Since 1993, the University of Kansas (KU) has used distance learning options to serve rural graduate students seeking teacher certification in deaf education (DE). Telecommunications technologies used by DE courses include interactive/compressed video and the World Wide Web. Following an explanation of the technologies used and their advantages and disadvantages, this paper describes the DE program, including funding, options for Kansas certification in DE, student characteristics, and the curriculum design of the deaf-blind component. A comprehensive campaign was developed to recruit qualified students by publicizing program information, professional opportunities in the special education field, and the availability of student financial aid; recruitment strategies are listed that focus on nontraditional students (minority students, deaf students, students in rural settings). Admissions criteria are rigorous and parallel those traditionally associated with potential to complete a master's degree at KU. University resources and the quality and variety of practicum sites are briefly described. Recommendations are offered for program replication, focusing on three critical issues: student recruitment, breadth of programming, and the cost of course development and implementation when technologies are involved. (SV)
LONG DISTANCE EDUCATION AT THE UNIVERSITY OF KANSAS

Because much of the Midwest is comprised of rural or remote communities, the KU Deaf Education Program (DE) has offered a rural training option for certification in deaf education for several years. The terms "rural" and "remote" are used by Deaf Education staff to refer to locations that are more than one hour away from a university offering such certification. For example, rural training in the Midwest that is associated with KU can occur at any site in Kansas that is not located near the Kansas City area, at any site in Nebraska that isn't located near Omaha, and at any site in Colorado that isn't located near Greeley.

Delivery of KU Deaf Education course work occurs in several ways. In 1993, when staff in DE at KU first began offering rural training, three long distance learning options were made available. First, acceptance of a larger number of credits than is typically accepted by the University was made possible. That is, rural students were encouraged to take as many courses in local colleges and universities as they could identify that met the requirements for certification as a teacher of the deaf in the state of Kansas. Secondly, correspondence courses were developed and used by students that included lectures on videotapes, reading assignments, projects, and exams. Assessment, consultation, parenting, behavior management, and sign courses are available in this format. The third option involved several classes that were specific to the field of deaf education and were not offered at other colleges and universities. KU deaf education professors thought these "certification specific" courses required more student contact with experts in DE than was possible through correspondence courses. Therefore, interactive/compressed video was used to offer Deaf Studies, Deaf Methods, and Language and Deafness. Communication with students enrolled in the rural deaf education certification project occurred primarily by telephone and letter, as most students did not have access to e-mail at this time.

Rural training in deaf education at the University of Kansas was initially supported by a federally funded personnel preparation grant awarded by the federal government. When that grant terminated, the University supported some aspects of the project until a new grant project was awarded. Some aspects of the training are still funded by a federal project while others are supported by the School of Allied Health at KU.

Explanation of Technologies

Technologies used by the KU Deaf Education Program include interactive/compressed video and course development on the World Wide Web. Interactive/compressed video (I/C) usage was already in place at KU when the DE staff became interested in long distance education. Mahler (1992) explained that I/C video was selected because special networks (e.g., lease lines or fiber optics) weren't required and commercially available common carrier telephone services were available throughout the state, national, and world. Then and now, the state KANS-A-N network is utilized. Approximately seven sites within Kansas can be reached simultaneously at a cost of about $50 per hour. This year, I/C video was used to reach students in Nebraska, Iowa, and Missouri. Costs depend on the time of day, number of sites connected, the cost of technicians hired at the rural/remote centers, and the charges levied when crossing state lines—but is more expensive than in-state transmission.
I/C courses first originated at the KU Medical Center but now are offered from the Regent Center campus in a suburb of Kansas City. When teaching was done at the KU Medical Center, a professor in deaf education and students enrolled in the urban program were situated in a small conference room in the hospital. Since that time, several additional, larger classrooms have been built and transmission units are either fixed or mobile. These units include camera-recorder-transmitters mounted on rotating platforms that can be directed to individuals or small groups seated in the rooms (Allen, 1992). The systems have fully interactive audio/video links that permit face-to-face conversation and use of multimedia support (e.g., videotapes, transparencies, book pages, evaluation tools, equipment demonstration, etc.).

Luetke-Stahlman (1995) praised the use of the technology in providing rapid, high-resolution audiovisual transmissions. Little training of DE faculty was necessary when teaching over I/C video first began. Educators at KU can see, hear, and converse with their students and colleagues throughout the Midwest much as they can in courses using a traditional lecture/discussion format. Students are required to watch videotaped lectures that have been sent previously before the airing of some I/C courses. This helps to insure that more time in class will be used for discussion and demonstration. Lavaliere microphones are used so that hands are free to sign, demonstrate, or handle teaching materials.

