

The Pennsylvania State University

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**A CASE STUDY: SOCIAL STUDIES PRESERVICE TEACHERS'
PERCEPTIONS AND ATTITUDES TOWARD COMPUTER TECHNOLOGIES**

A Thesis in

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by

Alper Kesten

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The thesis of Alper Kesten was reviewed and approved* by the following:

Murry R. Nelson
Professor of Education
Thesis Advisor
Chair of Committee

Marilyn Page
Assistant Professor of Education

Patrick W. Shannon
Professor of Education

Edgar Yoder
Professor of Agricultural & Extension Education

Patrick W. Shannon
Professor of Education
Coordinator for Graduate Programs in Curriculum and Instruction

*Signatures are on file in the Graduate School

ABSTRACT

A Case Study: Social Studies Preservice Teachers' Perceptions and Attitudes toward Computer Technologies has its rational basis in the proliferation of technology throughout every aspect of the contemporary world. Specifically, the purpose of this study is to explore the perceptions, attitudes and knowledge of preservice teachers as they pertain to technology in social studies education.

This investigation examines whether preservice teachers want to use computer technology in social studies, their motivations and how they plan to employ computer technology in social studies instruction. In addition, the factors that influence social studies preservice teachers' use of computer technology will be explored and described.

The value of this study lies in three areas: 1) Growing interest technology's use in classrooms and limited research illustrate the importance of examining integration of information technology as teaching and learning tools on the attitudes and practices of preservice teachers. 2) Adding to the body of knowledge in preservice teacher education and information technology integration is important for methods courses. 3) And, the prescriptive findings of this research provide an effective model for integrating information technology in social studies teacher education.

Data consisted of observations, interviews, surveys, informal conversations, and email communications. Twenty-eight preservice teachers were given a survey that asked how often they use computer technology, how familiar they are with computer technology, and what they think about the place of computer technology in social studies

education. From these survey results, eight preservice teachers were chosen to participate in in-depth interviews.

This study's findings confirm that conducting new research regarding the place of computer technologies in social studies education, especially, in preservice teachers' education is necessary to understand current situation in the use of computer technologies in social studies education. Research suggesting the place of computer technologies in social studies education dated data should be extremely careful not to avoid inaccurate judgments about this critical issue, especially about social studies preservice teachers' perceptions and attitudes toward computer technologies. As exemplified, social studies preservice teachers' computer technology backgrounds, and experiences and problems with computer technologies has changed over the years and using ten years old research as a basis for improving teacher education programs or to making new policies could pose extra problems instead of offering solutions. Therefore, all social studies research should conduct more investigations regarding social studies preservice teachers' perceptions and attitudes toward computer technologies before taking any further steps in social studies teacher education programs. Also supported by the data is that universities could reorganize their social studies education programs for more effective methods courses designed to enhance the use of computer technologies in social studies education. In addition, research shows the requirement for updated insight into preservice teachers' needs regarding computer technologies. Even though the social studies preservice teachers participating in this study requested training at a minimal level, they still articulated appreciation if training integrates into methods classes.

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Chapter 1

INTRODUCTION TO THE STUDY

1.1 Introduction

At this in a time the majority of schools have computers with the Internet connections that are available for teacher and student use. The National Center for Education Statistics (NCES) report that in 2001, 99% of public schools in the United States had access to the Internet, up from the 1994 level of 35% (2002). The push for computer use that this tendency demonstrates has several roots: the capabilities of computers, the disappointment with present educational practices, the accomplishments commercial interests have had in incorporating computers into daily practice, and the obvious inevitability of raising reliance on computers in the years and decades to come (DeWitt, 2004).

In the last two decades, this tendency toward computer technology and the increasing number of computers and Internet connections in schools gives rise to very heated discussions regarding the roles of computer technology in education. On the one side, proponents of computer technology claim that the use of computers in education leads to new areas of knowledge and offers tools that have the potential to change some of existing educational methods (Bennett & Pye, 1998; Sulivant, 2002). They also believe that the teacher is the key to the effective exploitation of this resource in the current educational system, and as computer use continues to increase in society, potential

educators must, in their training, prepare for the use of computers the classroom. On the other side, many other intellectuals and educators express reservations about the use of computer technology in K-12 classrooms and in preservice teacher education (Clark, 1994; Cuban, 2001; Postman, 1993, 2000; Ross, 2000; Russell, Bebell, O'Dwyer, & O'Connor, 2003; VanFossen, 1999/2000).

However, according to Mehlinger and Powers (2002), "The question is no longer whether technology will have an impact on teaching and learning; the interesting questions are what that impact will be, how rapidly it will grow, and whether the results will be beneficial to individuals, schools and colleges, and society as a whole" (pp. 11-12).

As a normal consequence of this trend, preservice teachers' education has become one of the focal points of these discussions over last decade. Proponents of technology believe that preservice teacher education is a crucial site for integrating technology into classrooms. What this perspective suggests is that computer use in the classroom requires adequate preservice training (Beisser, 1999; Bennett & Scholes, 2001; Dexter & Riedel, 2003; Diem, 2000; Mason & Berson, 2000; L. C. Mason et al., 2000; Mehlinger & Powers, 2002; Merryfield, 2000; Riley & Stern, 2001)

According to the research on effective social studies teaching, White (1999) stated that effective teaching and learning takes place when preservice social studies methods courses use the transformative approach. The transformative approach, based upon the constructivist model of teaching and learning, includes modeling, reflecting (White, 1999), collaborating (Vannatta & Beyerbach, 2000), and developing an interactive community of learners (NCSS, 1994; White, 1999). According to White, the integration

of technology as a teaching and learning tool falls within the spectrum of the transformative approach in teaching social studies. In a study of 415 preservice social studies teachers, White stated that nearly 100% of the participants felt that using a transformative approach to technology integration combined with student-centered instruction “definitely” facilitated social studies education. The National Council of Social Studies (NCSS, 1994), in its standards on the principles of teaching and learning in promoting excellence in the teaching of social studies, identified the need for integrating technology in teaching social studies.

One of the goals of every teacher education program and every social studies methods course is to integrate technology within the curriculum rather than to teach it in isolation (Mason *et al.*, 2000). According to White (1999), a technology integration model in teacher education programs should have the following objectives:

- Provide experiences and expectations that help teachers develop professionally,
- Facilitate constructivism through modeling, applying, reflecting, involving students actively and developing a community of learners,
- Develop critical thinking and problem solving skills,
- Integrate transformative, non-traditional curriculum and instruction,
- Develop an awareness of available hardware and software for use in schools,
- Evaluate hardware and software available for use in schools,

- Apply packaged software during all preservice teacher education experiences,
- Apply emerging technologies, including multimedia and telecommunications, during all preservice teacher education experiences, and
- Develop and apply lessons and units integrating technology.

A technology-learning environment enhances the potential of the preservice teacher to use and integrate technology (Milman & Heinecke, 2000). According to Halpin (1999), the integration of technology across the teacher education curriculum provides preservice teachers with an explanatory and discovery oriented environment enhancing their abilities to use different computer applications for instructional purposes. Halpin (1999) states that the use of technology facilitates a problem-solving environment, a tenet of constructivist theory, with the goal of motivating students to seek information and solve problems. Keiper, Harwood and Larson (2000) state that the integration of technology-learning environment enhances social studies instruction in K-12 classrooms and makes lessons exciting for the teacher and the students. According to Partee (1996), the integration of electronic communication in teacher education programs not only provided an alternate environment but also extended the boundaries of the traditional classroom.

The research described in this thesis addresses the question of the impact of computers on preservice teachers and preservice teacher education. In doing so, a decision was made to focus on the perception, attitude and knowledge of preservice teachers concerning technology in social studies education. This focus is a deliberate

response to the lack of consideration in the literature of intersection of preservice teachers' perceptions and attitudes about computer technology and the effects of these perceptions and attitudes on using computer technology in future implementations. Hence, this study examines preservice teachers' perceptions and attitudes toward computer technology and how these beliefs influence the implementation of computer technology in schools.

To accomplish this purpose, this chapter establishes the reason, necessity, and the significance of this study, and its research questions. Chapter Two provides an examination of the existing literature of the connections between preservice teacher education and using computer technology, on change and continuity in using computer technology in social studies education, and of barriers and problems in computer use in social studies education. Chapter Three details the methodology used in carrying out the research. Chapter Four comprises surveys, observations, and descriptions of the eight individual preservice teachers' opinions regarding computer technology in social studies education. Chapter Five provides a discussion of findings across the study sample and addresses the inferences of the findings of the study for preservice teachers, preservice teacher education, and social studies educators generally.

1.2 The Problem and Need for Study

To thrive in today's world and tomorrow's workplace, America's students must learn 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 (CEO Forum, 1999)

As the preceding implies, the world today is technology-rich, one in which, through various forms of technology, information on almost any topic can be obtained nearly instantaneously. Technology is essential to the daily lives of people in all parts of the world. For example, today, approximately 605.6 million people use the World Wide Web with and access the 8 billion existing Web pages (*Google, 2005; How many online?, 2002*)

Access to information through the medium of the Internet is growing among the nation's schools (NCES, 2002) According to the NCES 2002 report, in the Fall 2001 99 % of public schools in the United States had access to the Internet. When NCES first started estimating Internet access in schools in 1994, 35 % of public schools had access. According to the report, the ratio of students also increased from 12.1 to 1 in 1998 to 5.4 to 1 in 2001.

As continually increasing statistics declare the advantages of the computer and Internet use for teaching and learning, more and more colleges and universities are finding themselves in constant need to acquire computer enhanced facilities and to integrate computer technology for preservice teacher education programs.

Research shows that new teachers have positive opinions toward computer technology. In a study of 110 student teachers, Wang and Holthaus (1997) found that 43 % of the student teachers thought computers were important. Furthermore, 32 % “strongly agreed” and 62 % “agreed” that computer integration increases teaching effectiveness. Another study also reveals that preservice teachers believe in the importance of the use of the Internet and related communication technologies in the

classroom. These teachers thought that the use of technology would vastly improve their teaching (Sulivant, 2002).

As contrary evidence, Marcinkiewicz (1996) found that student teachers had high expectations for future classroom computer use, but that these expectations quickly declined during the first year of teaching. Although student teachers had optimistic feelings for using computers, they did not know how to integrate technology into curricula which was the main reason beyond the decrease of their optimism. In a similar vein, another study found that most students agree that computers should play an important role in schools, yet showed a lack of confidence in using computers to teach others (Powell & Reiff, 1993), Barker (1994) states that teachers demonstrate great a enthusiasm for computer use, but find it difficult to integrate technology into curricula.

As mentioned before, a number of researchers have analyzed preservice teacher attitudes toward computer technology, revealing a lack of consensus among them regarding preservice teachers' perceptions about computer technology. Some researchers found preservice teachers to be positively inclined to its use, and others found negative attitudes. However, many researchers claim that barriers in computer technology create negative attitudes (Beisser, 1999; Keiper, Harwood et al., 2000; Kent & McNergney, 1999; Mason & Berson, 2000; Russell et al., 2003; Sheekey, 2003; VanFossen, 1999/2000; Whitworth & Berson, 2003).

Still, the problem is that while the research base in social studies education is growing; relatively few studies consider how preservice teachers view the integration of technology for their future classrooms (Keiper, Harwood et al., 2000). Much research in this area focuses on how teachers use or should use computer technology, or the

effectiveness of Internet use in social studies education. Most of this literature offered only lists of websites, reviews of websites, and lesson plans or general lesson ideas. Yet, obviously that a need exists for more detailed and in-depth studies to assess the position of computer technology in preservice teacher education (Diem, 2000; L. C. Mason et al., 2000; VanFossen, 1999). The study, designed by Whitworth & Berson (2003), proves a need for more study in social studies education to evaluate the importance of computer technology in social studies and preservice teacher education. Whitworth and Berson reviewed 325 articles published between 1996 and 2001 for their study. The articles appeared in educational journals (e.g. *Social Education*, *Social Studies and the Young Learner*, and *Theory and Research in Social Education*), ERIC databases, and related educational research websites. According to their findings, the largest number of publications group in the category, *Internet Resources*, which includes 102 total resources of 325 (31.3%). The second largest area of publication is *Technology Overviews – History in Social Sciences*, with 61 publications of 325 reviewed (18.7%). However, the numbers rapidly decrease for the category *Technology in the Social Studies Research*, 28 publications of 325 (8.6%) and *Technology in Teacher Education* 20 publications of 325 (6.1%). Furthermore, almost no study shows preservice teachers perceptions regarding computer technology

Even though studies in the area of social studies show different perspectives related to computer technologies in preservice teacher education, the problem is the amount of research related to computer technology is limited in social studies education. Compared with mathematic, science and reading, few studies exists regarding preservice teachers' attitudes and perceptions toward computer technology. To date, in research,

social studies preservice teachers' perceptions and attitudes regarding the use of computer technology have been overlooked. As mentioned by Berson (1996), Mason & Berson (2000), and Whitworth & Berson (2003), a need exists for more research centering on the effects of technology in social studies preservice teacher education. In light of all these studies, the main goal of this study is to fill this gap in social studies education research and to provide a better understanding of preservice teachers' perceptions and attitudes toward computer technology. Findings of this study not only help to close the gap in the literature, but also provide a different perspective for social studies educators.

1.2.1 Purpose and Research Questions

The purpose of this case study is to explore preservice social studies teachers' perceptions and attitudes toward using computer technology in social studies education. Specifically, this investigation examines whether preservice teachers want to use computer technology in social studies, the motives and how they plan to employ computer technology in social studies instruction. In addition, the factors that influence social studies preservice teachers' use of computer technology is explored and described.

The research questions for this study are:

1. What are social studies preservice teachers' attitudes and perceptions toward using computer technology in social studies education?
 - (a) What is the value of integrating computer technology into social studies education from preservice teachers' perspectives?

- (b) To what extent should computer technology be used in social studies?
 - (c) How would computer technology be effective in teaching?
2. What are the factors that influence social studies preservice teachers' use of computer technology?
- (a) What kinds of obstacles do preservice teachers encounter during the use of computer technology in social studies education? Do they have any fears regarding the use of computer technology?
 - (b) What do preservice teachers think about social studies methods courses and what are their expectations from methods courses and social studies departments with respect to the use of computer technology?

1.2.2 Significance of the Study

First, the growing interest in how technology is being used in schools and classrooms and the limited research on this contemporary topic illustrate the importance of examining the impact of integrating information technology as teaching and learning tools on the attitudes and practices of preservice teachers.

Second, this study adds to the body of knowledge in preservice teacher education and information technology integration as a teaching and learning tool, especially in social studies methods courses. In addressing this area, the goal is to understand preservice teachers' attitudes and perception toward the use of computer technology in social studies. Further, the findings provide evidence as to whether preservice teachers,

who are on the verge of becoming in-service teachers, have a clear sense of what their future roles are in integrating technology in teaching.

Third, the findings of this research are prescriptive, in the context of developing a new effective model for integrating information technology as a teaching and learning means in social studies teacher education methods courses. The findings of this study will enable course professors to redefine, reorganize, enhance or retain the model of technology integration in methods courses.

Chapter 2

LITERATURE REVIEW

2.1 Introduction

Marshall and Rossman (1999) argue that the literature review should provide the framework for a study and identify areas of knowledge that the research intends to expand. The purpose of this study is to examine social studies preservice teachers' perceptions and attitudes toward computer technology. Therefore, this chapter begins with an examination of the increasing amount of research that encourages integrating computer technology into social studies preservice teacher education. The literature review then moves to a discussion of the general research related to teaching social studies with technology and is followed by analyses of the factors that promote or hinder the use of instructional technology in social studies. The chapter concludes by analyzing this literature and drawing together the main elements that formed the basis of this study.

2.2 Technology in Preservice Social Studies Teacher Education

The advent of the Internet, online classes, on-line journals, e-mail, virtual fieldtrips (Beal, 2001), electronic forums, electronic access to databases across the world (Alibrandi, 2003), *SMART Boards*, hypermedia, and multimedia authoring tools has given new meaning to teaching and learning social studies (Berson, Cruz, Duplass, & Johnston, 2001; L. C. Mason et al., 2000; Merryfield, 2000). Technology is everywhere

in society, and schools are expected to use technology in educating students. If teachers are to use technology in teaching and learning, not only should resources be available for them to use, but also they should be trained to integrate technology in teaching (C. Mason et al., 2000). The latter seems to be one of the main problems with technology integration in education today; teachers are not sufficiently prepared to use technology in teaching (WBEC, 2000). According to the NCES (2000), a statistical report on teachers' use of technology shows that, approximately half of the public school teachers who had computers or the Internet available in their schools used them for classroom instruction. Sixty-one percent of teachers surveyed assigned students use of these technologies for word-processing or creating spreadsheets most frequently. Fifty-one percent of teachers surveyed used Internet research, 50% used practicing drills and solving problems, and 50% used technology to analyze data. The report also shows that many teachers used computers or the Internet to conduct a number of preparatory and administrative tasks (e.g., creating instructional materials, gathering information for planning lessons) and communicative tasks (e.g., communication with colleagues). However, both NCATE (1997a) and ISTE (1999) reported that schools of education are not adequately preparing their preservice teacher education students to effectively integrate technology in their future classrooms. To change this tendency, two vital directives have been suggested: (1) to integrate technology throughout the teacher education experience, and (2) provide models for effective integration of technology into schools of education (Byrum & Cashman, 1993; Handler & Marshall, 1992; ISTE, 1999; NCATE, 1997a; Willis & Mehlinger, 1996).

Teachers' preparation to integrate technology in instruction is a key factor to consider when examining their use of computers and the Internet for instructional purposes (NCES, 2000). Diem (2000) states that the slow implementation of technology in teaching can be traced to teacher education programs. Reports and publications show that many universities and colleges do not effectively integrate technology in their teacher education programs or utilize their technological resources to its full capability (EducationWeek, 1998, 1999; NCATE, 1997b, 1999; WBEC, 2000). In a study of technology integration and practices of 146 college of education junior and senior students at Jackson State University, Craig and Omoregie (2000) state that on a scale of 1 to 5, one being the lowest and five the highest, most students rate their ability to use technology in instruction and their professor's ability to use technology in the lowest levels of the scale, mainly 1 to 2.

Even though some concerns and difficulties exist for using computer technology in social studies education many educators still believe that if technology is appropriately integrated in teaching and learning social studies, it could foster a constructivist-learning environment. Advocates of constructivist orientation to social studies instruction such as Diem (2000) and Doolittle and Hicks (2003) advocate that computers can aid in making social studies pedagogy more consistent with constructivist theory by making classes more student centered, pertinent to students' lives, and collaborative. According to Halpin (1999), the integration of technology across the curriculum provides preservice teachers with an explanatory and discovery-oriented environment that enhances their abilities to use different computer applications for instructional purposes. Halpin also stated that the use of technology created a problem-solving environment, as those

championed by proponents of constructivism (Dewey, 1910; Papert, 1980; Vygotsky, 1978). In the same manner, Ewing, Dowling & Coutts (1999) argue that the goal of using the constructivist teaching approach for integrating technology in teaching and learning is to let the learner determine how to integrate technology rather than having technology determine the route the learner takes. In a study of eight higher education faculty members, eight K-12 teachers and 122 preservice teachers on facilitating a constructivist vision of technology integration among education faculty and preservice teachers, Vannatta and Beyerbach (2000) state that constructivist integration of technology led to the following findings:

1. Significant increase in technology integration by participating higher education faculty and K-12 teachers,
2. Significant increase in instructional methods, overall proficiency with different technologies (word processing, e-mail, and Internet) with the exception of LCD panel uses, and
3. Overall increased technology proficiency among preservice teachers.

In reviewing the state of technology integration with preservice social studies teachers, Lee (2000) states:

Since pre-service social studies students are expected to learn content by using information technologies, these technologies should be accounted for when researching the development of pedagogical content knowledge. While the role of the information technologies does not need to be the primary focus of an inquiry into development of pedagogical content knowledge, not considering or ignoring it would be unrealistic. The recognition of the place of information technology in the development of pre-service students' pedagogical content knowledge is practical and realistic (p. 1998).

Lee (2000) also states that social studies methods courses play an important role in developing pedagogical content knowledge about how to teach using digital historical documents. In a study of 19 preservice social studies teachers in a social studies methods course, Lee concluded that students struggled to transform subject matter knowledge into pedagogical content knowledge using digital historical resources. According to Lee, this problem could be resolved by providing social studies preservice students with time and resources necessary to develop their pedagogical content knowledge using digital historical resources. Ledford (2000) suggests that preservice teachers plan and develop social studies units of instruction that include exploration of primary resources, comparison of cultures with international pen pals, and virtual field trips to locations far from their classrooms to enhance instruction through technology. In the study, Ledford (2000) states all students identified using the Internet as resources to enhance instruction. In addition, all students indicated extensive use of word processing, since all assignments were required to be word-processed. E-mail also received high utilization as a means of communication with instructors.

Integrating computer technology into the curriculum just for the sake of using technology is counterproductive to instructional goals and may be detrimental to preservice teachers (C. Mason et al., 2000). The research on the constructivist model of integrating technology claims that systematic integration of technology provides maximum benefits to the instruction and to the students receiving the instruction. According to Wang and Holthaus (1997), computer technology is effective when integrated within the curriculum courses rather than taught in isolation. Overbaugh and Reed (1992) report that introducing computer technology in an introductory course or a

content-specific course results in preservice teachers' increased computer competency, confidence in using the technology, and decreased anxiety in using computer technology in teaching.

According to L. C. Mason et al., (2000):

When preservice teachers enter the classroom, they will rely heavily on teaching strategies and methods acquired while in their teacher preparation courses. Therefore, if teachers are to use technology in the classroom, it is important that they receive appropriate technological training in methods and other education courses. Appropriate training focuses on integrating various types of technology to make lessons better, rather than learning technology simply to acquire technological skills (p. 109-110).

In the light of the preceding statement, L.C. Mason et al., (2000) outlines five guiding principles for using technology to prepare preservice social studies teachers:

1. Extend learning beyond what could be done without technology:

The introduction of technology in the methods course should improve learning. According to L. C. Mason et al. (2000), teacher education programs should present technology in an milieu in which skills and content are taught more dynamically and meaningfully. They propose that one way to accomplish this is to get students to use digital archives to enhance their lesson plans. Use of digital archives teaches preservice teachers how to access, control and decode electronic raw materials from the past. They also claim that use of digital archives by course instructors to connect students in historical inquiry allows preservice social studies teachers to experience learning beyond what could be done without technology.

2. Introduce technology in context:

According to L. C. Mason et al., (2000), the objective of introducing technology is not to make preservice teachers expert at using technology but to make their teaching

better than it would be without using it. L. C. Mason et al., suggest that social studies faculty should support preservice teachers to develop digital history archives to improve teaching and learning.

3. Include opportunities for students to study relationships among science, technology, and society:

L. C. Mason et al., (2000) assert that preservice teachers should be given the chance to study the pros and cons of using technology with children. The study should embrace but not be limited to accessing improper sites, studying the effects of technology on learning, studying the global effects of technology, engaging students in online behaviors, studying the effects of the digital divide on children and development of pro-social behaviors to interact online.

4. Foster the development of the skills, knowledge, and participation as good citizens in a democratic society:

L. C. Mason et al., (2000) argue that because of the interactive nature of the Internet, the social studies classroom has the potential to invigorate the traditional concepts of citizenship education. The research demonstrates that many social studies teachers hardly ever use tools such as the Internet as part of educating future citizens, (Berson, 1996; WBEC, 2000). According to L. C. Mason et al., (2000), use of the Internet allows teachers to:

- Effectively explore the power of the Internet as an instructional tool; through such exploration, teachers are able to increase comprehension of the responsibilities and results for which they must prepare their students when directing, contributing and cooperating with others on the web;

- Use the Internet as an opportunity for students to engage in social and public action discourse,
- Develop local, national and international perspectives to activities and events, and
- Increase awareness of the past, present and future.

5. Contribute to the research and evaluation of social studies and technology:

As teacher education programs integrate technology in teaching of social studies, faculty should follow through by assessing the effect of technology on teaching and learning and, look providing ideal models for the infusion of technology within social studies methods courses. The integration of a variety of technological techniques in the teaching of social studies has a greater potential for enhancing social studies subject matter than in any other subject area (Dawson, Bull, & Swain, 2000). Dawson, *et al.* (2000), amplify the potential of technology integration in teaching and learning of social studies in the following passage:

Technology enables social studies teachers and students to access real-time data manipulate and present statistics in various formats, critique primary sources, develop global learning communities, participate in social and historic simulations, and analyze situations (p. 590).

Doolittle and Hicks (2003) categorized strategies for effective technology integration for social studies instruction as:

- Teachers and students should be prepared to implement technology as a tool for inquiry.
- Teachers should use technology to create authenticity, which facilitates the process of student inquiry and action.

- Teachers should use technology to foster local and global social interaction such that students attain multiple perspectives on people, issues, and events.
- Teachers should facilitate student knowledge construction by using technology to build on students' prior knowledge and interest.
- Teachers should embrace the vitality of student knowledge by using technology to provide timely and meaningful feedback.
- And, teachers should cultivate students' academic independence by using technology to foster autonomous, creative, and intellectual thinking.

The use of technology to enhance social studies instruction in K-12 makes lessons exciting for both teacher and students (Keiper, Mhyre, & Pihl, 2000). In a study of 58 preservice teachers in elementary and secondary social studies methods classes, Keiper, Harwood & Larson (2000) identify five benefits of using computer technology in the classroom:

1. Data collection: Preservice teachers use computer as an aid to collect information for instruction, such as lesson plans, databases and resources for teaching about particular content.
2. Student computer skills: In using computer technology, students learn technology related skills geared toward gainful employment, such as keyboarding skills, problem solving, awareness of software programs and increased confidence in using computers.

3. Dynamic sound and images: Computer technology adds excitement to the class through the use of dynamic sounds and images, such as, video clips, sound files, photographs, maps, graphics and graphs.
4. Instructional variety: The use of computer technology provides teachers with the tool to instruct students through multiple modes of instruction that is sounds, text, animations and images.
5. Communication tool: The use of computer technology provides teachers with opportunities to use the Internet for e-mail, chat rooms, threaded electronic discussions and class Listserv in their instruction. It also allows students and teachers to participate in collaborative activities such as, “Key Pals” communication activities.

Another benefit of integrating the use of computers in education is that modeling the use of computer technology by course instructor in teacher education courses influences in later years the adoption of computer technology use in instruction by in-service teachers (Sunal, Smith, & Sunal, 1998).

2.3 Barriers to Computer Use

In an attempt to discover the reasons for limited use of computer technology, several researchers stated a variety of conclusions, which combine into three main categories:

1. Lack of hardware, software and technical support,
2. Lack of time, and

3. Lack of training.

2.3.1 Lack of Hardware, Software and Technical Support

The Office of Technology Assessment (OTA) report (1995) demonstrates that a lack of hardware and software inevitably limit the integration of computer technology (OTA, 1995). According to Whitworth & Berson (2003), barriers to effective implementation of computers are associated with limited technological resources. Other data suggest many teachers encounter logistical or technological problems for which they lack the training and/or support to resolve (VanFossen, 1999). Specifically, teachers who wish to use the Internet more in their social studies classrooms indicated that the problems with Internet access in classrooms are the most common factors that prohibit them from increasing use (VanFossen, 1999).

As mentioned by Diem (2000), delivering the technology (the hardware and the software) to teachers is the easy part. Getting them introduced to and comfortable and proficient with the technology requires time and effort. As indicated in a NCES report (2002), the number of computers in public schools today seems to be sufficient for effective use (4- to 5-students-per-computer ratio), and 99 % of public schools in the United States had access to the Internet in the Fall 2001. These statistics show that technical problems are not the main problems anymore when compared with technical problems that teachers encountered in previous decades. The next two sections focus on more complicated problems in the investigation of other barriers to computer use.

2.3.2 Lack of Time

The lack of time is reported as a barrier to using computer technology in the classroom. Time is needed for training, and finding resources and preparing curricula (Cummings, 1998).

Beginning teachers generally embark on their new teaching assignments with expectations of applying their newly acquired computer knowledge and skills in their classrooms. However, the difficulties of surviving the first year of teaching with new content, materials, resources, and classroom management leaves little energy for using computers in teaching and learning. Overwhelmingly, new teachers feel constrained by the lack of time, which in turn, inhibits technology integration in lessons and activities (Novak & Knowles, 1991) Since the first few years of teaching are so demanding, with teachers having to improve behavior management techniques, become familiar with the curriculum, adapt to the school culture, and become familiar with the assessment systems, they do not have time to deal with ways to integrate technology available to them (Russell et al., 2003).

Therefore, most teachers who use computer technologies with their classes have little time to plan effective integration of technology with their ongoing teaching activities.

2.3.3 Lack of Training

As mentioned before, proponents of computer technology advocate that the social studies teacher in today's classroom can use technology to extend learning opportunities

for K-12 students. However, many of these scholars also believe that when preservice teachers enter the classroom, they will depend heavily on teaching strategies and methods acquired while in their teacher preparation courses (Beisser, 1999; Bennett, 2000; Diem, 2000; Francis, Farragher, & Riecken, 2000; Kent & McNergney, 1999; L. C. Mason et al., 2000; Whitworth & Berson, 2003). Therefore, if teachers are to use technology in the classroom, they must obtain appropriate technological training in methods and other education courses.

The President's Committee of Advisory on Science and Technology (PCAST) Panel on Educational Technology notes that "substantial investment in hardware, infrastructure, software, and content, will be largely wasted if K-12 teachers are not provided with the preparation and support they will need to effectively integrate technologies into their teaching" (PCAST, 1997). Moreover, the NCATE (1997a) recommendations call for "a vision and a plan for teacher education programs that will integrate technology into the teacher education curriculum using modern telecommunications, with links to exemplary practices of technology use." The same report also claims that teacher education faculty has inadequate understanding of the demands on classroom teachers to integrate technology into their teaching. Many do not fully realize the impact technology is having on the way work is accomplished.

The report continues with some possible reasons for a slow response to new technologies in teacher preparation programs:

The reasons for these deficiencies in teacher education programs are relatively easy to explain, if difficult to excuse. First of all, many teacher education programs lack the hardware and software essential to strong programs. Teacher education programs often are given low priority for special technology funding on their campuses and therefore are denied

essential technology. Second, many teacher education faculty lack the knowledge and skill to incorporate technology into their own teaching. Similar to P-12 [preschool to 12] teachers, they have not been provided the training they need to use technology successfully. Third, a majority of teacher education departments and colleges have not been able to invest in the technical support required to maintain a high quality technology program. Fourth, some higher education faculties are out of touch with what is happening in schools. They have little understanding of the vast changes that are occurring in P-12 classrooms as a result of the introduction of technology and how they must change their own instruction to stay abreast of changes in the schools. Finally, teacher education programs are driven by an academic culture that rewards and recognizes individually among faculty. There are few incentives for bringing faculty together around a common vision about what the teacher education program should be (NCATE Report, 1997, p.7).

Furthermore, Keiper, Harwood, and Larson (2000) report that preservice teachers face obstacles of access and reliability of equipment. These are additional challenges due to limited skills that should be addressed in teacher education programs.

All this data shows that although many schools and universities have obtained substantial amounts of hardware and software assistance, they have not successfully included technology into their preservice teacher programs or used it to full capacity in overall university instruction. For example, most United States teachers (K-12) have not had sufficient preparation to use technology in their teaching. In fact, only 15 % report having at least nine hours of preparation in the area as part of their teacher education programs (Beisser, 1999; Diem, 2000).

From the point of view of Mason et al. (2000), using technology effectively calls for a continuous and steady training program. This is no longer a luxury but a necessity. This should start as part of a preservice teacher program and carry on throughout a teacher's instructional profession. A rule of thumb among those working with hardware and software systems is "In six months – no matter what system you have – it's

obsolete.” Said in another way, the technology classes and training offered to students at the undergraduate preservice level may be outdated by the time they graduate and take their first teaching position.

Although many researchers advocate that lack of preservice teacher training is the biggest barrier to using computer technology in social studies education, some recent studies show that it can only be a part of the multifaceted and complex problems in computer usage (Cuban, 2001; L. C. Mason et al., 2000; Mullin, 2001; Russell et al., 2003).

2.4 Factors that Facilitate Computer Use

Many researchers believe that removing the barriers that are mentioned above will be enough to integrate computer technology into social studies classrooms and to education in general (Bell & Tai, 2003; Bennett, 2000; Cuban, 2001; Diem, 2000; Keiper, Harwood et al., 2000; Marcinkiewicz, 1996; Russell et al., 2003; Sheekey, 2003; VanFossen, 1999/2000). Nevertheless, educators’ opinions differ as to solutions of how to remove these barriers. On the one hand, some educators are approaching these problems from a single, generic dimension and are offering single solutions (Bell & Tai, 2003; Bennett, 2000). On the other side, some others see the problem as more complex and multifaceted and propose multi-dimensional solutions for these problems (Cuban, 2001; Keiper, Harwood et al., 2000; Russell et al., 2003).

Many educators agree that teachers need increased training to help motivate them to integrate computer technology (Bell & Tai, 2003; Bennett, 2000; Cuban, 2001; Keiper,

Harwood et al., 2000; VanFossen, 1999/2000). They claim that preservice teaching experiences can affect the implementation of computer technology in classrooms, and they also believe that rather than teaching computer technology skills in isolation of content, teacher education coursework should combine computer technology training with curriculum and instruction courses. According to Bennett:

Preservice teachers need to apply technological knowledge and skills within teacher education programs. The infusion of technology into course work needs to be spiraled and sequenced within courses and across teacher education programs. Students must demonstrate competence within courses and in field experiences. To be certified, a preservice teacher should demonstrate the technology competencies outlined by the International Society of Technology in Education (ISTE) standards for all teachers ((Bennett, 2000).

Although Bell & Tai (2003) also emphasize the importance of preservice teacher education programs and teaching experience they attribute different reasons for these:

On the average, one-tenth of the teacher workforce turns over every year. Thus, over the course of five years, a large number of teachers will be new to the profession. Teachers currently entering the workforce in many cases have quite literally grown up during the Information Age. A beginning teacher in 2001 at the age of twenty-four would have been born in 1977 and would have been a high school student from 1991 to 1995, a college student from 1995 to 1999, and in either the workforce or post-graduate studies from 1999 to the present... As the new teacher workforce becomes more and more technology capable, innovative uses of technology will enter the classroom not by way of a top-down model of professional development, but through a more grassroots model of hiring technology-capable teachers who can then begin to influence their peers by modeling innovative technology use and acting as resources.

