Molebash, P.. (2004). Preservice teacher perceptions of a technology-enriched methods course. *Contemporary Issues in Technology and Teacher Education, 3*(4), 412-432.

Preservice Teacher Perceptions of a Technology-Enriched Methods Course

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Preparing Teachers to Use Technology Effectively

The Problem

On average, K-12 teachers use computers with their students less than one time per week and for little more than word processing, e-mail, or game and drill software (Becker, 2000). The existing gap between how teachers are expected to use technology and how they are actually using it has largely been blamed on schools and colleges of education (SCOEs) for not preparing its preservice teachers to integrate technology into their future classrooms (American Council on Education, 1999; International Society for Technology in Education [ISTE], 1999; National Council for the Accreditation of Teacher Education [NCATE], 1997; U.S. Congress, Office of Technology Assessment, 1995).

Although most preservice teachers take technology-related coursework, by and large this instruction is not tied to curriculum, methods, field experience, or practice teaching (Willis & Mehlinger, 1996). A recent survey administered by ISTE (1999) indicated that faculty of colleges of education do not model the use of instructional technology in their teaching. Complicating matters, most student teachers do not routinely use technology under master teachers and supervisors who are unable to advise them on use.

A knee-jerk response to the inadequate technology preparation of future teachers is the institution of state and national standards requiring training in computers and other technologies for teacher licensure (U.S. Congress, 1995). The results of such standards are mixed. According to NCATE (1997), most colleges and universities are making the same mistake that has been made by K-12 schools in that they treat "technology" as a separate component of the teacher education curriculum—requiring specially prepared faculty and specially equipped classrooms—rather than as a topic integrated throughout the entire teacher education program. This one-size-fits-all philosophy to teacher training simply does not work (Browne & Ritchie, 1991; Harvey & Purnell, 1995).

In spite of this seemingly bleak picture, a handful of SCOEs appear to be successfully matriculating preservice teachers capable and eager to integrate technology into their teaching (U.S. Congress, Office of Technology Assessment, 1995). These success stories occur in instances where SCOEs have adopted approaches to teacher training that, effectively, redefine the role of the teacher. NCATE (1997, p. 7) aptly described this new role:

Teachers must become advisors to student inquirers, helping them to frame questions for productive investigation, directing them toward information and interpretive sources, helping them to judge the quality of the information they obtain, and coaching them in ways to present their findings effectively to others.

These facts raise two important questions: (a) What types of experiences do SCOEs provide their preservice teachers that have helped to *make the difference* in teacher technology training, and (b) How can similar experiences be employed at other SCOEs struggling to better prepare its preservice teachers to integrate technology?

Unfortunately, providing technology-enriched experiences for preservice teachers is no simple matter. Much of this problem is a matter of SCOEs trying to keep up with the fast pace of advancing technologies. As a result, the recommended best practices for using technology in teaching are constantly evolving (Cooper & Bull, 1997). Willis and Mehlinger (1996) found that topics in using technology in education have shifted from developing computer literacy and programming skills to using computers in instruction. It should not come as a surprise that, according to Hawkins (1996), most schools still emphasize computer skills rather than discipline- based learning. Only in the last few years have some colleges of education shifted their focus to integrating technology in instruction across content areas.

Recommendations

SCOEs have found, however, that creating effective technology-using teachers requires much more than just a simple shift of focus. University faculty must first be willing to make technology use a requirement of their students and, second, must make attempts at modeling effective uses of technology in their own teaching (Handler & Marshall, 1992; Wetzel, 1993), processes that take commitment and time (Cooper & Bull, 1997). To address these concerns some

have recommended that teacher preparation programs integrate technology throughout the entire preservice teacher experience by providing faculty models for effective technology integration (Handler & Marshall, 1992; ISTE, 1999; NCATE, 1997; U.S. Congress, 1995; President's Committee of Advisors on Science and Technology [PCAST], 1997; Wetzel, 1993; Willis & Mehlinger, 1996).

In particular, these recommendations focus on the core component of teacher training, teaching methods courses and their faculty. Although these recommendations appear to have face validity, they must be evaluated to ascertain their actual effect. This study takes an important step in assessing their validity by determining the role a technology-enriched teaching methods course plays in preparing preservice teachers to integrate technology in their future teaching.

