

Video Conferencing as a Tool to Link Colleges of Education with K-12 Schools: A P3T3 Project Initiative

James D. Lehman
Purdue University
1442 Liberal Arts and Education Building
West Lafayette, IN 47907-1442
lehman@purdue.edu

Rabih Razzouk
Purdue University
1442 Liberal Arts and Education Building
West Lafayette, IN 47907-1442
razzouk@purdue.edu

Abstract: Distance education technologies offer capabilities that can be used to enhance teacher preparation while addressing technology integration issues in teacher preparation programs. Video conferencing allows pre-service teachers to observe and interact with K-12 classrooms at a distance. This can provide needed access to diverse student populations and examples of exemplary technology use that may not be available in nearby schools. As one part of P3T3: Purdue Program for Preparing Tomorrow's Teachers to use Technology, two-way video conferencing is being used to link college students and classrooms with K-12 students and classrooms. Particularly promising are new IP-based videoconferencing systems, which support high quality video conferencing over the Internet. Initial experiments in the use of this technology suggest that it provides a viable alternative for some types of student observations and interactions with K-12 teachers and students that typically occur through traditional field placements. Advantages include support for directed observations, linkages with diverse settings, and integration of technology. Limitations include issues with school firewalls, classroom audio, and the fact that these are not true field experiences.

Introduction

Distance education technologies can be used to enhance teacher preparation while addressing technology integration issues. Future teachers can use distance education technologies to observe and interact with K-12 classrooms from afar. Experiments involving the use of closed-circuit video technologies to link colleges of education with K-12 classrooms date back many years (e.g., Abel, 1960). In the 1980s, Iowa State University's Teachers on Television project used microwave-based video connections to link the campus with multiple public school classrooms and teachers. Project results showed that the observation skills of pre-service elementary teachers could be improved through training involving the use of these video connections to classrooms (Hoy & Merkley, 1989). However, these older video technologies were expensive and difficult to set up and maintain. Today's video conferencing technologies offer a flexible and cost-effective option.

P3T3 Project Video Conferencing

Many colleges of education face difficulties placing students in field situations that provide for needed experiences such as access to diverse student populations and examples of exemplary technology use. This problem is particularly acute for Purdue University, which is not located near a major metropolitan center. As one part of its P3T3: Purdue Program for Preparing Tomorrow's Teachers to use Technology project, two-way video conferencing is being used to link Purdue students and classrooms with K-12 students and classrooms. Particularly promising are new IP-based videoconferencing systems, which support high quality video conferencing over the Internet. These newer technologies are more flexible and less expensive

than preceding video technologies.

We use equipment from Polycom (<http://www.polycom.com>), which makes room-to-room as well as computer-based desktop video conferencing units. Viewstation SP or Viewstation FX units are used for room-to-room conferencing. The Viewstation SP connects two sites at data rates up to 768 Kbps. The Polycom Viewstation FX is a high-end room-to-room unit that has a built in a Multiple Control Unit (MCU), a device that bridges together multiple inputs so that up to four sites can participate in a video conference. Computer-based desktop video conferencing is done with Polycom's ViaVideo, which offers video and audio of high quality at connection speeds of up to 384 Kbps. ViaVideo, which is available for Windows-based PCs, supports file sharing, whiteboard, chat, and file transfer along with video conferencing.

A year-and-a-half experience with IP-based video conferencing technology suggests that it provides a viable alternative to traditional field placements for some types of student observations and for interactions with K-12 teachers and student. The technology offers several advantages. (1) Beginning pre-service teachers are poor classroom observers. Using video conferencing, pre-service teachers can make observations under the direction of a faculty member and so improve their observational skills. (2) Students cannot observe a full range of school settings in close proximity to the college campus. This technology supports linkages with schools at remote sites that can provide access to diversity, technology use, etc. (3) The technology is relatively inexpensive, easy to use, and flexible. Because it requires only a fast Internet connection, it can reach places that other technologies cannot easily reach.

However, as with any new technology, there are also shortcomings. (1) IP-based video conferencing equipment requires access through the school's Internet firewall. School technicians must make the necessary arrangements, which can be time-consuming and difficult if the school's technical support staff is not fully knowledgeable about firewalls. (2) Video conferencing over the Internet requires high bandwidth (typically 128 Kbps or better) to insure a stable connection of acceptable quality. Network traffic can lead to degradation or even interruption of the connection. (3) This is a new way of communicating for most people. Participants have to take time in the beginning to get used to the technology and become comfortable in using it. (4) Audio problems can limit observations and interactions. Typical classroom noise makes it difficult for pre-service teachers to listen to particular conversations in a busy classroom. This is not usually a technical problem per se, but it can cause problems. For more information, visit our website at: <http://p3t3.soe.purdue.edu>.

References

- Abel, F.P. (1960). *Use of closed circuit television in teacher education: Relationship to achievement and subject matter understanding*. Minneapolis, MN: University of Minnesota. (ERIC Document Reproduction Service No. ED 020 473)
- Hoy, M.P. & Merkle, D.J. (1989). *Teachers on television: Observing teachers and students in diverse classroom settings through the technology of television*. Ames, IA: Iowa State University. (ERIC Document Reproduction Service No. ED 319 711)
- Moursand, D. & Bielefeldt, T. (1999). *Will new teachers be prepared to teach in a digital age?* Research study by the International Society for Technology in Education, commissioned by the Milken Exchange on Educational Technology. Milken Exchange on Educational Technology. Available online: <http://www.mff.org/pubs/ME154.pdf>.
- Panel on Educational Technology. (1997, March). *Report to the President on the use of technology to strengthen K-12 education in the United States*. Washington, D.C.: President's Committee of Advisors on Science and Technology.
- Office of Technology Assessment. (1995, April). *Teachers and technology: Making the connection*, OTA-EHR-616. Washington, D.C.: U.S. Congress, Office of Technology Assessment.

Acknowledgements

The contents of this paper were developed under a grant from the U. S. Department of Education.

However, those contents do not necessarily represent the policy of the Department of Education, and you should not assume endorsement by the Federal Government.