When the KU professor interacts with students at one site, all participates at all other sites can see the professor and the speaking student. Should another student at another site speak, the camera is activated at that site so that everyone can then see that student. The instructors ability to see student’s facial expressions and reaction assists in determining if students are understanding concepts presented or discussed. A video recording (including the contributions made from other sites) can be made at any site on the system. This may be useful if a student is absent or if equipment at one site suddenly fails technically (Luetke-Stahlman, 1995).

The advantages and disadvantages of instruction using I/C video have been empirically studied (Luetke-Stahlman, 1995). Thirteen students across two courses and representing five sites rated the experience of using the technology highly satisfactory when compared to correspondence course formats. For example, a student commented, “The I/C video course made me feel more a part of the class. It worked well for me.” Another noted that “taking the course in this I/C manner was better than the correspondence course format. Being able to directly speak to the instructor and other students was crucial part of the class for me” (Luetke-Stahlman, 1995; p. 42).

The disadvantage of using the I/C video is that it is expensive and not all students can find a convenient I/C site in their area. KU DE staff have had little success with finding administrators at educational cooperatives or special education directors who are willing to help share the local costs of the rental lines, technicians, and room charges. It is for this reason that KU DE staff is exploring World Wide Web (WWW) technology.

At this time one course, Language and Deafness, is available in part on the WWW. Reading material, graphics, photographs, audio and videotaped examples, study guide questions, quizzes, and resources for further reading are available in this format. Development of interactive activities is now underway so that the course can be offered without traditional contact with a professor. Plans are to develop several other courses (e.g., Deaf Methods, Deaf Studies) on the WWW as well.

Advanced Learning Technology Alliance (ALTA) is a technology in education consortia at KU focused on improving student performance through the integration of advanced technologies into instructional activities and is available as a resource to DE staff.
ALTA serves students and teachers in the five states of Kansas, Missouri, Nebraska, Oklahoma, and Texas. The ALTA group has agreed to design, develop, and implement a CD-ROM course for the deaf-blind option of KU DE. In addition, the ALTA group will provide initial access to developmental software, audio/video access and space on the World Wide Web server at no cost to the project. While some financial resources to develop DE courses are available at KU, applications for competitions organized by telephone companies, as well as federal grant applications are being written.

Contact with students who are interested in the KU Deaf Education Program occurs using traditional sources of correspondence such as long distance telephone calls and mailings. However, use of e-mail and facsimiles are increasing annually, and are especially beneficial when students are deaf or hard of hearing.

Description of the Program

The KU DE program is supported with state funds via the School of Allied Health at the KU Medical Center. Federal funds strengthen the Program's ability to expand options, insure project students are specially trained, and improve recruitment and retention for trainees in general. Many students can not afford to attend graduate school without financial support.

Certification in Deaf Education in Kansas can only be obtained at the graduate level. Six options of programming are offered and all but the Early Childhood option require general education certification. Other prerequisites include course work in introduction to special education, deaf education, sign skill, and monolingual language development. Experience has taught the DE staff that students completing these courses enter the program well prepared for the rigorous training in DE. All pre-requisite courses can be acquired through long distance learning formats: three are offered through the KU Department of Continuing Studies. Sign classes (e.g., ASL, PSE, SEE II) are often available at regional community colleges in the state, but the KU DE offers videotaped lessons as well. Students can elect to become certified at KU in early childhood deaf education (ECDE); ECDE and special education, elementary deaf education, secondary deaf education, deaf-blind education, and rural training. The rural option is open to those from rural/remote areas. For all other plans of study, students relocate to the greater Kansas City area (and become "urban" students"). The plans of study in DE differ in important ways, yet all include the competencies recommended by the Council on Education of the Deaf (CED; summer, 1994) and the State Licensure Committee (Kansas State Department of Education, summer, 1995). All plans of study fulfill state competencies for DE. Courses about consultation, program and curricular adaptations in inclusive settings, and multicultural needs are standard components of the KU program.

The students who enroll in the KU Deaf Education Program are in a diverse group. Most students in the KU DE program are 20-30 years old, married, and most are hearing. Every class also has included students who are deaf or hard of hearing themselves and others who are non-Caucasian.

