The University of Arkansas at Little Rock (UALR) has offered a personnel preparation program in orientation and mobility (O&M) since 1975. Since that time, nearly 400 individuals from the United States and numerous foreign countries have either received degrees or have become eligible for national U.S. certification in O&M. However, it became increasingly apparent over the years that fewer individuals were willing to move to Little Rock for up to 13 months to receive their education and training. For many, this relocation for educational experiences meant leaving their families and even terminating their employment. Most had to make career changes to become O&M specialists.

To address this predicament, UALR’s O&M program initiated one of the first summer mobility programs in 1987. Students came to Little Rock for five weeks in each of three consecutive summers to receive core mobility courses and to do their student teaching with children from the Arkansas School for the Blind (ASB). They completed their programs with a full- or part-time internship in their home areas. Individuals who participated in this summer institute were primarily classroom teachers who had or planned to have a student with a visual impairment in their classrooms and who did not have an O&M specialist available to them during the academic year.

Over time, it became apparent that the majority of students in the O&M program at UALR were coming for the summer institutes and that the number of students who were able to attend during the academic year was declining. To meet the changing needs of students and to keep the program viable, it was necessary to find a way of attracting students to the program (and to the profession) throughout the calendar year, not just in the summer.

**PLANNING AN INTERNET-BASED O&M PROGRAM**

In spring 2002, the O&M coordinator decided to plan and execute a major revision in the delivery of the O&M program. As a result of a survey that I conducted of students, alumni, and colleagues, I developed and implemented a plan to transform the traditional O&M program into an Internet-based O&M program in the spring semester of 2002.

One of the main concerns was how to provide the O&M simulations (blindfold and low vision simulator experiences) in an Internet-based curriculum. It was imperative that the integrity and quality of the program would not be compromised with the change in delivery approach. One option that was considered was to use adjunct mobility specialists at various sites around the country. Drawbacks to this approach were that it would be expensive to implement, the quality of instruction and supervision might be compromised, and students would still need to travel to and live at those sites for up to five weeks at a time. These drawbacks seemed to defeat the convenience, flexibility, and attractiveness of an Internet program. Therefore, it was decided to offer a combination of the current summer institute with the new Internet-based curriculum. Benefits of this model were that the site was already established and that the students would receive instruction and supervision from the program’s faculty member, identify with the program (and university), develop a professional O&M identity, and meet face to face with the other students with whom they were taking online courses during the academic year. I felt that it would be imperative
for students, living throughout the country and perhaps throughout the world, to develop a cohesiveness with their classmates, along with a burgeoning professional O&M identity. I strongly believed that this cohesiveness could be accomplished only through in-person interactions with one another at one site.

IMPLEMENTING AN INTERNET-BASED O&M PROGRAM

Once the conceptual plan was developed, the implementation process was relatively straightforward. I reexamined the entrance requirements to accommodate students who lived at a distance from the university and to align them with existing master's degree programs in the department that were either already online (the rehabilitation counseling program) or were soon to be online (the rehabilitation teaching program). Rehabilitation counseling courses that were required for the O&M degree were already being offered online and needed no modifications or adaptations. Specialized courses, such as The Medical Aspects of Blindness and Associated Disabilities, Low Vision, and Principles of Orientation and Mobility, would be transformed into online courses during each of the respective semesters that they were to be offered. The core O&M courses, including the two "blindfold" courses and student teaching, would be offered in two five-week summer institutes. Internships would be the capstone experience offered in the students' home areas under supervision of a certified O&M specialist, as had always been the case. Students could complete the newly designed Internet program in 2.5 years by attaining a masters degree or certification-eligibility from the Academy for Certification of Vision Rehabilitation and Education Professionals (ACVREP).

The university had a contract with the Teletraining Institute in Stillwater, Oklahoma, to train rehabilitation counseling faculty in the delivery of Internet courses, especially, in the use of Blackboard, an Internet course-management software platform. Blackboard, and hence the Internet courses, were housed on the server at the Teletraining Institute. Therefore, users had no need to download the streaming video lectures (described later) to view them, which saved local download time and personal computer space. The streaming videos could be viewed in nearly real-time speed, depending on the user's computer speed and Internet transmission speed.

