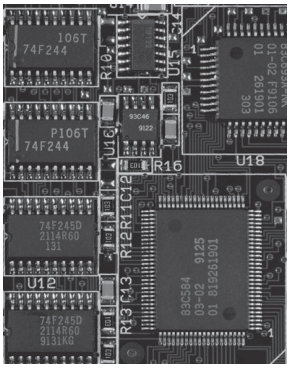

# Teaching by Example: Integrating Technology into Social Studies Education Courses

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## Abstract

*This article primarily focuses on how one social studies teacher education faculty member incorporated technology into a series of social studies education courses. The integration involved both a technology-related project for students to complete and the modeling of technology use to facilitate learning. The article describes the project and the three forms of modeling that occurred. It then reports on the impact of this integration. Most students reported that the instructor's modeling of methods and resources encouraged them to use technology in their teaching. Evidence in students' microteaching, discussions, coursework, and classroom teaching support their statements.*


With the increasing role of electronic technology in society, technology has become an important topic in teaching and therefore in teacher education. The National Council for the Accreditation of Teacher Education (NCATE) (1997) called for improvements in the integration of technology into teacher education programs, and their most recent standards (NCATE, 2002) included technology as an important aspect of the education of teachers. Technology organizations, such as the International Society for Technology in Education (ISTE), also emphasize the need for teachers to be educated in ways that will help them use technology to benefit student learning (2002). Although in the past, social studies programs lagged behind other disciplines such as math and science in incorporating that technology in K–12 and teacher education classrooms (Martorella, 1997), in the last five years dialogue about the relationship between social studies teacher education and technology has grown. Mason et al. (2000), for example, provided basic principles for teacher educators to consider as they use technology to educate social studies teachers. Some social studies teacher educators are beginning to present findings of studies that show the impact of the use of technology in the context of social studies teacher education (e.g., Bolick, 2002), and others have surveyed the current state of technology integration in social studies teacher education (e.g., Berson, Mason, Heinecke, & Coutts, 2001). Some subject matter faculty have begun to integrate technology into their teaching and there are some studies of this integration (e.g., Milman & Heinecke, 2000; Easley & Hoffman, 2001).

Despite this strong start, few social studies teacher educators have shared studies of how they actually incorporated technology into their social studies education curriculum and teaching to facilitate their students' learning to use technology in their social studies teaching. This article reports on one social studies faculty member's integration attempt as a means to increase the dialogue on how social studies faculty can use technology in their teaching.

This article describes how technology was incorporated into everyday classroom instruction and how this influenced the students' teaching. Lessons were designed to model the use of technology and to engage prospective social studies students in ways that increase their desire to use technology in meaningful ways in their classroom teaching. The first portion of the article describes the technology integration and the second portion explains what was learned about the impact of this integration.

## Integrating Technology into Social Studies Education Courses

### Context

During my first year teaching at a new institution, I found that few of my prospective social studies teachers were integrating technology into their teaching and that none of them used the discussion pages[1] provided to communicate during student teaching. Although using technology in teaching had been a topic of one lesson and the students

[1] The term discussion pages refers to an area of our secure Web site where students could post messages for everyone else in the group to read and respond to. For example, students might post a request for ideas about how to teach a specific topic, like supply and demand, and their peers would respond or students might post a Web site that they found that might be of interest to others.

were required to create a PowerPoint presentation as a part of the creation of a unit plan, it appeared that these exposures to technology were not sufficient to encourage them to make technology an important part of their teaching. Instead, a more thorough approach was needed that included consistently modeling the use of technology in teaching and frequently engaging students in the use of technology in class so they would be more inclined to use it in their teaching. I applied for and received funding to support this type of integration from our institution's Preparing Tomorrow's Teachers to Use Technology ($PT^3$) grant.

The technology integration occurred throughout the courses I taught within our undergraduate Integrated Social Studies program. During the final year of the program, students take their first social studies education course along with a 96-hour practicum in the fall. In the spring, they take two courses, a second social studies education course and a seminar-type course, Inquiry into Professional Practice. They also student teach for ten weeks. I taught the two social studies education courses and the Inquiry course with the same group of students all year. During the fall semester, I began to integrate technology into the assignments and my teaching in deliberate and frequent ways and continued to model the use of technology to enhance student learning during the two spring courses.