Preservice Teacher (Mis)Conceptions of Teaching and Technology Integration

While some prospective teachers enter their preparation programs eager to learn and adopt new, research-supported methods of teaching, many believe that teaching is not difficult and that they already know how teach (Feiman-Nemser, McDiarmid, Melnick, & Parker, 1989). Too often teachers covet their own experiences in the education system and develop their own nonreflective teaching knowledge framework based on these experiences (Clark & Peterson, 1986; Feiman-Nemser et al., 1989; Jackson, 1986; Lortie, 1975; Wilson, Miller, & Yerkes, 1993). Through an "apprenticeship of observation," Lortie (1975) contended that teachers develop their own understanding of what it is to teach, beginning when they first enter school and continuing through their teacher preparation program.

The beliefs and perceptions preservice teachers have about a particular subject area, of teaching that subject, and of integrating technology when teaching that subject are juxtaposed with the courses they take in these programs and the teaching situations they observe. All too often, preservice teachers simply make their own interpretations of their observations based on what they already believe about teaching and learning, resulting in a situation where these teachers reinforce their own beliefs and complete their preparation programs without confronting or changing these beliefs.

It is all to often unfortunate but true—teachers teach the way they were taught (Frank, 1990; Goodlad, 1990; Handler, 1993). Teaching methods courses, perhaps, offer one of the few opportunities for preservice teachers to view new knowledge through lenses different than the ones tainted by prior knowledge about teaching and learning.

Technology-Enriched Methods Courses

In spite of their misconceptions about technology use, many preservice teachers believe technology ought to go beyond the computer-specific course found in most of today's SCOEs. In addition they believe technology should be integrated

into content-based teaching methods courses (Topp, 1995). Over a decade ago, McEneaney (1992) found that the attitudes toward computers of preservice teachers taking required teaching methods courses were significantly more positive than were the attitudes of preservice teachers enrolled in computer education electives.

Unfortunately, the modeling of technology use by methods faculty is lacking from the preservice teacher experience. An approach taken by some teacher preparation programs is to provide a preservice educational technology course that specifically addresses technology tools for each content area (e.g., Francis-Pelton, Farragher, & Riecken, 2000); however, this approach falls short of the goal of integrating technology into teaching methods courses.

A consistent theme among methods course technology integration success stories is a constructivist approach (Beisser, 1999; Willis, 1998). Although it is not uncommon for methods faculty to encourage their preservice teachers to adopt constructivist approaches with their future students (such as cooperative learning, problem-based learning, and Socratic dialogue), these instructional methods are rarely modeled by methods faculty (Rose & Winterfeldt, 1998). In particular, technology is rarely used as a tool to facilitate these methods. There are many obstacles preventing methods faculty from doing so, including lack of knowledge, lack of time or lack of room in curriculum, lack of software and equipment (Wetzel, 1993), and fear (Armstrong, 1996; Novek, 1996).

In instances in which technology is infused into teaching methods courses, evidence is emerging of increased technology use by matriculated teachers. Halpin (1999), for example, discovered that the integration of technology into elementary teaching methods courses increased the probability that preservice teachers transferred the computer skills into the classroom during their first year teaching, as compared to those who learned computer skills in isolation.

For a preservice teacher, teaching methods courses are only a small part of their overall learning experience. The majority of content learned by these future teachers is learned during their K-12 experiences and in their college arts and science classes. It is unknown whether a handful of teaching methods courses can be a significant contributor to the "teachers teach the way they were taught" axiom. Despite this unknown element, there is an assumption in the literature that teaching methods faculty members play a vital role to teacher technology use (Adamy, 1999; Beisser, 1999; Handler & Marshall, 1992; Wetzel, 1993).

It cannot be assumed that methods faculty have a direct influence on how preservice teachers use technology in their own teaching; rather, the relationship must be proven. According to PCAST (1997) there needs to be more "empirical studies designed to determine which approaches to the use of technology are in fact most effective" (p. 91). The first step in accomplishing this task is determining how preservice teachers' perceptions of using technology in teaching are affected by teaching methods courses taught by faculty who are effective models for technology integration. Further, it should be determined how this

modeling, as well as the content learned in these courses, affects teaching practice.

Conceptual Framework: Holistic Constructivism

There is much confusion resulting from the ubiquitous use of the term *constructivism*, as it can be used to represent an epistemological view, a learning theory, a philosophy of teaching and learning, a pedagogical approach, or some combination of these meanings. To serve as a conceptual framework for this study, a "holistic" approach to constructivism was adopted (Molebash, 2002), which asserts that meanings to events are constructed individually but are heavily influenced by social interactions (Bredo, 2000; Howe & Berv, 2000).