The technicians at Teletraining offered numerous workshops for me and other instructors in using Blackboard and helped develop a stand-alone web site for the O&M program. I advertised the new online program through various Internet professional bulletin boards and a mass mailing to various agencies and schools for students who are visually impaired nationwide. By the beginning of the fall semester of 2002, the program had received well over 100 e-mail inquiries that led to 22 serious applicants from across the United States. Of these formal applicants, 12 were initially accepted into the program and began by taking 1–2 courses online in the fall of 2002. This number compared with an average of 2–4 full-time students and 6–7 summer students in each of the previous three years. Twelve more individuals started their courses in the spring 2003 semester. An additional 20 students began their programs of study in 2004. Four students completed their degrees in December 2004, and 7 more completed their degrees in May 2005. Students applied to the program, enrolled in courses, paid the tuition, bought books and other course materials, took examinations, accessed the university's and other universities' libraries, and applied for graduation—all online!

STREAMING VIDEO INTERNET COURSES

Streaming video has made this online program unique in O&M training. Streaming video is the process of videotaping lectures
with "overheads" of the main points of the lecture off and behind the lecturer's left shoulder using ChromaKey hardware and Microsoft's PowerPoint slide presentation software. (This technique is similar to one used by a news anchor or weatherperson on television.) The lecture, or any other videotape for that matter, was then transmitted to the course-management site, digitized, and placed in the Blackboard course site for the enrolled students to view day or night using Real Player, free, downloadable Internet video player software. Students used e-mail, virtual (real-time) chat rooms, discussion forums, and telephone calls for clarification, education, and general communication with each other, the instructor, or guest lecturers.

All the aforementioned communication models were used in the first course, the Medical Aspects of Blindness and Associated Disabilities, that was offered in fall 2002. Guest lecturers from the University of Arkansas for Medical Sciences, the UALR School of Nursing, and private medical and technical practices were used for this course. Their lectures were preserved and made available for use in subsequent courses. Students e-mailed their papers and projects at specified dates and took their examinations in real time at designated dates and times.

The Blackboard platform managed the examinations, graded the objective tests, and provided the instructor with detailed information on exactly when and how many times each student logged onto the class and which portions of the site a student logged onto, and analyzed the course, examinations, and interactions among students. The course instructor personally graded the essay portions of the examinations. The software platform archived all aspects of the course, including and especially the streaming video lectures, for future usage. In spring 2003, the Low Vision course was added to the online course schedule, and in fall 2003, the Principles of Orientation and Mobility course went online.

All Blackboard courses were moved from Teletraining to UALR and to the WebCT platform in fall 2004, and the university began to manage all streaming video courses in the program. Faculty who moved from Blackboard to WebCT were given special training the semester prior to the changeover in platforms. The current version of WebCT was modified to look the same as the Blackboard interface, including accessibility issues, to lessen the students' (and faculty's) confusion. Students have accessed all programmatic information, from enrolling in courses to ordering textbooks, through the program's web site <www.ualr.edu/orientationandmobility>. The two methods courses and the student teaching and internship courses have been web enhanced. Thus, all courses in the O&M program have become either fully online or web enhanced. Students are no longer enrolled on campus during the academic year, which makes this O&M program unique among comparable programs.

The students were told prior to enrolling exactly what the technical requirements of the course (and program) were; that is, the needed computer speed, software, and technical skills (all of which were also available on the program's web site). Each new student was given an orientation in the use of Blackboard by a university technician by telephone one week before the semester started that included what to expect from the courses from a technical perspective, to ensure that the student could access the course once it began. An additional online orientation was offered within the course in Blackboard in case the students needed reminding or a refresher. The university also developed a WebCT self-orientation for students.

Streaming video course lectures were broken down into 15-minute "chunks" of PowerPoint presentations to give the students the ability to view shorter lecture segments at their leisure and to allow the lecturer to revise segments, rather than entire lectures, as the need arose.
Each chunk was digitized, video streamed, and made available for viewing asynchronously; that is, viewable by the student at any time day or night. A typical three-hour course lecture translated into 6–8 15-minute online chunks (without the typical student/faculty interaction one would find in the classroom). The online courses followed this format throughout the academic curriculum.

Cadres of students came to Little Rock for two consecutive summers for the blindfold simulations and lectures and for student teaching. The first summer term was in 2003. For student teaching experiences, the UALR O&M program was fortunate to have, within two miles of the campus, the ASB, a state school for students with visual impairments, and a large rehabilitation center for adults who are visually impaired, the Lions World Services for the Blind (LWSB). Students were housed at no cost to them at the ASB during each of their two five-week summer institutes. They had opportunities to see the O&M techniques taught to their peers by the faculty, to teach the demonstrated techniques to their classmates, and to teach the techniques to students with visual impairments at the ASB or to adult trainees at the LWSB (as their student teaching assignments). They visited agencies for people who are visually impaired in Little Rock and New York City (as part of their Seeing Eye seminar trip experience) and saw O&M specialists teaching the techniques to students and consumers who are visually impaired. After each summer institute, they returned home to continue with their student teaching and online studies until they completed all the course work and were ready to begin their internship experiences.