The technology integration focused on developing prospective social studies teachers' knowledge, capabilities, and dispositions to appropriately, systematically, and routinely use technology in their teaching and their careers. With regard to social studies teaching, it was designed to expose the prospective teachers to social studies teaching with technology and to encourage them to integrate technology into their classroom teaching. To accomplish these specific goals, technology integration occurred in primarily two ways, through the development and implementation of a technology project that students completed and through the instructor's modeling of different strategies for using technology in classroom instruction.

## The Technology Project

When planning the fall course, I included a technology-based project to directly focus the prospective teachers' attention on technology as a teaching tool. The project centered on developing answers to two questions (How can I incorporate technology into my social studies classroom? and Does technology make a difference?) through the completion of three assignments. Knowing what technology is available and who can help with it is an important foundation, so for the first assignment the students conducted a *Technology Resource Evaluation* of the school in which they had been placed for their practicum and student teaching. The assignment required students to explore their schools to determine what resources were available to them and how they could access these resources. They then reported on their findings, as well as how what they discovered could help them in their teaching. The purpose of this aspect of the project was to help students learn what was available to them at the school and to begin to build relationships with necessary support people at their schools.

To begin to value technology as a tool, prospective teachers need to know that practicing teachers are using it. So after completing their evaluation, students completed six Article Reviews. Students read six articles to help them answer the original project questions: How can I incorporate technology into my social studies classroom? And, Does technology make a difference? After they read the articles, they prepared a paper that provided a review of the articles along with their answers to the questions based on the readings. The purpose of this aspect of the project was to introduce students to the ideas of teachers and researchers who were using technology in their social studies classrooms and studying its impact.

The next step was to help students expand their basic knowledge about technology use in their social studies teaching. For the final assignment in the project, small groups of three to four students worked together to create activities or lessons for their social studies classroom that used technology to enhance student learning. For example, one group designed a Web site for a fictitious high school social studies department that included pages for each teacher, with activities linked that provided a variety of social-studies-focused ideas or lessons that involved the use of technology in researching and/or creating the product. The purpose of this final aspect of the project was for the students to apply what they had read in the articles and to learn from what others had read. This initial technology-based project, conducted early in the fall semester, gave students exposure to what resources were available to them and ideas about how technology could be useful.

## Modeling

The project, however, was only one way to develop the prospective teachers' knowledge. Alone it would not have been sufficient to radically change student perceptions or increase confidence; a more sustained and meaningful approach was necessary. To more greatly develop their knowledge and increase their desire to incorporate technology into their classroom, it was important that these prospective social studies teachers not only read about technology and be told of its importance, but directly experience how it can be used and how it does impact learning. To do this, my teaching had to incorporate technology and do so in multiple ways.

The first and second social studies methods courses incorporated teaching that promoted the prospective students' learning about technology in three ways. First, lessons included modeling and then discussion of social-studies-specific activities that were appropriate for $7^{th}$-$12^{th}$ grade classroom teaching so students would have experience with content-specific examples of technology facilitating student learning. Second, lessons included modeling of general teaching that could be adopted or modified for their teaching needs. Third, lessons included the use of technology in a variety of settings, including a computer lab, a one-computer classroom, and a classroom with a mobile laptop cart to model how different recourses could be used.

***Modeling of Social Studies Activities for Adolescents.*** One type of modeling was the direct modeling of social studies les-

sons appropriate for the secondary level classroom. Three examples, described below, provide details about this type of modeling. Early in the fall, as an entry into a lesson on teaching with primary sources, I modeled the use of an audio recording to enhance student learning. Copies of a draft and the final copy of Franklin Roosevelt's "Day of Infamy" speech were shared and students listened to an audio recording of the speech played using RealPlayer on a computer with Internet access and speakers. After listening to the speech, we analyzed it using a sound recording analysis sheet designed for use with the speech (see National Archives, 1998, p. 169). We then discussed how this activity could be used and modified for other topics, as well as how other forms created by the National Archives (see http://www.archives.gov/digital_classroom/lessons/analysis_worksheets/worksheets.html) could be used. Although a very small segment of the class session, this portion of the lesson introduced students to a specific activity that includes technology, specific resources (the National Archives Web site and the *Teaching with Documents* book), and tools for assisting students in learning to analyze primary sources.

