The Educational Media Experience in Teacher Education

by Sharon E. Smaldino and Robert Muffoletto

The teacher makes the difference in the learning process. The decisions a teacher makes about how to select and integrate technology influence learning (Heinich, Molenda, Russell, Smaldino, 1996). As the role of the teacher in the classroom changes, there has to be a greater understanding of the role of technology in the classroom. Teacher education programs can and should have a major impact in revisioning of the teacher's role.

The growth of technology in education has created a critical problem for teacher education institutions. Preservice programs aim to prepare students to use various technologies and experience an array of pedagogical practices. Further, these programs attempt to guide students in understanding the fundamental nature of applying technologies in the learning process. There is no easy way to address these issues.

Some programs call for a sequence of courses to address the technology issue (Betz and Mitchell , 1996; Honey and Moeller, 1990). Most teacher education programs struggle with being able to provide a comprehensive program of study within the traditional four-year program model. With the current trend toward a guaranteed four-year program, this precludes the possibility of adding courses. However, many teacher education programs already have an existing educational media course.

In this discussion, we offer a non-intrusive model for successful infusion of technology training in teacher education. Our model attempts to blend the contents of the existing single course with the need to nurture technology applications within methods and other courses. Thus, students first gain an understanding of the applications of technology in education in the broad sense, with an in-depth examination of how technology supports learning in specific content areas.

One University's Model

For many years students in teacher education at the University of Northern Iowa (UNI) have had the opportunity to learn about media and technology in the classroom. The scope of their experiences has evolved from a single course to a comprehensive developmental model. Changes in schools and the recognition of the role of technology has created a need for preservice students to have learning experiences that model the uses of technology. Students who complete preservice teacher education at UNI have had many opportunities to practice using technology as a tool to support learning.

Students begin their extensive program of study with an introductory basic technology course. This course, unlike a traditional "how-to" course, is focused on a two-fold approach to learning about technology's role in learning. The approach in this basic course is to have students think about supporting learning with various types of technologies, while also reflecting on how to use the various types of technologies available.

Initially, due to large enrollments much of the course took on the appearance of *lecture about*, rather than *experience with*, the media and technology. Often the class size was in the hundreds, making it impossible to do more than demonstrate a particular type of technology and its application in the classroom. With an initiative of the College of

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Education, technology — especially in the form of computers — became available to the students and faculty. With the change in the resources came a transformation in the approach to teaching about media and technology to undergraduates in teacher education.

The Basic Course

A separate course serves as a foundation for subsequent coursework, balancing the nature of learning to become a teacher. As young students venture into the realm of teacher education, they need exposure to concepts, such as the infusion of technology into learning. But, this exposure cannot be a single-subject approach, nor can it be without a foundation in the understanding of technology as a course of study. By creating a developmentally appropriate approach, beginning with a basic educational technology course, building on that knowledge base within other courses, students will emerge from preservice programs with an ability to incorporate technology in a meaningful way.

Students still enroll in a basic course, Educational Media and Classroom Computing. There are still large numbers of students, about 80 in each of four sections per semester. But, with creative scheduling and innovative approaches, student experiences include hands-on workshops, discussion of the role of technology in the teaching and learning process, and collaborative learning. The focus of the workshops is to provide students hands-on experiences with technology and to explore the potential for these technologies in teaching. The discussions focus on the role of the teacher in the decision process for integrating technology into the curriculum. Students work in collaborative study groups, practicing their craft of teaching by helping each other learn about workshops.

This new structure provides a multitude of experiences for students ranging from basic traditional media production like overhead transparencies to computer-based presentation techniques using PowerPoint. More recently, with the advent of the Iowa Communications Network (a state-wide fiber optic network), students have opportunities to experience distance education classes. Many assignments are submitted on floppy disk (something most of the students had never before experienced). Other assignments require them to use the Internet. Students have opportunities to develop skills in using hypermedia, electronic mail, the Internet, as well as many traditional applications. Much of the background information needed for production and assignments is provided in hypermedia format. In fact, students obtain their course syllabus, complete with handouts for assignments and periodic quizzes, on a floppy disk.

Students are given an opportunity to demonstrate their abilities with computer applications skills as part of the course requirements. They begin by demonstrating that they can use the Microsoft Works, an integrated applications program. Knowledge of word processing is demonstrated by composing a letter to parents. The assumption is that the students already know how to word process, so this assignment helps create an opportunity for success. Database experience is demonstrated by preparing a classroom database with four fields and five records. This database can be of their own choosing, or they can prepare an address file which is the assigned course task. A second "teacher-resource" database is an extension of their classroom discussions and their knowledge of creating databases. Spreadsheets are explored by the preparation of a gradebook file with data on four students, three graded "assignments," a total grade, an average grade, and a percentage grade. In addition to gaining the skills for managing these types of applications, students discuss how they might use them within their classes in the future.

