Technology in Teaching, Colleges' Responses

Many CAS faculty make use of university facilities that support technology, and the CAS Technical Support Unit (CASTS) provides assistance to departments and individual faculty with teaching technology. CASTS maintains the instructional equipment in several large lecture halls (computers, video projectors, DVD players, etc.) Several CAS instructors have been pioneers in the field of distance learning and still offer distance courses in subjects such as French, algebra, chemistry, physics, and political science. In addition, CAS faculty members have been active in offering courses through compressed video at locations ranging from OSU-Tulsa to classrooms at business locations. CAS Outreach also has begun working with faculty interested in offering general education courses in several subjects.

SSB encourages faculty participation in university-sponsored programs related to new technologies, especially seminars on software such as *Blackboard*, *WebCT*, and others. The school also provides server support and technical help when MSTM, MBA, and other instructors and students use *Webboard* software for student interaction in distance-learning programs. SSB reports that video-streaming applications were practically invented in the MSTM program and became a dominant delivery mode for a few semesters before CD-ROMs and the Internet replaced them. School resources available to faculty include a three-year-rotation schedule of new, high-quality computers on each desktop, excellent technical support for software and hardware problems, and network management and servers for classroom materials and instructional aids. The students' technology fees provide a wide range of software in the SSB computer lab and extensive printing opportunities. SSB has four computer labs in three different buildings that are designed to meet the needs of both students and faculty. The SSB also is home to the unique Trading Floor lab, which simulates the New York Stock Exchange Trading Floor. The purpose of these labs is to allow student access to general and special purpose software used by SSB and university faculty in their classes.

CASNR maintains five multimedia classrooms and three college teaching computer labs.

Each CEAT faculty member has one or more computers on his or her desk. Many also have laptop computers and/or computers in their laboratories. Faculty members who frequently record lectures for asynchronous delivery can have a camera installed on their monitor. Those who have less frequent use for such facilities can use rooms equipped for non-class lecture recording.

CEAT also operates six distance-education studios that are equipped for two-way video, audio, and digital recording. Some of these studios are reserved for regularly scheduled credit courses, and some are for one-time class meetings and continuing-education events. The college also provides computer classrooms and student computer laboratories. The computer laboratories have computers with all software needed by students in all CEAT classes. The laboratories are open either during regular building hours, or anytime with special access for CEAT students. Currently, CEAT-supported

student computers are available in a ratio of approximately one computer per eight students. In addition, individual academic units provide computers for control or data logging functions in other laboratories.

Each of CEAT's major student computing facilities is equipped with a local area network, and each building with computer laboratories has a server to address needs spanning multiple labs. One server and a backup server address the needs that span multiple buildings. There are more than 450 networked computers in these facilities. These computer systems have Windows-based desktop computers, as well as UNIX-based application servers. UNIX servers also have X-terminals, which provide graphical terminal capabilities to the host server. The UNIX systems facilitate the distribution of specialized engineering applications through secure remote access. Basic productivity software packages and specialized engineering software packages are provided on each Windows system to match the classroom requirements on a semester-by-semester basis. The systems in the open laboratories are loaded with all available software packages so students can access all of the packages needed for their class assignments and projects outside the regular classroom setting.

CEAT also has a substantial involvement with distance education. In the last couple of years, the college has facilitated the distance delivery or reception of 90-100 courses per year. These courses are delivered by two-way video, streaming video, CD, and video tape. CEAT Distance Education Outreach supports the faculty member with all scheduling, course approval, transmission, recording, delivery and receipt of course materials, and negotiations with receiving or transmission sites. The distance sites include individuals, corporations, and other institutions of higher learning. Several courses are shared by distance education between OSU-Stillwater and OSU-Tulsa.

CHES has two computer labs that offer technological access for students and faculty. Computers and software are upgraded on a regular basis to ensure the latest and best hardware/software is available for students and faculty. The CHES Technology Committee is comprised of faculty and students. This group frequently allocates funding for the purchase of software that is needed by faculty to facilitate innovative teaching. The college currently has eight fully equipped multi-media classrooms and plans to equip several more.

CHES examples include:
- AutoCAD for interior designers installed in a lab to teach computer-aided design;
- PhotoShop software provided for faculty in Human Development and Family Science and Design, Housing and Merchandising;
- A color printer in the computer lab, at the request of students, to meet the needs of the apparel design and production program;
- Wireless access points in two locations within the CHES building to allow students and faculty to use laptop computers with wireless connections to the Internet;

- Multimedia equipment in several CHES building classrooms to deliver multimedia presentations, access to the Internet, and other technology-driven instructional approaches; and
- A *Polycom* videoconferencing system for use in bringing more practicing professionals into classrooms.
- A new teaching methods classroom for Early Childhood Education (ECE) courses within the Department of Human Development and Family Science to allow ECE students to practice utilization of technology in teaching children.