At another point, an activity was designed focusing on economics, a subject that prospective social studies teachers do not always feel comfortable with. To begin the activity, students learned that they would be learning more about economics by examining six countries. The prospective social studies teachers were given basic economic information for the United States and six mystery countries cited from the *CIA World Factbook 2002*, one sheet with definitions of terms used in the basic information sheets, and a sheet with guiding questions to help them begin their investigation. The guiding questions sheet asked the following: How would you describe this country? What do you think life is like in this country? Why do you think this? What can you predict about the location of this nation from the economy? What makes you think this? What can you predict about the history of this nation from the economy? What makes you think this? They were told to use the basic information for the United States as a reference and examine economic descriptions of one country at a time and completing the guiding questions. For this day's activities, they were told to choose only three countries to discuss.

After identifying two or three countries, depending on how well they were doing, students were given the remaining guiding questions, further directions, and a laptop to explore the online *CIA World Factbook* at http://www.odci.gov/cia/publications/factbook/index.html. The remaining questions focused on the political, geographic, and historical features of the mystery countries and the relationship of these factors to the economic factors on the data sheets. For example, they were asked to explore the page for one of the countries they found, Russia for example, for the answers to help them answer these questions: What is the climate like of this nation? What is the land like? Where is it located in the world? Who are its neighbors? After exploring the site, they were asked to hypothesize how they thought these aspects of geography related to the economic factors stated about the nation. After the prospective teachers completed one country, we met as a whole group to discuss how this activity might be used and/or modified for their teaching.

A third example from the methods classes focused on helping students understand another technology tool at their disposal, Microsoft Excel, as well as introduce them to another resource, the digital archives available online from the Virginia Center for Digital History. As part of a larger lesson exploring using technology to enhance student learning in social studies, in small groups the prospective teachers explored the *Virtual Jamestown* Web site (see http://www.vcdh.virginia.edu/jamestown/page2.html), wrote historical questions about life in Jamestown, created charts and graphs with Microsoft Excel based on the data available to answer those questions, and shared their work with their peers using the discussion page on the class Web site. For the most part, one member used a laptop to navigate the site as another used a second laptop to record the questions and create the Excel spreadsheet and the graphs. During their exploring and creating, we discussed how graphs and charts helped adolescents understand proportional relationships better than numbers alone. During this activity, the prospective teachers were able to learn about using Excel, learn about the *Virtual Jamestown* site, and learn how to use charts, graphs, and census data in their classrooms.

***Modeling of General Teaching Strategies.*** The second type of modeling focused on general teaching strategies. Beyond the modeling of activities the prospective teachers could take directly to their classrooms, lessons as a whole throughout the semester were designed to directly model general teaching strategies involving technology. Below are three specific examples to illustrate this type of modeling. In an early lesson in the fall on teaching with primary sources, students were assigned to small groups and given either a specific piece of software, such as a the Library of Congress' *Eyes of the Nation*, or a Web site with digital images of primary sources, such as the *Powers of Persuasion* series of World War II posters on the National Archives' Web site (see http://www.archives.gov/exhibit_hall/powers_of_persuasion/powers_of_persuasion_home.html). Students first explored the material on the software or Web site in groups of three or four and then created activities and/or lessons that would incorporate the material they had been given. They recorded their work using word processing software, and at the end of the lesson uploaded all work to the discussion page of our class Web site for others to view. Although the content being taught in this example focused on social studies teaching rather than social studies content, the method used in the teaching could be used in their classroom. As students they experienced an example of using software and Web sites in small groups to learn about a topic, as teachers they could generalize the management techniques, directions, and methods to teaching a lesson using software and Web sites in their classrooms.

As a second example, when students were engaged in small-group work on the topic of teaching social issues, they were provided at least two laptops and directions for their use. On one day, for example, students used one laptop and a word processing program to record all of the group's work to be either uploaded to the group's server space or e-mailed to all members of the group and one laptop to access online information to help with their project. Throughout the class period, each group was also able to view a sample creation. The sample was created as an entry to an issue-based unit on the Vietnam War. It was a PowerPoint slideshow with variety of images relating to the Vietnam War set to the Marvin Gaye song "What's Going On." The sample was used as an example of what they could design for the "creation" part of the assignment as well as an example of using technology to create student interest in a unit.

A third example of modeling of general teaching strategies was the use of WebQuests as a teaching tool. During the spring methods course, for example, three WebQuests were designed and integrated into lessons to both introduce students to various structures and uses and teach some of the content of the day's lesson. One of the WebQuests in the spring focused on cooperative learning, one focused on teaching social studies with technology, and one focused on service learning. Each WebQuest was of different length and complexity to provide a variety of examples.

