them in civic participation.

Sixth, more research is needed to validate the negative impact of school filtering systems on social studies teachers' use of technology. These blocking systems cause reluctance to use Internet and it inhibits teachers from involving students in doing issue-centered research in social studies. Filter systems were assumed by another researcher (Ehman, 2002) as one of the most important reasons why social studies teachers are not using technology. More research would help us better understand the impact of filtering systems on social studies teachers' use of Internet technology and help school administrators as well as teachers to cope with this issue.

Seventh, further research is needed to explore teachers' concerns about the impact of the Internet on students' learning. It is obvious that most of the participants in this study engage students in gathering information for research and they seem to send students the message that

Internet is the best resource for research. While some participants are worried about students' overreliance on Internet for information and fear it has led to plagiarism in students' research papers and lack of critical thinking in obtaining information, some participants believe that Internet has exposed students to multiple perspectives and helped improve students' critical thinking skills. More research would help both teachers and students make the best use of the Internet to promote higher order thinking skills.

Eighth, there needs to be more research to confirm the process of becoming an enthusiastic technology user. Participants in my study attributed their attitude, instructional change, and present level of technology use mainly to four factors: technology integration training, personal commitment, early success, and learning from different resources. My study suggests that all these factors are working concurrently to help these teachers change and grow into enthusiastic technology users. More research must be done to confirm this finding and provide additional insights into the process involved.

Last but not least, there should be more research on the various methods used by social studies teachers in their classrooms. As Roberts said, "efforts to improve teaching and learning in social studies must, of necessity, begin with a deeper understanding of what is actually happening in authentic classroom setting" (Roberts, 2003, p. 239). A further and deeper understanding of how social studies teachers are integrating technology into their classes will provide pre-service and in-service teachers with models to improve their teaching. This case literature can also be used by social science educators as examples in designing computer-related social studies curriculum and methods course.

Implications for Practice in Teaching and Teacher Education

Technology has offered teachers, especially social studies teachers, a unique opportunity to enhance their teaching and student learning. Use of technology makes it possible for teachers to conduct student-centered learning activities to increase students' interest in social studies, improve their creativity, problem solving ability, and higher order thinking skills. Effective use of technology changes both the role of teachers and students. Students become active learners and have much autonomy in their learning process. However, the teacher is the pivotal person in determining the quality of student learning and the teacher can no longer remain passive in the classroom "having nothing to do" when students are using technology. The teacher needs to serve as facilitator and enabler of student learning. As Ehman and Glenn (1987) suggest, the teacher's role is still to teach, but in a different way. Teachers still need to (1) gain students' attention, (2) inform students of their goals and objectives, (3) stimulate recall of prior knowledge and skills, and (4) provide students for guided practice. Their primary goal in using technology should focus on developing students' ability to find, interpret, and apply information from and about their social environment. Examples provided in this study show that technology can be a powerful tool for teachers to conduct critical thinking and problem-solving activities for successful collaborating learning.

The Internet has become increasingly the primary vehicle for gathering information and for doing research projects. In certain sense, teachers seem to send students a message that the Internet is the only valid and the best resource for information and research. However, teachers should make it clear to students that although the Internet has provided students with a large amount of more visual and current information, students need to refer to other resources for research as well, rather than solely rely on Internet resources. At the same time, while engaging

students in Internet research activities, the teacher should try to have students explore primary resource materials to help them develop critical thinking ability and multiple perspectives concerning critical issues in social studies.

Teachers' technical expertise and professional experience in using technology is critical for students' successful learning experiences with technology. Teachers need to realize that technology has become an integral part of school and social life, that they should continue to improve their confidence and competence in using technology and prepare their students for this digital age as well. Teachers need to make strenuous efforts to learn more creative and productive ways of integrating technology from multiple resources.

In the next decade, there will be millions of teachers starting careers and they need to be equipped with technology skills and pedagogies that support technology integration into the curriculum. Teacher education programs play the most important role in preparing these prospective teachers. As Wasser (1996) argued, if teachers want to support students to become critical thinkers through the use of technology resources, then they themselves must provide learning opportunities that model and promote this kind of learning. Teacher education programs should provide preservice teachers with more learning experiences with technology and professors should serve as a model of how technology can be seamlessly integrated into the classroom for meaningful and powerful learning. It is not enough to provide one course in technology and expect that preservice teachers will be able to use technology in the classroom meaningfully and creatively (Rice, et al., 2001). Technology has provided social studies teachers with great opportunities for engaging students in research, problem solving, and higher order thinking activities. Given that social studies has lagged far behind other disciplines in using technology in the curriculum, professors in both social science content courses and methods

courses should model how preservice teachers can integrate technology into the classroom in a seamless way. Through modeling, professors can better prepare preservice teacher to incorporate technology more effectively into their future classroom.

In general, university and college professors, in-service teachers and preservice teachers should all realize that in this information age technology has become a part of both their students' and their own lives. They need to be quipped with necessary technology integration skills and pedagogies and make the best use of technology resources to empower their teaching and students' learning.

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APPENDIX A

CONSENT FORM FOR SCHOOL PRINCIPALS

Dear Principal:

My name is Yali Zhao, a doctoral student in the Department of Social Science Education at the University of Georgia. I intend to do my dissertation research titled *Social Studies Teachers' Perspectives of Technology Integration*. The purpose of this study is to understand how social studies teachers who have had technology integration training perceive technology integration and use technology in their classrooms. The findings of this study will help social studies teachers, technology training instructors, and social science educators better understand how social studies teachers use technology and how technology integration help improve social studies classroom teaching.