Preservice teachers over the next decade will be completing their formal education during a time when more and more technology is being used in content courses at schools and colleges. These preservice teachers potentially will be exposed to instructional uses of technology (Bell & Tai, 2003).

Technical support also plays a critical role in teachers' use of technology.

Technical support is important for two reasons: (1) Teachers who are assisted are less likely to feel helpless and improve with more possible approaches toward using technology, and (2) teachers who are assisted are more likely to become expert users of technology in the classroom (Lucas, 1995).

Despite the fact that these educators suggest valuable solutions to remove barriers, recent studies show that these single solutions are not enough for complex issues (Cuban, 2001; Keiper, Mhyre, & Pihl, 2000/2001; Russell et al., 2003). In *Oversold & Underused*, Cuban emphasizes the importance of more systemic and comprehensive actions. He believes that without systemic and comprehensive actions, merely adding more resources and teacher training will not solve any current problems in computer use. Therefore, solutions for effective computer use somewhat influenced by Cuban, are.

- Plans would have to be made now for fundamental changes in how elementary and secondary schools are organized, time is allocated, and teachers are prepared.
- Hardware manufacturers, software firms, and telecommunication companies would need to develop software and equipment specifically designed for teachers and students.
- They would have to improve product reliability to limit the defects in their wares, increase technical support to teachers, and test software on consumers before marketing it to district and state administrators.
- The special needs of urban schools and the low-income communities in which these schools are often located would require sustained attention to

the links between the economic, social, housing, and political structures of the neighborhood and the quality of schooling (Cuban, 2001).

2.5 Summary

Notwithstanding the perceptible difficulties of using technology as a teaching and learning tool, technology continues to be an essential part of the educational system, and teachers are expected to use it in their instructions. If teachers are to use technology in teaching, then they should know how to use it. Therefore, teacher education programs have to prepared teachers to passably use technology as a teaching and learning tool.

For the subject area of social studies, technology provides a variety of teaching styles and learning occasions for both teachers and students (Berson et al., 2001). According to Dawson *et al.*, (2000), the possible benefits of using technology in social studies is greater than in any other subject area. White (1999) concluded that the integration of technology and constructivism possesses a great potential for the future of social studies education. On the other hand, lack of hardware, software and technical support, lack of time and training, and difficulty of navigating a large number of web sites are deemed potential hindrances to using computer technology in social studies education (Bennett, 2000; Diem, 2000; L. C. Mason et al., 2000; Russell et al., 2003; VanFossen, 1999; Whitworth & Berson, 2003).

However, the question to ask is “Even if these hindrances are overcome and computer technology is integrated into teacher education programs, does that guarantee future use” and “How important are preservice teachers’ perceptions and attitudes toward

computer technology in terms of integration into social studies instruction? This study argues that the answers to the preceding questions are as important as other factors emphasized in literature regarding future use of computer technology in social studies. The research asserts that teachers with positive attitudes toward technology use technology in teaching (Vannatta & Beyerbach, 2000). If preservice teachers do not have a positive attitude toward technology, the responsibility rests with the teacher education program to improve the positive attitude in preservice teachers through adequate preparation.

The research on using computer technology in preservice social studies course does not obviously clarify the relationship between preservice teachers' previous technology knowledge and integrating technology as a teaching and learning tool in a methods course. This research supports Hoter's (2000) argument that knowledge about technology and competency in the application of technology tools and how to use the Internet does not directly translate to effective integration. However, previous knowledge of applications saves time in the methods courses and allows the instructor to focus on integration rather than teaching applications.

Chapter 3

RESEARCH DESIGN AND METHODOLOGY

3.1 Overview

The methodology used in research is often determined by the phenomenon being studied and related research questions (Yin, 1994, 2003). Based on the research questions and the phenomenon of interest for this study, a qualitative case study was used as a methodology. Data consisted of observations, interviews, surveys, and informal conversations to address the research questions. Twenty-eight preservice teachers, enrolled in a Secondary School Social Studies Methods Course (Social Ed I) at a major university in the Northeastern region in the Spring 2005 semester, were given a survey that asked how often they used computer technology, how familiar they are with computer technology, and what they thought about the place of computer technology in social studies education. From these survey results, eight preservice teachers (five male, three female, according to classroom ratio) were chosen to participate in in-depth interviews. In addition, throughout the semester the classroom was observed and at the end of the semester, those eight students were contacted via email to learn how their opinions had changed regarding computer technology after a five-week teaching practicum. These interviews and observations are based on Erickson's (1986) interpretive approach in which the researcher is the instrument. The interviews focus on preservice teachers' opinions about the role of computer technology in social studies education,

importance of computer technology in their visions of teaching, limitations of using computer technology in social studies education, opinions regarding problems in computer technology and their suggestions for solutions, their computer technology backgrounds, and computer technology competencies.

This chapter begins with a discussion of the study's theoretical framework of research design followed by an in-depth description of the methods that to perform these tasks. This description will comprise attention to the sample of the population being studied, how they were selected, and the detailed account of how data was collected and then analyzed.

3.2 Theoretical Framework of Research Design

The methodology for a study is broadly defined by the research questions (Miles & Huberman, 1994). Thus, the approach to the description of the study design restates them. The questions for this study are: 1) What are preservice teachers' attitudes and perceptions toward using computer technology in social studies education? 2) What are the factors that influence social studies preservice teachers' use of computer technology?

These questions require an in-depth examination of specific ideas and actions in specific settings. This type of inquiry fits the strengths of qualitative research rather than any forms of quantitative research. In addition, information on perceptions, attitudes and practices is most likely to be available from preservice teachers by talking to them and observing them in a natural setting, such as a methods course, in which examination of

preservice teachers' practices are clearly demonstrated (N K Denzin & Y. S. Lincoln, 2000).

The ability of qualitative data to describe a phenomenon is an important consideration not only from the researcher's perspective, but also from the reader's perspective. "If you want people to understand better than they otherwise might, provide them information in the form in which they usually experience it" (Lincoln & Guba, 1985, p.120) Qualitative research reports are typically rich in-detail and insights into participants' experiences of the world, "may be epistemologically in harmony with the reader's experience" (Stake, 1978, p.5) and thus more meaningful.

Qualitative researchers are interested in understanding the meanings people have constructed about a particular phenomenon, the experiences they have had, and how they make sense of the world around them (Merriam, 1998). Qualitative research is an umbrella term, covering several forms of inquiry that help to understand and explain the meaning of social phenomena within natural settings. In contrast to quantitative research, which takes apart a phenomenon to examine component parts or variables, qualitative research seeks to shed light on how all the parts work together to form a whole (Merriam, 1998).

Qualitative research integrates multiple methods, involving an interpretive naturalistic approach to its subject matter (Denzin & Lincoln, 1998). That is, "... qualitative researchers study [the] thing in their natural settings, attempting to make sense of, interpret phenomena in terms of the meanings people bring to them" (Denzin & Lincoln, p.3).

To complete the purpose of qualitative inquiry, researchers deploy a wide range of methodologies, hoping always to get a better understanding of the phenomenon being studied (Denzin & Lincoln, 1998). “Qualitative research, as a set of interpretive practices, privileges no single methodology over any other” (Denzin & Lincoln, 1998, p.5).

Qualitative research does not have a theory or paradigm that is distinctly its own, nor does qualitative research have a distinct set of methods that are entirely its own. Yet, there are many forms of qualitative research, such as, ethnography, phenomenology, grounded theory, and case study (Denzin & Lincoln, 1998)

3.2.1 Case Study

Qualitative research uses powerful tools for enhancing understanding of teaching and learning. Since the questions asked by this research study are best answered by qualitative methods, this research study is a qualitative case study. Using quantitative methods would present difficulty in determining answers to the nature and extent of social studies preservice teachers’ perception and attitude toward computer technology. Rather than counting numbers, of computers, lab sessions, using *SMART Boards*, or of Internet connections, the focus of this study is more on opinions and feelings of preservice teachers regarding using computer technology in social studies. Questions about motivation, strategies practice, barriers, and opinions in using computer technology in social studies could be best addressed through a qualitative case study.

Stake (1998) discussed the complexity and focus of a case study:

A case study may be simple or complex. It may be a child or classroom of children or mobilization of professionals to study a childhood condition. It

is one among others. In any given study, we will concentrate on the one. The time we may spend concentrating our inquiry on the one may be long or short, but while we concentrate, we are engaged in case study (p. 87).

More specifically, Stake (1998) described a case study with less interest in one particular case as a collective case study. It is not the study of a collective group of individuals but an instrumental study extended to several cases. In a collective case study, the cases are chosen because, it is assumed, understanding them will lead to effective knowledge and better theorizing about a larger collection of cases or population.

This study is a collective case study, which involves examination of “a number of cases in order to investigate a phenomenon, population, or general condition” (Stake, 2000). Current situations show that quite small number of social studies teachers use computer technology in instruction (Becker, Ravitz, & Wong, 1999), in contrast to, the remarkable growth in Internet connections and computers in schools (NCES, 2002). This collective case study focuses on social studies preservice teachers’ attitudes and perceptions toward computer technology in order to provide insight for this critical issue in education. Such insights can provide teacher educators with a clearer understanding of problems in using computer technology and opinions of preservice teachers’ regarding the position of computer technology in social studies education.

3.3 Data Collection

The description of sampling criteria, recruiting participants, and data collecting methods is presented in this section.

3.3.1 Data Sources and Sampling Criteria

Potential participants are preservice teachers enrolled in a Secondary School Social Studies Methods Course (Social Ed II) at a major university in the Northeastern region in the Spring 2005 semester.¹ In most qualitative case studies, sample selection is purposeful or based on predetermined criteria. “The criteria you establish for purposeful sampling directly reflect the purpose of the study and guide in the identification of information-rich cases” (Merriam, 1998). Therefore, special interest is in this methods course (Social Ed II) and students enrolled in this methods class, because they met three major criteria that are important for the purposes of this study:

1. A class of preservice secondary social studies teachers in a methods course, who have already started applying computer technology in the first session of the course in the Fall 2004, and they have an overall idea about computer technology in social studies.
2. The University and the Department have the technology resources and support system in place to integrate technology as a teaching and learning tool.
3. The course instructor integrated technology in the methods course.

The use of purposeful selection of this class provided in-depth study for learning preservice teachers’ attitudes and perceptions regarding the use of computer technology in social studies.

¹ All course, preservice teacher, and professor names are pseudonyms.

3.3.2 Research Participants

In the Spring 2005 semester, during a class session prior to the beginning of the study, preservice secondary social studies teachers who enrolled in the Social Ed II course were invited to contribute to the study. The purpose of the study was explained as well as, the time commitment required for contribution. Additionally, the only activities required of participants other than normal participation in the course activities were a twenty-minute survey before the study and an interview with eight of those selected based upon the survey results. Interviewees were offered a five dollar gift certificate to encourage them to participate in the study. They were assured that their participation would be totally voluntary and no sanction would accrue for not participating or withdrawing at any time. After the invitation, the volunteer preservice teachers were asked to complete a Human Subjects Consent Form (Appendix A). All of the twenty-eight preservice secondary social studies teachers enrolled in the course agreed to participate.

A survey (Appendix B) was distributed to all of the twenty-eight preservice social studies teachers. The purpose of the survey is to understand overall preservice social studies teachers' tendency toward computer technology and to identify participants for in-depth interviews. A modified version of the Preservice Teacher Perceptions of the Impact of the Computer Use on Learning Scale (PTPCICL) (Sadara, 1997) was used for the survey. Computer proficiency section in the survey was used for the selection of eight interviewees for the study. Each answer in the computer proficiency section, **a= Unfamiliar** (I do not know what this item is.); **b= None** (I have no proficiency. I know

what this item is, but I do not know how to use it.); **c= Low** (I have a little proficiency with this item, and I could use it in basic instruction.); **d= Medium** (I have some proficiency with this item, and I could use some advanced instruction.); and **e= High** (I am very proficient with this item and can efficiently utilize advanced instruction.) was matched with a numeric value **0, 1, 2, 3,** and **4** respectively. Then, each participant's mean score was calculated for this section. According to results, one male and one female participants, who had the lowest score, two male and one female participants, who had the average score, and two male and one female participants, who have the highest score were invited to participate in one-on-one semi-structured interviews. All preservice teachers invited for an interview agreed to participate in the interview. Detailed description and backgrounds of interviewees appear in Chapter 4.

3.3.3 Procedures of Data Collection

Qualitative research generally hinges on three types of data: interview, observation, and artifacts (N K Denzin & Y S Lincoln, 2000).

In qualitative case studies... all three means of data collection are frequently used. Understanding the case in its totality, as well as the intensive, holistic description and analysis characteristics of a case study mandates both breadth and depth of data collection (Merriam, 1998)

Erickson (1986) states the necessity of having more than one method of research, as different methods each has potential weaknesses, but their combination, or “triangulation” leads to more accurate findings . Hence, for the purpose of this study, data collection included surveys, interviews, observations, and collection of archival evidence.

3.3.3.1 Survey

Administration of a modified version of the Preservice Teacher Perceptions of the Impact of the Computer Use on Learning Scale (PTPCICL) (Sadara, 1997) occurred for the survey at the beginning of the study and involved all twenty-eight potential participants. This instrument has been used in previous studies to measure preservice teacher beliefs about teaching, learning and classroom computer use and had a Cronbach alpha reliability coefficient of $r=.82$ (Sadara, 1997). PTPCICL was used to learn preservice teachers' general backgrounds, experiences with computer technology, attitudes toward computer technology, and computer proficiencies. In addition, the computer proficiency part of the survey was used in the selection of interviewees for in-depth investigation.

3.3.3.2 Interviews

Doubtless, the most valuable part of the data collection for the present study is the interview. In describing the importance of interviewing for qualitative research, Seidman (1991) argued that interviewing "is a powerful way to gain insight into educational issues through understanding the experience of the individuals whose lives constitute education" (p. 7).

Each of the eight preservice social studies teachers participated in one in-depth interview and email conversation upon completion of a five week teaching practicum at the end of the semester. Overall, forty to forty-five minutes comprised interviews with each participant. The formal interviews were video-taped and later transcribed. The

transcription took place immediately after the interview in order to “stimulate recall” as well as transcription of “unelaborated, raw notes” (Erickson, 1986, p. 144). The transcriptions were analyzed throughout the study in order to search for evidence to make and validate assertions. An interview guide was used in order to make sure that the information collected from different participants was similar yet allowed flexibility for the researcher to be able to “explore, probe, and ask questions that will elucidate and illuminate that particular subject” (Patton, 1990).

3.3.3.3 Observations

Collection of extensive field notes occurred throughout observations of Social Ed II. Each preservice teacher presented an exemplary lesson for forty-five-to fifty minutes. All presentations were observed.

The aim of the observations was “to describe the setting that was observed, the activities that took place in that setting, the people who participated in those activities, and the meanings of what was observed from the perspective of those observed” (Patton, 1990).

Since the investigation is of preservice teachers’ perceptions and attitudes in this study, the focus is on preservice teacher actions and statements during the observations. Noted was how and how often preservice teachers’ use computer technology in their presentations. Also noted was preservice teachers’ use of equipment and the problems that they encountered during presentations regarding computer technology. Recorded

were other preservice teachers' comments about their friends' presentations relating to using computer technology.

3.3.3.4 Archival Evidence

While in the classroom setting, archival evidence was collected. This included lesson plans hand-outs, web sites, specific computer files, and assessment material that were used by preservice teachers during their presentations. The advantage of archival evidence is that these documents are “unobtrusive” for review, yet “rich in portraying the values and beliefs of the participants in the setting” (Marshall & Rossman, 1999). In this study, the archival evidence was used to help to understand how preservice teachers use computer technology in their instructions. These documents were used in conjunction with interviews and observations to triangulate data and hence gain a deeper understanding of each preservice teacher's beliefs and practices, especially, those who participated in-depth interviews.

3.4 Process of Data Analysis

The analysis of qualitative data is a dynamic, intuitive, and creative process of inductive reasoning and thinking. Throughout analysis, the endeavor is to gain a deeper understanding of the data and to purify interpretations. Reliance was on firsthand experience with participants and data collection process during interpretation of the data. First, careful transcription of all interviews very occurred. Reading the transcriptions

while listening to the original recordings to check for accuracy followed. After transcribing the interviews all documents were imported into a qualitative analysis program, NVivo. As qualitative data analysis software, NVivo is quite easy to use. It allows importation of documents directly from a word processing package and simply coding these documents on-screen. Coding stripes can be made visible in the margins of documents so that the researcher can see which codes have been used where.

For the survey the potential population was twenty-eight preservice social studies teachers and all of them agreed to contribute to the study. Data from these twenty-eight responses were utilized to address overall preservice teachers' backgrounds and opinions regarding computer technology, and to select participants for interviews. Frequencies of responses from all twenty-eight respondents were tabulated and percentages were determined in order to have a base from which to compare the data.

3.4.1 Coding Documents (Creating Nodes)

Interviews were analyzed using NVivo which allowed creation of a database, assign a code to a text, and generate various reports. Codes are labels for units of meaning for the descriptive or inferential information in the data. Miles and Huberman (1994) point to two methods of creating codes. The first one is not having any pre-code until after collecting data, seeing how it functions, and determining the varieties. This is essentially the "grounded" approach originally advocated by Glaser and Strauss (1967). The other method preferred by Miles and Huberman, is to create a provisional 'start list' of codes prior to fieldwork. That list comes from the conceptual framework, list of

research questions, hypotheses, problem areas, and key variables that the researcher brings to the study.

Coding was an ongoing process that began with the first interviews and continued throughout the writing phase of the project. The coding process was established by the literature, i.e., initial coding involved looking for themes and topics present in accounts of previous research. Once this initial coding was completed, analysis of the data from the interviews led to the development of new categories, the revision of category titles, and the realigning of data within categories. This resulted in a total of 51 codes. All codes grouped into four conceptual categories: 1) backgrounds, 2) computer technology competency, 3) attitudes and perceptions toward computer technology, and 4) opinions regarding problems in computer technology and suggestions for solutions. For example, the second category, preservice teachers' computer technology competency, included the following codes: 1) hardware competency, 2) software competency, 3) advantages of having computer skills, 4) methods are/will be used by preservice teachers to improve their competency level, 5) preservice teachers' weakest and strongest sides regarding computer technology, and 6) relationship between competency level and using computer technology at teaching. The complete list of codes appears in Appendix C.

3.4.2 Grouping Codes into the Categories (Creating Trees)

The next phase was to create categories in order to form a theoretical scheme that elucidates the data. Categories are simply families of codes that relate to each other one way or another.

Qualitative data are textual, non-numerical, and unstructured. Coding and categorizing has the essential role in analyses of such data as a method of systematizing and making sense of the information. Researchers have discussed coding and categorizing in the context of data reduction, condensation, distillation, grouping, and classification. When researchers create a category, they are making decisions about how to organize the data in ways which are useful for the analysis. Some account must be made of how a category will “fit” into this wider analytic context (Dey, 1993). Codes are links between locations in the data and sets of ideas, and they are, in that sense, heuristic devices, which enable the researcher to reflect on the data.

3.4.3 Searching Sorting and Assembling during Analysis Using NVivo

After coding the eight transcripts, the search facility of NVivo allowed creating extremely useful reports, which could be saved and printed. The ‘Document Coding Report’ pertained to a single interviewee and collected all the extracts from the interview under separate node headings. The “Node Coding Report” related to individual nodes and assembled all the extracts from those interviews in which that node had been used to code data. Furthermore, creation of the interview transcript with “coding stripes” was possible. This showed an entire interview in a smaller font with brackets on the side indicating the text that was coded and the nodes that were used to code that bit of the text (See Figure 3-1)

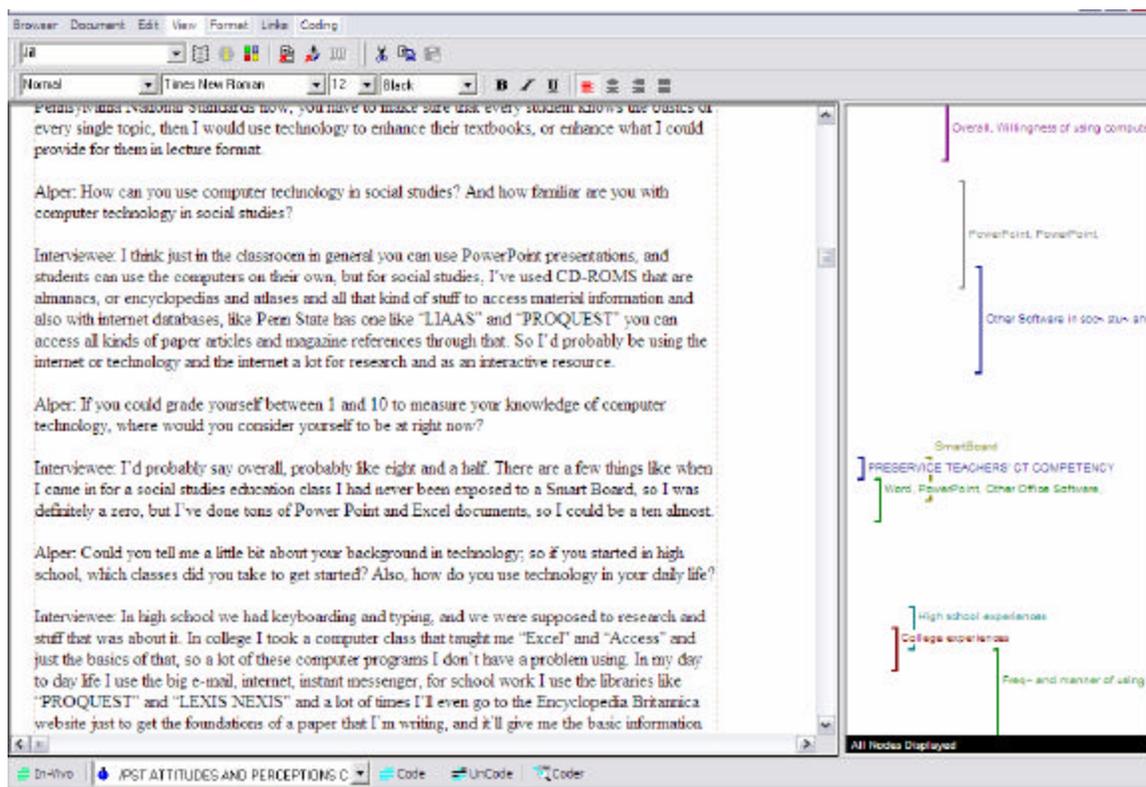


Figure 3-1: Interview transcript with coding stripes

Together the three above-mentioned reports proved to be enormously helpful. The three types of reports produced in NVivo helped to accomplish the searching, sorting, and assembling functions of qualitative analysis.

3.5 Validity Concerns in Qualitative Inquiry: Standards of Quality & Trustworthiness

Validity is a goal rather than a product; it is never something that can be proven or taken for granted. Validity is also relative: it has to be assessed in relationship to the purposes and circumstances of the research, rather than being a context-independent property of the methods or conclusions (Maxwell, 1996).

Debate on the usefulness of the concepts of validity and reliability in qualitative research has been undertaken for many years. According to Maxwell (1996) validity refers to the correctness or credibility of description, conclusion, explanation, interpretation, or other sort of account. The audio and video recording of observations and interviews, and verbatim transcription of these recordings were undertaken to ensure accuracy and completeness of description. Interpretation of data is important for meaning to the participants not perceived by the researcher. The researcher acknowledges and understands the main threat to valid interpretation is imposing one's own framework or meaning rather than understanding the perspectives of the participants. Some researchers suggest that these terms are inappropriate in qualitative research. Nevertheless qualitative research and data analysis must be accomplished in a thorough and transparent manner.

In discussing standards of quality, Maxwell (1996) asserts that three types of understanding emerging from a study could introduce distinct threats to validity, namely descriptive, interpretive, and theoretical. According to Merriam (1998):

Concerns over trustworthiness can be approached through careful attention to a research's conceptualization and the way in which the data were collected, analyzed, and interpreted and the way in which the findings presented.

An account of quality of findings in terms of credibility (internal validity), dependability (reliability), and transferability (external validity) is necessary (Maxwell, 1996). The following addresses these issues and how they were considered throughout the study.

3.5.1 Credibility

Qualitative researchers have articulated several ways to ensure that research findings represent reality and make good sense (Creswell, 1998; Maxwell, 1996; Merriam, 1998; Miles & Huberman, 1994). Special attention should be given to the qualifications of the researcher, rigors of data collection and analysis, data and researcher triangulations, and the theoretical beliefs that frame the study.

Previously in this chapter, data collection methods, and the theoretical framework of the study were described in detail. Collection of the data for this study occurred in the most comprehensive way possible to make sure that subsequent analysis and interpretations rest on sound evidence. When transcribing interviews, a sincere effort was given in order to accurately reflect the audio recordings.

Triangulation is a way to promote credibility; therefore collection of data arose from various sources by various methods. Triangulation can mean using multiple investigators, multiple sources of data, or multiple methods to confirm emerging findings (Merriam, 1998; Patton, 1990; Strauss & Corbin, 1998). Patton asserts that triangulation is a strategy for reducing systematic bias and can safeguard against the accusation that research findings are a result of a single method, data source, or investigator bias. After providing a thorough review of qualitative inquiry literature, Cakir (2004) devised check tables to address important aspects of internal and external validity and reliability. Table 3-1 presents Cakir's (2004) questions associated with internal validity and the researcher's answers as they relate to this research.

Table 3-1: Credibility Check

Were the data collected properly?	YES
Were the data sources triangulated?	YES
Were the data collection methods triangulated?	YES
Was a "member checking" strategy implemented during data collection?	YES
Were the data thick, rich, and deep?	YES
Were the data presented in its entirety?	YES
Were all the available data analyzed?	YES
Was any part of the data overlooked or discarded during analysis?	NO
Were only the data that fitted the researcher's theory or point of view selected?	NO
Was a reality constructed as the researcher wanted to see it?	NO
Was the researcher's purpose to prove or disprove a theory?	NO
Were the participants free to act and converse naturally throughout the study?	YES
Were the participants constrained to act or respond in only certain ways throughout the study?	NO

Initial sociological codes were compiled from the relevant literature before starting the first level of analysis which was exploration of interview transcripts. During the first level of analysis, new codes were added as they emerged from the data, generated initial categories and also developed change-over-time themes. The emergent themes were revised and refined through constant comparative analysis (Glaser & Strauss, 1967).

3.5.2 Dependability

Dependability in qualitative inquiry corresponds to the reliability concept in traditional quantitative research. It refers to the extent to which research findings can be replicated. Since creating the identical settings and finding the same participants is never possible, establishing reliability in a traditional sense is problematic in qualitative

inquiry. As an alternative to reliability Merriam (1998) proposed dependability or consistency that:

Rather than demanding that outsiders get the same results, researcher wishes outsiders to concur that, given the data collected, the results make sense– they are consistent and dependable. The question then is not whether findings will be found again but whether the results are consistent with the data collected.

Therefore, the reliability question for qualitative inquiry becomes how well the procedures were documented throughout the study and how consistent the results were with regard to the data that was collected (Merriam, 1998; Yin, 1994). Table 3-2 lists the main concerns about dependability, consistency, (Cakir, 2004) and the answers as they relate to this study.

Table 3-2: Dependability Check

Were the data collection methods and instruments documented and described properly?	YES
Can an independent judge authenticate the findings by following the trail of the researcher?	YES
Will all such studies yield exactly the same results?	NO
Was there a researcher triangulation in the strict sense?	NO
Were the data sources triangulated?	YES
Were the methods of data collection triangulated?	YES
Are the results obtained from the data "dependable" and "consistent"?	YES
Was the theoretical framework behind this study explained clearly?	YES
Were the context and the characteristics of this study described adequately?	YES

Another way to ensure reliability of a qualitative study is via researcher triangulation that is, having more than one researcher present during data gathering and analysis. Although this study has only one researcher involved in data gathering, collaborating with faculty and colleagues during data analysis relieved potential bias. Collaborative research and feedback serve to reduce analysis error and improve the

credibility of the study. After the invitation to participate, two fellow doctoral candidates, one in social studies education program and the other from Ohio State University social studies education program, and two postdoctoral fellows in other respected institutions, agreed to code interview transcripts independently. Conversations with them on coding, categories, emerging themes, patterns, and discrepancies took place. Also, constantly sharing the developing insights with a thesis advisor and working closely with him throughout all phases of this study insures reliability.

3.5.3 Transferability

The concept of transferability corresponds to the notion of generalizability, in other words, external validity, in quantitative research tradition. It is concerned with the extent to which findings of a study can be applied to other situations. However, in contrast to most quantitative study, a qualitative study is preferred by researchers because of the desire to achieve in-depth understanding of one situation.

Kvale (1996) discusses the analytical generalizability of results from interview-based studies. He emphasizes how the reader's judgments of the wider significance of a piece of research will depend both upon the detail of supporting evidence provided by the author of a report and upon the experiences the reader contributes to the report. The detail in qualitative research reports allows the reader to make an informed comparison between the research context and other contexts where the findings might apply.

According to Merriam (1998):

Because what is studied in education is assumed to be in flux, multifaceted, and highly contextual, because information gathered is a

function of who gives it and how skilled the researcher is at getting it, and because the emergent design of a qualitative case study precludes a priori controls, achieving reliability in the traditional sense is not only fanciful but impossible.

Therefore, to address generalization issues in qualitative research, the researcher must provide enough description so readers will be able to determine how closely their own situations reflect the research situation and the transferability of findings (Merriam, 1998). When findings are summarized into a hypothesis, model, or theory, a case study can become a vehicle for examining other cases (Yin, 1994). Taber (2000) suggests that case study findings should also be “tested” by “replication studies with other samples of learners.” If working hypotheses driven from one case study endure the scrutiny of other researchers and various tests, then they are said to be corroborated. Table 3-3 lists several concerns related to the notion of transferability and the answers as they relate to this study.

Table 3-3: Transferability Check

By their nature should the potential findings of this study be confined strictly to this case of learning only?	NO
By its nature can this study potentially provide insights of wider value, i.e. is it relevant to wider contexts?	YES
By their nature are the potential results of this study readily generalizable to all individual cases of learning?	NO
By its nature can this study be replicated elsewhere in different institutions and/or in different education systems?	YES
By their nature are, at least, certain aspects of potential findings of this study open to statistical testing and generalization?	YES
Was a rich and vivid description of participants provided?	YES
Was a rich and vivid description of the context of the study provided?	YES

In sum, in an attempt to improve the quality of this study the above procedures have been addressed

3.6 Summary

The methods used in a research study emanate from the research questions. The questions for this project indicate that qualitative case study research using interviews and observations is the approach most likely to generate relevant information. Moreover, a survey produced both selection of interviewees and collection of general information regarding preservice teachers' computer skills and attitudes. After narrowing the sample to eight preservice teachers, their interviews of forty-five minutes duration and followed by contact at the end of the semester via email after a five-week school practicum experiences elicited their opinions. In addition, observing their methods class throughout the semester provided information about how they use computer technology in their teaching.

The data from these observations and interviews was transcribed and coded into categories. The categories, some of which were derived from the literature and some from the data, became the foundation for the construction of descriptions and analysis of the preservice teachers' perceptions and attitudes based on the research questions. After the preservice teachers' commented on the descriptions, they were then used in cross-case analysis of the issues raised by the research questions, i.e., these preservice teachers' perceptions and attitudes toward computer technology, how computer technology would be effective in their teaching, and the possible factors that influence their using computer technology in social studies.

Chapter 4

FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter describes the study's findings based on the data collected. First is a detailed description of the methods course (Social Ed II) which is the source for the collected data. This section provides complete information about computer technologies located in the social studies laboratory, course structure, requirements and instructor's teaching style, and the researcher's position in the classroom as observer. Next is a delineation of survey results, collected from twenty-eight preservice social studies teachers. This information provides an overall description of preservice teachers' technology background, competency level, and attitudes toward computer technology. Separate descriptions of each of the eight interviewees follow. These descriptions include an elucidation of the preservice teachers' personal and computer technology backgrounds. Finally, the results from the analysis forms the basis of two main themes organized around research questions. These themes emerged from four categories of codes are listed in Chapter 3. These categories are: 1) background 2) computer technology competency 3) attitudes and perceptions toward computer technology and 4) opinions regarding problems in computer technology and suggestions for solutions. The complete list of codes within these categories appears in Appendix C. Also present are excerpts from data sources to support the interpretations that resulted from data analysis.

4.2 Description of Methods Course (Social Ed II)

Social Ed II is the second session of a required methods course for secondary preservice social studies teachers. Social Ed II has three main parts for the Spring 2005 semester course. For the first eight weeks of class, students participate in class activities two days a week (Tuesdays and Thursdays) for three hours. The succeeding five weeks has no formal class as students are participating in practicum. Finally, in the last two weeks, students and Dr. Susan Brown, the professor, make detailed evaluations of the practicum and discuss issues derived from it.

Throughout the semester classroom sessions took place in the social studies laboratory, which three years earlier was renovated with the addition of computer technology. In addition to maps, globes, television, stereo, VCR and DVD players; a mobile workstation containing sixteen *Dell® Pentium IV®* notebooks with wireless internet connections, including one for the instructor, one projector, one *SMART Board*, one *AirLiner™* wireless slate, one scanner, and one inkjet printer comprise the laboratory hardware (See Figure 4-1, Figure 4-2, Figure 4-3, Figure 4-4). Classroom ratio allows at least one available computer for every two students throughout the semester.



Figure 4-1: Mobile workstation and projector.



Figure 4-2: Printer and scanner.



Figure 4-3: *SMART Board*.



Figure 4-4: *AirLiner* wireless slate.