Deaf-Blind Component. Beginning January, 1998, graduate teachers-in-training from DE, SE/ SMD, and EC will be encouraged to take course work specifically designed for D-B education. Six courses will be included in this plan of study. Two courses, SPED 735-Deaf Studies and AUD 703-Manual Communication, already offered in the DE program, will be revised to include sections on such topics as tactile and touch cues, current research in D-B education, assistive technology, etc. SPED 718-Augmentative Communication, will be revised to include a more in-depth look at nonsymbolic and symbolic methods of communication, instructional strategies (i.e., embedding communication skills in inclusive settings), facilitating the development of social networks, etc. SPED 735-Characteristics of
Exceptional Children and Youth, required of all SMD majors, will serve as a prerequisite for students who elect to take an additional characteristics class devoted to D-B education. Preservice/inservice level students and teachers throughout the Midwest region may take one (1-week) graduate seminar in Deaf-Blind Education, to be offered each summer. Co-directors and key personnel will work cooperatively, incorporating existing materials used in the academic year with new content provided by D-B consumers, parents and teachers of children who are D-B, and professionals in related fields.

In addition, an advanced characteristics class in D-B Education will be offered in years 2 and 3 over the WWW. Core classes (e.g., Deaf Studies, Augmentative Communication, Orientation and Mobility, etc.) as well as course content from the summer seminar will be adapted for this medium. Course work via the WWW or through the summer seminar will provide specialized study for graduate students, certified special and general education teachers, and individuals in related fields throughout the Great Plains states, allowing them to update certification, expand their knowledge base, and more adequately provide for their students who are deaf-blind.

**Capacity of Applicant to Recruit Qualified Students**

A comprehensive campaign to publicize information regarding components and requirements of the training project, professional opportunities in the fields of education of S-D/HH and/or D-B, and financial support has already been developed by faculty of the DE program.

Recruitment for a small cadre of new students is accomplished through a variety of methods each year. Press releases, posters, brochures, and all the traditional ways of attracting students to DE programs are utilized. As faculty in Deaf Education are hired and housed in the School of Allied Health but degrees are confirmed through the Department of Special Education in the School of Education, web sites from both campuses are utilized. Many students become interested in the KU program after hearing students and professors present at workshops and conferences, or after reading articles by students and professors in nationally circulated journals. Strategies for recruitment will include the following methods:

- **Method** Way In Which It Occurs Brochure Sent to prospective students
- Press releases to newspapers/newsletters, radio announcements
- Utilize KU University Relations Department
- Flyer regarding certification requirements and access
- Included in admissions packet requests
- Direct recruitment and advising
- Deaf Education and Special Education faculty and doctoral students
- Assistance with child care, housing, and financial aid
- Dianne Wright - Department of Hearing and Speech
- Application to the graduate program
- Sherrie Saathoff - Admissions Officer in the KU Special Education Department is employed to assist students with application concerns and process
- Publicize at local, state, regional, and national organizations
- Faculty is active at each level and regularly attend meetings, often as speakers. These include *Issues in Language and Deafness* conference in Omaha, Nebraska, State Council for Exceptional Children, Kansas Missouri Educators of the Deaf, and national organizations (NAD, CEC, CAID, A. G. Bell, ACED/HH, TASH).
- Electronic advertisement
- Special Net, other electronic bulletin boards
- Stipend support made possible by federal competitions
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Electronic advertisement
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Stipend support made possible by federal competitions
Typically 5-10 students are enrolled in each of the plans of study offered by the KU DE Program. The KU Department of Special Education has been nationally ranked number one as a training facility in the area of special education and, thus attracts a very high caliber of applicants for its training programs. These have been supplied at the end of this section. Enrollment can be done in person or through the mail. Electronic systems of enrollment are only now being explored. Rural students do not have to be physically present to enroll in desired courses. Advising occurs in person and using the telephone, fax, and e-mail. Professors and instructors often meet rural students at state and regional conferences so that personal conversations can occur.

Recruitment. Strategies for recruitment will focus on attracting prospective participants who do not typically respond to traditional forms of recruitment (i.e., minority students, students who are deaf themselves, and students in rural settings). History, the best predictor, has proven that the reputation of both the Department of Hearing and Speech as well as that of Special Education are so strong as to be effective in attracting qualified students. Faculty will facilitate the certification of professionals by utilizing the following strategies:

1. Offering all courses after 4:00 in the afternoon;
2. Welcoming part-time study;
3. Accepting up to 6 credits of course work completed at other colleges and universities;
4. Linking first and second-year students for the purpose of mentoring;
5. Offering summer course work; and
6. Providing correspondence via E-mail, telephone, and individual/group sessions.