The proposition that particular teaching methods are constructivist because they are "less transmission-oriented" (Becker, 2000) or "indirect" (Flanders, 1970) is erroneous, but instead depends upon the instructor's underlying philosophy or goal (Wilson, 1997).

In the social studies, a holistic approach to instruction is necessary, one in which the underlying goal of promoting effective democratic citizenship (Dewey, 1916; Howe & Berv, 2000). As such, methods of teaching, whether they be direct or indirect, that require students to participate in and interpret events aimed at developing their abilities to participate as effective democratic citizens can be considered constructivist.

Similar holistic approaches to constructivism have drawn increased support from the literature (Bredo, 2000; Howe & Berv, 2000; McCarty & Schwandt, 2000; Molebash, 2002; Wilson, 1997), particularly with respect to the social studies (Crocco, 2001; Doolittle & Hicks, 2003). As a result, this study has adopted a holistic approach, and the reader should infer appropriate meaning to the term *constructivism* as it is used throughout this article.

Research Design and Methodology

The results reported in this paper are derived from the same research study described in Molebash (2002). The previous study examined the complexities of a social studies methods instructor's beliefs and practices concerning the use of technology, while the present study examines the complexities of the preservice teachers' perceptions of social studies, social studies teaching and learning, integrating technology when teaching social studies, and how this methods course affected change in these perceptions.

Survey-driven experimental research cannot capture the complex social context of the classroom. To inform practice, research on teaching must be conducted within the classroom with careful consideration being given to the fact that teaching and learning are social processes that influence each other (Bolster, 1983).

With this in mind, I performed a qualitative case study. The site, participants, and research design of the present study are presented in the following sections. For a more thorough description of these items, refer to Molebash (2002).

Site and Participants

The location of this case study was Elementary Social Studies Methods, a three-unit preservice teacher education course at a college of education (hereafter referred to as the "Education School") located in a large mid-Atlantic public university. This course is considered by the Education School to be technology enriched, as the instructor made consistent use of technology resources and required her students to incorporate technology into many of their assignments. Twenty-three students were enrolled in this course. They included 22 females and 1 male, 21 Caucasians and 2 African-Americans. All students were between the ages of 20 and 25. These preservice teachers had previously attended or were simultaneously enrolled in an educational technology course, Introduction to Educational Technology, designed specifically for elementary teachers. The Elementary Social Studies Methods instructor (hereafter referred to as "Dr. Phipps") was in her third year as an assistant professor of social studies education at the Education School.

Methodology

The primary methods of data collection for this study were classroom observations and interviews. I attended all 45 hours of classroom instruction and conducted pre- and post-interviews with all but one of the preservice teachers enrolled in the course. I interviewed Dr. Phipps three separate times. In addition, I collected and analyzed lesson plans and other materials produced by the preservice teachers during the course. As is the case with most valid methods of phenomenological research, acquiring multiple sources of data allows the researcher to triangulate on valid assertions.

Erickson's (1986) method of analytic induction was applied to data analysis. In analytic induction the researcher must establish an evidentiary warrant for assertions by repeatedly reviewing the data corpus to test for validity of assertions by seeking confirming and disconfirming evidence. Results presented stem from the following two research questions:

1. How do the prior K-12 social studies and technology experiences of preservice teachers affect their perceptions of social studies, teaching social studies, integrating technology into social studies, and their overall expectations of a social studies methods course?
2. How do preservice teachers' social studies methods course experiences affect their perceptions of social studies, teaching social studies, and integrating technology into social studies?

It is important to note that my bias entering this study was that an isolated teaching methods course would have *little* affect on preservice teachers perceptions of how to teach and how to integrate technology. Therefore, results of

this study stating that these perceptions were indeed affected are made increasingly valid, as this was not my initial expectation.

Results

It has been assumed that technology, when used appropriately, sits in the background behind content rather than in the foreground (Flick & Bell, 2000; Garofalo, Drier, Harper, Timmerman, & Shockey, 2000; Mason et al., 2000; Pope & Golub, 2000). With content the focus, technology integration can have different meanings to different content areas. Beliefs and expectations preservice teachers have regarding a particular content area, then, are likely to play a role in determining how technology will be used by them to enhance instruction.

The results of this study, therefore, assume it is important to examine preservice teachers' experiences learning social studies, as well as their experiences learning to integrate technology when trying to determine how successful they will be at integrating technology into their future social studies teaching.