SMART Board, available in the social studies laboratory (see Figure 4-3), is an interactive whiteboard. *SMART Board* allows one to write, to erase and to perform mouse functions with a finger, a pen or an eraser – one needs no proprietary tools. Also, one can pick up a pen or the eraser, and the pen tray automatically detects the selected tool. Buttons activate the On-Screen Keyboard, right-click and help functions. In addition, one

can capture one's work with *SMART Board* software as a screen shot that one can edit. Saving notes directly into several software applications, including Windows versions of *Microsoft PowerPoint®*, *Word®* and *Excel®* is possible. *AirLiner* wireless slate (Figure 4-4) is a mobile and small version of *SMART Board*. With the *AirLiner* slate students have a chance to interact wirelessly with *SMART Board*.

Dr Brown, course instructor, is the assistant professor in social studies during the data collection phase. Before she began working in this university she was director of the Teacher Professional Certification Program in another university in another state. She has many years of teaching experience at various levels and in a variety of circumstances, and she is an enthusiastic proponent of the constructivist approach in education. Dr. Brown is also co-author of a book which is a rich resource for practical examples and research supporting constructivist theory. As an educator, she strongly believes that in order to create a constructivist classroom milieu, technology is a useful tool for teachers if used properly.

As explained in Chapter 2, advocates of the constructivist orientation in social studies instruction such as Diem (2000) and Doolittle and Hicks (2003) claim that computers can aid in making social studies pedagogy more consistent with constructivist theory by making classes more student centered, pertinent to students' lives, and collaborative. According to Halpin (1999), the integration of technology across the curriculum provides preservice teachers with an explanatory and discovery-oriented environment that enhances their abilities to use different computer applications for instructional purposes.

As a proponent of constructivist theory, Dr. Brown spent time effort to encourage students to use computer technology in their learning experiences. In her course syllabus, one of the objectives is to engender the ability to integrate technology into learning experiences. Throughout the semester Dr. Brown tried different techniques and activities to increase the amount of time dedicated to using computer technologies available in the classroom. First, she trained some students how to install *SMART Board*; she wanted them to train each other before every class. In that way, every student had a chance to configure *SMART Board* at least one time during the semester. At the end of the semester almost everyone knew how to connect all cables, and to align *SMART Board* with a projector. Second, after giving outlines of how to prepare *PowerPoint* presentations, in the Social Ed I, she asked every student to prepare a *PowerPoint* presentation for their learning experience, and she also encouraged students to use *SMART Board* to project their *PowerPoint* presentations in Social Ed II. Without any exception, all students prepared a *PowerPoint* presentation and used *SMART Board* throughout the semester. Finally, after the first few presentations, Dr. Brown required students to use *SMART Board's* pens and eraser at least one time during their presentations in order to allow them to develop familiarity with *SMART Board* technology.

One corner of the social studies laboratory was the observation point for the researcher. This offered the best view for seeing everything in the classroom, as a silent observer throughout the semester (Figure 4-5). Collection of all hand outs, prepared by students and instructor, provided sufficient classroom artifacts. In order to avoid missing any details of presentations, informal interviews of the instructor and students occurred only before class time or during breaks. These informal interviews provided more

information regarding what students thought about the computer technology and how they would use it for their presentations.



Figure 4-5: Classroom observation point for research.

4.3 Survey Results

The following four main sections present survey results for this study: 1) preservice teachers' background information 2) preservice teachers' experiences with computer technology in education 3) attitudes regarding computer technologies in social studies education 4) preservice teachers' computer proficiency (see Appendix B for survey questions).

4.3.1 Preservice Teachers' Background Information

Findings presented in Figure 4-6 indicate that the majority of preservice teachers, participating in this survey, were seniors (20 out of 28); however, five juniors, one fifth year senior, and two returning adults joined with those seniors.

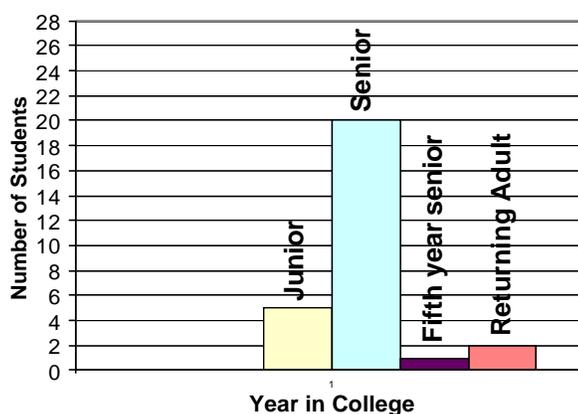


Figure 4-6: Classroom distribution by year.

Male students (18 out of 28) outnumbered female students (10 out of 28) in the class (see Figure 4-7).

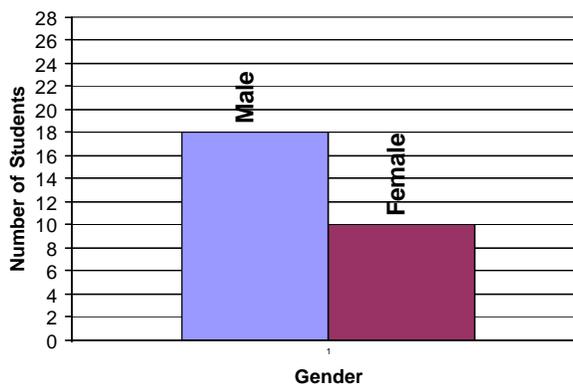


Figure 4-7: Classroom distribution by gender.

Data (see Figure 4-8) shows the distribution among preservice teachers regarding what grades they wish to teach after graduating. A plurality of those (11) wish to teach in 11th grade. Some prefer to teach: 10th (7 out of 28), 12th (6 out of 28), 9th (3 out of 28), and 7th (1 out of 28) grades. However, none of the preservice teachers choose 6th or 8th grades.

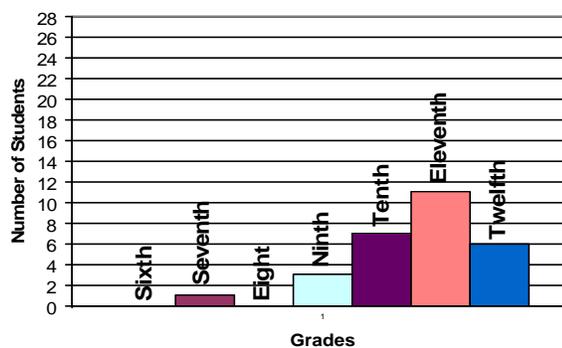


Figure 4-8: Grades preference for teaching.

All 28 preservice teachers had their own computer, and according to this figure, at least at some level, all participants had computer literacy (Figure 4-9)

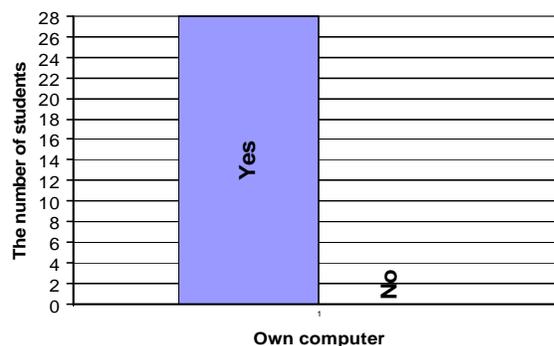


Figure 4-9: Students who currently own personal computer.

Approximately 85% (24 out of 28) of the preservice teachers took at least one computer course or more throughout their high school or college education (see Figure 4-10). Only 7% (2 out of 28) either learned themselves or someone else aided in their developing computer literacy.

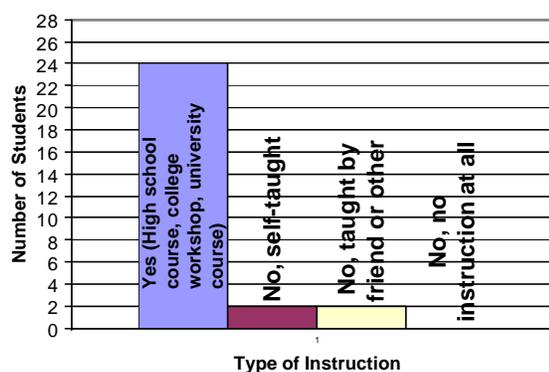


Figure 4-10: Formal instruction background on how to use computer technology.

Almost all (25) preservice teachers use computers more than once a day and the remaining (3) use them no less than once a day for any reason(see Figure 4-11).

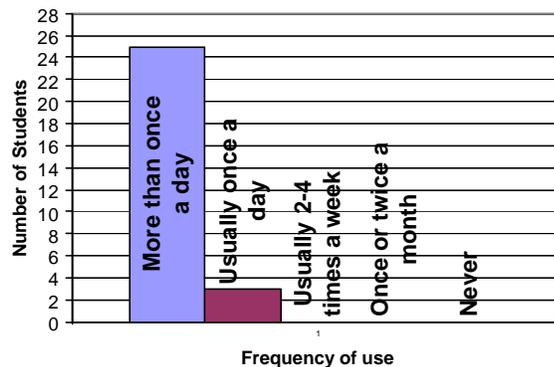


Figure 4-11: Frequency of computer use (for any reason).

All of the preservice teachers surveyed (100%) use computer technology to send or receive email (see Figure 4-12). A large majority of those (97%) also use computer technology to complete homework and to find information. In contrast to these significant percentages, only 54% of preservice teachers use computer technologies for entertainment, 4% use them to write computer programs and 14% use them for other purposes.

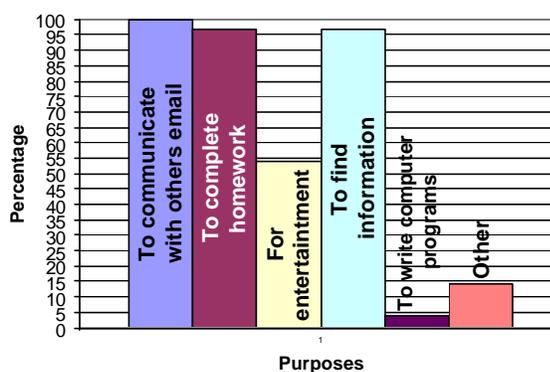


Figure 4-12: Purpose of using computer technologies (%).

All 28 preservice teachers had their own computers when they grew up (see Figure 4-13). This number exactly matches the number appearing in Figure 4-10; preservice teachers who have their own computers right now also had computers when they grew up. These figures could be very important for demonstrating preservice teachers' computer literacy levels.

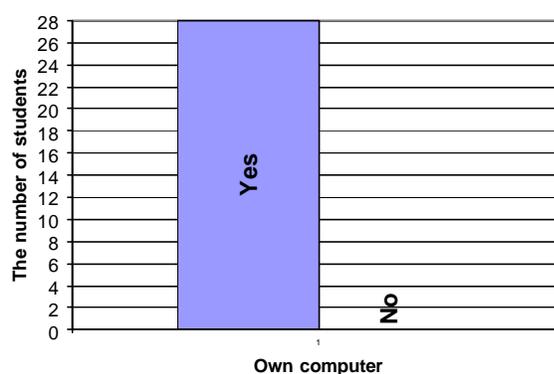


Figure 4-13: Students who had a computer at home when they grew up.

4.3.2 Preservice Teachers' Experiences with Computer Technology in Education

Findings shown in Figure 4-14 indicate no consensus among preservice teachers regarding how often teacher-delivered presentations use computer technologies. Most feel that computer technology use occurred once a month (10 out of 28) or once a week or more (9 out of 28). Still others feel that use was occasional, once or twice a term, (6 out of 28), or never used (3 out of 28).

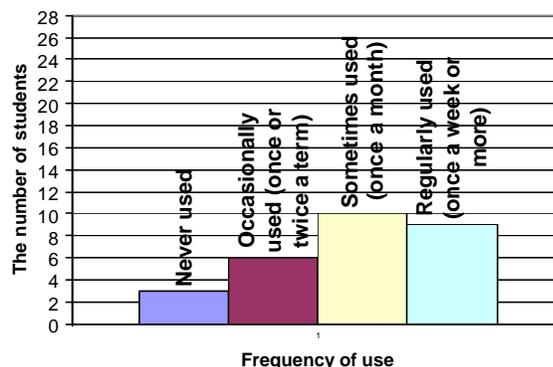


Figure 4-14: Frequency of using computer technologies for teacher-delivered presentations.

Preservice teachers gave more consistent responses regarding the frequency of use of computer technologies for student-delivered presentations (see Figure 4-15). Most preservice teachers thought computer technologies have regular use in student delivered presentations (20 out of 28). The remaining students thought that computer technologies either, was “sometimes” (5 out of 28) or “occasionally” (3 out of 28) used in student-delivered presentations.

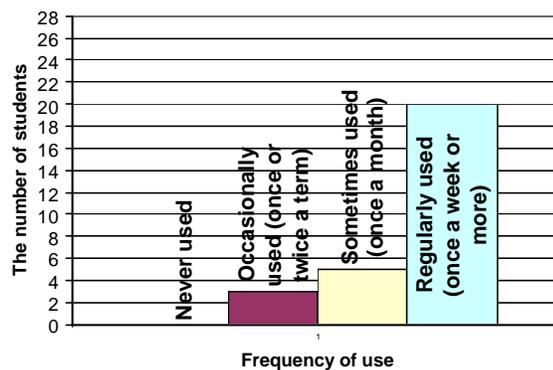


Figure 4-15: Frequency of using computer technologies for student-delivered presentations.

Preservice teachers' beliefs about how often computer technologies found use in student activities, and to access information appear in Figure 4-16. Preservice teachers have diverse responses to using computer technologies for their own activities. The plurality (12 out of 28) indicate that computer technologies are sometimes used (once a month) for their own activities. Others indicate that computer technologies are in regular use (8 out of 28) or in occasional use (7 out of 28); however, only one claimed that technology found no use for student activities.

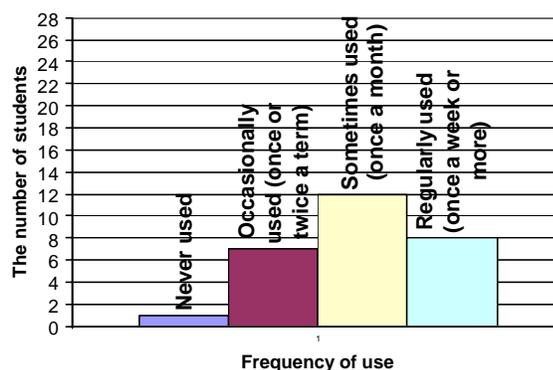


Figure 4-16: Frequency of using computer technologies for student activities.

No consensus arose among preservice teachers regarding using computer technologies to access information (see Figure 4-17). Many preservice teachers (12 out of 28) rated computer technologies use to be occasional (once or twice a term) to access information. Nine declared use as sometimes (once a month), whereas, six affirmed regular use (once a week or more) to access information throughout the semester. Again only one preservice teacher asserted no to access information.

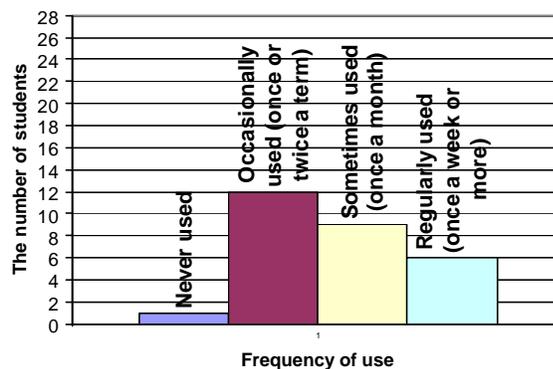


Figure 4-17: Frequency of using computer technologies for accessing information.

Most preservice teachers (17 out of 28) surveyed confirm regular computer technologies use for communications (email) in Social Ed I and II (see Figure 4-18). Six of the preservice teachers claim that they use computer technologies sometimes, and only one subject asserts occasional use of computer technologies to communicate. Interestingly enough, observations shows that the course instructor used email to communicate with students at least a few times at the beginning of the semester; however, four preservice teachers argued no use of computer technologies to communicate in Social Ed I and II.

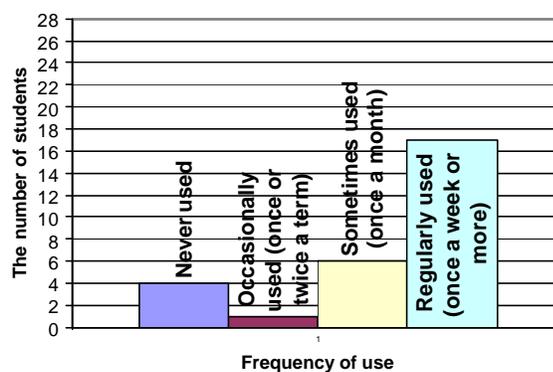


Figure 4-18: Frequency of using computer technologies to communicate (email).

Nearly all preservice teachers (22 out of 28) assert regular computer technologies use to create a product (write a paper, do a project) in the methods classes (see Figure 4-19). The remaining six preservice teachers were equally divided between sometimes and occasionally use of computer technologies to a create product.

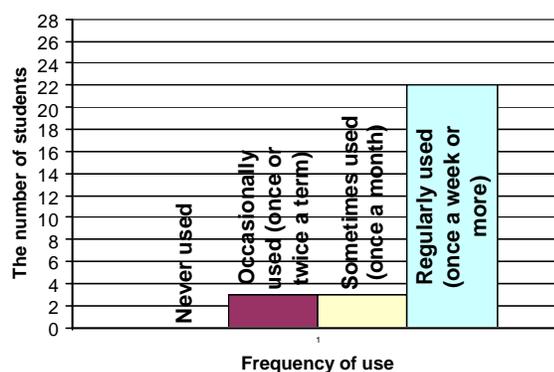


Figure 4-19: Frequency of using computer technologies to create product (write a paper, do a project).

4.3.3 Preservice Teachers' Attitudes Regarding Computer Technologies in Social Studies

Findings from Figure 4-20 illustrate that the majority of preservice teachers either disagree (18 out of 28) or strongly disagree (7 out of 28) with the reason for using computer technologies is to develop students' keyboarding skills in social studies. However, a few preservice teachers (3 out of 28) agree that the primary reason for using computer technology is to develop students' keyboarding skills.

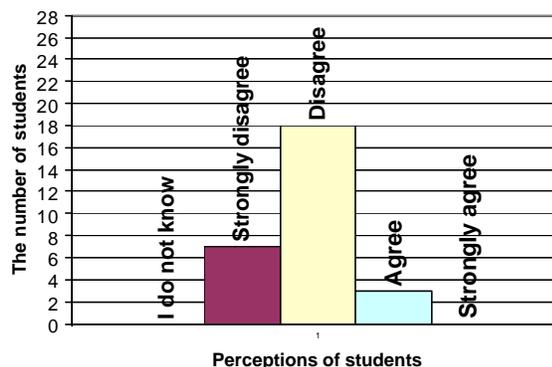


Figure 4-20: Preservice teachers' opinions about the following statement:

The primary reason for using computer technologies in the classroom is to develop students' keyboarding skills.

Almost a consensus exists among preservice teachers about computer technologies' importance as a part of the future for improving the quality of social studies education (see Figure 4-21). Sixteen preservice teachers agree and seven strongly agree that computer technologies are important for improving the quality of social studies education. However, two preservice teachers disagree and one preservice teacher strongly disagree that computer technologies are not really important for improving the quality in social studies. Two preservice teachers preferred not to comment on this statement.

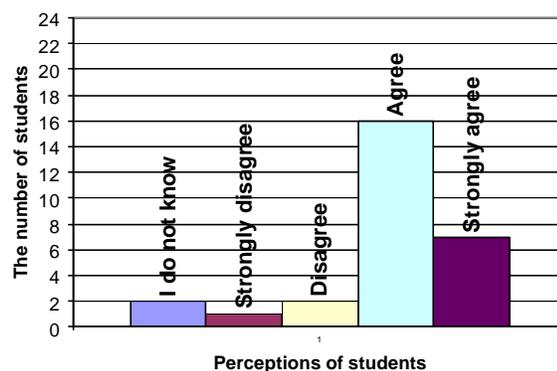


Figure 4-21: Preservice teachers' opinions about the following statement:

Computer technologies are an important part of the future for improving the quality of social studies education.

According to data in Figure 4-22, most of the preservice teachers surveyed either agree (14 out of 28) or strongly agree (12 out of 28) that computer technologies should be used to improve learning throughout the curriculum. Only two preservice teachers strongly disagree or disagree regarding the effect of computer technologies on improving learning throughout the curriculum.

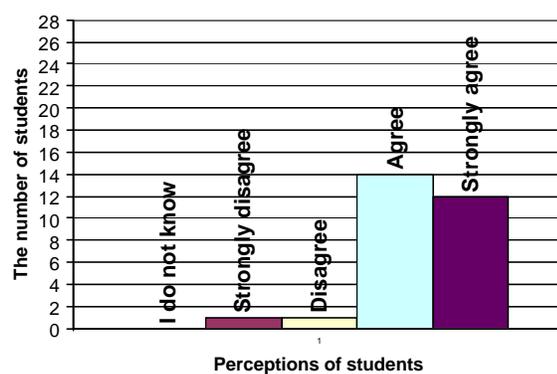


Figure 4-22: Preservice teachers' opinions about the following statement:

Computer- technologies should be used to improve learning throughout the curriculum.

Similarly, only two preservice teachers feel that computer technologies are unnecessary luxuries in school settings (see Figure 4-23). However, the majority of the preservice teachers disagree (13 out of 28) or strongly disagree (12 out of 28) that computer technologies are unnecessary luxuries in schools. One preservice teacher had no comment on the issue.

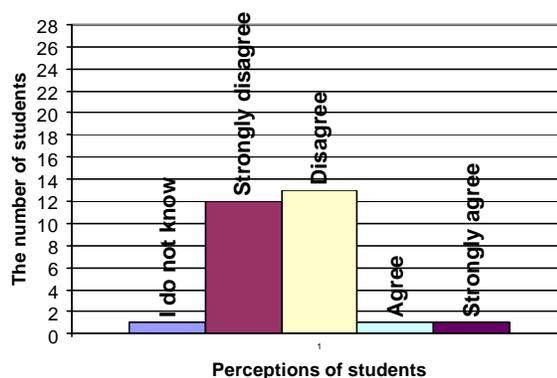


Figure 4-23: Preservice teachers' opinions about the following statement:
Computer-technologies are unnecessary luxuries in school settings.

The last two figures show that even though the majority of the preservice teachers did not strongly support using computer technologies in curriculum and school settings, many of those (almost 90%) are on the positive side and agree that computer technologies could be helpful to improve curriculum, and technologies are necessary parts of school settings.

As presented in Figure 4-24, most of the preservice teachers (17 out of 28) strongly disagree and still many others (9 out of 28) disagree that computers are of little value in social studies because they can be used to teach only one, or a few subjects. Only one preservice teacher strongly agrees and one is indifferent to this statement.

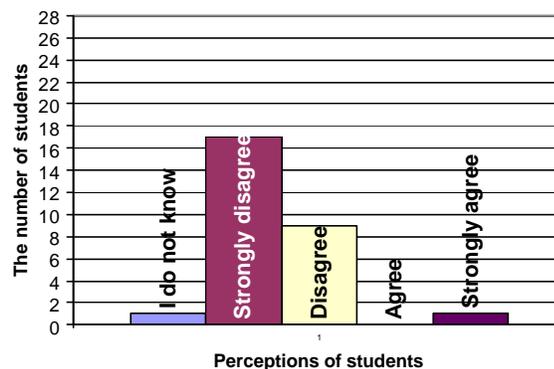


Figure 4-24: Preservice teachers' opinions about the following statement:

Computers-are of little value in social studies because it can be used to teach only one, or a few subjects.

On the other hand preservice teachers are divided as to what extent computer technologies should be used to supplement curriculum (see Figure 4-25) Some of the preservice teachers disagree (9 out of 28) and some others (5 out of 28) strongly disagree that computer technology should be used, mainly, to supplement curriculum. However, the same number of the preservice teachers agree (9 out of 28) and few others strongly agree that computer technologies are important to complement curriculum. Two preservice teachers remain undecided on the issue.

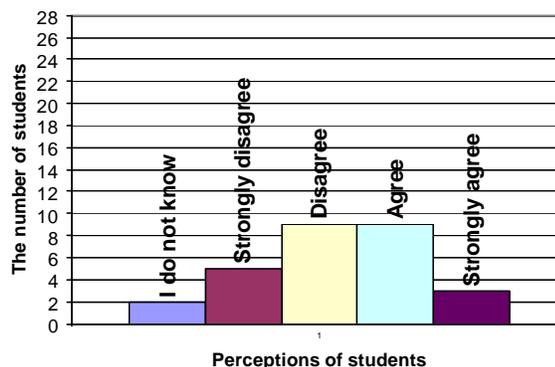


Figure 4-25: Preservice teachers' opinions about the following statement:
Computer technologies should be used, mainly, to supplement curriculum.

As seen from the data, the preservice teachers report that computer technologies are necessary components of classroom settings in social studies education. However, no agreement exists regarding how often and to what extent computer technologies should be used in social studies education. The degree of use of computer technologies mainly depends on preservice teachers' personality.

Findings appearing in Figure 4-26 demonstrate that the majority (23 out of 28) of preservice teachers strongly disagrees and few others (2 out of 28) disagree that computers will soon replace the teacher. One preservice teacher strongly agrees that computers will take the place of the teacher. Two of the preservice teachers are undecided on this subject.

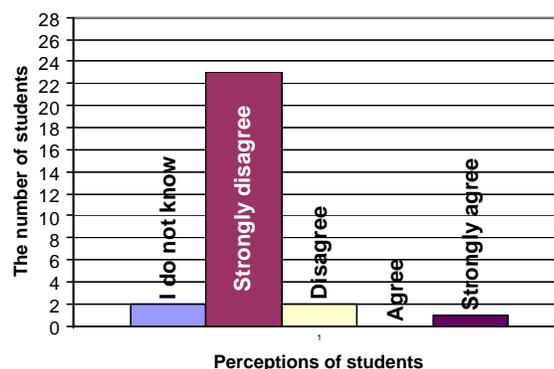


Figure 4-26: Preservice teachers' opinions about the following statement:
Computers will soon replace the teacher.

Most of the preservice teachers surveyed agree (13 out of 28) or strongly agree (12 out of 28) that, overall, computer technologies are a very important tool for instruction (see Figure Figure 4-27). Only a few of those disagree (2 out of 28) or strongly disagree (1 out of 28) that computer technologies are a significant means for teaching social studies.

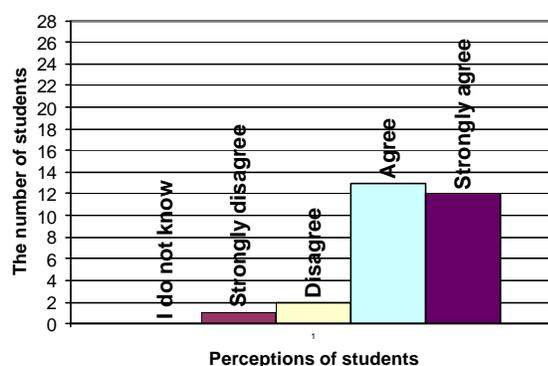


Figure 4-27: Preservice teachers' opinions about the following statement:
Overall, I think the computer technologies are a very important tool for instruction.

According to data from Figure 4-28, the majority of preservice teachers strongly disagree (15 out of 28), and many others disagree (11 out of 28) that computer technologies are of little use in the classroom because they are too difficult to use. One preservice teacher strongly agrees and one remained undecided on this statement.

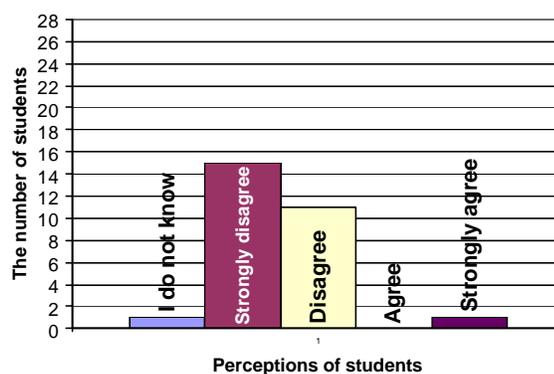


Figure 4-28: Preservice teachers' opinions about the following statement:
Computer technologies are of little use in the classroom because they are too difficult to use.

Most of the preservice teachers surveyed agree (20 out of 28) that computer technologies are useful when teaching thinking and problem solving skills (see Figure 4-29). Three preservice teachers strongly agree, two of those disagree, one strongly disagrees, and two are undecided about using computer technologies in developing critical thinking and problem solving skills.

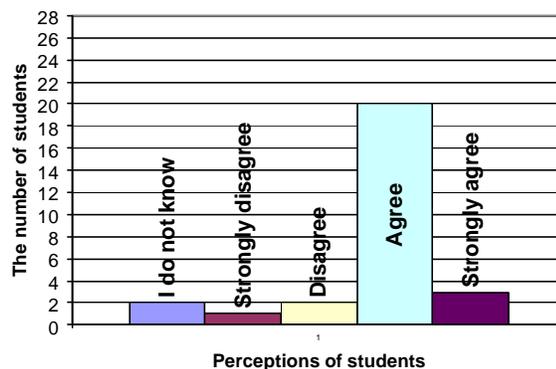


Figure 4-29: Preservice teachers' opinions about the following statement:

Computers technologies are useful when teaching critical thinking and problem solving skills

Responses of the preservice teachers shown in Figure 4-28 and Figure 4-29 indicate that they are not predisposed against computer technologies due to difficulty of use. In contrast, they have confidence in using technology as a tool while they are teaching some difficult tasks, like critical thinking and problem solving.

Findings appearing in Figure 4-30 indicate that preservice teachers strongly disagree (17 out of 28) or disagree (8 out of 28) that the computer gives better feedback to a student than a teacher does. Three preservice teachers remain undecided on this subject.

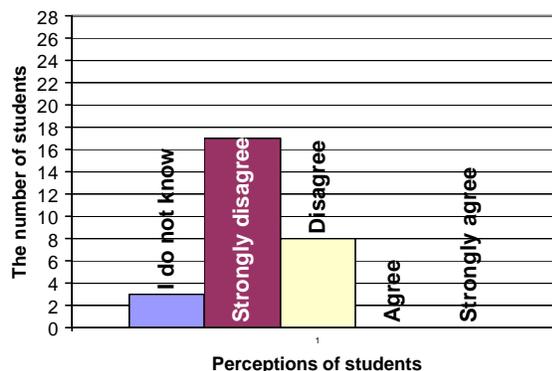


Figure 4-30: Preservice teachers' opinions about the following statement:
The computer gives better feedback to a student than a teacher does.

In the same manner, when asked whether the computer is more effective than a teacher in providing individual feedback, most preservice teachers strongly disagree (19 out of 28) and some others disagree (4 out of 28) with this statement (see Figure 4-31). Only one preservice teacher agrees and four preservice teachers are undecided on this issue.

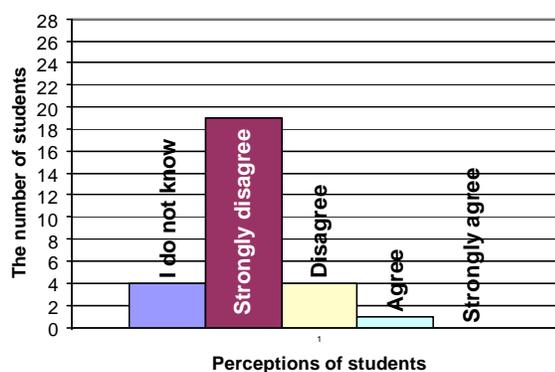


Figure 4-31: Preservice teachers' opinions about the following statement:
The computer is more effective than a teacher in providing individual feedback.

Although preservice teachers felt that computer technologies help student learning, as seen in Figure 4-26, Figure 4-30 and Figure 4-31, they consistently report that computers cannot substitute for teachers or replace them.

As presented in Figure 4-32, preservice teachers show a division between whether or not computer technologies can give a student a better basic understanding of a topic than a lecture can. Most of the preservice teachers (13 out of 28) disagree; whereas, quite a significant number of those (10 out of 28) agree with this statement. The remaining two preservice teachers strongly disagree, one of those strongly agrees and two of those are undecided on this issue.

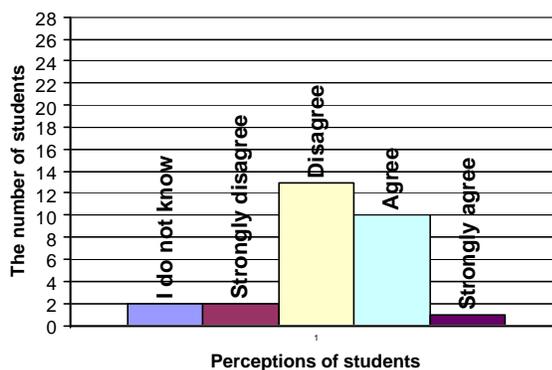


Figure 4-32: Preservice teachers' opinions about the following statement:

Computer technologies can give a student a better basic understanding of a topic than a lecture can.

Most of the preservice teachers disagree (13 out of 28) or strongly disagreed (7 out of 28) that a computer simulation program can help a student understand a new concept better than a teacher (see Figure 4-32). Only few preservice teachers (5 out of 28) believe that computer simulation programs could be more effective than teachers to

enhance student understanding. Three preservice teachers have no comments on this subject.

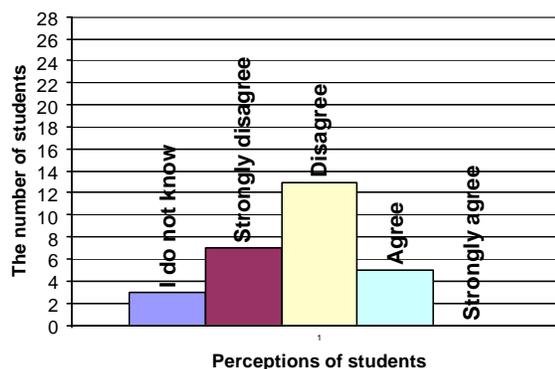


Figure 4-32: Preservice teachers' opinions about the following statement:

A computer simulation program can help a student understand a new concept better than a teacher.

