
Teacher Education Goes Online

With technologies like satellite distance learning and computer-mediated communications, teachers are beginning to set educational goals that were not possible before this age of electronic communications.

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It turns on the light for me! I keep up with educational literature, research, and general information—plus I can discuss things online that we do not talk about in my school.

—Kathy, an elementary teacher

Using technology to communicate with geographically distant colleagues, Kathy is part of the new Information Age. Politicians and policymakers constantly remind educators of their duty to introduce students to the tools of this new age. Yet educators seldom get the time to experiment, learn, and practice integrating these technologies into their classrooms. This article will describe current innovative uses of technology in the education of future teachers and inservice of practicing teachers, and provide an overview of ways in which these information technologies can be used to enhance educational experiences in teaching and learning.

Achieving Education Goals

Educators are using information technologies to achieve two simultaneous goals. First, telecommunications can provide educational opportunities not previously possible and enable users to overcome distances, interact with model teachers and experts, and reduce turnaround time for collegial interactions.

Second, and perhaps more importantly, the technologies provide an opportunity for educators to become familiar with interactive media in natural and comfortable settings in which the equipment becomes almost invisible within the learning experiences. Most new teachers, even those who have taken a course in educational technology during their preservice training, report they are not comfortable with the technologies (U.S. Congress 1988). Yet educators face continuing demands to become proficient with technology in many forms and new teachers are expected to leave the university with knowledge in this area.

Although many reformers characterize teachers as resistant to technological innovations, they typically ignore the teachers' perspectives in implementing changes (Cuban 1986). In a study of one statewide telecommunications system for distance education, teachers were almost entirely ignored in planning and implementation meetings. Not surprisingly, the teachers have refrained from supporting the system (Schrum 1991).

If we incorporated technology into teacher education and professional development activities, we might provide educators with the time they need to gain confidence, identify appropriate uses, and experiment with specific techniques for their own classrooms. Two frequently used forms of

telecommunications that can be especially useful to educators are satellite delivery of instruction and computer-mediated communication.

Satellite Delivery of Instruction

Commonly called distance education, satellite delivery of instruction involves combinations of interactive equipment. A satellite signal, sent from an "uplink" station where programming originates, can be received in schools equipped with a large receive dish. Paired with two-way audio communication, the video signal allows students and teachers to interact regardless of geographic location. Following are three examples of how this type of technology is used in teacher education.

Iowa State University. One of the most difficult tasks of teacher preparation has always been demonstrating examples of good teaching. Student interns typically observe five or six master teachers. Iowa State University's unique program provides many more diverse, high-quality introductory experiences of exemplary teaching.

Now in its fifth year, Teachers on Television (TOT) chooses teachers for their diversity in grade level, teaching style, and educational philosophy. Before each broadcast, the participating teacher supplies information about the instructional setting. During the broadcast, an education faculty member helps students bridge education theory with actual teaching practice. At the end of the broadcast, students participate in a follow-up interview with the teacher. They discuss that teacher's teaching style and their own future plans and identify successes and problems (U.S. Congress 1989).

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Learn Alaska. A number of states are currently delivering professional development programs via satellite. Teachers in rural areas may not have easy access to graduate courses, recertification classes, or updates for regional or national mandates (special education or AIDS information, for example). With satellite transmissions, however, geographic isolation no longer means educational isolation. Teachers around the country are now able to learn from recognized experts in specific fields with reasonable costs.

In 1987 Alaska began an extensive distance education project, "Learn Alaska." One part of the project focused on professional development for educators using video and audio transmissions. Programs featured educators like the internationally known "Art Maker," Dan Mihuta, who described techniques for art instruction in elementary schools, or provided instruction on the use of drama in counseling teenage students (Bramble 1988).

Los Angeles staff development. This technology is not limited to use in rural areas, however. In Los Angeles, where a late afternoon drive across town can take up to two hours, the County Office of Education provides staff development via satellite. Programming is provided at no charge to 62 districts in the county and 25 others around the state. Staff development telecasts in curriculum reform are the most frequent broadcasts. Programs are live and interactive; viewers are able to call in their questions and comments. Many programs allow time for participants at local sites to discuss ideas and then offer them to presenters and other groups.

Computer-Mediated Communications

"I'm in dire need of help! At this point I feel like one of those teachers I always said shouldn't be teaching," stated Anita Houck's message. Houck asked for help from colleagues, but not on the telephone or in the teachers' lounge. She

sent an electronic message to former classmates and instructors around the country. Within hours of sending this SOS, Houck received practical advice and moral support. Afterwards, Houck felt relieved: "I was really lost. The emotional support I got back helped" (Rodman 1989, p. 33).

This incident took place on an electronic bulletin board in one of several experiments to better prepare and support new teachers. Computer-mediated communication (CMC), defined here as communication across distances using personal computers, modems, phone lines, and computer networks, has several unique characteristics. CMC provides immediate communication, access to previously unavailable communities, multiple participation in activities, and a window to the richness of our world.

