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AUTHOR Beisser, Sally R.
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ABSTRACT

This paper discusses the need for university faculty to effectively model appropriate and engaging uses of computer technology in teacher education courses. Preservice teachers need to experience implementing meaningful ways to use available technologies in preparation of lessons and activities. Specific reference to infusion of technology in elementary social studies methods is explored through methods course assignments which include electronic communication, electronic presentations, software analysis, Internet site analysis, multimedia project creations, and World Wide Web site development. Findings indicate that overall, the students in this course evaluate themselves as competent in use of technology in the social studies content areas. (Contains 19 references.) (Author/MES)

Infusing Technology in Elementary Social Studies Methods

By:

Sally R. Beisser

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Sally R. Beisser
Iowa State University
Ames, IA USA
sbeisser@iastate.edu

Abstract: This paper discusses the need for university faculty to effectively model appropriate and engaging uses of computer technology in teacher education courses. Preservice teachers need experience implementing meaningful ways to use available technologies in preparation of lessons and activities. Specific reference to infusion of technology in elementary social studies methods is explored through four methods course assignments which include software analysis, Internet site analysis, multimedia project creations, and website development. Findings indicate that overall, the students in this course evaluate themselves as competent in use of technology in the social studies content areas.

A Universal Problem:

While preservice teachers may be adequately trained to select software and hardware in introductory computer literacy courses, they seldom are provided the chance to plan or practice presenting lessons using their selections (Byrum & Cashman, 1993). Most preservice teachers receive less than 20 hours of hands-on computer training during their education (Glenn & Carrier, 1989). This training typically consists of mechanics of operating hardware and selected software applications in a required stand-alone computer technology class. The course focus becomes one of acquiring basic skills using basic tools rather than purposeful integration of technology in the curriculum content areas. Even with carefully designed computer courses in schools of education, only 29% of education majors felt prepared to teach with computers (U.S. Congress, 1988). While this study was conducted a decade ago, progress to optimally prepare America's preservice teachers to meaningfully integrate technology in curriculum content areas has not been fully realized (Brownell, 1990; Diem, 1989; Kerr, 1990; Shore, et al, 1990).

In addition to limited opportunities to implement technology in curriculum content areas, preservice students have few models provided at the university level. While many colleges of education require preliminary courses on basic computer literacy, too few teacher education programs have faculty who are modeling instructional methods that integrate computer technology (Handler & Marshall, 1992; Office of Technology Assessment, 1995). Teacher training programs must recognize the need for training in technology, taught across the curriculum. While scholars have advocated integrating technology in both methods and foundation courses (Berger & Carlson, 1988; Billings & Moursund, 1988; Bitter & Yohe, 1989), coursework needs to be redesigned to integrate technology within courses so that computers are used in relevant contexts. Computer technology should facilitate content learning from carefully designed course goals and

objectives that are developed using appropriate technology-based activities and practices (Todd, 1993).

Preservice teachers learn to teach the curriculum by using technologies they have learned or observed being modeled in their college classrooms. Without influencing role models in methods courses, preservice teachers are deprived of opportunities to witness examples of teaching with computers (Bruder, 1989; Fulton, 1989). According to Wetzel (1993), most college professors simply do not use it, despite accepted competencies indicating that education majors should learn how to use computer productivity tools for effective instruction.

The International Society for Technology in Education (ISTE) and the National Council for Accreditation for Teachers (NCATE) have established Foundation Standards that require competencies to use and evaluate computers and related technologies. Learners must operate software, multimedia and hypermedia, and telecommunications to support instruction. They must demonstrate skills in productivity tools for personal and professional use, understand equity, ethical, legal, and human issues related to technology; and stay current in educational applications of computers and related technologies. In spite of ISTE/NCATE Standards first initiated in 1991, many universities have not adhered to these guidelines nor have they taken leadership role in this movement (Wilson, 1995).

Even when promising new teachers begin their first teaching positions, their use of computers in the classroom is not what they had anticipated. Beginning teachers embark on their new teaching assignments with expectations to apply newly acquired computer knowledge and skills in their classrooms. Yet the complexities of surviving the first year 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 lack of time which inhibits technology integration in lessons and activities (Novak & Knowles, 1991). Even experienced computer-using teachers require five to six years to develop a framework for effective use of technology in teaching (Sheingold & Hadley, 1990).

This poor response to technology may be influenced by the fact that many college of education faculty lack the requisite skills or experience to model teaching techniques using computers in their areas of expertise. One suggestion includes higher education faculty infusing technology into the goals and objectives of the course content. In elementary social studies methods at Iowa State University the following technology plan was implemented.

An Infusion Solution in Social Studies Methods:

Electronic Communication: Approximately 30 preservice teachers file in the assigned university classroom for their first day of social studies methods. Like many college students they thumb through the new syllabus evaluating just how much "work" this

class will require and how accountable they will "have to" become in order to not compromise their current grade point average. On that first day, they must provide their e mail address and phone for the class composite and try to smile as I circulate taking photographs of them using my Sony Digital Camera. They quickly learn that technology is important in this class. They will receive relevant class announcements and exam study tips via group e mail. Exemplary Internet sites will be shared through their e mail. Electronic communication of their ideas in response to viewing a video from the "National Women in History Project" or "Winning at Teaching" when their instructor misses class to present at a national conference is required. In fact, student opinion is enhanced when forwarding an e mail response to the video. I hear from 100% of the students, as opposed single individuals who volunteer in class discussion after a whole class video viewing. Students learn e mail is an efficient way to contact a very busy instructor who manages to checks e mail messages several times daily.