According to data in Figure 4-33, the majority of preservice teachers (20 out of 28) disagree that anything that can be done in social studies education, with computer technologies, can be done, just as easily without them. However, five preservice teachers agree and one of those strongly agrees that they do not need any computer technologies to do any activities, and they can do anything without them. Two preservice teachers have no comments on this issue.

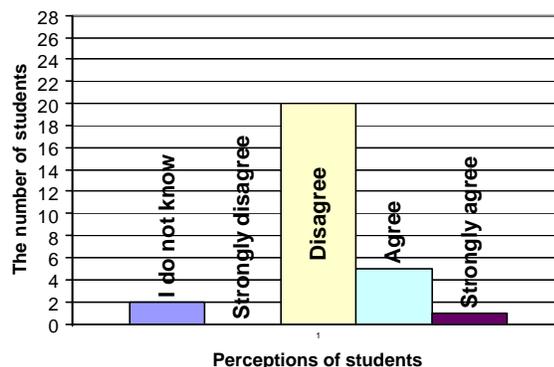


Figure 4-33: Preservice teachers' opinions about the following statement:

Anything that can be done in social studies education, with computer technologies, can be done just as easily without one.

On the other hand most of the preservice teachers either strongly disagree (17 out of 28) or disagree (8 out of 28) that computer technologies should not be used in the classroom (see Figure 4-34). Only two preservice teachers agree, or strongly agree that computer technologies should not be used in the classroom.

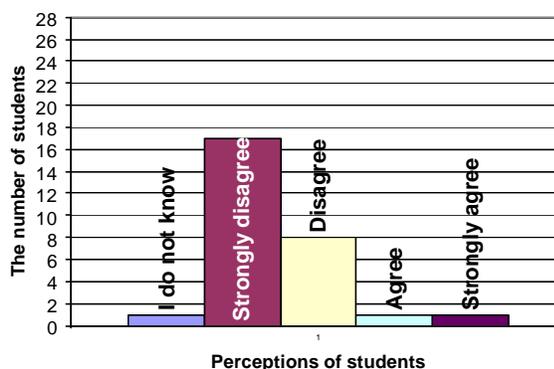


Figure 4-34: Preservice teachers' opinions about the following statement:

Computer technologies should not be used in the classroom.

The last two figures show that even though some preservice teachers surveyed report that they do not need computer technologies to create effective classroom

activities, almost all preservice teachers support having computer technologies in the classroom. This demonstrates that computer technologies are not necessarily part of the classroom, at least for some preservice teachers; however, if such technology is available it could be used for some activities.

As presented in Figure 4-35, most of the preservice teachers strongly agree (12 out of 28) and some others disagree (11 out of 28) that computer technologies should be used by students who complete their school work early. Only a few of the preservice teachers (3 out of 28) indicate that they agree with using computer technologies for students who finish their school work ahead of time. Two preservice teachers remain undecided on this issue.

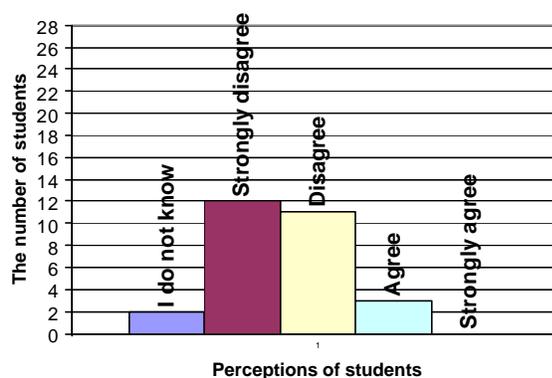


Figure 4-35: Preservice teachers' opinions about the following statement:
Computer technologies should be used by students who complete their school work early.

Almost all preservice teachers strongly disagree (16 out of 28) or disagree (9 out of 28) that computer technologies should be used primarily to help "slow" students keep up with the rest of the class (see Figure 4-36). On this issue, no preservice teachers agree with this statement. Only three are undecided regarding this subject.

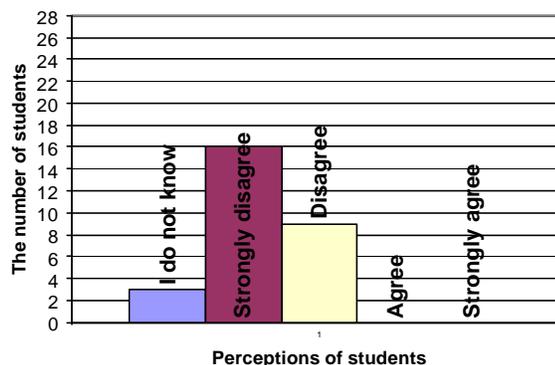


Figure 4-36: Preservice teachers' opinions about the following statement:

Computer technologies should be used primarily to help "slow" students keep up with the rest of the class.

The last two statements show that almost all preservice teachers believe that computer technologies are not a reward for the students who are successful in their school work, but also technologies are not only a tool for special education students.

4.3.4 Preservice Teachers' Computer Proficiency

This section of the survey provides basic information about preservice teachers' self-reported computer proficiencies. In this section the following scale categorizes preservice teachers' computer proficiencies:

- a) Unfamiliar - I do not know what this item is.
- b) No proficiency – I have no proficiency. I know what this item is, but I do not know how to use it.
- c) Low proficiency– I have a little proficiency with this item, and I could use it in basic instruction.

d) Medium proficiency– I have some proficiency with this item, and I could use some advanced instruction.

e) High proficiency– I am very proficient with this item and can efficiently utilize advanced instruction.

Findings from Figure 4-37 indicate that the majority of preservice teachers (21 out of 28) surveyed have high proficiency with word processing programs. Six preservice teachers have medium proficiency and one of those has low proficiency with word processing. None of the preservice teachers surveyed categorize themselves in the no proficiency or unfamiliar levels.

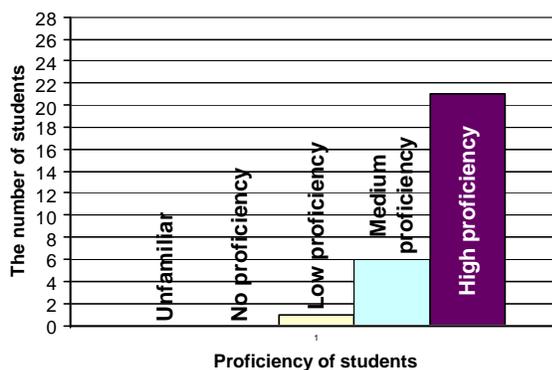


Figure 4-37: Preservice teachers' proficiency with word processing programs.

In contrast to word processing proficiency, preservice teachers have less proficiency with database programs (see Figure 4-38). Most of the preservice teachers (17 out of 28) categorize themselves at low proficiency level. The number of preservice teachers in the category of high proficiency, medium proficiency, no proficiency and unfamiliar are three, five, one, and two respectively.

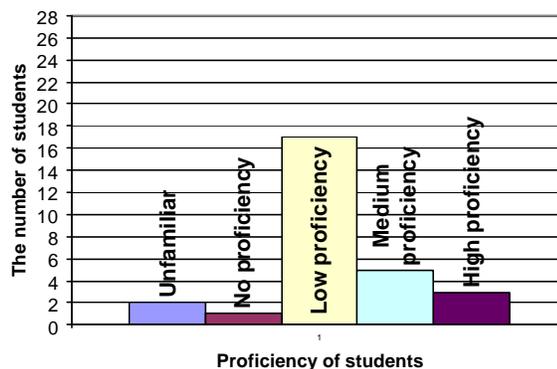


Figure 4-38: Preservice teachers' proficiency with database programs.

According to data in Figure 4-39, the majority of preservice teachers are proficient with spreadsheets either at a low level (11 out of 28) or at a medium level (10 out of 28). Some preservice teachers have high proficiency (5 out of 28) and a few others (2 out of 28) have no proficiency with spreadsheet programs.

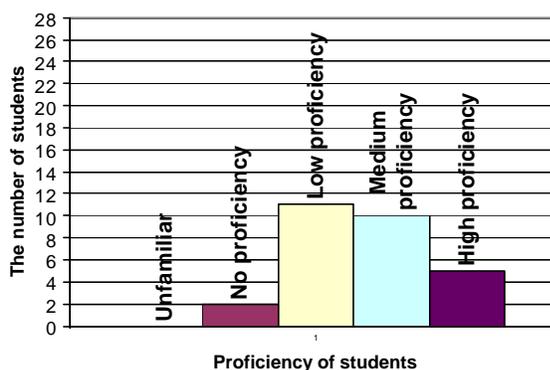


Figure 4-39: Preservice teachers' proficiency with spreadsheet programs.

Preservice teachers are almost equally divided for proficiency in desktop publishing (see Figure 4-40). An equal number of the preservice teachers have low proficiency, no proficiency, and unfamiliar categorizations (6 out of 28 for each

category). Nine preservice teachers rate themselves at the medium proficiency level and one at an advanced level.

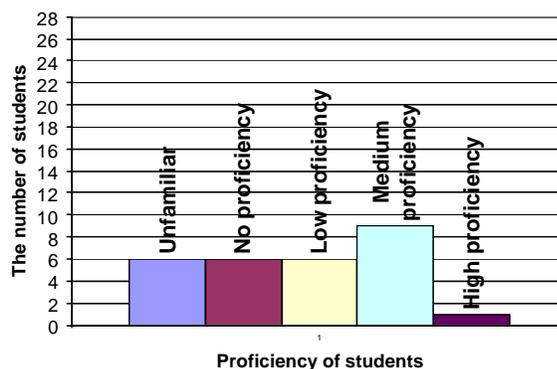


Figure 4-40: Preservice teachers' proficiency with desktop publishing.

Preservice teachers have an almost equal distribution between no proficiency (8 out of 28), low proficiency (7 out of 28), and medium proficiency (9 out of 28) for graphics/drawing programs skills (see Figure 4-41). Three preservice teachers are proficient at a high level and one preservice teacher is unfamiliar with graphics/drawing programs.

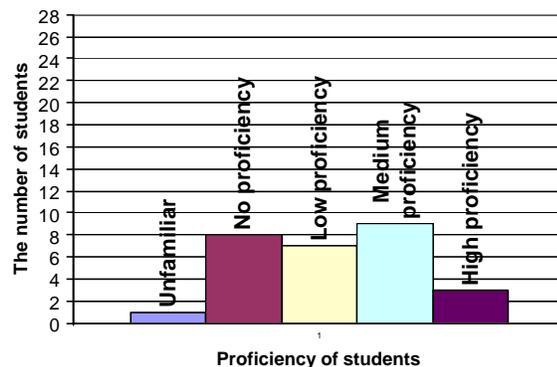


Figure 4-41: Preservice teachers' proficiency with graphics/drawing programs.

Findings shown in Figure 4-42 illustrate that most of teachers (13 out of 28) have medium proficiency with presentation software (e.g. *PowerPoint*). Many of the preservice teachers are highly proficient (12 out of 28) with presentation software. However, a few preservice teachers (3 out of 28) categorize themselves as low in proficiency.

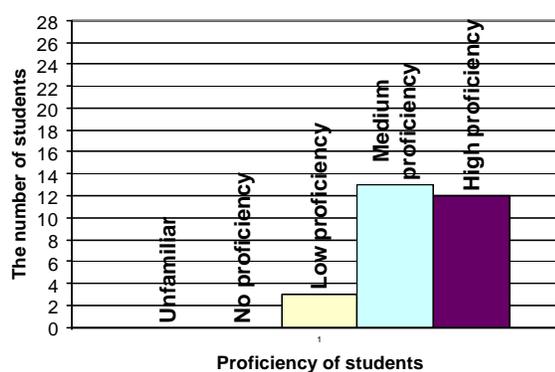


Figure 4-42: Preservice teachers' proficiency with presentation software (e.g. *PowerPoint*).

Nearly all preservice teachers surveyed (25 out of 28) state that they are highly proficient with communicating via email (see Figure 4-43). Only three preservice teachers have medium proficiency with email.

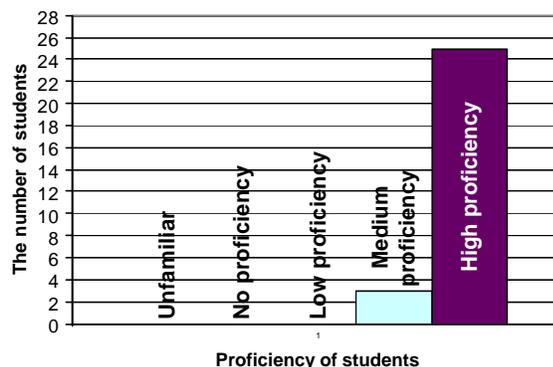


Figure 4-43: Preservice teachers' proficiency with email.

In the same manner, the majority of preservice teachers (25 out of 28) have high proficiency with the Internet (see Figure 4-44). The number of students who have medium proficiency with the Internet are only three.

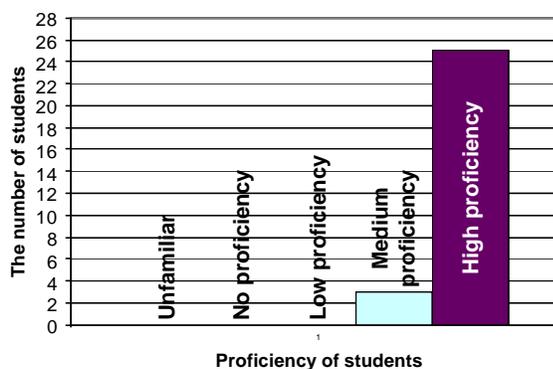


Figure 4-44: Preservice teachers' proficiency with Internet.

According to data in Figure 4-45, preservice teachers have very low skills in programming compared to their skills with email and the Internet. Ten preservice teachers articulate that they have no proficiency with programming and eight of those express that they are unfamiliar with programming. The number of students who have low proficiency and medium proficiency is seven and three respectively.

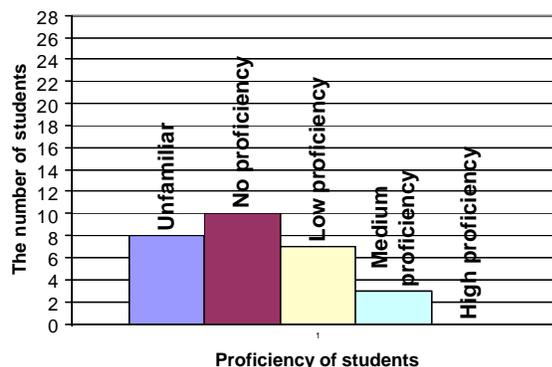


Figure 4-45: Preservice teachers' proficiency with programming.

As presented in Figure 4-46, preservice teachers have a distribution as to webpage development proficiency. The majority of preservice teachers have either no proficiency (9 out of 28) or medium proficiency (8 out of 28) with webpage development. The remaining six preservice teachers are low in proficiency; one is highly proficient; and four are unfamiliar with webpage development.

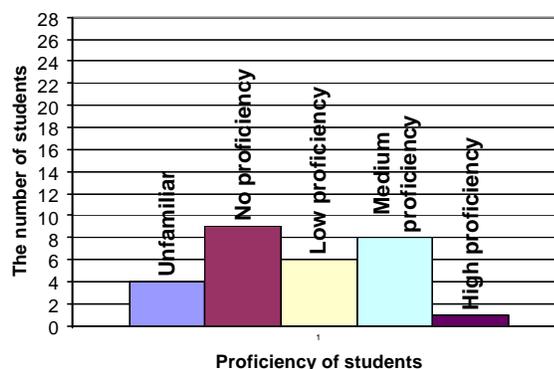


Figure 4-46: Preservice teachers' proficiency with webpage development.

Approximately half of the preservice teachers (15 out of 28) have medium proficiency with *SMART Board* (see Figure 4-47). The number of preservice teachers

who have low proficiency, high proficiency and no proficiency are seven, five and one respectively.

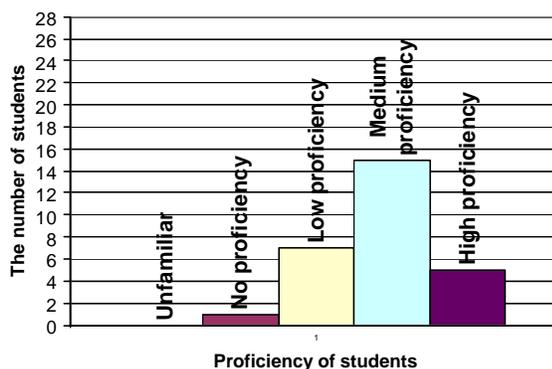


Figure 4-47: Preservice teachers' proficiency with *SMART Board*

4.4 The Preservice Teachers

This section provides detailed descriptions of each of the eight interviewees. These descriptions include an explanation of the preservice teachers' personal and computer technology backgrounds. As detailed in Chapter Three, responses to the computer proficiency section in the survey provided selection criteria for eight interviewees for this study. Melissa, Carol, Amy, John, Mark, Tim, Steve, and Andrew agreed to participate in the qualitative part of the study.

4.4.1 Melissa

Melissa was a senior in social studies education in the Spring 2005 semester. She had two more semesters, counting Spring 2005, so she was planning to graduate in the

Fall 2005 semester. Melissa hoped to find a job in a high school, but she said “If I find a job in a middle school I will take it.”

Melissa had one of the lowest scores in the survey, and she again graded herself as a “low proficient user” during the interview. Her computer background was limited to some courses taken in high school:

I had a word class in high school called Consumer Net where you looked up stuff on Internet but probably just it was most of the thing. I can use the Internet, but I don't exactly know, like, how my computer works that something was wrong. I couldn't find and fix it. I don't even know something is wrong (Melissa, interview, paragraph 40).

She did not take any computer class in college and she said that Social Ed II was her most advanced class regarding using computer technology. She had her own laptop and used it everyday regularly, especially for fun:

I definitely like email, research [and], just [for] leisure time, instant messenger. I just learned to catch a file the other day, just like normal simple things, *PowerPoint* presentations. Nothing like high tech. I guess more for fun not more than that (Melissa, interview, paragraph 36).

Melissa was not familiar with any computer technology (hardware or software) beyond the basic level. When asked how familiar she is with computer technology available in the social studies laboratory, she said:

Obviously I am not familiar at all. Only a little bit with laptops just because I have one of my own... I used the *SMART Board*. I've just learned how to use it not too long ago. I think it's really cool, but I'm nervous to use it for my student[s] learning plan[s]. I am not very up-to-date technological-wise (Melissa, interview, paragraphs 34, 56 and 58).

In her own words, Melissa is definitely an “average” computer user. She believes that searching the Internet and using word processing are her strongest skills regarding

computer technologies. However, she does not have any self confidence if anything goes wrong:

I am good with Internet. I can search the Internet. I am also good at with [SIC] word processing things, making *PowerPoint* presentations, nothing too intense (Melissa, interview, paragraph 96).

I did [a] web page when I was in high school, but I couldn't begin to right now. I don't remember (Melissa, interview paragraph 48).

... [If] something with [would] break or go wrong, I would not know what to do. I have got a computer for four years, and I just found out a year ago how to turn it off. I was just complaining about that because I did not know. I know it is really bad, I just didn't know (Melissa, interview paragraph 98).

4.4.2 Tim

Tim was a senior the same as Melissa in the Spring 2005 semester. He had one more semester for student teaching after Spring semester. When asked what grade he prefers to teach after graduating, he said:

I really don't have [a] preference. I guess now it's more where you can find a job sort of really. I'd like to teach 10th, 11th grade, maybe seniors, probably history or government. It's civics and governments, but really, I mean, I am open to [SIC] really anything. It's just where I feel more comfortable with that (Tim, interview, paragraph 2).

According to survey results, Tim is not proficient in computer technology at an advanced level. His scores are below average. He started using computer technologies and took some basic courses when he was in high school, but he believes they were not good enough to prepare him for college level:

We started working on computers in elementary school. I remember that Oregon Trail stuff that and then [SIC] we had some computer classes in high school, but it didn't really prepare me. Computers were still sort of not everyday things, where as they are now, but back then we sort of did

some basics but preparing for the college. I wasn't prepared, and I really wasn't even sure how to email. I knew how to instant message things... (Tim, interview, paragraph 22).

Until he took Social Ed I and II, Tim did not have much experience with technology at the college level. Even though he became more familiar with emailing, sending attachments, using the Internet after coming to college, he had very basic knowledge of using *PowerPoint*, *Excel*, or any other moderately or advanced-level computer software before taking Social Ed I and II:

[When] I came to college I got more familiar with things [like] emailing and sending attachments, just a basics, basically using Internet, and then before our Social ED class I basically had no knowledge of using *PowerPoint* or integrating different things, having things move, pop-up different times, and I really worked at it and I feel comfortable, but I know there is a lot more out there you can learn and do to make it more effective. I am just pretty good at just word processing or typing out of [SIC] things that was fine; we did a lot of. I was prepared [in] that respect, but to really understand, sometimes, technology really frustrates me, and then maybe that's because I am not really exactly sure of all that I can do (Tim, interview, paragraph 45).

Tim has his own laptop and he is familiar with some equipment that is available in the social studies laboratory, like the printer, and scanner. He used *SMART Board* for the first time in Dr. Brown's class:

Before taking Dr. Brown's class I have [SIC] never seen the *SMART Board*. It is really new, and I am not exactly sure how to set it up by myself. I mean, all the cords are labeled and everything, but to go in there [SIC] with and set it up myself no help or no labels, I don't think I can do it, but I do like the *SMART Board* [and] working with it. I think you can do a lot of things with it. You just have to know how to work it and be comfortable with it so... (Tim, interview, paragraph 36).

Tim did not have any experience with any technology specifically used in social studies other than Carmen San Diego, and a few other games. He felt most confident with just basic word processing or basic programs for adding pictures. He also stated that he is

becoming more comfortable with programs like *PowerPoint* that can integrate different things. However, he did not have the same comfort level with spreadsheet or web design programs.

4.4.3 Amy

Amy was a senior and she had one more semester in college after Spring 2005. Even though she preferred to teach tenth or eleventh grades she said she would take whatever she could find.

In high school, Amy learned some basics of computer technologies such as keyboarding, typing, and researching. She took a few technology classes at the college level to improve computer proficiency:

In college, I took a computer class that taught me “*Excel*” and “*Access®*” and just the basics of that, so a lot of these computer programs, I don’t have a problem using (Interview paragraph 62).

Unlike Tim and Melissa, she has more self-confidence in using computer technologies. In addition to using computer technologies for daily activities she uses them actively for her school work:

I use [the] computer almost everyday for emailing, internet, and instant messenger, for school work I use the library’s “*PROQUEST*” and “*LEXIS NEXIS*”, and a lot of times I’ll even go to the Encyclopedia Britannica website just to get the foundations of [SIC] a paper that I’m writing, and it’ll give me the basic information that I can build off of (Interview paragraph 62).

Amy thought that she is really good at word processing and she claimed a lack of knowledge of a details. However, Amy strongly believes that *PowerPoint* is her strongest skill:

... My strongest points would probably be using *PowerPoint*, and...I think I'm pretty good at using *PowerPoint* and doing *PowerPoint* presentations. A lot of what I noticed in our classes is that color schemes and stuff that, a lot aren't good at making it so that you can see it all around the room. I think I'm pretty good at that. And I look at details, so I know [what to do] when I'm planning my lesson. A lot of people have each line come in separately, so they're stuck at the one point where they end up tapping it [a key] every five seconds, and usually I know how I want to pace myself in my head, and what chunk of text I want to address, and when I want to walk around the room, so I definitely think that *PowerPoint* is one of my strongest points (Amy, interview, paragraph 117)

Although Amy took classes to learn how to use *Excel* and *Access* she was not still comfortable with those two. When asked, Amy says, regarding her weakest area in terms of computer technologies:

I figure if I can handle a key computer, once I learn how to do that it won't be a problem. Probably learning; that is my weakest point, also *Photoshop*® as a program. I don't know how to use that. I haven't had any experience with *Photoshop*, but a lot of the computer programs, if you know how to use one, the same basic elements of one program carry over into another program (Amy, interview, paragraph 117).

She had not used *SMART Board* before Social Ed I and II, but she felt comfortable using it if she needed to in the future. Amy did not know any specific social studies software, but she learned, last year, some Internet and webpage software programs like *Flash Macromedia*® or *Dreamweaver*® to create a web sites. She believed that those programs could be useful to enhance students' learning and understanding in social studies education in her instruction.

4.4.4 Andrew

Andrew was a senior and would graduate after finishing the Spring 2005 semester and student teaching in the following Fall. He preferred to teach tenth, eleventh, or twelfth grades, but like his other friends, he did not mind teaching other grades.

Andrew had been using computer technologies since elementary school, and he thought he was accomplished with documents and other types of word processing programs. He took couple technology classes called “graphic arts” where he learned about *PowerPoint* and programs like *Adobe Photoshop*, and he did many different assignments using *PowerPoint*; however he believed that due to a lack of experience at the college level he lost many of his skills regarding computer technology:

When I graduated high school, I was great with *PowerPoint* and all that stuff and then freshman year, in college, sophomore year junior [year], I really never used them, and then senior year and it was last year this semester we kind of throw [SIC] in all these technology [SIC] I forgot many of those from in years before (Andrew, interview, paragraph 94)

Andrew used computer technologies for a variety reasons both in school and at home:

I am using them just for everything. I use it for fun. I look up and check a score of [a] sports game, but I also use it for my own research. I use it [for] every project that I do, every paper that I do, just even to study for some tasks. When I have a book, sometimes I look on educational web sites just [to] know a little bit more (Interview paragraph 56).

When Andrew compares himself with his classmates, he believes that he is very strong in all computer technologies, available in the social studies laboratory. He thought that he is at least on the same level with his classmates in using laptops, and *SMART*

Board, but he felt that he was a little behind some of his classmates in *PowerPoint* applications.

Although Andrew claimed that he is very good with *Microsoft*® applications, when asked specifically how familiar he is with some *Microsoft* programs like *Excel*, *Access*, or *Publisher*®, he admitted that he did not know much about those programs.

Andrew also does not know how to design a web site nor has any experience with any specific software program in social studies. In contrast to what Andrew claimed, the reality is that he was not better than any other average user in the classroom, judging interviews and observations.

4.4.5 Steve

Steve was senior in the Spring 2005 semester. He had two semesters remaining counting Spring 2005. Since he would rather work with high school students, he would like to take a position in high school. However, he said he would not be hesitant to accept a job in a middle school.

Steve took some typing courses when he was in high school and used computers for different assignments and classes; however, he did not take any computer classes after coming to college:

I had a typing course and that helped, just because you feel more comfortable with computers. At that point, I think it's a great thing to do. I had classes where you work with *Word*, so you got more comfortable with that and with *Excel* in some of my physics classes as well (Steve, interview, paragraph 52).

I don't think I took anything in college. I know that for another class we had to make a webpage, so I had to learn how to do that, , but that was for

English 202, so that would probably be the only thing I really used for it. Another class, I had to use [SIC] one or two assignments using these programs, but I never learned in the classes (Interview paragraph 127).

Steve likes emailing, researching, and chatting on Instant Messenger in his leisure time, and he said he just learned how to catch a file with Instant Messaging. He could use some basic programs but nothing very sophisticated. Steve says he likes doing something for fun on the computer, playing with it in his own house, and he loves trying some new techniques, which usually fails or it does not work out. However, from his trying he learns and he can apply that knowledge to the classroom.

Steve is accomplished with *PowerPoint* presentations, word processing, and very comfortable with using *SMART Board*. He says few things are troublesome *PowerPoint* and *Word*. He also knows how to use *Excel* and design a web site, but he is not as skilled as with *Word* and *PowerPoint*. The only software that he knows specifically in social studies is “Oregon Trail” or “Where in the World is Carmen San Diego.” However, he thinks taking ideas from those games or modifying those games could create scenarios for learning.

Steve calls himself as an average user because he is not comfortable with everything in computer technologies. He says he is competent with computer technologies but he does not understand everything about computer technologies. However, from observations, Steve’s computer skills are almost at an advanced level when compared to his classmates. Steve is capable with *SMART Board*. If anyone had problems while setting up *SMART Board* before class, Steve was the first person asked for help throughout the semester.

4.4.6 Lisa

Lisa was a junior in the Spring 2005 semester. She would prefer to teach in high school but she was not totally against middle school, similar to all the other interviewees.

Since Lisa's father is in the computer software business, she has a very solid background in computer technologies; she said:

I started using the Internet at a very young age, and I've gotten very good at it, so I can find what I want when I want, and being able to do that all through middle school, high school, and into college has been a valuable resource for research papers, and things like that (Interview paragraph 16).

I don't know if you're familiar with the game "Carmen Sandiego." I loved that game as a kid, and so there is also the ability to take things that people [do] not necessarily consider fun to learn, and turn them into games in computers ... Students are very into games, and they want to learn more. I mean, I learned how to look things up in the World Almanac when I was 7 or 8 because I wanted to play "Where in the World is Carmen Sandiego" (Lisa, interview, paragraph 14).

Lisa officially met with computer technologies the first time in middle school.

When she was a student in middle school and high school she had teachers who stressed using the Internet as a source to supplement their instruction. She believed that her experiences in middle and high school helped her to build her skill level as far as being able to search websites or other electronic sources.

Lisa did not take any computer class after coming to college. Since she has her own laptop, printer, scanner, and wireless connection at home, she knows how to use all available computer technologies in the social studies laboratory. She believes that the only thing in the laboratory that she needs to learn a little bit more about is *SMART Board*. Even though she is comfortable to use it, she felt that there are more things that she needed to figure out.

She believes that after she came to college, her focus changed regarding computer technologies:

In college the focus has kind of shifted. I mean, I still use it to do research, but [in] the majority of the classes, when they're talking about integrating technology, one of the big advantages is being able to use it to help special needs students. So, I mean, there is a big focus on technology being able to increase how well they [SIC] get students with needs get integrated into the classroom, whether through visually impaired where they have their own set-up. Just because technology can be flexible, it allows for you to create lessons that will have everyone involved in them (Interview paragraph 30).

Lisa knows how to use word processing, *PowerPoint*, and *Excel* at an advanced level. She also knows how to prepare a web site using *Front Page*® and *Dreamweaver*, and she is the only student who designed a web site for student learning during class observations. She is familiar with some free software programs in social studies:

For geography there's free software. I can't remember what it is; it's actually on the web. I actually used it to study for my geography class because it has all different levels. First you just click on a country and it tells you the name, and you can drag the countries on without outlines, remove the outlines. It goes through all these different steps and I use that a lot because I have the class, and so it helps me learn about the class and where the countries are and everything (Lisa, interview, paragraph 40).

With all her computer knowledge, skills and ability to use those computer skills in classroom milieu, Lisa was one of the most proficient students in the class.

4.4.7 John

John was a senior in the Spring 2005 semester. He had one more semester for student teaching and planned to graduate in December 2005. John had pretty strong background with computer technologies, he said:

I've always worked around computers. I've had a computer since I was maybe in first or second grade. So I've seen the evolution from DOS through Windows to Windows 95 98 ME up to XP. So I've seen incarnations of different programs and different operating systems and, so I'd say I'm pretty familiar (John, interview, paragraph 77).

John's family had Internet connection since, about, 1994, which was quite a bit earlier than most people. He took several computer programming classes when he was in high school, and he was also familiar with other software programs:

In high school, I took computer programming classes. I mean, computer programming was specifically C++ and Q-Basics. There was also a class I took where they dealt with spreadsheets. So in doing the graphs for my rationale, I was pretty familiar with how to do that, so I wasn't too lost (John, interview paragraph 93 and 97).

John usually uses computer technologies to create projects, the ones they use during class, and to play computer games. He did not take any computer technology class in college, but he was very comfortable using *PowerPoint*, *Word*, *SMART Board* and Internet. John said his least proficient area was designing a web site:

Actually, that's another thing that I didn't even think of, to create my own webpage. I probably could. It wouldn't be too good overall. I could do something on "geocities," but I don't know html, or perl or any of the web design languages. I know there is a program; I forget what it's called, it is *Dreamweaver*. That really helps people a lot, but I've never used it before. So to create a webpage, um, I could make a very basic one right now, but nothing too advanced (John, interview paragraph 136).

John is not familiar with any software program which is specifically for social studies. He believes that instead of buying a software program by formulating his own *PowerPoint* presentation or creating something new, computer technologies could be more helpful for enhancing student learning.

4.4.8 Mark

Mark was another senior in the class in the Spring 2005 semester. He did not have any grade preference to teach after graduating. He said anything in social studies would be fine and interesting for him because he liked teaching social studies.

Mark had strong background with computer technologies. He started using them in elementary school:

I have had a computer since 1994, and my family bought all the new technologies as quickly as possible when they were available, like printers, scanners, what else, like wireless technology, anything (Mark, interview paragraph 35).

Mark did not take any computer or computer technology class when he was in high school or college other than some typing classes in high school. However, he strongly believed that unless one is a computer major or needed to learn some thing at a really advanced level, no need exist to take any computer technology class to learn simple programs:

I don't think anybody needs to take any class to learn some basic programs such as *Word*, *PowerPoint*, or *Dreamweaver*. What you need to do [is] just go and play around a little bit and make practice, that's all (Mark, interview, paragraph 55)

Since he has his own laptop, Mark is pretty familiar with laptops, and he knows how to use a scanner, printer and projector, all available in the social studies laboratory. Although the first time he saw *SMART Board* was in Dr. Brown's class, he said he was very comfortable with using it. He did not have any problem to set it up.

Mark was also familiar with *Microsoft* applications like *Word*, *Excel*, *PowerPoint* and *Access*. In addition, he liked using *Adobe*® programs such as *Adobe Reader*® or

Photoshop. Personal observation a few times during breaks and classes provided evidence of professional use of *Word*, *PowerPoint* and *Dreamweaver* to create presentations.

Although Mark has a fairly strong background with *Microsoft* applications, he does not have much experienced with software programs in social studies other than “Oregon Trail” and “Where in the World is Carmen San Diego.” He believes few software programs in social studies exists which is the reason why he is not familiar with those programs. However, he is certain that if good programs are available, wherever he teaches in the future, he will definitely learn them and use them. Like Steve, Mark thought that he could modify “Carmen San Diego” or some old software programs and use them for his classes in the future.