Assertion 1: The preservice teachers' perceptions of social studies, social studies teaching, and technology integration were conditioned by their previous K-12 experiences.

Social studies experiences. The social sciences include an array of topics, including history, geography, sociology, anthropology, psychology, government, and economics. The K-12 social studies learning experiences of the preservice teachers entering Dr. Phipps's methods course, however, were not so varied. Instead, most entered the course defining social studies (based upon their previous learning experiences) as primarily pertaining to history and geography. Four added economics, civics, or government to their definition, but none included sociology, anthropology, or psychology.

This typically narrow view of social studies as being primarily the study of history, leads most, as in the case with the preservice teachers in this study, to consider social studies as an uninteresting content area, mainly requiring the memorization of names, places, and dates (Owens, 1997).

Although most of the participants viewed social studies as being uninteresting, almost half described their K-12 experiences, overall, as being positive. There was, however, a consistent bias against taking notes from lecture, reading from textbooks, and taking traditional tests, experiences which dominated their middle and high school studies. Elementary school social studies experiences were generally described as more positive, in large part, because they were remembered as being more "active."

Stephanie, for example, recalled doing large group projects and going on field trips, with the teacher supporting what she and her classmates were doing rather than lecturing or reading from a textbook. Starting in upper elementary she remembered learning how to take notes, which began the shift in how she was taught social studies. Unfortunately, it is the more recent, and largely more

negative, middle and high school experiences that these teachers entered the course believing would most influence their future teaching.

Middle school was described as the time when history became more of the focus of social studies, and their roles as students became less active as they learned how to take notes and started taking tests. During high school, social studies was differentiated into different subjects such as U.S. history, global studies, government, and civics. Despite this differentiation, history studies dominated each subject. Like middle school, the bulk of the high school social studies experiences were described as passive, dominated by lecture, note taking, research papers, and exams. In one preservice teacher's words, "I just learned it by rote memorization" (Elizabeth; 2nd Interview; 1/17/01).

Many described an aversion to the subject due to their K-12 experiences. For example, Winston was quite blunt in describing his experiences:

My experiences with social studies were horrible. If I think back to elementary social studies, it was pretty much a dictionary size textbook. I remember a lot of definitions and dates, people, significant people and events, which is something I am not very good at. (Winston; 1st Interview, 1/16/01)

Winston was also aware that he never learned much about any African Americans other than Dr. Martin Luther King, so at an early age he had a "bad taste in [his] mouth when it came to social studies." Such strong aversions have an unavoidable influence on preservice teacher's perceptions of social studies and their expectations of the social studies methods course in which they were enrolled.

Technology experiences. The preservice teachers enrolled in Dr. Phipps's course were K-12 students during the 1980s and 1990s, a time when personal computers were first introduced into K-12 classrooms. As should be expected, they presented a variety of different experiences with technology during their schooling, as well as a range of current comfort levels with attempting to integrate technology into teaching. Even for the students who had had higher amounts of exposure to computers in their K-12 schooling, none recalled using them for activities other than research or presentation.

For example, students with the richest experiences recalled using the Internet or an encyclopedia CD-ROM to research a topic and then typing a word-processed document or creating a PowerPoint presentation to present the information found. Particularly with respect to social studies, the preservice teachers' K-12 experiences with technology were limited. The following are representative of the range of comments made by the preservice teachers when describing their social studies technology experiences:

We didn't use much technology at all, all the way through high school. I took a typing class, but other than that we didn't use computers much at all....We never used the Internet. We didn't play any games. We didn't play "Oregon Trail" [instructional software package]. (Elizabeth; 1st Interview; 9/29/00)

I don't think I used technology in grade school....In middle school we had a computer class....We did "Oregon Trail" and we would apply that to class when we studied "Oregon Trail"....In high school we did research papers and searched for stuff on the web. And then in my government class we had to do a [PowerPoint] presentation. (Janna, 1st Interview; 10/11/00)

Conditioned beliefs and expectations. The unfortunate consequence of these preservice teachers' mixed and often negative K-12 social studies experiences, combined with their limited experiences with technology, is the negative affect on their perceptions of social studies, their expectations of the social studies methods course in which they participated, the way they planned on teaching social studies, and the way they planned on using technology in their teaching.

The preservice teachers entered the elementary social studies methods course with 12 or more years of conditioning to accept social studies as an uninteresting content area, mainly requiring the memorization of names, events, places, and dates. They planned on perpetuating this cycle of learning, despite the fact that they predominately described these methods of learning as being negative.