Two important features stand out: CMC is essentially a medium of written discourse with the spontaneity and flexibility of spoken conversation, and it is a powerful tool for group communication and cooperative learning. In a case study of a graduate seminar that used face-to-face meetings in combination with electronic projects and communication, participants felt they had better collegial interactions, worked more cooperatively with others, and had a more substantive relationship with the professor than in other classes (Schrum 1990).

Curry School of Education. For example, the Curry School of Education at the University of Virginia created Teacher-LINK, an electronic bulletin board system to connect student teachers in the field with their university professors. Students, who are given an account on the network when they enter the program, are able to communicate with professors, colleagues, and classroom teachers. The originators of the program hope that "by graduation, they will use the network as fluently as the blackboard and become the first generation of teachers trained to use an extended academic community as an

instructional resource" (U.S. Congress 1989, p. 13).

This project began with an equipment grant from IBM, software donations, and support from the local telephone service. Operating costs have been shared by local school systems and the Curry School of Education. Students and faculty exchange lesson plans, obtain peer support, provide feedback and clarification, schedule meetings, and share curriculum ideas.

Harvard School of Education. Harvard University's Graduate School of Education has found a way to better address the needs of teachers (Rodman 1989). Typically teachers in their first job are some distance from the support and wisdom of trusted colleagues and instructors. Fifteen percent of new teachers leave teaching after the first year, perhaps because of this lack of support.

Katherine Merseth, former director of teacher preparation at Harvard, came up with a unique idea. Using a personal computer and modem, faculty can provide support to first-year teachers, as can their own peers. Using grant money, Merseth launched the project in 1987. During the first two years of the project, approximately 90 participants transmitted more than 7,500 messages.

This network also helps former students continue discussions about the education issues, theory, and policy that had become so much a part of their lives at the university. After listening to the testimony of dozens of Harvard graduates, Merseth is certain she is "on to something. This is a coming thing."

Mary Driscoll, a teacher in a Boston alternative school, agrees: "Being on the network helped me keep a sense of the bigger picture and what the whole endeavor of education is all about" (Rodman 1989, p. 34).

University of Oregon. When the University of Oregon briefly implemented a fifth-year teacher certification program, it made integration of technology into the curriculum one of three

main themes for the teaching strategies and instruction. Faculty and students began to communicate with each other electronically and to use the common electronic bulletin board system for announcements and general discussions.

Originally it was hoped that cooperating teachers, supervisors, and student interns would share experiences and feedback using the network. But there was not enough time for participants to learn the system and there was limited access to equipment. One supervisor said, "I can't see using it for immediate feedback or evaluation yet. Later on, when we become more comfortable with the computer system, I would like to offer the students opportunities to interact with other preservice classes around the world."

CMC is also being used in teacher development and enhancement. The International Society of Technology in Education (ISTE) offers an independent study course, "Telecommunications and Information Access for Educators." Participants exchange electronic mail, participate in computer conferencing, and search remote databases. The entire course takes place online, which speeds turnaround time for assignments and increases the number of student/instructor interactions. Educators earn four graduate credits from the Oregon State System of Higher Education while learning the technologies they will need for the future.

Classroom Uses of Information Technologies

Once teachers are comfortable with these emerging technologies, many classroom uses become possible. The technologies provide exceptional opportunities to meet educational goals, enhance personal and professional development, and diminish teacher isolation. All levels of education—universities, K-12, and continuing education—can now be electronically linked to each other and to informal learning institutions such as museums and public libraries. Teachers can

arrange for their students to interact with classes around the world, investigate remote sources of information, and facilitate the democratic process as groups share information equally. Students learn to recognize the similarities among all citizens and to celebrate the distinctive aspect of each culture.

Teachers are beginning to set educational goals that were not possible before this age of electronic communications. These goals support all curricular areas, but especially the writing process. Recent research validates teachers' long-held belief that students write more carefully, edit their work, and plan more extensively when they are communicating with an audience of peers (Anderson-Inman 1990, Riel 1990).

Projects reported in educational journals reflect this diversity:

- Puerto Rico and San Diego classes participated in bilingual education projects (Sayers and Brown 1987);
- Australian-American connections shared national information and planned a joint Halloween party (Butler and Jobe 1987);
- Sixteen countries produced a water collection and usage survey (Schrum 1989);
- Tokyo and San Diego university students discussed issues such as suicide, peaceful alternatives to war, and water supply systems (Riel 1987).

Unlimited Opportunities

The activities reported here are demonstration projects. Technologies like satellite distance learning and computer-mediated communications can be used to accomplish dual goals for teacher preparation: they enhance meaningful preservice experiences and they give teachers knowledge and confidence about using these tools in their classrooms. These technologies are changing preservice and staff development education. Once teachers become familiar and comfortable with these technologies, unlimited opportunities exist for their students and themselves. □

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