4.5 First Theme: Participants’ Attitudes and Perceptions toward Computer Technology

This first theme associates with the first research question: What are preservice teachers’ attitudes and perceptions toward using computer technology in social studies education? This question consists of: a) What is the value of integrating computer technology into social studies education from the preservice teachers’ perspective? b) To what extent should computer technology be used in social studies? c) How would computer technology be effective in teaching?

Research findings suggest that preservice teachers who participated in interviews had positive attitudes toward computer technology in general. Since the technology age is undeniable, none of the interviewees stated they are completely against computer

technologies, and plan to not use them for future instruction. They are well aware of the importance of computer technologies in instruction and ready to use and learn more, if necessary, for teaching. As explained in previous sections, the preservice teachers participating in this study, except for two, have average or better self-reported computer literacy skills and experience with current computer technologies. In addition, the course instructor expended extra efforts to enhance those preservice teachers' computer proficiencies throughout two semesters. Therefore, lack of training or experience with computer technologies are not as a big concern as maybe in other studies.

Although all preservice teachers who participated in this study had positive attitudes and perceptions toward computer technology, they do not agree on same level as to what extent, how often, and how effective computer technologies apply to social studies education. This disagreement is regardless of computer technology proficiency. In contrast to what literature suggested, research findings show that having an appropriate level of computer proficiency, given adequate training or providing sufficient software and hardware, are sometimes insufficient for convincing these preservice teachers to use computer technology in their instruction. The issue of using computer technology in social studies instruction could be more complicated than what is apparent. Personal backgrounds, experiences, and more importantly personal opinions and preferences regarding computer technologies could be as important as computer technology proficiency. For example, as detailed in following sections, under some conditions, the preservice teachers, who have the most proficiency with computer technologies, are less willing to integrate computer technologies into their instruction than the preservice teachers, who have the least proficiency with computer technologies. The former may

believe that computer technologies are not as effective as many people think, and if used too much, interaction between teacher and students maybe lost.

In order to give clearer and detailed descriptions about attitudes and perceptions toward computer technology, analysis of preservice teachers' opinions and beliefs follows three main concerns: a) place and importance of computer technologies in social studies and in the vision of teaching, b) computer technologies (hardware and software) possibly used by preservice teachers, and c) expectations and experiences before and after student teaching regarding computer technologies.

4.5.1 Place and Importance of Computer Technologies in Social Studies

Analysis of the interviews reveals that most of the participants recognize that computer technologies are important and inevitably, they will be a part of social studies instruction. In this part analysis of preservice teachers' perceptions and attitudes toward computer technologies has three parts: a) attitudes and perceptions toward computer technologies in general, b) attitudes and perceptions regarding the place of computer technologies in student learning, and c) attitudes and perceptions regarding the place of computer technologies in teaching and teacher preparation.

4.5.1.1 Attitudes and Perceptions toward Computer Technologies in General

4.5.1.1.1 Positive Attitudes and Perceptions.

As mentioned earlier, overall most of the preservice teachers have positive opinions regarding using computer technologies in social studies education. They believe that computer technologies should be used in social studies in order to enhance, not only instruction, but also interaction between teacher and student. As one can easily see from the following examples, all interviewees believe that computer technologies are a good source for comparing and contrasting primary and secondary documents, a valuable tool for communicating with both parents and students and for delivering lessons to students by way of visual presentations, and a very efficient way to update out-of-date materials in the classroom.

Melissa was one of the more enthusiastic proponents of computer technologies among interviewees. When asked, Melissa to what extent computer technologies should be used in social studies she stated:

I think a big extent. I think it should be a big part of the classroom in terms of maps going outdated. You can always look on the web for the newest information and even emails. It would be easier for students to ask you homework questions if you have that email set up for all the students. They have computers at home (Melissa, interview, paragraph 6).

Melissa expresses that computer technologies helped update some old materials, like maps, because the Internet is usually up-to-date. Melissa believed computer technologies are crucial for a constructivist classroom:

We are learning about the constructivist classroom which is new to me until this semester. I think I really like it, and technology is a very big part

of that ideologies. So if that's [what] I am learning, I am going to use it (Melissa, interview, paragraph 144).

Steve strongly believes that computer technologies are crucial for social studies, and they play quite an important role in today's classroom milieu. He articulates that teachers and students could use computer technologies in many different areas not only preparing *PowerPoint* presentations or using the Internet but also making maps and movies. He said that a lot of visual and audio programs exist that are computer based that are great to use. Also valuable are corresponding with students and with their parents via email and allowing parents to have access to grades gives great opportunity for teachers to increase communications between teachers, students, and families.

According to Lisa, computer technologies are so versatile that they are useful for anything from doing research on the Internet to typing papers, to making magazine and pamphlets for projects. Lisa believes that both teachers and students can make use of *PowerPoint* and multimedia presentations, play speeches, and all other things that allow students to hear or see on videos that can be accessed on the web. She said:

... [f]or example I had textbooks in school that still had U.S.S.R., which is now independent nations. Being able to have an up to date map off the web is really valuable. Being students, having to hold a piece of paper in their hands and understanding longitude and latitude is very important (Lisa, interview, paragraph 12)

I think, for things like economics, it is better to use computer based things because it is better to use up-to-date information. For example with the stock market game, it will be more valuable to have the students do a game that is in real time. And teachers get to be so much more in control with the things that go on with these kinds of games. Whereas, the paper based students can fall behind and not record the numbers everyday. Whereas the computers are going to do that for them, so that they have that responsibility taken away, but at the same time they have so much more that they have to do with it (Lisa, interview, paragraph 14).

Amy believes computer technologies could serve as a tool or an aid in the classroom especially in social studies, because many times social studies is more or less a story of what happened in the past, and using computers could enhance the stories or lessons.

Amy articulated, as far as technology and its placement in the classroom: “The more the better.” She thinks if all students have their own laptop that would be phenomenal. As far as using it everyday, if it cannot be integrated into a lesson every single day, it is not the end of the world. Using it whenever possible is sufficient.

From Amy’s standpoint computer technologies could be used as a secondary source to improve lessons in social studies:

I think I would use them as a secondary source, especially because of the State National Standards now: You have to make sure that every student knows the basics of every single topic. Then, I would use technology to enhance their textbooks, or enhance what I could provide for them in lecture format (Amy, interview, paragraph 50).

[I] don’t think that you can use technology as a crutch to make your lesson plan better, but to enhance and improve (Amy, interview, paragraph 70).

Tim has similar feelings about integration of computer technologies into social studies education. He states as the years’ progress computer technology becomes more important and many children have computers in their homes. They are familiar with instant messaging, email, or using map and interactive mapping on the computer to find some locations and similar things. They become more familiar with them, and more and more schools integrate them. He believes this is good for education:

Computer technologies are [a] good way to research things, finding primary documents. [They] can really put a different perspective on things rather than what a textbook can do because textbooks are limited to the editors’ or the writers’ perceptions, and I think if we can use computers to

enhance learning it will be good for the students because they're used to working with them (Tim, interview paragraph 8).

[L]ook at a map or an interactive map where students can see up close and personal for themselves. I like how we find fun places with geography, location. And I think pictures are exceptionally, well, finding pictures whose time period can give students a first hand look at specifically what they are looking at (Tim, interview paragraph 12).

According to John, the best way that computers can be used with social studies instruction is visual presentations, not so much for text, primarily map use and graphics. When asked how he could use computer technologies in social studies, he expresses that the Internet could be an excellent source to create an interactive classroom discussion to see both sides of some important issue:

.... If there was like an issue on the war on Iraq, there're pros and cons, who were the big supporters and who were the big opposers, and maybe have links to like statements that they say. Obviously opposers would be people, like, Michael Moore on the left side and then supporters would be like George W. Bush and Anne Coulter and people like that on the right. And, so maybe links to what they believe or what their statements are would also help so they could formulate.... George W. Bush stands for this because...so I think that would be an advantage (John, interview paragraph 65).

In addition, John believes that integration of computer technologies are a necessity because he does not want to leave students behind. He states that often students from working class homes are less familiar with computer technologies than students whose parents are professionals. Hence, having integrated computer technologies he will keep all students at the same pace.

From Andrew's point of view, computer technologies play significant role in social studies because students can do more research, faster, if they want to find more on

a certain topic or are just looking for more depth with many different history web pages, teachers could use them to have their own research on the topic.

Andrew articulates that having the opportunity to be more creative and constructing one's own learning is the greatest advantages of computer technologies in social studies:

... [t]he biggest benefit of technology is having them look up online on their own, actually construct their own learning more than instead of me lecturing to them or another teacher lecturing to them. I think using the Internet and using resources like that CD-ROMs I just think that they can go to an encyclopedia and open it up, but I think that putting in a disk and pulling up pictures and sounds and using the Internet, kids will be more creative using computers than using books (Andrew, interview, paragraph 30).

4.5.1.1.2 Negative Attitudes and Perceptions.

Although, overall, preservice participating teachers' interviews represent positive feelings toward using computer technologies in social studies, except Melissa and Amy, all other interviewees have some concerns and negative attitudes and perceptions regarding application of computer technologies. Especially, John, Mark, Tim, and Steve, have more negative feelings than the others about computer technologies, and sometimes their negative feelings surpass their positive feelings regarding using computer technologies.

In preservice teachers' interviews, concerns about computer technology center on two main issues: a) unnecessary application and b) equity problem. As shown in the survey results, even though all preservice teachers participating in this study agreed that computer technologies are very important tools for instruction and they should be used to

support curriculum (see Figures 4-22, 4-23 and 4-28), they did not agree on the degree regarding using computer technologies. The consensus is, mainly, to supplement curriculum (see Figure 4-26).

Interviewees express almost similar concerns as found in survey results. More detailed responses as to what extent computer technologies should be used for instruction arise during interviews. Except for Melissa, all other participants agree that computer technologies are another tool like maps, globes, or TV, and they do not want to use them more than other tools because they strongly believed that using too much technology is just another form of formal education and will not enhance student learning or teacher instruction:

I think using technology is the formal approach to teaching, whether you want to be traditional or constructivist, it's formal. And I think right now, a lot of preservice teachers are striving to be politically correct teachers, so that they're accepted into the teaching world. They want to come across as well instructed teachers, with formal presentations and regimented and they know what they're doing. And I think that when you use technology it demonstrates a much higher level of a formal presentation, as opposed to whatever; doing interaction with the kids.... So I think using computer technologies and creating a formal atmosphere in the lower grades such as in the high schools and in the middle schools prohibits the students from being themselves, from sharing their thoughts, from caring, from relating to the material, and from relating to you as a teacher. This is a huge goal, and should be a huge goal for the teacher to be relating to the students and showing them why and what is important and not just showing them what you think is important (Mark, interview, paragraph 105).

It is a great way to present visuals. It helps with focus, with the beginning of the lesson with the focus. You can display the picture. You can display audio and visual, but I don't like being hampered by it. I don't like having your whole lesson on it. I prefer, like I said, it's a great way to display directions, behavior expectations, and [state] standards, and maybe to introduce a course, but by no means do I really, would use it that much, or use it every day for my entire lesson (Steve, interview, paragraph 99).

As in Dr. Brown's class, there's such a stress to student learning centered plans as opposed to teacher centered. And technology allows you to do that through activities on the web, through *SMART Board* interaction where you can have people actually going up. So, it's important as a tool but I don't think it necessarily is all the time (Lisa, interview, paragraph 30)

Tim has similar perceptions about computer technologies and he was definitely against overusing them.

I would like to see it used just to enhance learning, not as, like, a back-fall [SIC] for teaching where teachers just only use a computer for students do the research. I don't like that. I think sometimes it can be overused, especially when they are breaking the groups with computers, that kind thing. You just type in Google and do a search and find some, just a first page comes up to. So I mean that is a lot overdone and I think a lot of teachers might use technology too much just because, may be they are not familiar with a certain subject or they don't feel comfortable teaching a subject thing. (Tim, interview, paragraph 10)

John expressed his opinions as following:

I think that technology is good as a guide, but the teacher, I mean, having a human being in the classroom is much more important than having any computer so, if the teacher can use it to their advantage to guide it in some way, that's great. But I think that it should only be like a guide. It should never be the basis for critical thinking. I think that critical thought should always come from the teacher's point of view, especially with critical questions, and strategic questions (John, interview, paragraph 53).

According to Andrew, when computer technologies are overused they keep students away from primary sources like libraries or museums, therefore, teachers should be careful when deciding what extent they want to integrate technology into instruction:

I think that sometimes students use too much computers because sometimes they need to go to a library to do research, to find information. In that way too, and I think, sometimes teachers only use the Internet because there is so much there and there is some bad sources that you can use on the Internet (Andrew, interview, paragraph 12).

However, Melissa has a totally different opinion than other interviewees regarding integration of computer technology into social studies. She was one of the greatest proponents of computer technology, and no matter how hard it is, she is willing to use computer technologies in her instruction:

I will definitely try. Maybe I will spend a lot of time, but I will at least try to learn and use it in my class. Whatever it takes, I will force myself to use computer technology because it is shame if you have those technologies in your school and if you do not use it (Melissa, interview, paragraph102).

Even though Melissa had enthusiasm for using computer technologies, as explained in following sections, she could easily stop and not use those technologies due to her low computer proficiency level.

Another concern posed by preservice teachers is the equity problem. They articulated that the digital divide between schools, school districts, cities, and states, is another negative point for computer technologies. They felt that economic inequality between students has already created many problems for educational systems and teachers, and they did not want to exacerbate those problems by using more and more technologies in instruction. According to the interviewees, computer technologies do not close the gap between students; in contrast, they make all current problems greater. Also, preservice teachers state that due to the digital divide between schools and universities, whatever is available in the social studies laboratory right now in terms of computer technologies possibly will not be available where they will teach in the future. Therefore, they did not believe in the chance, in near future, to apply whatever they learn in their methods classes:

OK, my biggest concern with computer technology is the disparity in the resources of technology. One student might have a computer in every

room when they [SIC] go home, while one student might not even have a home to go home to. And that could be the two extremes, but that's the reality and it's not fair which is also a reality, and some things aren't fair. But in this case when everyone should be having the same opportunities because it is education, I think the biggest challenge for me is going to be finding the medium that's fair for everyone to experience technology. Instead of the kids who just have a computer at home or, even for that matter if you're doing technology in the classroom those who have a computer at home are going to know more in the classroom than those kids who don't have a computer at home or aren't with computers are just going to get lost and fall behind (Mark, interview, paragraph 117).

Simply put, zero percent of the students that I'm going to be teaching will have the opportunity that I had learning about this technology. None of them have been through Social ED I or II, since none of them have been there with me learning about this technology, it's like I'm coming from a different page. They're not on my familiar base. They might have experience in whatever I'm incorporating as technology, but it's not going to be the same base that I learned, and it might be good for incorporating the different aspects of technology that I learned but it still goes back to that disparity. Not all the students are going to have the opportunity to have technology.... I'm in a school right now with a computer and an overhead, but there's no *SMART Board*, and it's a fairly decent high school (Steve, interview and email, paragraph 85).

I think now, I mean a lot of things your students will know how to do just because technology is such a big thing now. There are probably some people that don't have a computer and I think we have to realize as it is teachers, that some people don't have access to technology. But on the same hand there are some people do. It's just, you have to feel yourself out and get an idea for your classes (Tim, interview, paragraph 50).

I would like to integrate technology; however, the school budget is a big part of that, whether or not they are willing to provide these things for me. Right now, I am going to one of the decent high schools in the school district for student teaching, and they do not have the same technologies whatever we have in here. I always stand behind that one, to use it to your advantage but to not be dependent, because it can let you down, obviously. So always, never forget what its like to teach with a whiteboard or a chalkboard and use just hands-on maps rather than technology (John, interview, paragraph 41).

I don't like everything to be in technology, based on, I think, sometimes that especially like in Dr. Brown's class. When I was in the school today, there was nothing like that. I think that maybe when I get into a classroom,

get so used to teaching with *SMART Board*, used to teaching with being able to pass out laptops, but I am not going to have that when I actually get in there (Andrew, interview, paragraph 18).

As reflected in the above quotes, participants have mixed attitudes and perceptions regarding using computer technologies in social studies. On the one hand, they agree how important using computer technologies in instructions, and they want to use them at some level. On the other hand, they would like to put some limitations on application of computer technologies because they believed that those technologies are not better than other tools for teaching. Moreover, they could be riskier than other tools since they cause disparity problems among students.

4.5.1.2 Attitudes and Perceptions Regarding the Place of Computer Technologies in Student Learning

As explained in the previous section, preservice teachers participating in interviews have mixed attitudes and perceptions toward computer technologies and they have some negative feelings regarding the extent of computer technologies use.

However, as explained in this section, the majority believe that computer technologies are important tools in student learning, and they should be integrated into instruction at some level. Preservice teachers' perceptions and attitudes about effectiveness of computer technology in student learning are variable and many times responses depend on a preservice teacher's personality. For example, Mark believes computer technologies have very limited effect on students learning, on the other side; Lisa, John, Tim, Steve and Andrew have more moderate feelings about the effectiveness

of computer technologies on student learning. Melissa and Amy believe computer technologies have a significant effect on student learning.

Melissa definitely supports the idea of technology-class (classrooms with everything technological). Even though she encountered many computer technologies for the first time in Dr. Brown's class, she really likes the idea and she thinks computer technologies are the best thing she has ever seen to make instruction better (Interview, paragraph 47). She states that student learning is more important than anything else and computer technologies could help to enhance student's learning more than anything else:

I really like the whole idea of it. I think students can learn much better with the technology. I really like it I hope it is available to me (Melissa, interview, paragraph 166).

[I]t is all much better like learning tools students can do their own research [with]. It is more student-centered. It is a whole new change of curriculum with student-centered so new technology really helps (Melissa, interview, paragraph 2).

[T]hey [students] can form their opinions. It is easier with computer technology because you have those resources. They can just pull it up read it and switch with something else and read. It is not a paper you won't go to the paper (Melissa, interview, paragraph 26).

Interestingly enough, when asked if those technologies are not available where she will teach and what she would do then, she said:

I'll probably look for a job in school where they have technology... Yeah, so that will not be a problem. I really like the whole technology idea even though I am not good at it. I really think that it such a good tool for learning (Melissa, interview, paragraphs 168 and 170).

As noted above, although Steve had some concerns regarding the degree to which computer technologies should be used in instruction, he still believes computer technologies could help student learning. He states that computer technologies not only

provide a chance to reach different sources, but also create a more student-centered classroom milieu for social studies education:

I really see it as a tool, so it's a tool that you can use, though, for example what I was doing with Dr. Brown, which was a great way that students can edit their material on the computer, which makes it much easier than using the old forms of editing. Um, as far as technology, that is a good thing too. You can hand them [students] a project to do and having the internet allows them to search those items little bit easier if your library is not as extensive as it needs to be with research. Then the internet is a great way to use it. I mean it helps them out with researching it, and you're still allowing them to do it. You're not spoon-feeding it and giving them the information. So I think it is can definitely helpful with the constructive classroom (Steve, interview, paragraph 36)

I think it's great. With a computer, they can access the primary documents, and the secondary documents and compare those two things, compare the actual what somebody said and what was written about them, and kind of visualize for themselves, hopefully, that there are differences in what you read and you need to look at both sides (Steve, interview, paragraph 40).

From John's standpoint computer technologies are good guidance and attractive tools for constructing more enjoyable instruction for students. In addition, he believes without control, teachers, sometimes, could be forced to use computer technologies by school districts or school boards. But he is comfortable with this idea because he thinks to be forced to use computer technologies will not hurt him anyhow; it might even help:

I created a web page for a social studies class, so having students create WebPages and then going to each others' WebPages would be a good exercise. Creating WebPages, so that students could go to get things, just like supplemental stuff would be good, so um, especially maps with the *PowerPoint*, I think are the best ways to integrate technology. Having that visual side there, even, especially humorous pictures, um if you can find stuff that students can relate to especially with pop culture, I think it really gets them more into realizing that you can learn and have a good time at the same time (Steve, interview, paragraph 164).

You could end up getting a job in a very prestigious area where they can pay for things such as laptops or *SMART Boards* or projectors. You can

use in the class, and almost expect you to use it, and if you didn't, it would definitely be a detriment to your classroom, especially if the students are used to in all their other classes integrating such things and then they always wonder how come in my class they never do it. So especially if they never have good experiences with it, they can regret just having a kind a boring classroom. So I think that the fact that we do use it so much will not hurt us at all. It is only going to help (Steve, interview, paragraph 196).

Lisa, Andrew and Tim had parallel attitudes and perceptions toward computer technologies as applied to student learning. All of them state computer technologies could be a good a source for students to do research and help teachers to create a constructivist environment in the classroom. In this way, they believed more and more students could be involved in every lesson which is the purpose of a constructivist classroom and it is the most important part of integrating technologies into instruction:

I think computer technologies can help student learning because students are able to do a lot of research on their own or in groups so and the basis of constructivism is having students use resources around them to learn rather than just a teacher telling them what they need to know, or just reading out of a textbook, so technology can really help. I can't say it can almost sustain, or what is the word what I am looking for create, a constructivist milieu in classroom. It takes a lot of work from the teacher and the student interactions. However, it can help and sort of create, or start a constructivist classroom (Tim, interview, paragraph 16).

It allows students to take ownership of their own learning, as well as sharing with everyone else. I think it is very important for students to do research on their own, and the computer allows them to go into national archives, and look up things on their own. Also to discover and find things in their own timeline and their own basis, and I think that is probably the best thing that technology does (Lisa, interview, paragraphs 10 and 18).

Students can do a lot more research a lot faster if they want to find out more about a certain topic or just look into it more, in-depth. There are so many different history web pages, and I think teachers can use them for their advantages to have students find out, doing their own research on the topic (Andrew, interview, paragraph 8).

Amy has more positive thoughts than other interviewees regarding the importance of computer technologies in student learning. Sometimes, her opinions approach Melissa's opinions. According to Amy, her motto about technology is "the more technology, the better learning" because she believes technology could support students' critical thinking.

I think, as far as technology and its placement in the classroom: the more the better...I think that it can definitely help students in critical thinking because the more you encourage students to discover on their own, the more critical thinking they're going to do. Especially with websites now, there are so many different opinions posted on the web on any issue, that if one student finds a conservative webpage and another student finds a more liberal webpage concerning the same topic, then they could have completely different perspectives. Then these students can critically think how these opinions were derived and the basis of them...There's a lot more information and material for students out there to consider and think about critically (Amy, interview, paragraph 39).

As opposed to other interviewees, Mark has more hesitation about the importance of computer technologies in student learning. He thinks computer technologies should be a part of instruction, but still not big part because technologies prevent interaction between teacher and student if used all the time.

I think technology should be a part of the classroom, because it shows students that you are willing to keep up with their generation and their trends...I think it should be incorporated more right now as a constructivist, as incorporated in constructivist classrooms. I don't believe in completely incorporating it because I feel that it hinders interaction between students and teachers and between the students themselves, because they'll tend to interact with the computer as opposed to their peers (Interview, paragraph 26).

4.5.1.3 Attitudes and Perceptions Regarding the Place of Computer Technologies in Teaching and Teacher Preparation

In previous sections, preservice teachers' general positive and negative opinions about computer technologies and their perceptions and attitudes toward the place of computer technologies in student learning were explained and exemplified in detailed. Interviews created the realization of preservice teachers' willingness to use computer technologies; why and how they want to use computer technologies; and, what kind of computer technologies they want to use in their teaching. Teacher preparation is as important as preservice teachers' perceptions and attitudes in general. This importance also coincides with significance for student learning. Therefore, careful examination of data, allowed understanding preservice teachers' perceptions and attitudes regarding the place of computer technologies in teaching and teacher preparation. While doing this, the following categorization organized this section: a) willingness to use computer technologies and relationship between computer competency level and using computer technologies in teaching and teacher preparation, b) computer technologies (hardware and software) possibly used by preservice teachers in teaching and teacher preparation.

4.5.1.3.1 Willingness to Use Computer Technologies and Relationship between Computer Competency Level and Using Computer Technologies in Teaching and Teacher Preparation.

Preservice teachers articulate similar concerns and positive feelings when they explain their willingness to use computer technologies in teaching and teacher preparation. Only Andrew expressed a bit different opinions about using computer

technologies in teaching and teacher preparation. Preservice teachers interviewed expressed three reasons for being willing to use computer technologies in their teaching. The first reason is that preservice teachers believe computer technologies are a big part of constructivism and they should be used if constructivist orientation is to be followed. The second reason is that preservice teachers think computer technologies could improve student learning and eliminate monotony in classrooms by decreasing dependency on textbooks and increasing student participation. Therefore, computer technologies should be used as an alternative to textbooks with some specific limitations. The final reason is that preservice teachers believe computer technologies are very effective tools for preparing lessons and communicating with families and students. Hence, they could be used to keep in close touch with families and could help to prepare better presentations and instructions.

On the other hand, preservice teachers articulate two reasons which negatively affect their desire to use computer technology in instruction. First, they believe that a constructivist orientation includes a good deal of interaction between teacher and students; however, to depend on computer technologies and use them too much could hinder this interaction. Therefore, integration of computer technologies should be as minimal as possible. Last, half of the preservice teachers interviewed state that they experience new technologies like *SMART Board* and *AirLiner* in their last two semesters in Dr. Brown's class; however, according their past experiences in elementary, middle and high school and their observations during the practicum, only a slight chance exists of finding these same technologies in schools where they will teach. Thus, they do not need to worry about whether they will use computer technologies or not because of

unavailability. The following analysis and excerpts from interviews display participants' perceptions and attitudes.

When asked, preservice teachers note the importance of computer technologies in their visions of teaching, as in student learning. Melissa and Amy are more willing to use computer technologies in their teaching than other preservice teachers who participated in interviews.

As explained in preceding sections, Melissa is a strong proponent of computer technologies, and she believes computer technologies should be used in every aspect of education. According to Melissa, computer technologies will not only help students' learning, but also help her teaching and preparation by relieving her fear of being a teacher:

I think I will use it because I am really scared to be a teacher I feel computer technology takes the pressure off. With everybody looking at me for information, I just can guide them to get info for themselves. Maybe it will change, but as it is right now, I am really scared and the computer technology can make it easier for me to teach right now (Melissa, interview, paragraph 124).

In addition, Melissa stated computer technologies are crucial assets for being a constructivist teacher; therefore, they should be used:

We are learning about the constructivist classroom which is new to me. Until this semester, I think I really liked it, and technology is a very big a part of that ideology. So if that's what I am learning, I am going to use it... I think it'll be a shame not to use it, and with more and more laptops being accessible in the schools, it is all a much better learning tool. Students can do their own research. It is more student-centered. It is a whole new change of curriculum with student-centered. So new technology really helps (Melissa, interview, paragraph 144).

Similar to Melissa, Amy stated her motto as, "the more the better" for using technologies in student learning. Since she believes teaching with computer technologies

is much easier and more effective than teaching without them, she strongly expressed that computer technologies will be a big part of her teaching and preparation.

I think computer technology will make me a more effective teacher, because it creates another medium for students to engage in learning. They don't have to listen to me talk for forty minutes or ninety minutes straight everyday, they can discover (especially with the internet now) information on their own (Amy, interview, paragraph 34).

I would like to say that when I teach I would like to be able to use a *PowerPoint* presentation or have my students researching on the internet ninety percent of the time (Amy, interview, paragraph 24).

Even though John again repeated his concerns about equity problems, he still wants to use computer technologies in his teaching. However, he expressed that teachers always have a secondary plan in case of technology problems during their presentations.

I do appreciate technology to the extent that it could help us. So I would, I would try to learn and understand, as best I can to try to integrate new things into the classroom...It should be integrated for sure, especially as the world, especially in the United States, becomes more and more information-based. But I think it should be integrated to the extent that we can learn, but not integrated so it's dependency. Not so much that, like, the teacher always depends on *PowerPoint* and always depends on the *SMART Board*, the projector, the laptop...So often technology can let us down. So I think that teachers should recognize that these things may fail, at times, and that they should have a backup plan (John, interview, paragraph 25).

Tim connects to using computer technologies in teaching rather than relying on text books too much in instruction, which is one of the controversial issues in social studies. From Tim's standpoint big and thick textbooks are neither useful nor practical in social studies, and computer technologies could be an alternative to this problem. He supports the idea of student-centered education, and he is willing to use computer technologies, with some limitations, to create this student-centered milieu in the classroom. However, Tim realized that not every school has in the same status, in terms

of computer technologies, and if all those new technologies do not exist in his class in the future, he had some back-up plans:

I think computer technologies will support my vision of teaching, personally, just because I would not like to work with textbooks. I think they're big; they're bulky; they don't really give in-depth look at certain topics. They sort of just glance over history or whatever subject. History is just an example, because, I mean a lot of history textbooks you see, they try to almost incorporate everything, but they have a short little paragraph on this, but they don't give any background details, and they don't explain the connections casual relationships between history and things and they don't really give a lot of examples of primary documents like speeches or pictures. Some have pictures but not very well or documents that students can read over on their own perceptions. A lot of teachers do just basically busy work. So my vision is active learning where students really understand and appreciate their topic, and form their own perceptions, ideas and basic steps they can take. However, I think it just should be used not on the daily basis, but just maybe look at a map or an interactive map where students can see up close and personal for themselves. I like how we find fun places with geography, location, and I think pictures are exceptionally well for finding pictures for those time periods. That can give students a first hand look at specifically what they are looking at, but not if it's used just as a time killer or just to save teacher's voice, I think it's over done, and I think it will create problems (Tim, interview, paragraphs 12 and 14).

You have to be able to adapt, and you have to realize that not every classroom you are going to does have that technology, but there is other ways you can do things to enhance student learning without *SMART Board* or projector. You just have to really get a feel for your school district you're teaching in, what resources they have. Maybe you can get the resources that are available; use wherever you can get, but if you don't have them I think just you have to make do and understand that not every school is equal but that's just the reality of education I guess (Tim, interview, paragraph 38).

Steve is another preservice teacher to approach computer technologies very carefully. Despite the fact that in observations, Steve is very confident with computer technologies during his presentations and other activities in Dr Brown's class. Steve did not want to be dependent on computer technologies too much because he believes, like

John, overusing computer technologies obstructs interaction between teacher and student.

He states that if technology is available it is nice to use it sometimes, but if it is not, it will not be the end of the world:

I think it would be nice to have that computer technology at your fingertips, and be able to use it and have that access just so you wouldn't be limited to some things. Um, it helps out with research. It is not the only way to research, and its convenient, obviously, Internet is convenient. It makes things easier, so by no means do I think it is something that will affect the teacher, but it will definitely help alleviate some things so, if I had a classroom where I didn't have technology, I would be able to do things that I wanted to do, at the same point. If I had technology, I'd be able to integrate it a different way. So it is just teaching in different ways, I think (Steve, interview, paragraph 28).

If you have good access to it and can use all the components, I think, um like fifty percent. I wouldn't go over that. I think you get away from interaction with students and interaction with each other. You don't want to replace yourself as the teacher but at the same point, it's a very useful tool; it is what I see it as (Steve, interview, paragraph 24).

Lisa's opinions are not so different from other interviewees in terms of implications of computer technologies in instruction, but her self-assurance with technologies during her presentation and comfortable behaviors during interviews put her in a different position. Apparently she is certain about what she is doing and ready to use computer technologies more than other interviewees. She expresses that she would like to use computer technologies without pushing herself to use them. She wants to use those technologies in instruction if they are necessary, not for the sake of using computer technologies. According Lisa, an incredible amount of information exists, especially in the Internet, and if a teacher directs students properly those sources of technology could be very useful tools for social studies instruction. In addition, she believes that computer technologies allow teachers contact with families more efficiently than formerly:

There's always information out there for the most part, and you can set up a structure activity where you provide websites for students where they have the information to go to. So, instead of standing in front of the class lecturing, you have, like, okay, well, if you're going to do this part of the assignment then there are five websites you can look at to be familiar with and checkout. There's interesting things in history and historical figures where you can go and look at autobiographies about them and biographies, and there's just so much information that they can find and setting it up as a webquest where, like, they have an objective or a question where they have to answer and they have to go find it. And you give them the basic direction as to what kind of websites they need to be looking at (Amy, interview, paragraph 22).

Well, I think one of the big things is, I think it increases communication because they will be able to email back and forth and that's a big thing. Everyone has computer access at home. Being able to put things up in the internet [allows], having a webpage setup for a class so that they can go and check homework assignments. And so the parents can go because there'd be a communication between myself and parents through a class website. If not everyone has internet access, and that's not really an option, but we have computers in the room; there is still plenty of ways where with the webquest website where you can bring things in. It's kind of an activity for the students to go research and things and bring it back as a class as a whole and present what they've found and things. It allows students to take ownership of their own learning as well as sharing with everyone else (Amy, interview, paragraph 18).

I'm not going to use technology just for the sake of using technology. I mean, there has to be something you get out of it, so as long as it's a good program students can learn from; then, there's no reason not to use it in the classroom (Amy, interview paragraph 42).

Mark did not change his opinions, stated in previous sections, for using computer technologies in teaching, either. He believes that under any circumstances computer technologies could not be a big part of his instruction, and he is completely against using computer technologies in instruction other than using them a little bit for fun:

I would say the one with more technology is better; it presents you with more diversity and options in the classroom, gives you the freedom to incorporate different components into the classroom, but I wouldn't say that because I'm in a classroom like that, that I would change anything that I was going to do. I think the only way that my lessons or my

presentations would change is if I lacked the technology. I'm sure I would use a little more technology just because it was known, then to try it, and it would be just a little more fun for the students, but I don't think that it would affect my overall presentation (Mark, interview, paragraph 163).

When asked why he does not want to use computer technologies although he is really good at them he said:

Even though I am more familiar with it than many other of my classmates the reasons why I said I'd like to stay away from it, and the reason why I said that it would affect it negatively is that, computers are annoying. And if you're familiar with a computer and what you want to do you just "click, click" here and "click, click" there, and minimize this and minimize that, and in your head what you have to do. But if you have to explain it to someone who doesn't have the background material that you have, it's annoying because that absence of rationality with a computer. There's that absence of a real world rationality that you can't talk to it and say "listen we have to do it this way," because no one knows what's going on and it's going to do the same thing no matter what's going on in the class (Mark, interview, paragraph 101).