***Modeling of Technology Use in Varied Settings.*** The third type of modeling focused on modeling varied settings. Teachers enter schools with diverse technology resources. For example, within the 16 schools in which the 23 prospective teachers from these courses were placed, some schools had one computer lab for the whole school while others had multiple labs, some schools and classrooms had mobile laptop carts while others did not, some schools had only Apple computers, others only Windows-based machines, and others had both platforms, some schools had digital cameras, DVD players, and distance learning capabilities, while others did not. Therefore, the prospective teachers needed experience using technology in multiple settings, including computer labs, laptop carts, and one-computer classrooms.

Beginning the first day of class, the students in these social studies education courses experienced different ways to use technology, with a focus on different ways to use computers. That first day, the mobile laptop cart with Internet access and a large monitor were used. Pairs of students shared a laptop and navigated our class Web site as I highlighted features. In all, during the fall semester I led 21 class sessions. During that time seven sessions were held in the full computer lab, which contained 21 Apple desktop computers, and 14 sessions were spent in our regular classroom. Within the full computer lab, students experienced various ways to use technology. In the full lab, students were able to see how a full-computer lab with desktops could be used to have students work individually, in small groups, move through centers, or as a whole class with the focus on the teacher (e.g. for PowerPoint presentations and audio recording analysis). In the regular classroom, students were provided with opportunities to use the mobile laptop cart and the 15 laptops included (10 out of the 14 sessions) as tools in small groups and individually, to see a laptop and projector used for note-taking type PowerPoint presentation (three times), and to analyze a video as a whole class. In all we used the computers in the lab during six sessions, the mobile laptop cart during ten sessions, an individual laptop and projector three times, a laptop with RealPlayer one time, the TV/VCR four times to watch video segments to be analyzed, and the overhead projector one time. This diversity in uses continued throughout the spring courses. These various arrangements allowed students to directly experience classroom instruction that used educational technology in multiple settings. The variety in types of activities was important to increase student confidence with technology and to provide examples for students on how to manage the technology in their own classrooms.

## Results of the Integration

### Self-Study Methods

Besides integrating technology into everyday classroom teaching, it was also important to gauge the results of that integration. In designing a way to accomplish this, a self-study of teaching practices emerged that utilized surveys, interviews, student work, a personal journal, and the instructor's lesson plans to learn more about what occurred during the year. Throughout the fall and the first few weeks of the spring semester, there were 23 students. After two weeks of the spring semester one student was called to active duty and the enrollment dropped to 22.

During the first class session, a technology survey was completed by students that assessed their understanding of technology and their dispositions towards the use of technology in their social studies teaching. Throughout the fall, the instructor kept a journal, lesson plans for the course, student work, and a record of technology used during each class session. Near the end of the semester a student, Sara[2], was asked to participate in an interview. From interactions throughout the semester and her work, it appeared that she might provide useful insight into the topic of how instructors can teach to promote technology use. During the semester she commented on how she knew very little about using technology, yet she was one of the students who often incorporated technology into her assignments. For example, early in the semester she created a PowerPoint presentation to share what she learned about her school's culture (an assignment for the practicum). Later, she and her group members created a Web site with links to activities, Web sites, and PowerPoint presentations for the activities/lessons assignment while the other groups submitted written lesson plans or descriptions of activities that included technology. We met twice in the fall to discuss technology. The interviews were transcribed and reviewed. Upon completion of the review, I decided to choose another student to interview,

[2] All names are pseudonyms.

Brent. He and Sara were friends and had worked together on the activities/lessons assignment. He, unlike Sara, had a great deal of general expertise with computers. After break, we met for the interview. After analyzing Brent's and Sara's comments, a survey was developed that included questions that reflected the main theme that emerged during the interviews: influences on their use of technology. Upon finishing the survey, I asked both students who had been interviewed to review the survey to determine if an area of influence had been omitted. The survey was administered at the end of the second social studies course, the week before student teaching began. Twenty-two students were enrolled at that point and twenty-one returned the survey. After reviewing the surveys I chose three more students to interview. Throughout the semester, transcripts of the interviews, the survey data, student work, my journals, and the discussion page were analyzed to learn more about the role of my teaching practices in students' use of technology.

## Results

From this self-study of my teaching practices, I learned that the instructor can play an important role in providing a good model of using technology in teaching, and that this modeling does impact many students' attitudes, willingness to try technology, and desire to learn more. Below is a sample of how the prospective teachers began to demonstrate use of technology in their teaching followed by general findings in terms of the students' perception of the influence of the instructor.