Admissions. The capacity of the institution to recruit well-qualified participants is ensured by rigorous admissions procedures. Applications for admission to the graduate program are accompanied by written statements of professional goals, documentation of past educational and professional experiences, and transcript review. The Admissions Committee compares applicant documentation with criteria traditionally associated with potential to complete a masters degree at KU: (a) a GPA of 3.0 or higher; (b) letters of endorsement from former and present college or university teachers, supervisors, and colleagues, attesting to the quality of or the potential for graduate course work and communication skills; (c) evidence of ability to communicate professional content in writing; and (d) demonstrated commitment to acquiring additional knowledge and skills in an area of specialty as well as a variety of professional roles. No single criterion is used to determine admissions decisions or status and Affirmative Action guidelines are followed. Students selected for stipend support are interviewed by the committee to ensure they understand the required grant activities, will work on-site at local schools that serve D/HH, D-B children, attend state and local conferences, etc. They are asked to sign a contract, co-signed by the DE staff and the Director of Graduate Student Affairs.

Adequacy of Resources

The University of Kansas is a major comprehensive research and teaching university that serves as a center for learning, scholarship, and creative endeavor. It is the only Kansas Regents University to hold membership in the prestigious Association of American Universities, a select group of 58 public and private research universities that represent excellence in graduate and professional education and the highest achievements in research internationally. The University of Kansas offers the highest-quality graduate programs as well as outstanding libraries, teaching museums, and information technology. Educational, research, and service programs are offered on the main campus in Lawrence. In addition, health related and some special education degree programs are located in Kansas City at the KUMC. The university is committed to excellence and fosters a multicultural environment in
which the dignity and rights of the individual are respected. Intellectual diversity, integrity, and disciplined inquiry in the search for knowledge are of paramount importance. The KU Medical Center and the KU main campus have ample resources that will contribute to the successful completion of DE degrees.

Quality of Practicum Training Settings. A wide range of practicum sites is available to both KU teacher training program in DE. Practicum experiences are given a major emphasis with the underlying element being specific role- and competency-based rather than being oriented toward exposure and general experience. Practicum sites are evaluated by University personnel prior to placement. Expert teachers, most of who have more than five years in the classroom, are selected as cooperating teachers. University faculty and doctoral students serve as practicum supervisors, and students are evaluated throughout the 8-15 week practicum experience by both the cooperating teacher and the practicum supervisor.

The variety and cooperation of practicum sites is a strength of the proposed project. DE program sites are located in or near the most densely populated regions of the state (Kansas City, Topeka, and Wichita) as well as in rural settings. Faculty in the KU Deaf Education and Special Education departments have an established professional relationship with administrators and teachers at the sites; often providing inservice training to teachers and other service providers in the schools. This contact has been strengthened by graduates who now teach in both urban and rural settings and are active in the state organizations for teachers of students who are D/HH and/or D-B. The cooperative arrangements with school districts offer students the opportunity to work with a wide range of children and youth with disabilities (birth-21). Most of the practicum settings are located in public schools in which a commitment has been made to move toward inclusive schooling, however many students elect to complete one student teaching experience at the Kansas School for the Deaf.

The Training Program

The Department of Special Education provides comprehensive programs each semester for approximately 400 students seeking certification in special education and approximately 70 full or part-time doctoral students. Program options include preparation for roles as teachers, consultants, supervisors, program managers, clinical practitioners, teacher educators, and researchers. The Department of Special Education conducts programs at the main campus in Lawrence, at the KUMC in Kansas City, and at the Regents Center in Overland Park. Formal courses are offered at each site as well as through outreach programs via the Internet and interactive television sites.

Recommended for Potential Users: Pitfalls, Problems, and Promises

Three critical issues in the KU DE program are recruitment, breadth of programming, and cost of courses development and use when technologies are involved. Despite a tradition of excellence, national recognition, and active faculty, the KU DE program must continue to be creative in advertising training options and recruiting students. Offering the diversity of programming required to meet the needs of students and their families in the Midwest is also very challenging. Finally, the cost of developing courses to be offered over I/C video or for use on the World Wide Web is a critical issue and one that is currently a primary focus.

Concerns and cautions that the DE staff would offer to readers are to understand the technologies being purposed, run trial sessions before committing to teaching using a particular format, and feel confident in grant writing abilities. Many educators who are interested in various technological formats are not deaf educations, and are not aware of some of the unique challenges that information and methodologies in the field present. Having one's hands free to demonstrate and sign is an important consideration. The low number of students enrolled in deaf education courses may make some formats financially inappropriate. Those
DE faculty who are able to find federal and state funding for projects are going to be able to offer more diversity in training formats that those who must rely on the technological interest level of their college or university.

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