Mark's two big concerns, equity and interaction, with computer technologies hold him back from integrating computer technologies into instruction. He also believes that even though teachers are ready to use computer technologies; students are not completely ready at a level for the integration of computer technologies for right now. Last but not least, although Mark does not openly express the implication is that he does not accept computer technologies as a part of a constructivist classroom in contrast to other interviewees:

I know I'll be staying away from technology for the most part because I'd rather interact... They [students] are learning out of playing simple games such as "TIC-TAC-TOE" on the computer while they're in kindergarten; they're still becoming more familiar so that you won't have to do that by a certain time. I don't think we're at that time yet, where students are familiar enough, where they already know. Like I said before, you're going to have to provide them with a background. So I'm not very excited about doing anything. I'd rather stick to the constructivist style of teaching (Mark, interview, paragraph 97).

Andrew was the only interviewee who stated different opinions about using computer technologies in teaching as opposed to what he stated about using computer technologies in student learning. As mentioned in previous sections, Andrew articulates using computer technologies could be helpful to student learning and they are an important component of constructivist orientation; therefore, they should be integrated into instruction properly. However, when asked whether he will integrate computer technologies into his instruction, his answer is negative and the reason is not related to whether he likes computer technologies or not. He is still supportive of the idea of using computer technologies, but he just simply believes that he will not have those technologies in his class in the future:

I don't plan on using the computers a lot because lots of classrooms don't have laptops to use in class. But I plan on having a lot of my assignments and maybe research papers to have the students use it but have to use it at home, and when I was in the classroom just the overhead. I don't really plan having a *SMART Board* (Andrew, interview, paragraph 26).

I definitely would incorporate more if I had it our classroom that we have on in Tuesdays and Thursdays. I definitely would use it, but I am just kind not planning on having that (Andrew, interview, paragraph 28).

After learning preservice teachers' perceptions and attitudes regarding using computer technologies in student learning and teaching, preservice teachers were asked whether using computer technologies is more beneficial in student learning or teacher preparation. According to their responses, preservice teachers are divided among three categories. While Andrew, Melissa, Steve and John feel student learning is more important, Lisa and Mark state that using computer technologies in teacher preparation is more crucial than in student learning. According to Amy and Tim, the two uses are

equally important. The following excerpts provide evidence for preservice teachers' perceptions regarding this subject:

If I feel that using a program helps them [students] learn more effectively or all that they enjoyed more, they actually get more hands on. I am more hands on, too. That is, I learn; I like learning that way so if they enjoy doing more then definitely that will be my focus. If it is just for me to teach easier or things like that, it will not be really my focus. I'd rather use it for their benefits than my benefits (Steve, interview, paragraph 186).

I think they're equally important. I think that you have to be well prepared for your students to get a lot out of technology in the classroom. I think you can't just throw together a *PowerPoint* presentation or not know how to use your *PowerPoint* presentation effectively, and if you don't know how to use it, your students aren't going to get a lot out of it. So, I guess in the end, student learning is always the most important aspect of any classroom, making sure that they're learning something. But I think it's true regardless of technology being a factor, the more you're prepared for a class; the more your students are going to learn (Amy, interview, paragraph 152).

I think both are important to me. Having good technology for being prepared as a teacher will reflect and help your student learning. I think they go hand to hand together (Tim, interview, paragraph 68).

I think the most important to me is probably the teacher planning aspect of it, which is because that's the part that I'm really doing. I mean it's really important to get the students involved and have the technology involved in student learning, but before you can even do that you have to figure out how you're going to use it, and be able to use technology yourself (Lisa, interview, paragraph 68).

I would say student learning overall. It is definitely crucial in teaching preparation, but I'd say overall student learning (John, interview, paragraph 208).

I think it helps student's learning more because I think that I can get just as prepared on my own without computers maybe just use textbooks and stuff but that's kind of more boring for students, and I think that having the computers and being able to go on the Internet on their own would help them, and it would make them more interested than with textbooks (Andrew, interview, paragraph 112).

As exemplified in previous sections, according to data no considerable relationship exists between preservice teachers' computer proficiency level and their desire to use computer technologies. For example, although Melissa has one of the lowest proficiency scores with computer technologies, among interviewees and her classmates, she is one of the most willing students to use computer technologies in social studies instruction. In contrast, Mark is highly proficient with computer technologies but he is reluctant to use those technologies in his instructions since he believes they are not as useful as what researchers claim. In the same manner, despite the fact that both Steve and Amy have same level of proficiency with computer technologies while Steve supports limited application of computer technologies in instruction, Amy would like to use those technologies as much as possible.

In spite of the fact that no significant correlation exists between computer proficiency level and willingness to use computer technologies, a close relationship is apparent between computer proficiency level and displayed persistence level of preservice teachers while using computer technologies in the classroom. Research findings demonstrates that preservice teachers, who have less proficiency with computer technologies, show more tendencies to lose in interest using computer technologies than preservice teachers with high proficiency when they face any kind of challenge while using those technologies. For instance, Melissa is eager to use computer technologies more than any other interviewees; however, when asked her if computer were to break-down while she is using it for her presentations, what will be her reaction. She said:

Probably if I have problem I might be shy to implement, but I hope between now and when I am teaching I get more technology educated because right now it is pretty bad (Melissa, interview, paragraph 44).

Melissa also articulated that she will not use computer technologies if laptop technology is not available in her school:

Researcher: OK let's say if laptops are not available in your school and you have only desktops to use what will you do?

Melissa: I probably wouldn't use it at all if any because we have no time to go to computer lab. It will just be easier to teach in the classroom. I really like computer technologies and laptops, but if they are not available, I wouldn't use computer labs then (Interview, paragraph 108).

In the same manner, even though Tim states that any struggles with computer technologies will not prevent him from using them he still believes that if a teacher is not as proficient as students with computer technologies an embarrassing situation for the teacher could arise:

I think if I were, there would be probably lots of things students would be able to teach me on the computer. I think I feel comfortable at a certain level, and basically I do what I feel comfortable with, and then if I didn't feel comfortable I ask someone for help. Maybe I work on it a lot before I would ever integrate in the my classroom, because if you are not exactly sure, as a teacher, how to do things, and your students ask you questions or something, and you have no idea how to answer them, I think that your students pull and pick up on that, and I think it might hurt you (Tim, interview, paragraph 32).

On the other hand Lisa and Amy express that they could understand other teachers' feelings. Being uncomfortable while using computer technologies because of a lack of proficiency is normal. However, since these two are proficient with computer technologies, they did not think that they would have any problems to overcome. Lisa and Amy express that computer technologies are worth using and none of the obstacles will obstruct them in applying computer technologies:

The more comfortable you are with it, the more you'll be willing to try teaching. Right now, it's very similar to social studies content; I mean, I'd never try to teach physics because all I've been trained in is social studies.

I think it's the same with the computer. If I didn't know how to use the computer then, I'd never try to use it in the classroom, but since I do know how to use it, I'll definitely use it (Lisa, interview, paragraph 66).

I think I'm definitely more comfortable with using technology in general. I think that if you aren't comfortable with it to begin with then the first time you do it and it really doesn't work, I think it's very possible that people would just never go back and use it again, which is a shame, but I think there are a lot of people that would feel that way. I can understand that, trying something new and have it work horribly the first time and just never want to do it again; I think that it's worth sticking with (Amy, interview, paragraph 49).

As a summary, in this section, preservice teachers' perceptions and attitudes regarding using computer technologies in teaching and teacher preparation is explained.

As seen from preservice teachers' statements, even though some have concerns for integrating technologies into instruction, still a plurality of those are willing to apply computer technologies in their instruction to different degrees. The following sections provide preservice teachers' opinions as to widely used computer technologies such as notebooks, PCs, *PowerPoint* and so forth, and the favorite hardware and software among participants.

4.5.2 Computer Technologies (Hardware and Software) Possibly Used by Preservice Teachers in Teaching and Teacher Preparation

As mentioned in previous sections, many of the preservice teachers participating in this study articulate that they plan to utilize computer technologies in their instruction. However, another point, as important as preservice teachers' willingness to use computer technologies, could be consideration of what kind of technologies they plan to use. What type of technologies are the most and the least favorable among preservice teachers? One

can easily say that use arises from whatever is available in schools, but the issue is not as simple as it seems. As explained in following sections even the highest level technologies could be available in schools, and nobody touches them. Or, since they are so complicated, they could be least favorable among teachers. Also, findings of following sections could be helpful to schools and school districts while deciding on purchases of classroom computer technologies.

Since a great number of computer technologies are available in the market, computer technologies available for Social Ed I and II are defacto standards for categorizing this section.

4.5.2.1 PCs and Laptops

PCs (or *Macintoshes*®) are the most common computer technologies located in schools. However, after laptops' drop to reasonable prices in recent years, mobile workstations (laptop stations) have become another alternative for schools. Since preservice teachers participating in interviews have worked with mobile workstations in the social studies laboratory and they are also familiar with PCs from computer labs, the question for preservice teachers is whether they prefer to use PCs (or *Macintoshes*) or laptops? When asked this question, preservice teachers unintentionally begin discussing the mobility issue. They do not think that a considerable difference exists between PCs and laptops in terms of hardware and software technology. However, when the issue comes to mobility, preservice teachers split into two different camps, and most of them talk in favor of computer labs. Preservice teachers who participated in interviews prefer

computer labs because they believe classroom management is easier there. Throughout the observations, apparently even college level students become very easily distracted from the subject while using laptops, and as the social studies laboratory was not specifically designed to use computers, controlling all student activities is difficult. A plurality of interviewees recognize the same problem in their presentations, and they prefer to use computer labs because they believe managing middle or high school students could be much easier if they use computer labs. Also, as laptops are more fragile than desktops, distributing and collecting those laptops safely, is another concern for preservice teachers:

I think if you get comfortable with the class, they are going to stay focused. I think laptops are great. You can bring them in there. You can stay in the classroom stuff like that. If you have a class in a little bit hurry to deal with, maybe to use computer lab is a better idea because they are stationary at that place, and maybe you can walk around a little bit easier to see what they are doing. So I do not think laptops are a necessity (Steve, interview, paragraph 200).

I necessarily don't like having students use laptops just because I think it takes away from classroom interaction. If you give a student a laptop, they don't necessarily interact with a lot of people. They basically focus on their own thing (Tim, interview, paragraph 76).

I probably wouldn't even use the laptops that much because as we've seen in Social Ed II, laptop usage generally takes about five minutes or even longer to distribute safely without breaking and then have them collected safely (John, interview, paragraph 172).

Amy expressed that she is not against any of those technologies and she would use either one of those depending on what she needs to do in class.

I think it depends on the purpose. I think, in my own classroom, I'd prefer having laptops, and for what we do in social education classes, I think that laptops are a whole lot better. But for what I use the computer lab for, I like the computer labs better because, I just go to the computer labs to do my own work and that's much better, but when you're doing group

projects the laptops are much better. Especially when you're trying to look over people's shoulders and you want to make sure that they're on the correct websites, laptops are so much better (Amy, interview, paragraph 141).

However, Andrew and Melissa state that using time properly is a big issue in classroom management and taking students to computer labs or scheduling computer labs is just wasting time. Therefore, they prefer to use mobile workstations in their classes because they are more convenient than computer labs in terms of using time more wisely:

I think laptops are more convenient than PCs. I prefer to have laptops in there instead of computer labs. When we use computers in high school where we have to schedule certain days to go computer lab it was such a pain (Andrew, interview, paragraph 102).

I like using laptops while teaching. If they are not available I probably wouldn't use it at all if any. Because we have no time to go to computer lab and prepare a classroom it will just be easier just teach in the classroom. Even though I really like computer technology, if it [laptop] is not available, I wouldn't use it then (Melissa, paragraph 108).

4.5.2.2 SMART Board

SMART Board is an interactive whiteboard, which allows one to write, to erase and to perform mouse functions with a finger, a pen or an eraser – one needs no proprietary tools. According interview results and informal communications, more than 90% of preservice teachers in class encountered the *SMART Board* for the first time during this methods course. A plurality of interviewees participating in this study and many other students in the class articulate that *SMART Board* could be a useful tool for social studies instruction and they would like to integrate it into their instruction. Even Mark, who usually expressed negative perceptions about computer technologies during interviews, states positive opinions about *SMART Board*. The main reason for the

popularity of *SMART Board* is that it allows teachers to interact with students more than any other technologies available in the social studies laboratory. Interaction is an important part of constructivism. Throughout the semester all preservice teachers used *SMART Board* for *PowerPoint* presentations and some other activities, such as pointing locations on digital maps, and they saw how it could be effective in order to create interaction between students and teachers if it used properly:

I will definitely use *SMART Board* if they have it. I like it so far. I think you can do lots of things with it so just like make my student learning plans more creative (Melissa, interview, paragraph 129).

I think it's helpful if you need to present research. Digital or primary sources, if you need to show them that it would be better to use the *SMART Board*, and I think the *SMART Board* is an exception because it does promote student interaction as long as you call the students up and a lot of them participate (Mark, interview, paragraph 109).

I like the *SMART Board* because you can write on it and things like that. I think that's an excellent tool particularly for visual learners. You can underline things and circle things, and it's really useful in that sense (Lisa, interview, paragraph 45).

I'd like to try new things maybe how everything works, just get a feel for it. I think it is a pretty interesting thing, and it would be great if every classroom had one. I think you can really do a lot of with them (Tim, interview, paragraph 40).

The *SMART Board*, I think it is an amazing tool. I initially wasn't too familiar with the *SMART Board*, but it's really grown on me as a tool... I mean, it's really easy to stand up there and touch it to move along rather than hiding behind a computer, so you're out there with the students and they can come up there and, like, we show, circle things. So I'd say overall *SMART Board* is an excellent use; it's like a supped-up chalkboard. I mean anyone can go up and draw on a chalkboard, but you can't really have the maps up there, stuff like that (John, interview, paragraph 117).

I think that it takes away lots of work, kind of. It's easier to get your message across to get your lessons across. If you have the *SMART Board* you can just touch it. You can circle on and it is cleaner like instead of erasing a dry erase board or chalkboard, and I think it's less mess. It's less hassle (Andrew, interview, paragraph 46).

The only thing that students do not really like is the size of the *SMART Board* in the social studies laboratory. Since it is a considerably large class, and the *SMART Board* available in the class is the smallest size, sometimes students had problems seeing projected items on the *SMART Board*. Therefore, some students express that a preference for a large one instead of small one:

I think we have one of the smallest *SMART Boards*. If there were bigger ones it would be more useful. So you need to have huge print to see in the back, which is kind of a downside of it (Lisa, interview, paragraph 45).

I don't really like the one in class because it's too small. I don't like it because you're either attached to the *SMART Board* to turn the slides or the computer. If it had a remote so that we could walk around the room, I think that I'd like the *SMART Board* a lot more (Amy, interview, paragraph 90).

Steve had more negative perceptions than his classmates about *SMART Board*.

Not only the size problem of the *SMART Board*, but also he did not believe *SMART Board* is good tool for creating interaction:

I don't really like the *SMART Board*. I think it's too small. If there was a bigger one, it might be a little bit better. Dr. Brown said something about getting that one. I think displaying it just so people can see it, for a visual assistance, I'm not really using it to interact with it... I would just project it on the bigger screen, when you're just showing visuals, but I think that's more effective. We are really kind of hindered by using that small area and you're kind of stuck sometimes (Steve, interview, paragraph 103).

4.5.2.3 PowerPoint

PowerPoint is one of the more common computer program teachers' uses. A recent study shows that if it is used properly it could increase, gradually, students' positive attitudes about the course and self-efficacy compared to lecturing (Susskind, 2005).

Since Dr. Brown had similar perceptions regarding effectiveness of *PowerPoint*, as explained in previous sections, preparing *PowerPoint* for class presentation was one of the course requirements for all students. Throughout the semester none of the preservice teachers stated any negative comments as to *PowerPoint*. In addition, when asked perceptions about *PowerPoint* all preservice teachers participating in the study agree it is an invaluable tool for enriching social studies instruction.

Melissa, John and Amy state they would like to use *PowerPoint* for every lesson. They believed that *PowerPoint* is the new trend in teaching and a good alternative for overhead projector in order to make instructions more interesting for students. They also believe one might spend a lot of time preparing for *PowerPoint* presentations, but it is worthwhile because those presentations can be used year after year:

I feel like teaching in schools is going in a new direction, technology-wise. Overhead is just boring, and no one wants to turn the lights off and your head up. The *PowerPoint* puts colors in it, makes it more exciting. It is a good way to keep organized, and it is a good way for students not to be so bored. Even though it will take more time on my part, it is not like using it once; you can use it again. You can use it once, every following year (Melissa, interview, paragraph 62).

I think it's very effective. A lot of times with the overheads, you can't get the overheads to focus; you have to turn the lights off, so then half of the students fall asleep. Especially with *PowerPoint*, you can add in animation and sounds, and with the *SMART Board* you can still write on it. I think it just keeps the student's attention a lot better compared to writing on the chalkboard, and also, overheads, a lot of times; if you're just writing on the overheads, you have to wash off the transparency, which doesn't always wash off...sometimes it could remain for years. With this way you can save a *PowerPoint* presentation that you can use year after year for every time that you'll be using the same lesson (Amy, interview, paragraph 82).

PowerPoint is a great program to use and to understand. It can get real interactive. You can have graphics, have sounds, and have hotlinks to the Internet. It's a great tool to use in the classroom, especially as a guide, and

as you start out teaching, you need some kind of support, so I think that's excellent. Also, I personally hate overheads, so I refuse to, more or less, to integrate them into my lessons. I remember being in school, whenever the teacher put out the overhead projector, it was kind of like a dull-lull moment where there's a lot of text on the screen and you don't really want to read it all, and it really takes down the energy level. *PowerPoint* is a little bit flashier, and it's easier to integrate into the classroom (John, interview, paragraph 113).

According to Tim and Lisa, *PowerPoint* is a very good program for the visual learner. It gives one an advantage of adding different images and digital music at the same time in a presentation. However, they express no reason to force oneself to use *PowerPoint* in every lesson. From Tim and Lisa's points of view an appropriate level of using *PowerPoint* could be helpful to a learner, but one should stay away from too many *PowerPoint* presentations because they turns into a lecture when used unnecessarily:

I think it depends on what I'm teaching at the time. One of the best things about *PowerPoint* is that you can put in so many different images and you can get things to come in, one line at a time, move around which are really awesome. So I guess it depends on what you're going to be doing in the class and whether or not it's going to be useful. The *PowerPoint*, I think, is easier to set up than transparencies sometimes, because you can do that from home and take it on a disk. You don't have to go and actually get them. You don't have to photocopier or anything like that, which is kind of nice (Lisa, interview, paragraph 44).

For my personal use of the computer in the classroom, I try to stay away from too many *PowerPoint* presentations. Obviously people learn in different ways, so I would not focus strictly on using *PowerPoint* or using the Internet. As I said, people learn in different ways, some of them learn by hearing it more, and others learn by seeing it, so you have got to mix it up and do a little bit of both. I think using *PowerPoint* helps some of those students who learn better visually (Steve, interview, paragraph 32).

In short, whether they will use it on an everyday basis or sometimes, all interviewees state *PowerPoint* would be a part of their instructions. During the interviews, when asked, what other programs they know and possibly will use in the

future, none of the interview state any specific software or hardware name. Even though they express that they will use a printer and a scanner for some part of their preparations they do not believe that those technologies either enhance or detract from their instruction. The only software programs mentioned by preservice teachers is “Oregon Trail” and “Where in the World is Carmen San Diego” first versions released almost fifteen years ago and popular in the 90s. Throughout the semester observations revealed no other software programs named by the course instructor or preservice teachers. In informal conversations, when asked what are the reasons for not knowing any social studies software available in the market they state two main reasons: First, they believe none of the software on the market is as good or popular as “Oregon Trail” and “Where in the World is Carmen San Diego.” Therefore, they do not hear about them. Second, they have no interest in what is available on the market up until now, even if good software programs exist for social studies.

4.6 Second Theme: Participants’ Opinions regarding Problems and Training in Computer Technologies and Suggestions for Solutions

Lack of hardware and software, time, and training, reportedly, are the three biggest barriers to effective implementation of computer technologies in literature (Cummings, 1998; L. C. Mason et al., 2000; VanFossen, 1999). In order to understand how these three issues are important and effective on preservice teachers’ perceptions and attitudes regarding the use of computer technologies in social studies education, the second research question asked and the second theme associate with: What are the factors that influence social studies preservice teachers’ use of computer technology? a) What

kinds of obstacles do preservice teachers encounter during the use of computer technology in social studies education? Do they have any fears regarding the use of computer technology? b) What do preservice teachers think about social studies methods courses and what are their expectations from methods courses and social studies departments with respect to the use of computer technology?

Although the National Center for Educational Statistics (2002) reported the ratio of students to instructional computers with Internet access in public schools is increasing by years, according to preservice teachers participating in interviews a lack of hardware and software in schools is still a barrier to integrating computer technologies into instruction. Moreover, interview analysis reveals that types of technologies available in schools are as big barrier as lack of hardware and software for utilizing computer technologies in instruction. For example, even if enough hardware and software exists in schools, still preservice teachers might be unwilling to apply computer technologies into their instructions since schools do not have the type of technologies that preservice teachers wish to use (e.g. overhead vs. projector, or computer labs vs. mobile workstations.)

Observations and interviews with preservice teachers demonstrate classroom management is another problem for preservice teachers while applying computer technologies to instruction. According to preservice teachers, the increasing number of computer labs, mobile workstations and Internet access in schools and web sites around the world created some new classroom management issues. Among these are teaching how to use laptops properly and safely, or directing students to proper web sites. Interestingly enough, preservice teachers have more concerns with classroom

management issues, which is overlooked many times in literature, than hardware and software, and training issues.

Training and time are the issues of least concern among the participants. A plurality of the interviewees do not want extra training beyond what they received in college because they believed they have enough computer proficiency as of now and prefer to take additional training in the future during in-service teaching instead of taking extra classes in the college. Even though preservice teachers know they would possibly be extremely busy in their first couple years of teaching, they stated time will not be a big problem for them and are willing to spend extra time for using computer technologies if they feel computer technologies help their teaching.

The following sections elucidate preservice teachers' opinions regarding challenges and training in computer technologies.

4.6.1 Challenges with Computer Technologies

Analysis of preservice teachers' challenges with computer technologies categorizes under two main titles: a) Classroom management b) Hardware and software problems.

4.6.1.2 Classroom Management

Throughout the semester, Dr. Brown and preservice teachers discussed many times what they need to do in terms of classroom management while using computer

technologies. Since the social studies laboratory had a mobile workstation, safe distribution and collection of laptops and giving clear outlines for behavior expectations to students are part of the exercises, every time preservice teachers use laptops for their presentations. When asked what the biggest challenges with computer technology are, preservice teachers respond that the classroom management is one of the greatest concerns. However, all preservice teachers are fairly confident with how to manage their classrooms while using computer technologies in instructions. Having enough training and practicing during Social Ed I and II played crucial role in preservice teachers' confidence.

Preservice teachers articulate that directing students to proper web sites and limiting student distraction while using computer technologies will be their first priority in classroom management. In order to manage a classroom properly they are planning to apply what they practiced in Social Ed I and II:

I think classroom management is my biggest concern if they have laptops, because students will go to other web sites, and I just want to monitor them to make sure they are doing what they are told. So, I would like to use what we did in [Social Ed I] I will put the classroom in a U shape and you can walk around and look what they are doing (Melissa, interview, paragraph 162).

It is very difficult, especially with all the more "racy" websites out there. You can be blamed for sending your students to pornographic websites. You'd definitely get into a lot of trouble. But it just shows that we need to make sure that we are a whole lot more prepared; especially if I could come up with a list of ten websites like Dr. Brown's suggests students could be restricted. Then, this way, if they happen to wander into websites that are not appropriate, then, it's not my fault because I told them to stay within these guidelines and boundaries (Amy, interview, paragraph 43).

[Laptops] create a big issue. You have to maybe watch 30 students, 30 computers. Not everyone figured out there is a lot of things that you can get on the Internet that are inappropriate, so basically you just have to

keep moving make it known upfront what is appropriate what is not. What will happen if you find someone doing some thing inappropriate and it goes back to a lot of behavior expectations that we discussed in [Social Ed] (Tim, interview, paragraph 70).

Classroom management is a big issue, but I think I can handle it. First of all, we should give behavior expectations, what you expect of them like what we did in Dr. Brown's class. But, also have some type of punishment like, "You might not get to use a laptop if you do not follow the instructions." If you get caught maybe more than once, check in their email just a say these are five web sites to go to either one of these I don't want to see anything else on the screen, and if they do just close it and take it away from them for a little bit (Andrew, interview, paragraph 104).

4.6.1.3 Hardware and Software Problems

Preservice teachers participating in this study did not express any great concern for how to use hardware available in schools. In addition, as explained in previous sections, since they are quite proficient with common software programs (e.g. *PowerPoint*, *Word*, *Excel* and so forth) they do not state any difficulties with using software programs either. They state that their main concern is not to use of hardware or software programs; it is just whether or not those hardware and software programs are available in schools:

One of the biggest obstacles I can see for not making me use technology is if they don't have it. Like a projector, if they don't have it, then I won't be able to use *PowerPoint*. I don't really see me not using it unless they don't have it (Amy, interview, paragraph 156).

I don't really worry about using technologies. I think the problem goes back to what school district you're teaching at. I'm not sure that I will find same technologies over there. If you have those technologies it would be nice (Tim, interview, paragraph 38).

I would try to learn and understand [computer technologies] as best as I can. [I will] try to integrate new things into the classroom. However, the school budget is a big part of that. Whether or not they are willing to

provide these things for me and stuff like that (John, interview, paragraph 41).

Type of computer technologies available in schools is another problem these interviewees anticipate. After having experience and practicing with a mobile workstation for two semesters in Social Ed I and II, Melissa, Amy and Andrew prefer to use laptops if they are available:

I probably wouldn't use it at all, if any, because we have no time to go to the computer lab and prepare a classroom. It will just be easier to teach in the classroom. I really like computer technologies and laptops, but if they are not available I wouldn't use computer labs then (Melissa, interview, paragraph 108).

I would still go to the computer lab there, but I wouldn't use computers as much if I have laptops. I will definitely use them more than computer labs, but sometimes I will print papers out and stuff. If it is necessary to use the Internet for research, it will be necessary to go, but I wouldn't use computers as much if I didn't have the laptops (Andrew, interview, paragraph 106).

I think that I would use [computer lab] a whole lot less, but I would still use it. For me, learning in a computer lab, it was always challenging because, if you're trying to read a website, I'm a very slow reader, so I could never keep up with my partner, and I'd never want to say "wait I'm not done reading it." And I'd just say "okay, go on to the next page." Then, I'd always end up being lost when it came to discussing the material that we were reading. I will use a computer lab for my classroom if we have one, but probably not as much if we have laptops (Amy, interview, paragraph 144).

However, Steve and John stated laptops create more problems than computer labs in terms of classroom management and require extra time and effort while distributing and collecting; therefore, they would rather use computer labs in schools in order to stay away from all these problems:

I am not really huge on the whole laptop thing. I think that just brings too much distraction. It is just another classroom management issue you might have to deal with then. I think, when you are in the computer lab, it is

going to be easier. At least it is not a bunch of laptops in your classroom so you are eliminating the fact they might tip them over or do something in that way. They will sit down and they can not really move stuff like that (Steve, interview, paragraph 200).

I probably wouldn't even use the laptops that much because as we've seen in Social Ed II, the laptop usage generally takes about five minutes or even longer to distribute them safely without breaking and then have them collected safely (John, interview, paragraph 172).

As seen from preservice teachers' excerpts, with the increasing number and variety of computer technologies, hardware problems in education is becoming more complicated rather than settling. Even though statistics and recent studies report that the number of computers, projectors and the high speed Internet connections has increased, and the ratio of students to instructional computers with Internet access in public schools have a considerable improvement in last decade, because of inevitable changes in the variety of hardware and software technologies and considerable differences between universities and public schools' in terms of hi-tech equipments, hardware problems in schools do not seem to be resolved, instead it become just moving another platform with new types of technologies.

4.6.2 Opinions regarding Training in Computer Technologies

Many scholars in education believe that training is one of the most important aspects of integrating and utilizing computer technologies in instruction. They claim that since preservice teachers depend heavily on what they learn in methods classes after entering the classroom, integration of computer technology trainings into methods classes is a crucial part of encouraging preservice teachers to use computer technologies

(Beisser, 1999; Bennett, 2000; Diem, 2000; Francis et al., 2000; Kent & McNergney, 1999; L. C. Mason et al., 2000; Whitworth & Berson, 2003).

As explained earlier, Dr. Brown, course instructor, tried to incorporate computer technologies with social studies methods class as much as possible. The design of Social Ed I and II not only provides a lot of opportunities to preservice teachers to get familiar with newest computer technologies, but also provides them opportunities fo use and application of those technologies into their instructions throughout two semesters. Therefore, lack of training is not a significant issue for the preservice teachers participating in this study.

According to preservice teachers, successful design of social studies methods courses, and current technologies available both in the department and the university, respond to their expectations to a large degree from computer technology training standpoint. When asked what they expect from their methods classes, department and university regarding computer technology training, they express mostly their pleasure with methods classes and department, and suggest some simple alterations to make the social studies education program more effective.

I think they do a good job of promoting technology as it is... it's great that the university and department is keeping up with this, and they're incorporating and trying new pieces of technology. It's definitely a help. It's definitely going to help them give a good education. I don't think it could be better than this (Mark, interview, paragraph 121).

I like what they do now. I think it's good to introduce it there, if people don't know how to use it they get a chance to use it, and are more or less, not forced, but encouraged to use it more. But I would rather see more methods courses about teaching, getting practice teaching than I would for technology. I think it's more important that you understand how to teach and different ways to teach and what's effective and what's not effective for your own personal benefit to get more comfortable with teaching. I

would rather see that than more integration of technology (Steve, interview, paragraph 135).

Our social studies methods courses have been a real big help, and I'm glad we had the opportunity to work with all the different sources of technology. Actually, chances are low our schools might have that entire stuff but it is good. So we get a basis for it and an understanding of what all we can do with technology and how it can be effective. But then it might be not effective and distraction, [SIC] so there is a medium ground, and I think we just have to find what you are comfortable with as a person, as an individual (Tim, interview, paragraph 58).

I would say they are definitely on the right track of like *PowerPoint* usage and even some of the web stuff, but I think if they took out some of the "angel" [university course management system] work, some of the dependence on 'angel'... I think Dr. Brown uses "angel" the absolute perfect amount because you may get a few things off of there like the standards are always listed and you have those in case you lose them (John, interview, paragraph 168).

All participants agree that they do not want extra course work for the sake of computer training. When asked how they are planning to get necessary training for computer technologies the plurality of interviewees state they prefer to learn themselves by trying those new technologies. They believe integration of computer technologies into methods classes could be valuable to some degree, but any kind of course taught solely for computer technologies is just a waste of time.

I don't expect a class. I'm more a person who'll just go in and try things, and usually not really accomplish anything and still have learned something, even though I'll go into a computer program and have no idea what I'm doing. The next time I go in there, I'll remember what to do from the last time, and I'll go from there, and after five years, I'll know what I'm doing. But I'm not going to rely on classes to teach me (Mark, interview, paragraph 133).

I don't think I need a computer class. I just kind of fooled around with computers, and that's basically how any knowledge that I have with computers is from. Fooling around with computers on my own, in my own house and I just try stuff, and usually it messes up or it doesn't work out.

But then, I learn from it, and then I can apply that to the classroom (Steve, interview, paragraph 56).

Technology class? No, it isn't for me. In order for me to learn something [about technology] I would have sit down and spend a couple of hours with them (Lisa, interview, paragraph 109).

I would prefer to learn myself, initially. If I couldn't figure it out, I would look into some kind of courses, some kind of training on it if it is crucial (John, interview, paragraph 144).

Up until now all participants' computer proficiencies, perceptions and attitudes toward computer technologies, and difficulties and training needs with computer technologies were demonstrated from different angles. However, all preservice teachers express opinions before any kind of serious teaching experiences and one could wonder how those preservice teachers' opinions would change after beginning to actually teach. Because of appropriate course schedules, communication with a plurality of preservice teachers (7 out of 8) after their five weeks student teaching in high schools continued. Thus, another angle regarding preservice teachers' perceptions and attitudes toward computer technologies arose, making this study's results more valid. The following section presents preservice teachers' experiences during their student teaching.

4.6.3 Expectations and Experiences before and after Student Teaching regarding Computer Technologies

Although preservice teachers participating in this study engaged in student teaching for only five weeks, and this is not a longitudinal study to learn preservice teachers' perceptions after a year in service, still, their expectations and experiences before and after student teaching regarding computer technologies are valuable for

understanding effectiveness of other factors, such as schools' technology level or middle/high school students' readiness to use computer technologies, on preservice teachers' perceptions and attitudes toward computer technologies.

Therefore, all interviews with preservice teachers were intentionally held before their school experiences in order to find out their anticipations and to discover what they expect to see in schools from a technology standpoint, and how would they use computer technologies in their teaching sessions.

Preservice teachers' expectations before actual school experiences regarding computer technologies are shaped by two major factors: By their past experiences in school, or by their experiences in the methods course.

Preservice teachers' school backgrounds had significant influence on their expectations. When asked what they expect to see in schools, many of those started their answers with their experiences in high school, before expressing their expectations. In many cases their backgrounds negatively affected their expectations and caused them to keep their expectations lower. The following excerpts provide evidence for how preservice teachers' past experiences affect their expectations:

I don't expect to see too much because that's what I experienced in high school. When I was a student, we didn't have a *SMART Board* we didn't have computers for everyone unless you want to go to computer lab. There were only a few classrooms that even used *PowerPoint* (Andrew, interview, paragraph 24).

I don't really have high expectations to what technology is really going to be in school. I graduated from high school just couple years ago and I did not have them in my school. When Dr. Brown said "everywhere will have *SMART Board*," sounds seem cool but I think it's really unrealistic (Lisa, interview, paragraph 81).