The problem of inheriting prospective teachers who believe they already know how to teach affects most teacher educators (Feiman-Nemser et al., 1989). Prospective teachers are hampered by the fact that their view of new knowledge about teaching and learning is tainted by their prior knowledge about teaching and learning—a knowledge founded in their many years in school as students.

The same can now be said of classroom technology use, as candidates are matriculating through teacher preparation programs who have neither experienced nor witnessed effective technology integration in any of their past schooling. The tendency of teachers to teach the same way they were taught also includes integrating technology in the same limited ways they once used technology—a loop that could continue indefinitely.

The seeds of this loop evidenced itself with the participants in this study when they were asked, "Prior to your taking this course, describe what you and your students would have been doing in an exemplary social studies lesson or activity." Similar to what other authors have shown (Clark & Peterson, 1986; Jackson, 1986; Lortie, 1975), these preservice teachers largely described a reliance on traditional, direct teaching techniques.

Rebeccah, for example, described that she would have been inclined to "stand in the front of the class and teach to the students" (Rebeccah; 1st Interview; 10/5/00) because she was not aware of other techniques. Similarly, Kerri, after having taken this methods course, diagnosed that she would have taught in a way that was boring, in part, because of her lack of knowledge about social studies:

My students probably would have hated it as much as I did....I think I would really have to work on information because I don't think it is an area where I am knowledgeable at all. So that would probably come across to my students...that I didn't like it. (Kerri; 2nd Interview; 1/25/01)

Some in the class entered the course unsure of how they were going to teach. Laurel, for example, believed she learned best when doing "hands-on activities," and therefore, she wanted to "engage students in activities like role playing or by handling materials" (Laurel; 1st Interview; 9/29/00). Unfortunately, prior to the methods course she could not think of personal experiences to draw upon in developing lessons consistent with this desire.

Other students, such as Holly, would have used alternate methods like children's literature, but would have followed up these methods using "worksheets and writing on the board, rather than open-ended training" (Holly; 1st Interview; 10/11/00). Likewise, Winston described a desire to teach in different ways, but admitted the difficulty in pulling this off:

I would probably think back to what I went through as a child and try to do the opposite...In my efforts to be a good teacher I would think about what I experienced and try to do something different...but I probably would have had no idea how to make it happen....In reality, I probably would have had a textbook and said, "Let's read about this." (Winston; 1st Interview; 1/16/01)

Given their stated lack of desire to teach social studies using the traditional methods they were exposed to as K-12 students, one would expect that the preservice teachers' expectations of their methods course would be to radically alter their view of social studies and how to teach social studies. Little was mentioned, however, to suggest that they expected to have any such experiences. Furthermore, they had little to no expectation of seeing technology modeled by Dr. Phipps and using technology themselves. Consistent with their previous technology experiences, at most they expected to use the Internet for research and using word processing or PowerPoint for presentation of information.

All of the preservice teachers enrolled in Dr. Phipps's course had either completed, or were simultaneously taking, an educational technology course specifically designed for elementary teachers, called Introduction to Educational Technology. Several of this course's activities were social studies specific and designed to prepare them for how technology would be applied in Dr. Phipps's methods course. For example, spreadsheets were used to analyze weather patterns across the United States, and databases were created to simplify otherwise complex queries regarding where one might choose to live.

Despite this content-specific and inquiry-oriented exposure to technology, their previous K-12 technology experiences continued to condition their expectations of how technology would be integrated into Dr. Phipps's course, and more importantly, how they planned on integrating technology into their future teaching. For the majority, technology was seen as a tool to be used merely for increasing their administrative proficiency (e.g., gradebook programs) and enhancing their presentation skills (e.g., PowerPoint). It is clear that, in order to change these preservice teachers' perceptions of classroom technology use, more was needed, namely technology being infused into one or more of their teaching methods courses.

Is it possible, then, for a teaching methods course to play a significant role in changing the many misconceptions preservice teachers have regarding social studies as a content area, methods of teaching social studies, and strategies for effectively integrating technology into social studies teaching? To do so will require that preservice teachers reflect upon their previously held beliefs, that they witness and participate in alternative and superior teaching and learning methods, and that they see these methods as being viable and fruitful in their own teaching.

Assertion 2: The preservice teachers' perceptions of social studies, teaching social studies, and integrating technology when teaching social studies were positively influenced by the instructor's modeling of constructivist teaching methods and her integration of technology into these methods.