Results of the Online Program and Ongoing Questions

At the time of the preparation of this manuscript, the online O&M program at UALR had completed its second year. It remained to be seen whether the online O&M program would offer the same, similar, or better educational experiences and opportunities as had the on-campus program. One question was answered in the affirmative: Would the program attract more students than had the on-campus program? When it was decided no longer to accept full-time students during the academic year, the program started over again with a clean slate. As one can see from the preceding discussion, student enrollment has steadily increased from 13 to 43 part-time students.

Another concern was the students’ perseverance: Would the online students remain in the program to complete their studies over an extended period? Again, for the most part, the answer was yes. Four students changed their majors, and one decided that O&M was not right for her and dropped out of the program. Four students completed their programs in December 2004 and were seeking or found employment as O&M instructors, and seven more were preparing to finish their programs with the completion of their internships in May 2005.

Still another concern was whether the online students would develop a sense of being O&M professionals when they completed the program. On the basis of the past two years, it appears that they did. The students have grown professionally as they have worked their way through the program. The summer institutes in Little Rock have been essential for developing a sense of becoming an O&M professional. Thus far, all the students have been serious in finishing the program and getting O&M positions upon graduation. Of those who have been eligible, all but one have passed ACVREP’s certification examination.

Finally, face-to-face interactions are the expectations of faculty/student life in academia. Although I initially missed having the students on campus during the academic year, I recognized that students who had to move to Little Rock had to take up to 16 hours of course work and initially had developed few personal support systems. Many first-semester
student interactions dealt with coping with the course load and with being away from their homes and families. However, the online students lived in their homes and communities, had a built-in support system, and were taking only one or two courses at any one time. Moreover, the quality of the involvement with the students in the summers more than made up for the lack of student interactions during the academic year. Everyone, including me, has made the most of the summer student-faculty interactions. It has been rejuvenating and a joy to get together and to be immersed in O&M for five weeks each summer. The quality of these five-week interactions is greater than that of the traditional on-campus model during the academic year.

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A Master Trainer Class for Professionals in Teaching the UltraCane Electronic Travel Device

William Penrod, Michael D. Corbett, and Bruce Blasch

Electronic travel devices are used to transform information about the environment that would normally be perceived through the visual sense into a form that can be perceived by people who are blind or have low vision through another sense (Blasch, Long, & Griffin-Shirley, 1989). They are divided into two broad categories: primary devices and secondary devices. A primary device is one that a person who is blind may use safely and efficiently by itself, independent of a cane or a dog guide. A secondary device is one that must be used in conjunction with a cane or a dog guide to ensure safe and efficient travel (Farmer, 1980).

Electronic travel devices are further classified according to function and design. Type 1 devices (such as the Mowat, Polaron, and Sensory 6) are single-output devices for previewing the characteristics of an object ("object preview") and are commonly referred to as "go–no-go" systems. Type 2 devices (including the Laser Cane and Wheelchair Pathfinder) have multiple outputs for previewing objects and involve the use of lasers to provide a "go–no-go" source of information for the user. Type 3 devices (such as the Sonic Guide) provide information about both the characteristics of an object and its location. Type 4 devices offer the user object preview and artificial intelligence. The artificial intelligence component is achieved via a computer that automatically adjusts the device's range according to the speed at which the user is walking. The only device in this category is the Sonic Pathfinder (Dodds, Clark-Carter, & Howarth, 1984; Farmer & Smith, 1997; LaGrow, 1999; Penrod & Simmons, 2005).

THE ULTRACANE

The UltraCane, developed by Sound Fore-sight, is an example of a primary electronic travel device that does not fall neatly into the current classification system because, although it serves the same function as the Laser Cane, it does not perform this function through the use of a laser. Instead, the device uses ultrasonic waves to detect objects to the front and above the wrist while relying on the cane to detect drop-offs, stairs, and curbs using the traditional touch technique or the constant-contact technique (Hill & Ponder, 1976). The UltraCane has two forward ranges. The short-range mode allows for the detection of objects to approximately 2 meters (about 6.5 feet) beyond the cane, and the long-range mode increases the range of preview to approximately 4 meters (about 13 feet). The overhead mode remains constant, regardless of whether the device is in the short- or long-range setting; it will detect ob-