I don't expect anything. Like I said, I know that all high schools are different. Put it this way, I will not be surprised if I don't see a *SMART Board*. I will not be a surprised if I don't see a nice tray of laptops available for every students. I don't think anything changed. I expect to see what they used to be (Mark, interview, paragraph 151).

Actually, I expect there to be less. There are a lot of blue collar workers where I will go for teaching. It is very rural; the poverty rate is decently high, so I expect actually to see less technology (John, interview, paragraph 216).

However, in some cases current conditions of the social studies laboratory in college, and technologies that were used in methods class helped preservice teachers to more hopeful about what they will see in schools in terms of computer technologies:

I expect to see a lot. Dr. Brown said those technologies are very common right now and I am pretty sure my school should have things like that (Melissa, interview, paragraph 106).

When I was in high school we only had one computer in the classroom with one projector. But ever since we spent the last year in the methods room working on all the laptops and the *SMART Board*, and all that kind of stuff, I think I will have same technologies when I get to school (Amy, interview, paragraph 172).

Although preservice teachers participating in interviews had very low expectations as to finding enough computer technologies to utilize in their instruction, they were still asked them what kind of technologies they are planning to use in their teaching if they are provided. All participants expressed that if computers, *SMART Boards* and projectors are available in classrooms they would like to use *SMART Board* and *PowerPoint* with integrating pictures, songs, and videos:

I'm going to use *PowerPoint*; I'll use it, not for student teaching but as a component of student teaching if that explains it (Mark, interview, paragraph 159).

If we have a *SMART Board* and things like that then I'll continue to do *PowerPoint* for presentations. It's a really good way to have everything organized (Lisa, interview, paragraph 73).

We'll use the Internet with *PowerPoint* or things like that. We could put some pictures on it and just a broad outline of notes, maybe, and you just cut down on lecture time. I'd like to integrate music things like that, maybe sounds, speeches or video clips of movies (Tim, interview, paragraph 74).

If I have computer and projector I'm going to integrate *PowerPoint* as much as I can in the classroom (John, interview, paragraph 230).

After a five week student teaching, email contact followed up preservice teachers' experiences in schools. Except Andrew, all preservice teachers responded promptly. In spite of two more emails were sent and an attempt to contact Andrew by phone, he did not respond.

In order to understand thoroughly preservice teachers' experiences during five weeks school teaching the following questions were asked them by email:

- How did you and how often did you use computer technologies in your teaching sessions?
- What were your difficulties while using computer technologies?
- How did computer technology help your teaching? (If it worked how? if it did not work why?)
- How did computer technologies help students' learning?
- After five weeks in school do you still think the same way about computer technologies that you expressed in interviews or have your opinions changed about technology either in positive or negative ways?

Preservice teachers' emails indicated that except Amy, none of the preservice teachers were surprised what they saw in schools from a computer technology standpoint:

I wasn't surprised when I walked in. I saw a normal square classroom with desks, a board like this in the front, and filmstrip, an overhead projector in

the corner, and a desk and posters around the room, and that was it. It was just a typical classroom (Mark, email).

I was expecting for the school to have some technology. When we got into classroom and saw an overhead projector for a second I thought "well maybe they don't have a lot of technology." However, after asking our mentor teacher, we realized that not every classroom has computer technologies, but we could to get it from the library and it was accessible and so we were OK with that (Tim, email).

Only Amy was disappointed a little bit with what she saw in the school after Dr. Brown's class. She expected to see at least part of the technologies available in the social studies laboratory; however, almost none was the reality:

Frankly, if I had not taken a social studies methods course, I would have not been disappointed, because looking back when I was in high school we only had one computer in the classroom with one projector. After Dr. Brown's class I thought that "Ah, maybe I'll get to use this when I'm teaching," but when I got to school, it was just like when I went to high school. What all I had was one computer and one overhead projector, and that was about it, and a screen squished in the corner of the room that not all the students could see, and all the students were like twisting their bodies the right way to understand what was on the overhead transparencies and stuff. I was disappointed then but I should have known that's how it's going to be in a lot of the schools (Amy, email).

All preservice teachers had almost same computer technologies a little bit less or more, such as a mentor teacher's computer and a projector belonging to a classroom or school. Only Amy's school had a *SMART Board* for an entire school, but since the school did not have the technology to install the *SMART Board* to a computer she did not use it at all.

As they stated earlier, during the school experience preservice teachers use *PowerPoint* quite often in their presentations. Other than *PowerPoint* the only technology they use in class is the Internet. Only Melissa express that she integrated an interactive game and tour into her instruction:

I did many interactive lessons with the students. One lesson involved immigrants and the students had to take an interactive tour through Ellis Island just like immigrants coming to American in the late nineteenth and early twentieth centuries had to go through. The other lesson was an interactive game on the Transcontinental Railroad. The students had to choose a team (The Union Pacific Railroad or The Central Pacific Railroad). They then went through all of the trials that the railroad companies went through (Melissa, email).

When asked whether computer technologies used in their instructions helped to enhance student learning or not, a plurality of participants feel computer technologies provide some benefits students learning because computer technologies not only allowed students' participation more than lecturing, but also gave an opportunity to integrate more visual sources than overhead projectors and other tools available in the classrooms:

I thought that the students did benefit from the computer technology because they actually got to interactively participate and teach themselves the information instead of me standing up there and lecturing (Melissa, email).

I feel it did increase student learning; especially analyzing pictures, maps and other things we showed them during lessons (Tim, email)

I think technology enhances learning because it provides the opportunity to use visuals on top of other classroom resources such as lecturing and the textbook (Amy, email).

I think students and society is more visual than it has ever been. So it helps to keep your lesson visually stimulating as long as it contributes to the lesson. However, I think technology can not substitute for bad teaching (Steve, email).

On the other hand Lisa and Steve articulated computer technologies, especially *PowerPoint*, did not always facilitate either their teaching or students' learning in some unique situations. Both of them said whenever they felt *PowerPoint* was not effective as much as they thought they just simply stopped using it:

[O]nce I switched to an applied class (the lowest level) the students were not receptive to the technology and it actually hindered my ability to

teach. This being said, I decided not to use the *PowerPoint* for the last week and a half of the class because it just wasn't effective. There were many reasons for this including the students having difficulty reading the slides, the lights would be out and they would fall asleep, and they felt as if they were being lectured at and they didn't like it at all (Lisa, email).

It didn't work sometimes to immediately motivate the students. I had trouble the second time I used the *PowerPoint* because the students just didn't feel like looking at *PowerPoint*, and I decided not to use for the next time (Steve, email).

According to preservice teachers' responses, not always did everything proceed smoothly in schools from technology standpoint. Preservice teachers stated they encountered some technical difficulties or equipment shortages during their school experiences, but they created ways to utilize computer technologies in their instructions:

I utilized a projector and *PowerPoint* every day to show the students images and to have the notes up on slides so I did not have to write on the board. In order to do this I had to bring my own laptop into the room because the set up of the room did not allow the computer in the room to reach the projector (still not sure what the point of having the projector was without it being more accessible) (Lisa, email).

Some difficulties we experience were setting up the projector to our teacher's computer, which we had to get the librarian to help with. Wires were strung across the front of the room and created problems with movement during the lessons. We also had to reserve the technology through the library whose resources were very limited and shared throughout the high school (Tim, email).

I had difficulties because it took awhile for me and my mentor teacher to figure out how to use the *PowerPoint* projector with a computer. In the end, I ended up bringing my own computer to school and hooking it up to the projector because we couldn't get my mentor teacher's computer to work. Also, the school only had one *SMART Board*, and did not have the technology to hook the *SMART Board* up to a computer, so using a *SMART Board* during my lessons was basically impossible (Amy, email).

However, for the essence of this study the most important question is whether after a five weeks of school teaching and positive and negative experiences with computer technologies in schools, preservice teachers still had same perceptions and

attitudes toward computer technologies or not? Simply, the answer to the question is “Yes.” According to preservice teachers’ responses, any good or bad experiences, or any difficulties that occurred during a five-week school teaching experience did not make any major changes those teachers’ perceptions or attitudes toward computer technologies. Due to some difficulties with technology in her teaching, Lisa had some mixed feelings about computer technologies; however, she did not change her positive feelings about them. She expressed that she will not stop using computer technologies, but will revise them to be used more effectively. Mark also stated after his student teaching for five weeks, that he still thought computer technologies hinder interaction in the classroom between students and teachers but he accepted that technology, specifically *PowerPoint*, sometimes could be useful to deliver a large amount of information in a shorter time than without the technology. The following quotes from preservice teachers’ emails illustrate their perceptions and attitudes toward computer technologies after five weeks of student teaching:

After my five weeks in high school, I feel that I have gained a great amount of computer technology information. I still like the idea of using computer technology in my lessons (Melissa).

I feel it did increase student learning; especially analyzing pictures, maps and other things we showed them during lessons. We didn't use technology exclusively though, but tried to "mix it up" so it wouldn't seem repetitive to our students. I still believe that unless overused, computer technologies could be helpful as a tool in social studies (Tim)

Overall, I feel that because of that hands on experience, I appreciate technology even more now (John).

My experience with technology was very mixed. In the future I intend to keep using as much technology as possible and try and find the most effective ways to use it (Lisa).

After five weeks in the classroom, I think I feel the same about technology as before I was interviewed the first time. I think the technology is an extremely useful tool for learning in the classroom, but not the only tool, and to maximize students' learning a variety of teaching tools and methods should be used to teach the same material. I think that my students could have learned more if I had had better access to technology (a computer or laptop lab, a *SMART Board*, Internet access in the classroom, wireless internet, etc.) (Amy).

I still feel technology limits interaction in the classroom but I agree to the fact that power point can be useful for uncovering a large quantity of information in shorter periods of time, than without technology (Mark).

My opinion has stayed the same. I believe that technology is a tool that can help teachers. It is not something that makes you a better teacher, but it definitely can aid in your lessons (Steve).

4.7 Summary

This chapter establishes the research environment for data collection and supplies significant data to complete qualitative analysis for responding to the study's research questions posed. The milieu for data collection primarily concerns a Social Ed II methods course. This includes all relevant characteristics that could bear on the data collection: class logistics, room layout, computer equipment and software, class educational philosophy, and researcher's vantage. Data collected encompasses subjects' (pre-service teachers) demographics, and, in particular, background on proficiency and familiarity with computer technology and software. Core data content advances to obtaining research subjects' attitudes toward computers and computer technology as educational tools. Further data arises from cameo excerpts and summarizations of subject interviews in which they, individually, express their attitudes toward the value of computer technology in education.

Subsequently, and adopting a different organizational pattern this chapter focuses on the research's essential questions and the subjects' responses grouped as topics rather than by individuals. These topics include: perceptions and attitudes toward computer technology, computer technology in social studies teaching, the value of computers for student learning, teaching and teacher preparation, acceptance of computer technology in teaching, personal choices for the most useful technology in teaching, personal choices for technology to use, problems and solutions for training and for classroom computer use. Finally, the research obtains data and documents follow-up interviews after the subjects' completion of student teaching to determine if their attitudes changed or developed as a result of practical experience and if the realities of teaching met their earlier expectations.

Chapter 5

CONCLUSIONS & IMPLICATIONS

This chapter presents conclusions of this study and recommendations for social studies educators and researchers. The research questions in this study are the framework for the discussion of conclusions and assertions.

The purpose of this research is to explore preservice social studies teachers' perceptions and attitudes toward computer technologies. This case study illustrates how preservice teachers' opinions and feelings regarding computer technologies could be more complicated than exemplified in literature, and how the challenges of computer technologies differ by comparing generations, as exemplified by the differences between former teachers and preservice teachers. The results of this study not only contribute to the limited research on preservice social studies teachers' perceptions and attitudes toward computer technologies, but also confirm and extend findings reported in the literature. The findings of this study provide social studies educators, researchers, and policymakers a chance to reevaluate computer technology training methods, used in college methods courses. A further benefit is a basis for reassessment of policies for the integration of computer technologies in public and private schools.

5.1 Assertions

Question 1: What are social studies preservice teachers' attitudes and perceptions toward using computer technology in social studies education? (a) What is the value of integrating computer technology into social studies education from preservice teachers' perspective? (b) To what extent should computer technology be used in social studies? (c) How would computer technology be effective in their teaching?

5.1.1 Assertion One: Social studies preservice teachers can integrate computer technologies into instructions in the future even though they have some concerns in their minds. However, the use of computer technologies will be limited and will not be different than integrating other tools, such as globes and maps, in the classroom under many circumstances.

Social studies preservice teachers participating in interviews have both positive and negative feelings about computer technologies. However, no matter what their feelings are, most of the preservice teachers have a tendency to integrate computer technologies into their instructions to some degree. The greatest reason for a willingness to integrate is that they believe computer technologies could help enhance both student learning and their teaching. These findings are consistent with those of Beyerbach, Walsh, & Vannatta (2001). In their study, after preservice teachers completed an intensive integration program they saw technology as something to enhance their teaching, to motivate high school students, and to make learning more interesting (Beyerbach et al., 2001).

However, like many other studies the Beyerbach et al. study arose from analysis of survey and focus group data, and classroom observations. Unfortunately, since the authors did not interview preservice teachers to obtain a deeper understanding of perceptions, the answer to the question “To what extent should computer technology be used in education?” is ignored. The findings of this study show that the extent of use of computer technologies is as important as integration of computer technologies. Thus, study results demonstrate that the degree of integration of computer technologies could be less than what many social studies educators’ and researchers’ thought.

In order to elucidate the nature of integration of computer technologies, one needs an explanation of integration of computer technologies into instruction. If the definition of integration computer technologies into instruction is to use available technologies similar to other tools in the classrooms for helping visual or audile students, and making classroom milieu more enjoyable, participants of this study will definitely be willing to integrate computer technologies into their instruction. As they expressed many times in their interviews and email communications, social studies preservice teachers believe the Internet is a valuable means for accessing primary and secondary sources on the Web, *PowerPoint* and *SMART Board* are crucial tools for making the learning process more fun for both visual and audile learners. Also, interviewees state computer technologies help teachers by making preparation easier and faster. Therefore, if the earlier definition frames the integration of computer technologies question, one could expect to see computer technologies in the classroom milieu frequently in the future. This is due to the fact that a plurality of the social studies preservice teachers participating in this study is eager to integrate available technologies into instruction in light of this definition.

On the other hand, during interviews, as Chapter 4 explains, a plurality of social studies preservice teachers articulate how they are eager to apply constructivist learning in their classroom and how computer technologies could be a major part of this constructivist learning. However, after reading prior paragraphs one could wonder how these preservice teachers' understanding of using computer technologies match with constructivist learning. Before explaining the placement of participants of this study from constructivist approach standpoint, remembering basics of behaviorist and constructivist learning theories could be helpful for understanding the attitudes of preservice teachers on these theories.

How one perceives knowledge and the process of “coming to know” provides the basis for educational practice. If one believes that learners passively receive information, then priority in instruction will be on knowledge transmission. If, on the other hand, one believes that learners actively construct knowledge in their attempts to make sense of their world, then learning will likely emphasize the development of meaning and understanding. Constructivists generally claim that knowledge is not discovered and that the ideas teachers teach do not correspond to an objective reality.

Constructivism is often articulated in stark contrast to the behaviorist model of learning. Behavioral psychology is interested in the study of changes as manifested in behavior, as opposed to changes in mental states. Learning is conceived as a process of changing or conditioning observable behavior as result of selective reinforcement of an individual's response to events (stimuli) that occur in the environment. The mind is seen as an empty vessel, a “tabula rasa” to be filled or as a mirror reflecting reality.

Behaviorism centers on students' efforts to accumulate knowledge of the natural world

and on teachers' efforts to transmit it. It therefore relies on a transmission, instructionist approach which is largely passive, teacher-directed and controlled.

This objectivist model has resulted in somewhat of a stereotypical portrayal of teaching and learning which is a widely criticized and often invoked as the target of educational reform. Susan Hanley (1994), in an online discussion of constructivism, describes her perspective on the objectivist model:

Classes are usually driven by "teacher-talk" and depend heavily on textbooks for the structure of the course. There is the idea that there is a fixed world of knowledge that the student must come to know. Information is divided into parts and built into a whole concept. Teachers serve as pipelines and seek to transfer their thoughts and meanings to the passive student. There is little room for student-initiated questions, independent thought or interaction between students. The goal of the learner is to regurgitate the accepted explanation or methodology espoused by the teacher (p.3).

Where behaviorism emphasizes observable, external behaviors and, as such, avoids reference to meaning, representation and thought, constructivism takes a more cognitive approach. This subtle difference has profound implications for all aspects of a theory of learning. The way in which knowledge is conceived and acquired, the types of knowledge, skills and activities emphasized, the role of the learner and the teacher, how goals are established: all of these factors are defined in a different way in the constructivist perspective. Within constructivism itself, authors, researchers and theorists articulate differently the constructivist perspective by emphasizing different components.

Doolittle and Hicks (2003) define effective integration of computer technologies in a constructivist social studies classroom as:

If interactive technologies are truly going to impact teaching and learning, there needs to be a shift in social studies education that requires technology to be used as a resource stimulus for inquiry, perspective

taking, and meaning making, and not as a conduit for the transmission of knowledge .

Although a plurality of preservice teachers participating in this study state their support for using computer technologies as a part of constructivist classroom milieu, neither their opinions regarding how they plan to use computer technologies in classroom nor their practices during five weeks of practicum exactly match with constructivist learning theory. In contrast to constructivist learning theory, many of the social studies preservice teachers participating in this study will likely use computer technologies in their instructions in the future primarily as a conduit for the transmission of knowledge. Social studies preservice teachers' plans and practices regarding the use of computer technologies many times overlap with behaviorist learning theory instead of constructivist learning theory. Throughout the interviews none of the preservice teachers stated they would use computer technologies as defined by Doolittle and Hicks (2003). Although a plurality of preservice teachers say that they believe computer technologies are an important element of constructivist teaching. Their definition for integration of computer technologies during interviews and applications during the practicum match neither the Doolittle and Hicks (2003) expectation nor constructivist learning theory.

The most important point is that social studies preservice teachers participating in this study are satisfied with the amount and type of computer technologies they currently use in their instruction, and they are not planning to change their style in the near future. Thus, if social studies educators and researchers would like to see integration of computer technologies to a different extent in social studies instruction, first, they need to clearly explain and exemplify how computer technologies could be a part of constructivist

learning. Apparently, even though many preservice teachers verbally express their interest for constructivist learning theory, in planning and practice they do not fully understand how to successfully integrate computer technologies for improving constructivist classroom milieu. Therefore, social studies educators and researchers need to create different strategies for teacher education programs to convince social studies preservice teachers that using computer technologies is more effective for their instruction.

Question 2: What are the factors that influence social studies preservice teachers' use of computer technology?

5.1.2 Assertion Two: While the literature claims that methods course training will improve use of technology in social studies classes, preservice teachers' backgrounds and experiences with computer technologies are more influential on their perceptions and attitudes toward computer technology than are their computer proficiency levels or the training given in college.

If asked what could be the greatest difference between today's social studies preservice teachers and that of social studies preservice teachers of fifteen years ago in terms of computer technologies, one of the most likely responses for this question could be differences between preservice teachers' technology backgrounds. If the example in *How to Ensure Ed/Tech Is Not Oversold and Underused* (Sheekey, 2003) is employed, as modified, teachers presently joining the workforce, in many cases, have literally grown up during the Information Age. A beginning teacher in 2006 at the age of twenty-three would have been born in 1983 and would have been a high school student from 1997 to 2001, a college student from 2001 to 2005, and then either in the workforce or in post-

graduate studies from 2005 to the present (Sheekey, 2003). This time-line is well within the accepted period loosely known as the information age. As participants of this study, many of the participating social studies preservice teachers, graduated from university after 2005, and are likely quite familiar with computer technologies, more so than previous generations of teachers who graduated from college fifteen to twenty years ago. As exemplified in this study, computers have been the most frequent method for writing term papers for these teachers, and they most likely do not remember a time when “getting something off the Net” was not a possibility (Sheekey, 2003). In addition, another important point is that these preservice teachers know existing conditions of high schools regarding computer technologies better than many other people because they were in high school just four or five years ago.

Assuming the above case is generally true, how do current social studies preservice teachers’ backgrounds affect their perceptions and attitudes toward computer technologies? What could be the possible differences between current preservice teachers and those of prior generations of preservice teachers in terms of training expectations?

Teacher or preservice teacher training in computer technologies is one of the major issues in social studies education over the last two decades. Especially, during late 1990s many educators and researchers examined the computer technologies issue, and they argue that the biggest obstacle to teachers using technology in their classrooms is the lack of adequate teacher training (Beaver, 1992; Cummings, 1998; Ingram, 1992; Keiper, Harwood et al., 2000; Perkins, 1992; Vagle & College, 1995; VanFossen, 1999). For example Keiper et al. (2000) articulated:

While the use of technology in social studies classrooms is on the rise, the catalyst for substantive change will come from new teachers with training in the use of technology. Most of the literature reviewed is from in-service teachers. However, if we think of the role that teacher preparation courses (specifically, social studies methods courses) might play in shaping future teachers' thoughts and uses of computer technologies, then insight into the perceptions of preservice teachers is important (p.569).

In addition, Perkins (1992) pointed out that teachers are not being adequately prepared for the challenges of the next century: "students are learning and teachers are teaching in much the same way they did twenty or even fifty years ago. In the age of CDs and VCRs, communication satellites and laptop computers, education remains by and large a traditional craft" . Moursund (1989) is even more expressive in his criticism: "our colleges of education are doing a miserable job of preparing teachers to deal with the Information Age" .

However, due to the rapidity of change in computer technologies and of preservice teachers' computer technology backgrounds, one might ask, "How does research, completed five or ten years ago, present an accurate picture?" Moreover, another question could arise, "Do preservice teachers still demand the same kinds of training during their educations?"

Considerably, the rapidity of change may, in fact, mean that by the time of publication of quantitative or qualitative data, the current precise picture of the use of computer technologies in social studies classrooms is no longer valid. The noteworthy literature reviews on the use of computer technologies in the social studies were published in 1991 (Ehman & Glenn) and 1996 (Berson). Studies included in these reviews were conducted in the 1980s and early 1990s. Certainly, the use of computer technologies and social studies preservice teacher needs regarding computer technologies

has changed in the intervening five or more years. Very little additional research has been published, and yet these studies are repetitively cited in articles related to computer technologies use in social studies curriculum despite question of continued validity (Johnson, 2002).

The findings of this study show that preservice teachers' needs and the factors affecting the use of computer technologies have changed over the years. As explained in Chapter 4, training is not their biggest concern anymore. Many new generation social studies preservice teachers come to college at least with basic proficiency with common hardware and software (e.g. Laptop, printer, scanner, Internet, *Microsoft Office* programs and so forth) and they are not afraid to use these tools for instruction. All agree that they definitely do not need additional course work for learning computer technologies. They believe that they can learn whatever they need regarding computer technologies by practicing themselves.

Technology class? No, it isn't for me. In order for me to learn something [about technology] I would have sat down and spend a couple of hours with computers (Lisa, interview, paragraph 109).

I don't expect a class; I'm more a person who'll just go in and try things, and usually not really accomplish anything and still have learned something (Mark, interview, paragraph 133).

Social studies preservice teachers' approach is a more moderate integration of computer technologies into methods courses. They are against any methods courses heavily dependent on computer technologies, but they are open some new ideas as in Dr. Brown's class. According to preservice teachers, if methods courses provide some basics of computer technologies and the latest changes in educational technology that is good enough for their training:

I think they do a good job of promoting technology as it is... it's great that the university and department is keeping up with this and they're incorporating and trying new pieces of technology (Mark, interview, paragraph 121).

I like what they do now, I think it's good to introduce technology in method classes, if people don't know how to use it they get a chance to use it, and are more or less, not forced, but encouraged to use it more (Steve, interview, paragraph 135).

The findings of this study show that the major factor that affects social studies preservice teachers' perceptions and attitudes toward computer technologies is preservice teachers' personal opinions and individual experiences with computer technologies gained throughout their educational lives not their computer proficiency level or the training received in high school or college.

Melissa and Mark, two participants of this study, are clear examples of how personal opinions and experiences are dominant factors for determining preservice teachers' attitudes toward computer technology. Although both Sulivant's (2002) and Yildirim's (2000) studies claim that previous computer experience contributes to preservice and inservice teachers' competency and has a positive effect on their attitudes, this study's findings demonstrate that since preservice teachers' experiences with computer technologies changed considerably in the last ten years, an opposite case occurred in Melissa and Mark's situations.

Mark is one of the most proficient participants in computer technologies versus Melissa who is one of the least proficient. However, throughout his interviews, except a few issues like *SMART Board*, Marks often expresses his negative feelings about computer technologies and claims that they will not increase student learning so much; in

contrast, computer technologies will hinder interaction between student and teacher.

Therefore, he plans to integrate technology into his instructions as little as possible.

I would say the one with more technology is better, it presents you with more diversity and options in the classroom, gives you the freedom to incorporate different components into the classroom, but I wouldn't say that because I'm in a classroom like that, that I change anything that I was going to do. I think the only way that my lessons or my presentations would change is if I lacked the technology. I'm sure I would use a little more technology just because it was known to try it, and it would be just a little more fun for the students, but I don't think that it would affect my overall presentation (Mark, interview, paragraph 163).

On the contrary, even though Melissa did not have a strong background with computer technologies and has met many of the computer technologies for the first time in Dr. Brown's class, she states that computer technologies are "the coolest" thing in instruction she has ever seen. Melissa states her full support of the use of computer technology in instruction. She is more enthusiastic than any of the other interviewees regarding integration of computer technologies into instruction and she maintains her enthusiasm before and after the interviews:

I think it'll be a shame not to use computer and with more and more laptops being accessible in the schools it is a much better learning tool. Students can do their own research. It is more student-centered. It is a whole new change of curriculum with student centered (Melissa, interview, paragraph 144).

Since Mark has strongly negative and Melissa has strongly positive perceptions regarding computer technologies they could be taken as the extremes and provide a basis for individual examination. However, while not expressed as powerfully as Mark, other interviewees, regardless of their training backgrounds or computer proficiencies, articulate that they do not see computer technologies as anything other than a tool. For

the participants of this study, no comprehensible indication arose that any relationship exists among training, computer proficiency, and the use of computer technologies.

However, obviously, training and computer proficiency level increase or decrease social studies preservice teachers comfort level while using computer technologies. For example, both Melissa and Tim, who are the least proficient with computer technologies, state that if anything happens while they are utilizing computer technologies, such an incident could hurt them emotionally and they could possibly feel uncomfortable in the classroom:

Probably if I have a problem I might be shy to implement [SIC] but I hope between now and when I am teaching I get more technology educated because right now it is pretty bad (Melissa, interview, paragraph 44).

... If you are not exactly sure as a teacher how to do things and your students ask you questions or something and you have no idea how to answer them, I think that your students pick up on that and I think it might hurt you (Tim, interview, paragraph 32).

In contrast to Melissa and Tim, other participants state if any kind of problem occurs in the classroom they would not worry about it because they believe they have enough proficiency to solve computer technology problems:

I think I'm definitely more comfortable with using technology in general. I think that if you aren't comfortable with it to begin with then the first time you do it and it really doesn't work, I think it's very possible that people would just never go back and use it again, which is a shame, but I think there are a lot of people that would feel that way (Amy, interview, paragraph 49).

In short, findings of this study suggest training and computer proficiency gained at any level of education increases social studies preservice teachers' comfort level for using computer technologies. However, findings also suggest no direct relationship exists between computer proficiency and training and a willingness and degree of use of

computer technologies in social studies instruction. Instead of training and computer proficiency, social studies preservice teachers' personal opinions and individual experiences regarding computer technologies have more effect on their decisions as to how often and what extent they will use computer technologies. Only in Melissa's case, does training in a methods course help to engender a positive change in a preservice teacher's perception toward computer technologies and encourages her to integrate computer technologies into instruction.

5.1.3 Assertion Three: Lack of hardware and software, and types of technologies available in schools and in homes are one of the greatest barriers to use of computer technologies in social studies education.

In order to explain why more teachers are not using computer technologies, several researchers have reported a variety of reasons. Often, a lack of hardware and software automatically prevent the integration of computer technology (Keiper, Harwood et al., 2000; Wang & Holthaus, 1997)

According to statistical data, widespread introduction of computers into the schools has occurred in recent years. In 2002, the average public school contained 131 instructional computers. In 2003, the ratio of students to instructional computers with Internet access in public schools was 4.4 to 1, an improvement from the 12.1 to 1 ratio in 1998, when it was first measured (Parsad, Jones, & Greene, 2005) (see Figure 5-1).

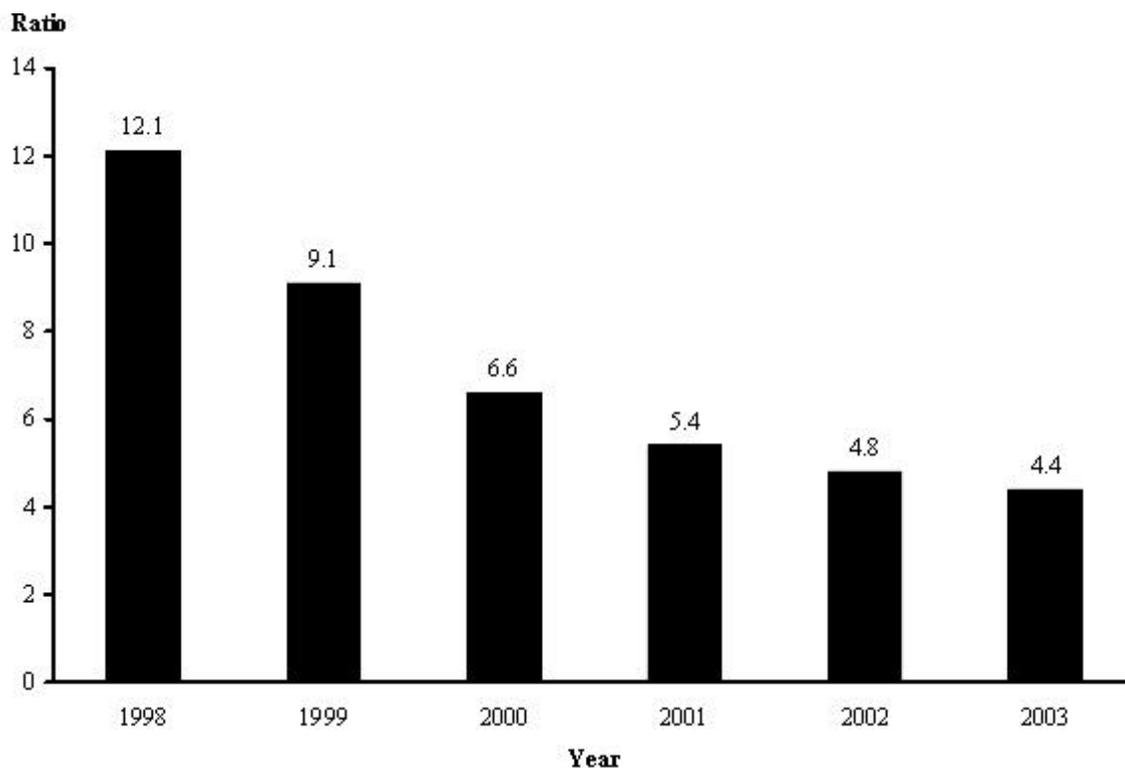


Figure 5-1: Ratio of public school students to instructional computers with Internet access: 1998–2003

Source: Parsad, B., Jones, J., & Greene, B. (2005). *Internet access in U.S. public schools and classrooms: 1994–2003*. (No. NCES 2005-015). Washington, DC: National Center for Education Statistics.

The proportion of instructional rooms with Internet access increased from 51 % in 1998 to 92 % in 2002 (see Figure 5-2). About 99 % of schools had access to the Internet in 2002 (Snyder, Tan, & Hoffman, 2004).

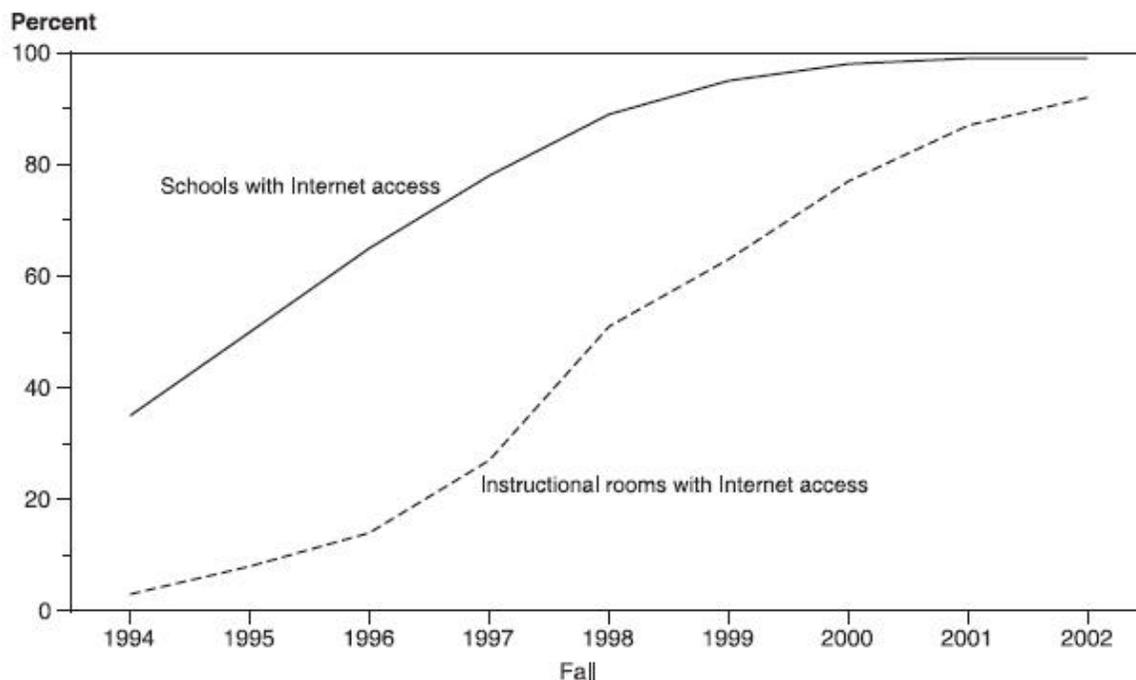


Figure 5-2: Percent of all public schools and instructional rooms with Internet access: Fall 1994 to Fall 2002.