Assertion 1 points out that the preservice teachers enrolled in Dr. Phipps's course had not had ideal learning experiences with either social studies or technology and few, if any, experiences using technology in ways that enhanced the process of learning social studies. If and how Dr. Phipps's methods course affected change in these areas is, therefore, a paramount inquiry of this study.

As their prior assumptions about social studies and technology integration were confronted, the preservice teachers were faced with a dilemma—whether to discount the inconsistencies their experiences in the methods course had with their prior social studies and technology experiences, or to reconstruct their perceptions of teaching social studies and technology integration. The majority of course participants chose the latter, making significant strides in redefining what it means to be a social studies teacher and technology integrator.

As the preservice teachers exited Dr. Phipps's social studies methods course they were still six months away from becoming student teachers and 18 months from their first paying teaching assignments. While data does not support an assertion that these teachers' teaching practice will be significantly affected as a result of their experiences in the course (longitudinal data is needed to make this determination), the participants believed that their future teaching practice would be positively influenced as a result. They described how the inquiry-oriented experiences of the course caused them to reflect upon their K-12 social studies experiences and see them as inadequate. They additionally saw the value of providing more engaged learning environments for their future elementary students.

Important to this process, and not trivial, is the fact that the preservice teachers enjoyed their experiences in the course, citing Dr. Phipps's enthusiasm as instigating reflection on their past learning experiences and future teaching practice. At the end of the course, most considered social studies to be the content area they looked forward to teaching and believe technology could be used to enhance methods of teaching social studies. Characteristics of the course contributing to these beliefs were the instructor's modeling of constructivist teaching methods and her integration of technology into these methods.

Instructor modeling of constructivist teaching methods.

She is showing us all the great things we can do, and it just seems like it would make the day so much more fun for me and for the students. And I think that looking back I don't really remember much of my social studies at all except for the teacher lecturing....Dr. Phipps gives me all these ideas... (Gina; 1st Interview, 9/29/00)

As the above quote points out, vital to the preservice teachers' notions of what it means to be a good social studies teacher were the personal experiences resulting from participating in Dr. Phipps's class. Dr. Phipps modeled a variety of teaching methods, during which the preservice teachers were given opportunities to participate as learners in the activities associated with these methods. These methods were not, by themselves, constructivist, but were applied toward constructivist goals, such as performing historical inquiry using primary source materials.

Dr. Phipps adhered to an holistic view of constructivism (Molebash, 2002), which espoused that meanings are developed individually but are heavily influenced by social interaction. The overall constructivist goal of Dr. Phipps's course was to encourage effective citizenship, as desired by the National Council for the Social Studies (1997).

The methods modeled by Dr. Phipps provided the preservice teachers opportunities to participate in activities that offered new perspectives in learning social studies different from their previous experiences of memorizing people, places, and dates. The majority of these teaching methods were "indirect" (Flanders, 1970) and attempted to make social studies, as Dr. Phipps stated, "fun and exciting." Often they were built around her belief, which she frequently stated in class, that "people [in history] were living lives and not themes." The preservice teachers collectively accepted both this goal and this belief as a result of their course experiences:

I think that beyond just her enthusiasm that was clearly shown to the students, was her emphasis on social studies being about people and not about themes, and bringing it alive to students in that way more than just memorizing dates and facts, which I think so many times you do in history class. (Rebeccah; 2nd Interview; 1/25/01)

I think Dr. Phipps gave us the kind of ideas to use for alternate teaching methods rather than just going through a textbook. Like virtual history [students interpreting online primary sources] and the artifact box [students interpreting primary source artifacts] and dressing up as a character [Statue of Liberty]. She gave us a million examples of alternate teaching methods. (Laurel; 2nd Interview; 1/16/01)

The belief that social studies can be "fun and exciting" and focusing more on "lives" rather than "themes" ran contrary to the preservice teachers' initial belief that social studies was uninteresting and focused on the memorization of facts

(see Assertion 1). Gina aptly described this change in belief: "I think it is always more exciting when you are doing something different from the 'normal ways' of teaching [teacher lecture]. When the students are excited...you are excited—and it is exciting!" (Gina; 2nd Interview; 1/25/01).

Being "indirect" (Flanders, 1970) and aimed at promoting Dr. Phipps's goal of promoting effective democratic citizens, these "exciting" ways to teach modeled by her would be described by most as being constructivist or inquiry-oriented. Briefly described in the appendix and more thoroughly in Molebash (2002), these methods clearly contributed to the preservice teachers' positive experiences in the class.