Electronic Presentations in Class: The entire social studies course is presented on a Hyperstudio® stack outlining the required texts and materials, attendance and grading policies, course assignments, field component, and National Council of Social Studies (NCSS) Standards. After using a laptop and an LCD panel to introduce the course, this program is loaded on the hard drive of the education department computer lab "classes" file for perusal when students are preparing social studies assignments. PowerPoint® is used judiciously for class presentation of research and text material. Rather than using Power Point® as electronic overheads, discussion prompts and cooperative group tasks are included in the electronic presentation. By the second day of class, a new Power Point® contribution with each students' digitized photo along with their name is ready to present. All students learn better when they are recognized and valued. Calling students by name on the second day of class is a powerful way to include them in meaningful interactions.

Computer Software Analysis: Because students may have already had a steady diet of drill and practice software, one of their first assignments is to analyze interactive, engaging software for a grade level of their choice. Not only do we have class demonstrations for selecting and evaluating software for content relevant purposes, but students select four of their own software selections to analyze. Our department CTLT (Center for Technology in Learning and Teaching) laboratory has an excellent software collection, but cannot purchase every new software piece on the market. Therefore, I have found making requests to commercial software vendors, who want their software analyzed by our preservice students, to be a valuable investment. Some software must be returned to the company within a 90-day period, other demoware is ours to keep. Students evaluate software for the NCSS strand, teacher/student usability, user interaction, content development, instructional value, record-keeping ease, assessment capabilities, and modifications for a range of intellectual abilities.

Internet Challenge: Navigating the WWW for social studies sites begins by scanning my -"100 Best Websites for Teachers" (see http://www.public.iastate.edu/~sbeisser). Students locate 5 well-selected sites for teacher or student use. They evaluate those sites for NCSS strand connection and importance to understanding geography, history,

economics, political science, sociology/psychology, or current events. Students analyze attributes of the website and the potential to invite higher level thinking. Lesson plan ideas for a specific grade level or purposeful staff development uses are described for each site. At the end of the assignment, summary statements must be outlined providing 5 good reasons for Internet use in school and 5 thoughtful cautions regarding use of the Internet in the educational setting.

Multimedia Project: As a final project in the course, students may complete one of four major projects: A theme unit, an interactive learning center, a multimedia project, or a social studies website. Students may work collaboratively or independently on their final projects. There are revolving due dates for project completion and presentation in class. Students are encouraged to learn from each other and to try new skills. If they have never developed a multimedia presentation using Hyperstudio® or authored a webpage, now is the time to start. The multimedia project must focus on a social studies content area and address one or more of the NCSS Standards. Their multimedia project should include use of a map or globe, user interaction, thoughtful use of sound, text, graphics, animation, and have clear navigational guidelines. It must have an assessment component, a bibliography of sources, and modification for a range of intellectual abilities. The multimedia project should stimulate the user to think critically, respond reflectively, or react creatively.

Website Design: This assignment is to encourage students to move beyond a typical homepage displaying their resume, personal interests, and pets. The social studies website needs to connect to the NCSS Standards, engage the user in social studies content, and invite higher level thinking. Additional considerations might include website layout, text, color, graphics, sound, video, hotlinks, user navigability and interaction. There must be a way for user feedback and site visit counts. Variation for both capable and novice WWW users must be incorporated. A bibliography of credits and citations must be available in hard copy or online.

Responses from Preservice Teachers:

University students prefer taking responsibility for their own learning by self-selecting relevant assignments, reasonable due dates, and choice of group membership. Infusing technology in social studies content with the NCSS National Standards was a weekly practice, not a novel or contrived assignment. Commitment to use technology continued into their student teaching practice, according to informal communication from these methods class members. Student comments from end-of-the-semester social studies methods course and instructor evaluations were encouraging.

"I now have a goldmine of great social studies Internet sites from our whole class assignment to analyze websites. You usually don't get to benefit from everyone else's work."

"I learned more from this methods course than any other about how to create a meaningful webpage. I was the only female who wanted to create a webpage. At first the guys took over, then they realized I had both the interest and the skills to work on this project. We had neat hot link connections to Service Learning sites from all over the country. I really liked the service initiative in social studies education."

"Although I had never actually created a Hyperstudio® project before, I had a great partner, who was very patient and instructive. Working in a pair as we created our multimedia project on Inventions, allowed us to do our own research and to create a cool activity for 5-6th graders. We'll be able to use this in student teaching. We spent hours and hours on this, but the time flew by quickly. We were proud to present this in our methods class."

"Teacher educators will do well to model the use of computers in instruction so as to provide realistic examples from which these future teachers can later build" (Novak & Knowles, p. 49)

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