Source: Snyder, T. D., Tan, A. G., & Hoffman, C. M. (2004). *Digest of education statistics 2003*. (No. NCES 2005-025). Washington, DC: National Center for Education Statistics.

Although statistical data show the number of computers with internet access gradually increasing over the years, the social studies preservice teachers participating in this study articulated that a lack of hardware in schools is one of the barriers for using computer technologies in instruction.

One might wonder that, despite the increasing number of computers in schools, why do social studies preservice teachers still complain about the lack of hardware. Findings reveal that the main reason behind of preservice teachers' opinions is differences between the type of technologies provided by schools and the type of technology desired by preservice teachers.

Computers become outdated much faster than any other medium and new peripheral equipment and software must be purchased continually. Any type of computer technology released five years ago is virtually out-of-date today, and no exact number exists as to how many new computer technologies entered the market in last five years. For instance, high-density floppy disks, an innovation of the 1980s and 1990s, are no substitute for CD ROMs, and almost nobody uses the older media anymore. DVDs are taking CD ROMs' place today, and new Blu-Ray Disc™ technology, which has five times greater capacity than DVDs, is waiting for in the queue to take the place of DVDs.

In this inevitable technology race large universities spend millions of dollars in order to update current technologies in classrooms, libraries, computer labs, and staff and faculty offices. For example, according the year of 2005-2006 budgets, the Pennsylvania State University, University of Minnesota, and University of Virginia will spend \$ 65,005,470, \$67,122,138, and \$65,042,798 respectively for information technology services.

On the one side universities are spending millions of dollars updating and renewing computer technologies every year, not to stay far behind technology developments. On the other hand public schools try to survive and update available technologies with limited budgets. Even though figures show that the number of computers in public schools has increased over the years no empirical data exist regarding how up-to-date those computers are. Perhaps any computer in schools' inventories, even ones ten years old, collecting dust at the back of the classroom, could be included in those figures. Moreover, data released by National Center for Education Statistics (Parsad et al., 2005; Snyder et al., 2004) show only the number of computers

with Internet connection in public schools; however, no current statistical data exist regarding the number of other technologies available in schools such as projectors, *SMART Boards*, or scanners and so forth.

In light of the current digital divide between universities and public schools regarding computer technologies, social studies preservice teachers face some problems for integrating computer technologies into instructions. Many of the social studies preservice teachers participating in this study maintain their expectations as low as possible. According to their past experiences in high schools, social studies preservice teachers believe what they have in university level Social Ed I and II regarding computer technologies will not be available in public schools during their practicum. Unfortunately, five weeks teaching experience of the preservice teachers proves that they are right on many aspects regarding their opinions about current conditions of computer technologies in public schools. Some public schools to which social studies preservice teachers went for practicum, were not quite equipped and organized to manage the technology needs of preservice teachers to put into practice the technology skills that they learned in their social studies methods course. For example:

After Dr. Brown's class I thought that "Ah, maybe I'll get to use this when I'm teaching," but when I got to school, and it was just like when I went to high school, what all I had was one computer and one overhead projector, and that was about it, and a screen squished in the corner of the room that not all the students could see, and all the students were like twisting their bodies the right way to understand what was on the overhead transparencies and stuff. I was disappointed then but I should have known that's how it's going to be in a lot of the schools [SIC] (Amy, email).

I utilized a projector and *PowerPoint* every day to show the students images and to have the notes up on slides so I did not have to write on the board. In order to do this I had to bring my own laptop into the room because the set up of the room did not allow the computer in the room to

reach the projector (still not sure what the point of having the projector was without it being more accessible) [SIC] (Lisa, email).

As data reveal, lack of resources, lack of technical support, and limited resources were some of the problems social studies preservice teachers faced during their practicum. All these problems, not only validates preservice teachers' concerns about lack of hardware and software in schools articulated before going practicum, but also discourages them and compel them to reconsider how to integrate computer technologies into their lesson plans when they need to use them. As happened in Amy's example, even enthusiastic preservice teachers, willing to use computer technologies more than others, meet disappointment and discouragement. They could not find the same technologies that were available in universities such as projectors or *SMART Board* in public schools. In contrast, adequate hardware and software in schools ease social studies preservice teachers' jobs and encourage toward future use as in Melissa's and John's examples.

Economic, racial, and educational disparities between students and their families called "lack of hardware at home" and the effects of these differences on the use of computer technologies are another concern of social studies preservice teachers.

The study done by Valletta & MacDonald (2003), using the Computer and Internet Use Supplement to the government's monthly Current Population Survey (CPS) conducted in September 2001 surveyed about 60,000 households, and confirmed social studies preservice teachers' concerns about digital divide between families. According to Valletta & MacDonald, despite the widespread diffusion of computers, the level of usage varies dramatically by educational levels, family incomes, and racial backgrounds (see Figure 5-3 a, b, c).

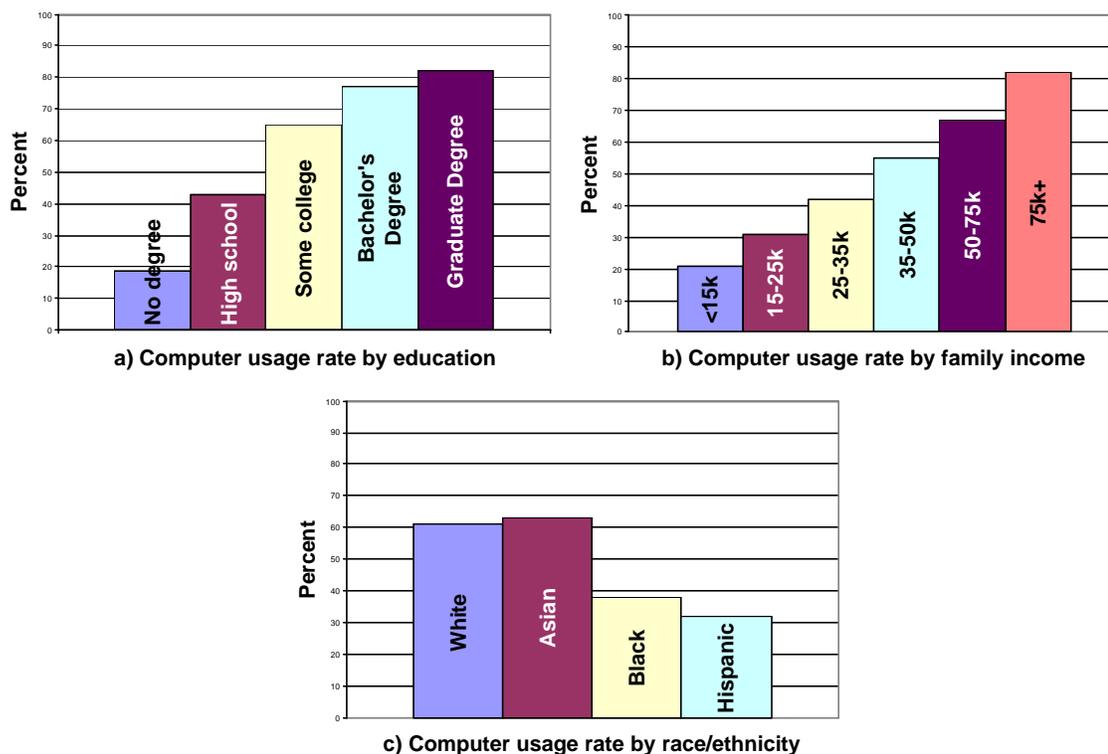


Figure 5-3: Computer usage rate (home)

a) By education

b) By family income

c) By race/ethnicity

Source: Valletta, R., & MacDonald, G. (2003). *Is there a digital divide?* Retrieved February 15th, 2006, from <http://www.frbsf.org/publications/economics/letter/2003/el2003-38.html#subhead3>

Many of the study's participants believe existing gaps between schools is narrowing with regard to computer technologies, but because of the digital divide between student families, study participants are not sure to what extent computer technologies can integrate into curriculum.

OK, my biggest concern with computer technology is the disparity in the resources of technology. One student might have a computer in every room when they [SIC] go home, while one student might not even have a home to go home to. And that could be the two extremes, but that's the

reality and it's not fair, which is also a reality, and some things aren't fair (Mark, interview, paragraph 117).

Simply put, zero percent of the students that I'm going to be teaching will have the opportunity that I had learning about this technology. None of them have been through Social ED I or II, since none of them have been there with me learning about this technology. It's like I'm coming from a different page. They [students] are not on my familiar base (Steve, interview, paragraph 85).

As future social studies teachers, inequities between students regarding computer technologies affect them more than other preservice teachers, because, while trying to teach morals of society such as, social justice and equity, not to consider the digital divide between students appears absurd.

5.2 Implications

This research study has noteworthy implications for social studies researchers, social studies teacher educators and policy makers.

5.2.1 Implications for Social Studies Researchers and Educators

As articulated at the beginning of the study, present studies regarding the place of computer technologies in social studies education are limited, and unfortunately not wide enough to show a clear picture of real problems regarding integration of computer technologies into social studies education. Similar problems appear in social studies preservice teacher education. Relatively few studies of how preservice teachers view the integration of technology for their future classrooms exist (Keiper, Harwood et al., 2000).

Much research in social studies education focuses on how teachers use or should use computer technology, or the effectiveness of Internet use in social studies education. Most of this literature offers only lists of websites, reviews of websites, and lesson plans or general lesson ideas. However, obviously, a need is present for more detailed and in-depth studies to assess the position of computer technology in preservice teacher education (Diem, 2000; L. C. Mason et al., 2000; VanFossen, 1999).

This study's findings confirm that conducting new research regarding the place of computer technologies in social studies education, especially, in preservice teacher education is necessary to understand current situation in the use of computer technologies in social studies education.

Computer technologies change rapidly. The amount of research regarding the use of computer technologies in social studies needs to be changed and increased with the same rapidity. Any researchers who try to make suggestions concerning the place of computer technologies in social studies education by using five or ten-year old data should be extremely careful not to make any wrong judgment about this critical issue, especially about social studies preservice teachers' perceptions and attitudes toward computer technologies. As exemplified earlier, social studies preservice teachers' computer technology backgrounds, experiences and problems with computer technologies has changed over the years and using ten-year old research as a basis for improving teacher education programs or to making new policies could pose extra problems instead of offering solutions. Therefore, findings of this study encourage all social studies researchers to conduct more investigations regarding social studies preservice teachers' perceptions and attitudes toward computer technologies before

taking any further steps in social studies teacher education programs. After collecting results of studies, without spending any time, universities could reorganize their social studies education programs for more effective methods course design to enhance the use of computer technologies in social studies education.

In the same manner, the time has come for social studies educators to update themselves about preservice teachers' necessities regarding computer technologies. As mentioned before, even though the social studies preservice teachers participating in this study ask for training of a minimal level, they still articulate appreciation if training integrates into methods classes. One of the most important points needing consideration is that since preservice teachers' experiences and backgrounds with computer technologies vary, preservice teachers, before starting methods classes, ought to be categorized according to their computer proficiencies. Afterward, providing some basics of computer and software literacy to increase preservice teacher's computer proficiency level may help to involve all preservice teachers actively class sessions. Findings reveal that even though some preservice teachers have low computer proficiency they enjoy learning the basics of any kinds of computer applications; however, any medium or advanced computer proficient preservice teacher sees such instructions as a waste of time. Therefore, while teaching low computer proficiency preservice teachers, for example, the basics of *PowerPoint* presentation such as slide design or slide layouts, the instructor at the same time could teach medium computer proficient preservice teachers how to integrate movies and audio files into *PowerPoint*. The result is vertically raising the proficiency level of those most in need, and at the same time horizontally expanding the experience of others.

Another important point that should be considered by social studies educators and researchers is integration of computer technologies into constructivist learning theory. This study shows that even though many social studies preservice teachers are eager to combine constructivist learning and computer technologies, their opinions and method of using computer technologies do not go further than behaviorist learning theory. Therefore, in order to solve this, more and more examples should be shown in methods courses regarding the use of computer technologies in a constructivist learning environment and make sure social studies preservice teachers understand how to integrate computer technologies into constructivist learning theory. Otherwise, all efforts to create interaction between students and teacher in social studies classroom by way of using constructivist theory may turn again to a one-way interaction heavily dependent on teacher-talk. Integrating computer technologies in instruction will not provide much benefit other than making teacher preparation a little bit easier.

5.2.2 Implications for Policy Makers

Findings of this study reveal that even though current statistics illustrate that the number of computers in schools increase quickly, social studies preservice teachers participating in this study do not agree with what statistics convey. Before going to practicum, many participants maintained their expectations as low as possible. They assert that they know what they will encounter in schools regarding computer technologies because they graduated from high schools just four years earlier. Unfortunately, available technologies in schools, where interviewees went for student

teaching, endorse preservice teachers' assumptions about current conditions of computer technologies in schools. Even though a few preservice teachers were pleased with what they found in schools, a plurality of them articulate that not much has changed in schools in the last four years, and a lack of hardware is still a problem, as before.

Experiences of social studies preservice teachers show that misinterpreted statistical data could mislead policy makers while deciding schools' computer technology needs. As explained earlier, statistical data from government studies (Parsad et al., 2005; Snyder et al., 2004) demonstrate that the number of computers with internet connection has increased over the years, and according to these studies student to computer ratios have reached almost an ideal level. However, none of these studies release any current information as to what degree computers are up-to-date and what other computer technologies are available for schools. Obviously, computers six or seven years old without current software programs may not be attractive for new a generation preservice teachers. Even old computers in schools which are updated with current software programs are problematic. New software programs require better computer configurations making highly possible computer break-down while running those new programs. Moreover, even the latest computers in schools are not totally useful if the number of other computer related technologies such as projectors, *SMART Boards*, or printers do not exist. These situations will again hinder teachers in applying computer technologies.

In order to solve these problems, the following suggestions could help policy makers to revise their computer technology policies. First, a more detailed quantitative study should be conducted to determine current conditions and types of computer

technologies available in public schools. Instead of generating general numbers, the hardware and software in schools should be categorized by years and types, and outdated hardware and software should be removed from schools' inventories. Second, since every school district, individual and schools have their own dynamics, and teachers know their personal and students' requirements better than anybody else; therefore, teachers' opinions should be considered before purchasing any new equipment.

While these steps may seem bold and costly, instead of filling schools with unnecessary equipment as was formerly done, reequipping according to teachers' needs may be more economical in long-term. Otherwise, even though the social studies methods course prepares preservice teachers to integrate technology into instruction, if preservice teachers cannot put their experiences into practice, all efforts expended to utilize computer technologies in the educational system at large may end, again, without any beneficial result.

5.3 Recommendations for Further Research

The course of this study reveals several directions for future research. First, the findings of this study provide a common sense basis for regarding the impact of social studies preservice teachers' perceptions and attitudes on the use of computer technologies. Yet, the lasting impact from such a limited experience is unknown. Therefore, longitudinal follow-up studies that seek to further examine, the impact of social studies preservice teachers' perceptions and attitudes on the use of computer technologies are worthwhile. Second, since the results of this investigation may not be

generalized beyond these participants, certainly a similar study would be more meaningful if conducted with a larger sample. Thus, conducting a similar research study with a larger randomly selected sample may provide deeper insight into such an important issue.

Lastly, as explained earlier, a significant difference exists between the social studies preservice teachers' interpretation of the current situation of computer technologies in public schools and official statistics. On the one hand statistical data, collected by government institutions, reveal an increasing trend in the number of computers in schools and claim of closing the gap in schools in terms of computer technologies. On the other hand, a plurality of social studies preservice teachers participating in this study complains about the lack of hardware, such as up-to-date computers, projectors, connection cables, *SMART Boards*, and so forth. Thus, conducting a large scale, detailed, quantitative investigation, which includes numbers, types, ages and current conditions of computer technologies, but not limited to those, to determine actual condition of computer technologies available in schools may help to eliminate differences between policy makers understanding and preservice teachers needs. A further help to policy makers is to reassess their strategies for the future regarding computer technologies. Indeed, all these statistical data should be supported by extended qualitative studies to provide deeper understanding and to learn teachers' perceptions and needs regarding computer technologies.

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Appendix A

Informed Consent Form for Behavioral Research Study the Pennsylvania State University

Title of Project: A Case Study: Preservice Social Studies Teachers'

Perceptions and Attitudes toward Computer Technology

Principal Investigator: Alper Kesten auk108@psu.edu

Other Investigators: Dr. Murry R. Nelson mrn2@psu.edu

1. Purpose of the Study:

Specifically, this investigation will examine three things:

- 1- Whether preservice teachers want to use computer technology in social studies education.
- 2- The reasons why preservice teachers do or do not want to use computer technology in social studies education.
- 3- How they plan to employ computer technology in social studies instruction.

2. **Procedures to be followed:** If you agree to take part in this research, you will be asked to answer 43 questions on a survey. In the next step, as a result of the diversity of your answers in the questionnaire, eight of you will be invited to an interview and be engaged in one-on-one, in-depth interviews for between forty-five and sixty minutes wherein, common semi-structured, conversational interview techniques will be employed. With your permission, the interviews will be audio-taped and possibly videotaped.

3. **Discomforts and Risks:** There are no risks in participating in this research beyond those experienced in everyday life.
4. **Duration:** It will take about 15 minutes to complete the questions. Interviews will take 45- 60 minutes.
5. **Statement of Confidentiality:** To provide your confidentiality, you will not be asked for any personal information in the questionnaire. However, three-digit, randomly selected numbers will be provided by the researcher to identify your questionnaire, for selecting possible interviewees for the next step of this research. Questionnaires, audiotapes and videotapes will be kept in a lockable cabinet, in a locked office, and will be accessible only to the principal investigator of the research team. In the event of publication of this research or presentation at a conference or in any educational setting, no personally-identifying information will be disclosed. All audio and videotapes will be destroyed after a period of 6 years.
6. **Right to Ask Questions:** Further questions should be directed to Alper Kesten, or Dr. Murry R. Nelson. If you have questions about your rights as a research participant, contact The Pennsylvania State University's Office for Research Protections at (814) 865-1775.

7. **Compensation:** If you are asked and agree to participate in the interview, a \$5 University Creamery Gift Certificate will be provided for your time.
8. **Voluntary Participation:** Your decision to participate in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer.

You must be 18 years of age or older to take part in this research study. If you agree to take part in this research study, and the guidelines outlined above, please sign your name and indicate the date below.

You will be given a copy of this signed and dated consent for your records.

Participant Signature

Date

Person Obtaining Consent

Date

Appendix B

Survey Questions

The purpose of this survey is to gather information about preservice teachers' perceptions and attitudes about computer technology in social studies education. There are four sections in this survey: Background, experience with computers in education, attitudes about computers in social studies education, and computer proficiency.

Your participation in this survey is voluntary. All of your responses on this survey will be kept strictly confidential. Only group data will be reported; no individual respondent will be identified in any reports. This survey will take approximately 15 minutes to complete. Thank you for participating in this survey.

To separate your survey from your classmates, please write down your three digit number that was given to you by the researcher.

Attention: In this survey; computer, computer related technologies, or computer technology refer following technologies, which are available in the classroom; Notebooks, wireless internet connection, *SMART Board*, smart tablet, printer, and scanner.

Section I: Background Information

The purpose of this section is to gather information about you and your career plans. Please answer each question or statement by choosing the answer that most appropriately describes you. If there is a blank, please write the answer on the line provided.

1. What year are you in college?
 - a. first year
 - b. sophomore
 - c. junior
 - d. senior
 - e. fifth year senior
 - f. returning adult

2. What is your gender?
 - a. female
 - b. male

3. What grade do you prefer to teach?
- _____
4. Before enrolling in this methods course, have you had formal instruction on how to use a computer?
- yes (i.e. high school course, college workshop, university course)
 - no, self-taught,
 - no, taught by friend or other,
 - no, no instruction at all.
5. How often do you use a computer (for any reason)?
- more than once a day
 - usually once a day
 - usually 2-4 times a week
 - once or twice a month
 - never
6. For what purpose do you regularly use a computer (mark all that apply)?
- to communicate with others via email
 - to complete homework (i.e. word processor)
 - for entertainment (games)
 - to find information (i.e. internet)
 - to write computer programs
 - other (please describe) _____
7. Do you own a computer?
- yes
 - no
8. Did you have a computer at home when you were growing up?
- yes
 - no

Section II: Experience with the computer in education

The purpose of this section is to gather information about your experience with computers in education. For this section, computer-related technology refers to constantly evolving forms of computers, peripherals and supporting software used to enhance learning. For each item, choose the answer that most appropriately describes your experiences. If there is a blank, please write the answer on the line provided.

Questions 9-14

Using a scale where
 a= never used
 b= occasionally used (once or twice a term)
 c= sometimes used (once a month)
 d= regularly used (once a week or more) indicate the level to which your personal experience is consistent with each statement.

a= never, b= occasionally, c= sometimes, d= regularly

In your social studies methods classes, how often were computer-related technologies used:

- | | |
|--|---------------|
| 9. for teacher-delivered presentations. | a b c d |
| 10. for student-delivered presentations. | a b c d |
| 11. for student activities. | a b c d |
| 12. to access information. | a b c d |
| 13. to communicate (email). | a b c d |
| 14. to create a product (write a paper, do a project). | a b c d |

Section III: Attitudes about the computer technology in social studies

education

The purpose of this section is to gather information about your attitudes toward computers in social studies.

Question 15-32

Using a scale where
 a= I do not know
 b= strongly disagree
 c= disagree
 d= agree

e= strongly agree indicate the level to which your attitudes are consistent with each statement

a= I do not know, b= strongly disagree, c= disagree, d= agree, e= strongly agree

15. The primary reason for using computers in the classroom is to develop students' keyboarding skills. a b c d e

16. Computer-related technologies are an important part of the future for improving the quality of social studies education. a b c d e

17. Computer-related technologies should be used to improve learning throughout the curriculum. a b c d e

18. Computer-related technologies are unnecessary luxuries in school settings. a b c d e

19. Computer-related technologies are of little value in social studies because they can be used to teach only one, or a few subjects. a b c d e

20. Computers should be used, mainly, to supplement the curriculum. a b c d e

21. Computers will soon replace the teacher. a b c d e

22. Overall, I think the computer is a very important tool for instruction. a b c d e

23. Computer related technologies are of little use in the classroom because they are too difficult to use. a b c d e

24. Computers are useful when teaching thinking and problem solving skills. a b c d e

25. The computer gives better feedback to a student than a teacher does. a b c d e

26. The computer is more effective than a teacher in providing individual feedback. a b c d e

27. Computers can give a student a better basic understanding of a topic than a lecture can. a b c d e

28. A computer simulation program can help a student understand a new concept better than a teacher. a b c d e

29. Anything that can be done in social studies education, with a computer, can be done just as easily without one. a b c d e

30. Computers should not be used in the classroom. a b c d e

31. Computers should be used by students who complete their school work early. a b c d e

32. Computers should be used primarily to help “slow” students keep up with the rest of the class. a b c d e

Section IV: Computer Proficiency

The purpose of this section is to gather information about your skill and level of proficiency in using various computer applications. Indicate your level of proficiency with each item.

Question 33-42

Using a scale where

a= Unfamiliar. I do not know what this item is.

b= None – I have no proficiency. I know what this item is, but I do not know how to use it.

c= Low – I have a little proficiency with this item, and I could use it in basic instruction.

d= Medium – I have some proficiency with this item, and I could use some advanced instruction.

e= High – I am very proficient with this item and can efficiently utilize advanced instruction.

a= unfamiliar, b= no proficiency, c= low proficiency, d= medium proficiency, e= high proficiency

Computer Tool Software

33. Word Processing a b c d e

34. Database a b c d e

35. Spreadsheets a b c d e

36. Desktop publishing	a	b	c	d	e
37. Graphics/Drawing programs	a	b	c	d	e
38. Presentation software (e.g. Power Point)	a	b	c	d	e
Other					
39. email	a	b	c	d	e
40. Internet	a	b	c	d	e
41. programming	a	b	c	d	e
42. webpage development	a	b	c	d	e
43. smartboard	a	b	c	d	e

Appendix C

Node Listing

Number of Nodes: 51

- 1 (1) /PRESERVICE TEACHERS' BACKGROUND
- 2 (1 1) /PRESERVICE TEACHERS' BACKGROUND/Preservice Teachers' general backgrounds
- 3 (1 2) /PRESERVICE TEACHERS' BACKGROUND/Preservice Teachers' computer technology backgrounds
- 4 (1 2 1) /PRESERVICE TEACHERS' BACKGROUND/Preservice Teachers' computer technology backgrounds/High school experiences
- 5 (1 2 2) /PRESERVICE TEACHERS' BACKGROUND/ Preservice Teachers' computer technology backgrounds/College experiences
- 6 (1 2 3) /PRESERVICE TEACHERS' BACKGROUND/ Preservice Teachers' computer technology backgrounds/Personal experiences
- 7 (1 2 3 1) /PRESERVICE TEACHERS' BACKGROUND/ Preservice Teachers' computer technology backgrounds/Frequency and manner of using computer technology at home
- 8 (1 2 3 2) /PRESERVICE TEACHERS' BACKGROUND/ Preservice Teachers' computer technology backgrounds/Personal experiences/Frequency and manner of using computer technology at school
- 9 (2) /PRESERVICE TEACHERS' COMPUTER TECHNOLOGY COMPETENCY
- 10 (2 1) / PRESERVICE TEACHERS' COMPUTER TECHNOLOGY COMPETENCY/Hardware Competency
- 11 (2 1 1) / PRESERVICE TEACHERS' COMPUTER TECHNOLOGY COMPETENCY/Hardware Competency/Laptop
- 12 (2 1 2) / PRESERVICE TEACHERS' COMPUTER TECHNOLOGY COMPETENCY/Hardware Competency/SmartBoard
- 13 (2 1 3) / PRESERVICE TEACHERS' COMPUTER TECHNOLOGY COMPETENCY/Hardware Competency/Others
- 14 (2 2) / PRESERVICE TEACHERS' COMPUTER TECHNOLOGY COMPETENCY/Software Competency
- 15 (2 2 1) / PRESERVICE TEACHERS' COMPUTER TECHNOLOGY COMPETENCY/Software Competency/Office Word
- 16 (2 2 2) / PRESERVICE TEACHERS' COMPUTER TECHNOLOGY COMPETENCY/Software Competency/Office *PowerPoint*
- 17 (2 2 3) / PRESERVICE TEACHERS' COMPUTER TECHNOLOGY COMPETENCY/Software Competency/Other Office Software
- 18 (2 2 4) / PRESERVICE TEACHERS' COMPUTER TECHNOLOGY COMPETENCY/Software Competency/Web Designing Software

19 (2 2 5) / PRESERVICE TEACHERS' COMPUTER TECHNOLOGY COMPETENCY/Software Competency/Other Software related social studies education or computer technology

20 (2 3) / PRESERVICE TEACHERS' COMPUTER TECHNOLOGY COMPETENCY/Methods are/will be used by preservice teachers' to improve their competency level

21 (2 4) / PRESERVICE TEACHERS' COMPUTER TECHNOLOGY COMPETENCY/Preservice teachers' weakest and strongest sides regarding computer technology

22 (2 5) / PRESERVICE TEACHERS' COMPUTER TECHNOLOGY COMPETENCY/Relationship between competency level and using computer technology at teaching

23 (2 6) / PRESERVICE TEACHERS' COMPUTER TECHNOLOGY COMPETENCY/Advantages having computer skills

24 (3) /PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY

25 (3 1) / PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY /Opinions about role of computer technology in social studies education

26 (3 1 1) / PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY / Opinions about role of computer technology in social studies education/Place and importance of computer technology in social studies education

27 (3 1 1 1) / PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY/ Opinions about role of computer technology in social studies education/ Place and importance of computer technology in social studies education/Overall

28 (3 1 1 2) / PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY/ Opinions about role of computer technology in social studies education/ Place and importance of computer technology in social studies education/Student Learning

29 (3 1 1 3) / PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY/ Opinions about role of computer technology in social studies education/ Place and importance of computer technology in social studies education/Teacher preparation

30 (3 1 2) / PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY/ Opinions about role of computer technology in social studies education/Importance of computer technology in their vision of teaching.

31 (3 1 3) / PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY/ Opinions about role of computer technology in social studies education /Willingness of using computer technology

32 (3 1 4) / PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY/ Opinions about role of

computer technology in social studies education/Expectations before 5 weeks school experience

33 (3 1 5) / PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY/ Opinions about role of computer technology in social studies education/Experiences and opinions regarding computer technology after 5 weeks school experience

34 (3 1 6) PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY/ Opinions about role of computer technology in social studies education/Reasons to use or not to use computer technology

35 (3 1 6 1) / PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY/ Opinions about role of computer technology in social studies education/ Reasons to use or not to use computer technology/*PowerPoint*

36 (3 1 6 2) / PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY/ Opinions about role of computer technology in social studies education/ Reasons to use or not to use computer technology /*SmartBoard*

37 (3 1 6 3) / PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY/ Opinions about role of computer technology in social studies education/ Reasons to use or not to use computer technology/*Laptop*

38 (3 1 6 4) / PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY/ Opinions about role of computer technology in social studies education/ Reasons to use or not to use computer technology/*PCs*

39 (3 1 6 5) / PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY/ Opinions about role of computer technology in social studies education/ Reasons to use or not to use computer technology/*Internet and others*

40 (3 2) / PRESERVICE TEACHERS' ATTITUDES AND PERCEPTIONS TOWARD COMPUTER TECHNOLOGY/*Limitations of using computer technology in social studies education*

41 (3 2 3) /PST ATTITUDES AND PERCEPTIONS CT/*Limitations of using computer technology in social studies education/Personal opinions regarding limitations*

42 (4) /PRESERVICE TEACHERS' OPINIONS REGARDING PROBLEMS IN COMPUTER TECHNOLOGY AND THEIR SUGGESTIONS FOR SOLUTIONS

43 (4 1) / PRESERVICE TEACHERS' OPINIONS REGARDING PROBLEMS IN COMPUTER TECHNOLOGY AND THEIR SUGGESTIONS FOR SOLUTIONS/*Challenges with computer technology*

44 (4 1 1) / PRESERVICE TEACHERS' OPINIONS REGARDING PROBLEMS IN COMPUTER TECHNOLOGY AND THEIR SUGGESTIONS FOR SOLUTIONS/*Challenges with computer technology/Classroom management*

45 (4 1 1 1) / PRESERVICE TEACHERS' OPINIONS REGARDING PROBLEMS IN COMPUTER TECHNOLOGY AND THEIR SUGGESTIONS FOR

SOLUTIONS/Challenges with computer technology/Classroom management/Hardware problems

46 (4 1 1 2) / PRESERVICE TEACHERS' OPINIONS REGARDING PROBLEMS IN COMPUTER TECHNOLOGY AND THEIR SUGGESTIONS FOR SOLUTIONS/Challenges with computer technology/Classroom management/Software problems Internet and web sites management

47 (4 1 4) / PRESERVICE TEACHERS' OPINIONS REGARDING PROBLEMS IN COMPUTER TECHNOLOGY AND THEIR SUGGESTIONS FOR SOLUTIONS/Challenges with computer technology/Technical difficulties (school's technology level)

48 (4 2) / PRESERVICE TEACHERS' OPINIONS REGARDING PROBLEMS IN COMPUTER TECHNOLOGY AND THEIR SUGGESTIONS FOR SOLUTIONS/Training

49 (4 2 1) / PRESERVICE TEACHERS' OPINIONS REGARDING PROBLEMS IN COMPUTER TECHNOLOGY AND THEIR SUGGESTIONS FOR SOLUTIONS /Training/Opinions regarding training in computer technology

50 (4 2 2) / PRESERVICE TEACHERS' OPINIONS REGARDING PROBLEMS IN COMPUTER TECHNOLOGY AND THEIR SUGGESTIONS FOR SOLUTIONS/Training/Types of trainings required by preservice teachers

51 (4 2 3) / PRESERVICE TEACHERS' OPINIONS REGARDING PROBLEMS IN COMPUTER TECHNOLOGY AND THEIR SUGGESTIONS FOR SOLUTIONS/Training/Expectations from College and Department

VITA

Alper Kesten

Place of Birth: Afyon, TURKEY

Date of Birth: April 3, 1977

Education: The Pennsylvania State University, University Park, Pennsylvania
Ph.D. Candidate in Science Education, Curriculum & Instruction.
Candidacy exam passed on: September, 2002.
Comprehensive exam passed on: May, 2004.
The Pennsylvania State University, University Park, Pennsylvania
Master of Education, Social Studies Education, May 2002
Hacettepe University, Ankara, Turkey
Bachelor of Art, History, June 1994

Professional Activities/Services

Search Committee Member in Social Studies Education at the Pennsylvania State University, September 2005-March 2006.

Social Studies Teacher in Isfendiyarbey Middle School, Kastamonu, Turkey, September 1997- October 1999.

Elementary School Teacher in Fahri Aygun Elementary School, Cide/Kastamonu, Turkey, January 1995-April 1996.

Selected Conference Presentations

Kesten A. (2005, November) "The Internet, Globalization, And Problems For Turkish Social Studies Teachers" Paper presentation at the 2005 College and University Faculty Assembly CUFA/NCSS Annual Conference, Kansas City, Missouri.

Tarman, B. & Kesten A. (2004, January). The History of Turkish Women and Their Role in Education" Paper presentation at the Hawaii International Conference on Education, Oahu, Hawaii.

Tarman, B. & Kesten, A. (2003, November). Development of Social Studies Curriculum in Turkey and John Dewey's Effect on the Modernization of Turkish Education, Paper presentation at the 2003 College and University Faculty Assembly CUFA/NCSS Annual Conference, Chicago, Illinois.

Tarman, B. & Kesten A. (2003, October). *Critical Theory & The Digital Divide in Education*, Paper Presentation at the Iowa Council for the Social Studies (ICSS) Annual Conference, Des Moines, Iowa.

Membership in Professional Organizations

National Council for the Social Studies

College and University Faculty Association of NCSS