Several CHES courses are taught via compressed video or *Polycom* videoconferencing to help teach Tulsa and Stillwater students the same curriculum. Faculty members have developed online courses that are delivered regularly. The Human Development and Family Science Department has on ongoing contract with the Department of Human Services (DHS) to provide courses, via distance education, to DHS professionals. CHES is a member of the Great Plains Interactive Distance Education Alliance (Great Plains IDEA), which delivers a totally online masters program in Family Financial Planning, Gerontology, and Merchandising. Courses are delivered from various alliance campuses, including OSU, and course enrollment is comprised of students from all alliance campuses.

The College of Veterinary Medicine (CVM) supports innovative teaching strategies through the Office of Multimedia Curriculum Development. This office supports faculty efforts to develop and deploy state-of-the-art instructional modules for both in-class and out-of-class instruction.

CVM provides a pervasive technology environment in support of delivery of innovative instructional materials including: Web services, streaming media services, electronic assessment delivery services, fully equipped multimedia classrooms, and wireless access in classrooms and the library. Since the college is a professional school, the expectation is that the student is a resident participant in all four years of the curriculum, thus distance education in the traditional sense is not applicable. But, the college does seek out external entities to provide specialized instructional programs to complete gaps in the expertise pool of the college. To date, programs have been delivered by inbound telecommunications in radiology, nutrition, and practice management. Within the DVM graduate education component, several courses have been taught via real-time distance education in cooperation with the OSU Center for Health Sciences and the University of Oklahoma Health Science Center.

The Center for Applications of Remote Sensing (CARS) lab maintains the university-wide site for ERDAS Imagine (industry standard for image processing software) as part of the Higher Education Annual Kit (HEAK). CARS regularly upgrades software, requests license files, installs software on a licensed server, and monitors license usage on campus. This maintenance is critical for smooth and efficient operation of departmental teaching labs and for research projects undertaken in the CARS lab. Additionally, large-format color scanning is available to support faculty needs.

Each of the COE's 10 regular classrooms in Willard contains a multimedia station that includes a Windows computer, with a DVD drive, a VCR, and a multimedia projector. Some also house document cameras. The college also has some specialized classrooms that contain multimedia equipment, including two rooms with TV/VCR set-ups, one with a LaserDisc, one distance learning room with a full multimedia set-up, and a large lecture hall with a full multimedia set-up. In addition, COE has three reservable computer labs with multimedia projectors. Two of them, which are Windows computer labs, have VCRs and document cameras. The other lab has both a Windows computer and Mac G5 computer at each station. All of these rooms, as well as all conference rooms, contain overhead projectors, and one conference room contains a video-conferencing unit and a surround-sound speaker system, DVD player, and VCR. In addition, all rooms are connected to the campus network system, as well as the campus cable television system.

Finally, the main COE Computer Lab and Resource Center contains a full array of check-out equipment, which includes four Windows laptops; one Mac laptop; five multimedia projectors; four digital cameras; two digital camcorders; four transcribers, both macro and micro; one analog camcorder; two multimedia carts; one mobile classroom that contains 20 Mac laptops, a wireless Internet access point, and other equipment.

COE's Resource Center contains many other supplies and tools, such as papers, writing instruments, die-cuts and other tools that help prepare future K-12 instructors. Mac computers and other equipment are available to help with video editing. COE also has trained staff and instructors who can help students use the many tools available to them.

The Educational Technology Center and COE Technology Group have been the main support structure for distance education in the college. The center's manager and graduate assistants are administrators in the university's *Blackboard* system. This system is used by most COE faculty who use some type of courseware, either for fully on-line courses or supplemental course work. One classroom is currently set up for traditional H.320 compressed video classes. While the college had seen a decline in this type of instruction, a large resurgence has occurred in the last three semesters. In addition, the center currently has an H.323 IP video-conferencing system, and various other cameras are set-up on local machines for H.323 IP video-conferencing. Traditionally, the technology group has worked with Education Outreach and all other groups in mentoring and planning the best way to implement distance learning projects. The COE Technology Group has been involved with grants associated with Oklahoma State Legislative Bill HB 1815, which is a learning initiative for kindergarten through higher education institutions. The initiative's focus is on training instructors to become more technologically literate. The group also received a grant from the United States Coast Guard to offer training, mainly for its auxiliary group. This experience provided great resources and practical instruction for the COE group. Finally, some of the group's members are currently involved with a U. S. Department of Education Star Schools grant in the use of information technology in instruction.