***Beginning to Teach with Technology.*** During the year, the prospective teachers began to use technology in their teaching both in microteaching settings and in their classrooms. As part of the two social studies education courses, the prospective teachers had several opportunities to teach within the university classroom. In the fall, each student taught twenty minutes of a lesson designed for his or her middle or high school classroom and in groups of three to four they gave presentations and facilitated a discussion based on a classroom problem they had researched with about 10 people. In the spring, all of the students led twenty-minute issue-based discussions in the university classroom that were designed for their student teaching classroom. Incorporating technology into microteaching was not required but students were told that it would be made available if requested.

During the fall microteaching, which occurred during the last half of the semester, students were able to teach a twenty-minute segment of a lesson designed for their practicum classroom. Although not part of the stated expectations or the grading criteria, twelve of the twenty-three students planned to use some form of technology within the twenty-minute segment of the lessons they taught. One person used a movie clip, two asked for the mobile laptop cart, four used PowerPoint presentations (one was a slideshow set to music), and five used Web sites with primary sources, charts, graphs, and other information.

Also during the fall, students in small groups engaged in an investigation of common classroom concerns for student teachers, such as classroom management and encouraging critical thinking. Of the seven groups from the class who presented, six used technology to aid their peers' understanding of their conclusions. One group posted their notes from the presentation on the course Web page for others to access, one group used a video clip to enter their presentation, and four groups created PowerPoint presentations to accompany their presentation. Two of the four PowerPoint presentations used the program to present the points the presenters were saying in text only. One of the PowerPoint shows included some text but also included show charts and graphs that illustrated the points of their talk. A fourth PowerPoint included both text and imported images and music.

In the spring, students designed an issue-based discussion to be used in their classroom during student teaching. Each student conducted the discussion in the university classroom first, videorecorded it, and received peer and instructor feedback on his or her teaching. As in the fall, technology was not required or suggested for this assignments and the use of technology during discussions was not modeled when we learned about and held discussions in class, yet eleven of the twenty-two students in the class used it to enhance their lessons. One student, when leading a discussion about power based on an excerpt from Machiavelli's *The Prince,* showed a brief video clip from the movie *Nixon* to exemplify the aspect of power on which he wanted the discussion to focus. Two students used the overhead projector, one to project discussion procedures for review and the text to be used and one to record information. Eight used a PowerPoint presentation. One student created one slide of a migrant worker mother and child during the Great Depression to begin the discussion. Another student created a presentation with the text to be discussed, the American and Canadian national anthems, along with visual images related to each song, and questions to be asked. This student also included the use of an audio recording with the *Star Spangled Banner* playing to enter the discussion. Six more students also created a PowerPoint presentation to be used with their discussion and each included at least the discussion procedures as a slide. Of these six presentations, one included only the procedures, one also included the text to be discussed, and four included other combinations of multiple images, questions, text, and music. For example, one student created a PowerPoint with three slides to make his discussion more powerful; the first slide was an image of a political cartoon that he used as an entry into the discussion; the next slide reviewed procedures for discussion, and the next slide was an image of Hiroshima after the dropping of the atomic bomb that was the core of the issue to be discussed. It appeared that the students were beginning to transfer what they were experiencing and learning as students to their teaching.

The prospective social studies teachers also used technology in their teaching of adolescents. Some of the ways in which they employed technology reflected what they had experienced in the university class. The examples below illustrate this point.

Some students created Web sites that they used in their teach-

ing. For example, Ian posted links to the Web sites he wanted his students to use during a project on his Web page and Kendall posted directions for class assignments on her Web site. For some students, the sample Vietnam War slideshow shown in class was influential and they designed their own 2–5 minute PowerPoint slideshows of images set to music as a way to create interest for the subject matter to be studied. Many others created and used PowerPoint presentations during lessons to organize information for presentations as they had observed in class several times. Other students used WebQuests, ones that they created and ones created by others. Still other students accessed interactive Web sites during lessons. Sara, for example, conducted a lesson in which the students, with her guidance, explored aspects of the Underground Railroad using an interactive Web site while another student used an online simulation to help students understand the stock market crash of 1929. And, as a last example, some students borrowed the social-studies-specific activities modeled in class and modified them for their own use. Kendall, as an example, modified the economic activity into her own mystery country activity for her World Geography class.