Further enhancing their computer skills, students are required to develop a simple "lesson" using hypermedia. Using a step-by-step guide, students develop an understanding of the process for developing hypermedia materials. Later, for a final assignment, students are required to develop a lesson, planning for the incorporation of media and technology. They prepare a presentation of their plan using PowerPoint, complete with graphics and sounds. In addition to the presentation software, students

also prepare a newsletter to accompany the lesson, using PageMaker. They share the newsletter within their presentation. More recently a Web page has been added as a requirement in this assignment. The students prepare a Web page with graphics and links to sites that are appropriate to the success of the lesson they have planned.

An additional computer-based component includes telecommunications using the campus-wide network as well as accessing the Internet. All students at UNI automatically have access to an Internet account and their experiences with e-mail within this course encourage them to explore the potential of this technology. Many have taken advantage of communicating with other teacher education students or children around the world. Further, the faculty no longer maintain extensive office hours, since all students can reach them via electronic mail. Student distribution lists are made available to all the students so they may send information about campus activities to peers in the classes.

Beyond the normal fare, students have extra credit opportunities that include exploring graphics and desktop publishing applications. Students can use paint and desktop publishing programs, exploring the potential of these types of applications and the possibilities for use in the classroom.

But, what can a large enrollment class be without a lecture? Guest speakers are invited to share their experiences with technology with the students. School media specialists, technology using classroom teachers, administrators and researchers are invited to speak to the students about their specific activities with technology and kids. The students are excited about meeting professionals who are using technology in dynamic and interesting ways.

It is important to mention that the lecture sessions present opportunities for presentations and discussions that invite the students to reflect on the role and presence of technology in classrooms. Sessions covering educational television, visual literacy, virtual reality, and technology in education contextualize the educational uses of technology with historical and reflective contexts. For example, students are challenged to consider technology as a device or as a system. Students are asked — both by the teacher and by their future students — to consider technology as a tool (Muffoletto, 1997a). Questions are raised concerning race, social and economic status, culture, and gender as it relates to the selection and use of media in the learning process (Muffoletto, 1997b). Students are asked to consider the question: "In what ways does the technology position the teacher in respect to knowledge, curriculum, and the student?"

Beyond Educational Media

Since most of the students enroll in the educational media course during their freshman or sophomore years, many more opportunities await them in the infusion of media and technology within their programs of study. Experiencing the educational media course early in their program becomes a means for students to develop a "technological lens" through which they can view their other education classes.

One expectation of faculty at UNI is that they will incorporate technology within their teaching. For some this means using various types of presentation tools to support their teaching. For others, this means restructuring their courses into learning laboratories for students to engage in hands-on learning with technology. Courses at UNI incorporate different types of technologies and different types of experiences. Modeling the infusion of technology into the learning process has changed the nature of teacher education at UNI.

During subsequent coursework, students have experiences with using content-specific materials in simulated and actual classroom experiences. Having learned the basics in their media class, students build upon experience, enhancing their knowledge base while further exploring applications of media and technology in the classroom. By the time students are engaged in student teaching, they have had a multitude of experiences using technology for their own coursework and with children in preteaching practice.

Within the purview of a four-year preservice teacher education model, it becomes necessary to create an inclusive atmosphere for technology education. By providing an environment rich with resources and a faculty trained in the infusion of technology into their specific content areas, teacher education students have opportunities to experience and to understand the role of technology in the learning process. It is necessary for the institution to assume responsibility to faculty to help them develop this expertise. At UNI there is an extensive faculty development program with the goal to provide the personnel and hardware resources for faculty to engage in infusing technology into the curriculum

To not provide a developmental model for students risks the possibility that they will not recognize the pedagogical issues or will become limited in their scope of the role of the vast array of learning tools available. When students have had an extensive, comprehensive program of study that incorporates technology, they demonstrate a more successful approach to using technology in their own teaching.

One issue that repeatedly has to be addressed by the faculty is that of adding new technologies to the roster. What happens to the "old" stuff? Betz and Mitchell (1996) suggest that the programs cannot abandon the traditional audio visual technologies. Further, they suggest that there must be efforts made to include the more "modern" tools. This delicate balance is difficult to achieve because some students leave the institution to teach at rural schools with few advanced technologies. One approach, used at UNI, is to cover the spectrum across a number of courses, thus keeping the traditional material in the curriculum, but not placing a burden on any one instructor or course.

Also, self-study is another approach used to address this issue of what to do with the "old" material in these courses. At UNI there has been a major effort to capitalize on the use of computer-based learning. Faculty receive assistance in moving some of their content into a self-instructional mode by developing Web pages for students to study from during scheduled lab times or on their own time. This has helped deal with the issue of too much content for a short period of time. ■

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