Two thirds of the activities modeled by Dr. Phipps were enhanced through some use of technology; however, perhaps equally as important in showing preservice teachers how to integrate technology into a given activity was the modeling of activities requiring no use of technology, such as her use of children's literature and role playing. As an example, in one class session Dr. Phipps dressed up as the Statue of Liberty to model for her students an interactive way for students to learn about immigration at Ellis Island:

The whole idea of when she did her Miss Liberty...playing roles and being enthusiastic and having fun with them...and making it enjoyable for the students, as well as herself. Because the way she came across made me want to do this. (Kathy; 2nd Interview; 1/23/01)

Such modeling provided the preservice teachers the important opportunity of witnessing a faculty member exercise judgment on when and how to use technology in teaching. Upon exiting the course, these preservice teachers believed this modeling would make them more capable of making thoughtful decisions regarding when and when not to use technology-enhanced methods in their teaching. Namely, they could personally apply the same decision process as Dr. Phipps—to use technology when it would allow her and her students to "learn in a way they could not without the technology or...at least learn in a more meaningful way" (Mason et al., 2000, p. 108).

Instructor modeling of technology-enhanced teaching methods. Dr. Phipps used the "Guidelines for Using Technology to Prepare Social Studies Teachers" (Mason et al., 2000) to guide her practice of integrating technology into her teaching (Molebash, 2002). These guidelines posit that technology should be "introduced in context," should "extend learning beyond what could be done without technology," and should "be used to encourage inquiry, perspective taking, and meaning making" (p. 108).

As a result of Dr. Phipps's efforts to integrate technology seamlessly into many of the activities she modeled, the preservice teachers predominately described the content of these activities as being valuable, as opposed to valuing the particular use of technology. For example, it is the opportunity students have to interpret online primary source materials that the preservice teachers found to be valuable, as opposed to the fact that technology has made these resources available.

Perhaps most importantly, these positive experiences have caused the preservice teachers to desire practicing in their own future teaching the technology-enhanced methods modeled by Dr. Phipps. Most of them were unaware of the amount and variety of resources now available to teachers and students as a result of technology, particularly via the Internet. These resources were seen as helping to make social studies more stimulating and as assisting teachers in completing tasks more efficiently:

I always thought technology in the classroom was an overhead and that's it, but I never thought you could go on the Internet or...connect with other teachers [telecollaboratively] who might be doing the same stuff that you are doing.... I am more aware of the possibilities, and I think there's so many things that you can do. (Donna; 2nd Interview; 1/17/01)

I go back to all the web sites we went through, primary sources and things of that nature...that to me is because of the introduction to technology that Dr. Phipps shared with us. It will help me to involve my students...I could have easily just read a book on ways to use technology in the classroom. But there were a lot of added messages to incorporate ways to use technology to improve the students' excitement. (Winston; 1st Interview; 1/16/01)

Although the preservice teachers valued their preparation in learning how to use technology tools in content- and age-appropriate ways in the Introduction to Educational Technology course, they found that, as a result of their exposure to technology-enriched methods in Dr. Phipps's course, they were more prepared to use technology to enhance social studies teaching and learning.

Desire to teach social studies. At the beginning of the course only two preservice teachers listed social studies as the content area that they most looked forward to teaching. Given their bland recollections of social studies (see Assertion 1) this was of no surprise. In contrast, upon exiting the course all of the participants listed social studies at or near the top of content areas that they most looked forward to teaching.

It is not uncommon for novice teachers' interests to be sparked immediately following a course or workshop on a particular topic, but these teachers had already taken or were simultaneously taking with the social studies methods course their other reading, mathematics, and science teaching methods courses. The stark change in their attitudes about social studies cannot be linked to the fact that they had only taken social studies methods. Winston, for example, described the sharp change in his perceptions of social studies and stated that this change was related to Dr. Phipps's teaching,

This is weird. I am a good case to discuss because I went from hating social studies to adoring social studies....Just the way Dr. Phipps introduced it to us and made it not a painstaking subject. I think that as a generalist in elementary education, social studies would probably be the subject that I like the most.... Dr. Phipps is my model teacher. And this is not to speak for any other professors that

I had, but...to be taught by somebody that is excited is contagious. (Winston; 1st Interview; 1/16/01)

