Virtual Field Experiences: Helping Pre-Service Teachers Learn about Diverse Classrooms through Video Conferencing Connections with K-12 Classrooms

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Abstract: Field placements for future teachers must address issues such as diversity and technology use. Video conferencing technologies can help pre-service teachers to observe and interact with K-12 classrooms at a distance. New IP-based video conferencing systems provide good quality video and audio over the Internet at low cost. Pilot projects as part of a PT3 implementation project have developed models for linking pre-service teachers with K-12 teachers/students for virtual field experiences. Advantages of this approach include: developing pre-service teachers' observational skills, experiencing diversity, and providing opportunities for learning to use this technology. Limitations include school Internet firewalls, classroom audio and sometimes video problems, and lack of in-person contact. The technology offers promise for certain kinds of field experiences.

Introduction

Teacher preparation programs must prepare future teachers to meet national and state standards, learn to use technology, and understand diversity and multiculturalism in an era of increased emphasis on performance. Field experiences are a key means to better prepare teachers for the diversity and complexity of today's classrooms (Goodlad, 1990), but many colleges of education have difficulty placing students in field settings that provide for needed experience. Distance education technologies offer promise as a means to provide needed experiences for pre-service teachers when appropriate field sites are not in close proximity. Purdue University has initiated an innovative project in the use of technology-enabled field experiences, part of the Purdue Program for Preparing Tomorrow's Teachers to use Technology (P3T3) project, a PT3 implementation grant, to address key components of its teacher preparation program including understanding of classrooms and diversity, technology integration, and development of appropriate instruction for K-12 learners.

Using video conferencing technologies, future teachers observe and interact with K-12 classrooms from afar. In the past, closed circuit television has been used for observation of classrooms in teacher education programs (Abel, 1960; Hoy & Merkley, 1989). These older technologies, while effective in promoting future teachers' observation skills, were expensive and difficult to set up and maintain. Today's video conferencing technologies offer a flexible and cost-effective option for pre-service teacher to interact with school-aged learners at remote school sites. Particularly promising are IP-based video conferencing technologies that support good quality group-to-group or individual-to-individual video conferencing over the Internet. This short paper reports on a P3T3 pilot projects designed to link pre-service teachers and classes with K-12 students, teachers, and classrooms. A more extensive paper is available at: http://p3t3.soe.purdue.edu.

Virtual Field Experiences

Purdue's P3T3 initiative is making use of two-way video conferencing to link pre-service teachers in college classes with K-12 students and classrooms at distant locations. This pilot initiative was designed to explore models for enhancing teacher preparation through linkages with participating K-12 schools. Technologies used include: an intrastate fiber optic video network called Vision Athena (http://www.visionathena.org) and Internet-based video conferencing using equioment from Polycom (http://www.polycom.com). Two pilot projects are briefly described here.

Each semester for three years, Professor JoAnn Phillion and students in her introductory teacher

education course, Exploring Teaching as a Career, have used video conferencing to link with a teacher and students in an elementary school in a diverse inner city school in East Chicago using Polycom equipment. The two sites connected once a week throughout the semester for 1-2 hours. During that time pre-service teachers observed the classroom, interacted with the children and teacher, and prepared a variety of enrichment activities, which they taught using the interactive capabilities of the technology. Lesson content has included fractions, readings with follow up questions, skits about a historical figure, Japan and its culture, and the 9/11 disaster. Communication with the students in the bilingual classroom occurred in both English and Spanish.

In another pilot project, teams of university students in Professor Tristan Johnson's course, Production of Instructional Materials, created web-based and video-delivered instructional materials for students in participating K-12 classrooms. In one semester, university students created a web-based virtual field trip for 2nd grade students and used video conferencing to lead the children through the lesson. In another semester, the university students developed a lesson about stock market economics for 5th graders. In a third semester, university students created a lesson built around a popular engineering contest founded at the university, the Rube Goldberg Machine Contest. The university team developed a website about Rube Goldberg, metric measurement, and simple machine concepts. Video conferencing was used to present the lesson and for the final activity, in which the 5th graders demonstrated Rube Goldberg machines that they had created for a judging panel of university students.

Evaluation

In these pilot projects, pre-service teachers quickly learned to use a "cutting edge" technology. Their classroom observational skills improved, and class discussions benefited from the shared context. They worked together and developed appropriate instructional materials for K-12 learners. The technology itself generally functioned well, yielding a good quality connection between sites distant from one another. The flexibility of the IP-based connection allowed for linking to specific school classrooms without the need for specialized distance education rooms or equipment (other than the video conferencing units). However, making an IP-based video connection is not yet a routine process. The school's Internet firewall must be opened, and this can be technically challenging. The technology is good, but technical problems disrupted some video conferencing sessions. IP-based video conferencing connections can become "choppy" or break up as a result of limited bandwidth or network congestion. The video quality, while pretty good, is not clear enough for noting subtle facial expressions and body gestures. Audio can also be problematic in classrooms where the noise level makes it difficult to hear individual children. In the end, while a good experience, it is not equivalent to being in the classroom. Despite the challenges, virtual field experiences offer significant promise for expanding the options for linking students in teacher preparation programs with K-12 teachers and students. While we do not advocate replacing traditional field experiences with virtual field experiences, these experiences have significant potential for augmenting the experiences of prospective teachers in university preparation programs.

References

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