***Perceptions of the Influence of Instructor's Teaching.*** When listening to the remarks of students during interviews and in class, reviewing student work, and examining survey data, it became clear that how the instructor taught was important for many students when it came to incorporating technology into their teaching in meaningful ways. Figure 1 illustrates the answers to three survey questions focused on the influence of the instructor on the prospective teachers' technology use. As the chart shows, 90.48% of the students (19 of 21) felt to some degree that the instructor's use of technology made them feel more comfortable that they could use technology in their teaching and that they had gotten ideas about how to use technology to enhance student learning from the activities in class. This supports the performance evidence detailed in the previous section. In addition 85% of the students who responded (17 of 20), felt that when the instructor introduced quality Web sites they felt more comfortable using them in their own classes.

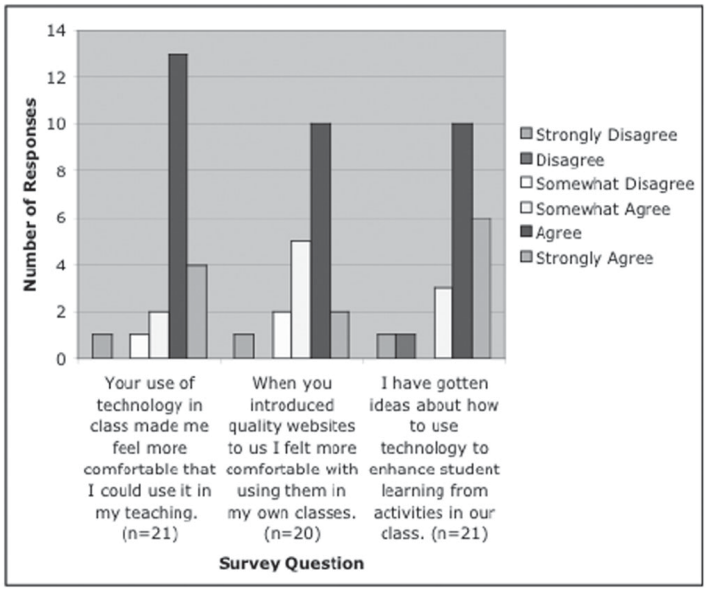


*Figure 1: Reported Impact of Instructor's Modeling*

Student comments during their interviews added specific details to these survey results. For example, in our first interview, Sara seemed to suggest that the instructor's modeling—teaching with technology—was important for her to decide that she could teach with technology. When answering a question about what she thinks she had learned thus far about teaching with technology, Sara replied:

> Last semester I took [Reading and Writing in Adolescent and Young Adult Education] and we learned about technology in that class. And, it all seemed very warm and fuzzy. And then we got in this class and you actually used it. I mean it was a thing where you were using it, and showing us that, "Yah, I'm doing this so I know you guys can do it too." And [she] did a little bit of that, but in your class I saw it being used. So that was what I mean, the modeling of it to us. Even as teachers just talking about, just modeling that to me was a lot of [it. I thought], okay, you know, maybe I can do that. So that had a lot to do with it. …

During our interview near the end of student teaching, Ian was asked to share his thoughts on aspects of the course or my teaching that made him more or less comfortable with using technology. He explained:

> I think [I'm] a lot more comfortable because we were actually doing it in your class. There was a lot of hands-on. … Having that experience there, seeing PowerPoint, seeing the notes in classes. Throughout my college experience but especially in your class it was helpful.

> Actually working with a WebQuest, working with several WebQuests, helped a lot because I was really unfamiliar with WebQuest until we got to the class. So, just having that interaction with it … that helped out a lot. … I know a lot of teachers, well a few teachers I talked to out there, they always talked about how their education teachers would tell you to do all this stuff while they were lecturing it and I could never relate because it seemed like everything we were taught to do we were actually doing it. Kind of then we were taught about it. So, it helped a lot. Not only in technology but across the board that we were actually doing.

Ian's response coupled with Sara's conveys the essence of what I have learned from my experience integrating technology into my social studies methods course this year. I learned that the prospective social studies teachers I teach need to experience learning with technology in classroom settings and that how the instructor teaches or does not teach with technology conveys a powerful message to the prospective teachers about how they should teach. Teaching by example was clearly a

valuable tool in the education of these prospective teachers. After this experience, I will continue to integrate technology into my teaching in ways that allow students to experience success with using diverse technologies to learn and I will continue to provide activities that engage students in application activities where they create activities and lessons with technology.

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