Also, in sharp contrast to their initial perception as social studies primarily being the study of history, many of the preservice teachers adopted the belief that the richness of the social studies can serve to tie all of the content areas together. Several students talked of a new awareness of the interconnectedness between social studies, mathematics, science, and literature. Janna, a mathematics major, finished the course ranking social studies with mathematics as the content areas she looked most forward to teaching. Before Dr. Phipps's course, she saw the two content areas as being distinctly separate, but now she sought ways to connect the two, as well as science. She explained,

Dr. Phipps, I think, has the belief that social studies could be a content area that really can tie together something like math and science and even technology. I also have this belief. I actually made a [connection]—in science class...I made up this list that connected math and science and social studies...like Ben Franklin's discoveries and how that was historically based, but [he] did math stuff which also affected things scientifically. (Janna; 2nd Interview; 1/22/01)

Mirrored in these teachers' newfound desire to teach social studies were the ways in which they changed their views on classroom technology use. Their initial perception of technology as a tool to be used for simple research and presentations was significantly altered, partly due to their participation in the Introduction to Educational Technology course, but more as a result of the fruitful and viable uses of technology they participated in and witnessed in Dr. Phipp's Elementary Social Studies Methods course. By participating in technology-enriched, inquiry-oriented activities, these preservice teachers reevaluated their notions of how technology ought to be used in their future classrooms.

Discussion

In the introduction to this paper the suggestion was made that a handful of SCOEs have proven themselves to be successful at matriculating preservice teachers capable and eager to integrate technology into their teaching, and two questions were posed: (a) What types of experiences do SCOEs provide their preservice teachers that have helped to make the difference in teacher technology training, and (b) How can similar experiences be employed at other SCOEs struggling to better prepare its preservice teachers to integrate technology?

Because this study focused on one particular, albeit successful, elementary social studies teaching methods course, no cut-and-dried rules for SCOEs can be offered. However, this study offers SCOEs strategies for better preparing its preservice teachers effectively to use technology in their future classrooms.

The Education School has made efforts to infuse technology throughout its preservice teacher experience. Leading this effort has been the development of a content-specific introductory educational technology course, in which teacher

candidates explore a variety of tools to integrate in their future teaching. The perception of the preservice teachers, even after taking this course, that technology was to be used primarily to increase their administrative proficiency and enhance their presentation skills confirms the assumption that technology integration cannot be investigated independent of the content area into which it is being integrated. When determining teachers' beliefs regarding integrating technology into social studies, it is equally important to examine their beliefs regarding social studies as it is their beliefs regarding the use of technology.

The preservice teachers participating in this study were conditioned by their K-12 learning experiences not to enjoy social studies and to use technology in only minimal ways. Regardless of their skills with technology, without an appreciation for social studies and an understanding of how to promote more inquiry-oriented strategies of teaching social studies, teachers will likely not make effective uses of technology when teaching social studies.

Producing teachers who are effective technology users in the social studies classroom will first require that they overcome their aversions to social studies caused by their negative K-12 social studies experiences. By witnessing a faculty model for effective technology integration, preservice teachers are given opportunities to reflect upon their previously held conceptions of teaching social studies and integrating technology into social studies. As part of this modeling, technology must be seen as a tool for learning social studies in innovative, inquiry-oriented, and enjoyable ways.

If social studies methods courses are taught by faculty members who employ such "constructivist" uses of technology in their teaching and who model enthusiasm for their subject, it will allow them and their students to "learn in a way they could not without the technology or...at least learn in a more meaningful way" (Mason et al., 2000, p. 108).

In following the recommendations to infuse technology into its content teaching methods courses by providing faculty models for effective technology integration (Handler & Marshall, 1992; ISTE, 1999; NCATE, 1997; PCAST, 1997; U.S. Congress, Office of Technology Assessment, 1995; Wetzel, 1993; Willis & Mehlinger, 1996), the Education School is well on its way to producing teachers who are effective at integrating technology into specific content.

Other SCOEs should direct their efforts towards overcoming the obstacles that prevent faculty from being such models. Being an effective model for technology integration, however, is not independent of being an effective model for content instruction. It is important that content methods instructors model an enthusiasm for their content area that cause preservice teachers to confront their misconceptions of teaching and learning, and further, this modeling must be complimented and encouraged by their use of technology.

Performing similar studies in each of the core content areas would provide further insight into the nuances of technology integration across subjects. In addition, the effects technology-enriched teaching methods courses have on

inservice technology use are relatively unknown. A longitudinal study that follows this and other cohorts of teachers into their inservice teaching assignments would help to determine the overall worth of infusing technology throughout the entire preservice teacher experience.

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