For this research I will come to your school to interview your social studies teachers who have participated in InTech technology integration training. I will also collect these teachers' lesson plans and teaching materials as well as students' technology related projects or assignments.

I will keep the identities of my participants' confidential and there's no risk anticipated in this study. If you agree, please sign your name. If you have any questions or concerns, feel free to call me at 706-227-2292 (home) or 706-542-6471 (office), or email me at yzhao@coe.uga.edu

Thank you very much for your assistance.

Yali Zhao

I agree to let Yali Zhao

1) Interview social studies teachers at my school _____(initial here)

2) Collect copies of teachers' lesson plans and teaching materials_____(initial here)

3) Collect technology-related student assignments _____(initial here)

_____ _____

Signature of Investigator Date Signature of Participant Date

Phone number of Investigator: 706-542-6471

Email address of Investigator: yzhao@coe.uga.edu

Additional questions or problems regarding your rights as a research participant should be addressed to Chris A. Joseph, Ph.D., Human Subjects Office, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu.

APPENDIX B

PARTICIPANT CONSENT FORM

I, _____ agree to participate in the research titled "*Social Studies Teachers' Perspectives of Technology Integration*" conducted by investigator Yali Zhao from the Department of Social Science Education at the University of Georgia under the direction of Dr. John Hoge (Department of Social Science Education, telephone number: 542-4416). I understand that I do not have to take part if I do not want to. I can stop taking part without giving any reason, and without penalty. I can ask to have all of the information about me returned to me, removed from the research records, or destroyed.

The reason for this study is to understand how social studies teachers who have completed technology integration training perceive technology integration and use technology in their classrooms.

If I volunteer to take part in this study, I will do the following things:

1) Participate in two interviews about my perception of technology integration and my experiences of using technology in my classroom after the training. The interviews will last 60--90 minutes.
2) Provide the researcher with copies of classroom assignments and lesson plans as part of the data.
3) Provide researchers with materials and assignments that they completed during the training program.

I will not receive money gift, but will get help from the investigator in classroom teaching. The researcher will be invited to my classroom to give lectures about her country.

No risk is expected. Participation in this project is confidential. The confidentiality will be protected by the use of pseudonyms on all tapes, transcripts, class assignments, lesson plans and final research product. All data will be kept in a secure place in the researchers' office and will be destroyed at the completion of the research.

No information about me, or provided by me during the research, will be shared with others without my written permission.

The investigator will answer any further questions about the research, now or during the course of the research. The investigator's contact phone number is 706-542-6471(office).

I understand that I am agreeing by my signature on this form to take part in this research project and understand that I will receive a signed copy of this consent form for my records.

Yali Zhao

_____ _____

Signature of Investigator Date Signature of Participant Date

Phone number of Investigator: 706-542-6471

Email address of Investigator: yzhao@coe.uga.edu

Additional questions or problems regarding your rights as a research participant should be addressed to Chris A. Joseph, Ph.D., Human Subjects Office, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu.

APPENDIX C

INITIAL INTERVIEW PROTOCOL

Question 1:

How do secondary social studies teachers who have participated in InTech technology integration training use technology once they have returned to their classrooms?

1.1 Tell me about your history of technology use in the classroom.

1.2 Tell me the primary purpose of your using technology for your class.

1.3 What does technology integration in social studies mean to you?

1.1 How do you teach social studies most of the time? Would you teach differently if necessary technology resources were available?

1.4 What kind of social studies content are you most likely to teach with technology? Why?

1.5 When are you most likely (or do you want) to teach with technology? Why?

1.6 Think of a time when you had a successful lesson that integrated technology and tell me about it.

1.7 Can you tell me about another successful lesson you did with technology?

1.8 In this example, can you tell me how you were able to promote higher order thinking?

1.9 Think of a time when the technology in a lesson didn't work well and tell me about it.

1.10 What are the challenges that may sometimes inhibit you from effectively using technology in the social studies classroom?

1.11 Tell me about the technology tools that you typically use for your class. Why do you use it/them? How often do you use it/them?

Question 2:

How has technology integration training helped you achieve your present level of use of technology?

2.1 Which parts of InTech training are you most using or applying in your classroom instruction? Why?

2.2 What other, non-InTech, sources influenced your present level of use of technology?

2.3 Which parts of InTech training are you not using or applying in your classroom? Why?

2.4 Has your teaching changed or remained fairly stable over the past two years? Please explain.

2.5 Has your use or thinking about technology changed over the past two years? If so, how?

2.6 What concerns you most when teaching with technology? What was your primary concern before the InTech training?

2.7 Do you see yourself as an exemplary technology-using teacher? Why or why not? What specific plans do you have for teaching your class with technology?

APPENDIX D

FOLLOW-UP INTERVIEW

This follow-up interview was conducted after sharing interview transcripts and tentative interpretations with my participants. The purpose of doing it was for participants' clarification or elaboration of some points they had mentioned at their initial interviews. It was also to check the plausibility of the initial interpretations derived from the data.

1. You mentioned in our first interview that " ", could you please elaborate on this?
2. You talked about " ", could you describe it in more detail?
3. Read these tentative interpretations derived from our first interview, do they make sense to you? Do they appropriately interpret your meaning? Do you want to add something more?