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EDITORIAL

The research reported in this article by Loraine Spenciner and Betsy Squibb examines both the educational effectiveness of and learner attitudes toward interactive instructional television for the delivery of educational programming. In addressing the question of whether distance delivery is "effective...for training the wide range of personnel...who are providing direct services to young [special needs] children and their families," the authors confirm the findings of effectiveness and learner satisfaction reported by earlier researchers studying distance delivery of courses to a variety of learner populations (see, for example, Ritchie and Newby 1989; Egan et al. 1992; Martin and Rainey 1993). Unexpected findings included differences in the use of the technology by small and large groups of learners as well as the provision by the medium of unusual opportunities for preservice and inservice professionals to learn from each other.

REFERENCES

- Egan, M. W., M. Welch, B. Page, and J. Sebastian. 1992. Learners' perceptions of instructional delivery systems: Conventional and television. *The American Journal of Distance Education* 6(2):47-55.
- Martin, E., and L. Rainey. 1993. Student achievement and attitude in a satellite-delivered high school science course. *The American Journal of Distance Education* 7(1):54-61.
- Ritchie, H. and T. J. Newby. 1989. Classroom lecture/discussion vs. live televised instruction; A comparison of effects on student performance, attitude and interaction. *The American Journal of Distance Education* 3(3):36-45.

PREPARING PRACTITIONERS AT A DISTANCE: USE OF TELECOMMUNICATIONS IN AN INTRODUCTORY EARLY CHILDHOOD SPECIAL EDUCATION COURSE

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INTRODUCTION

Tremendous strides have been made in providing early childhood special education to young children (birth through five) with disabilities and in providing education and services to their families. Although the range of quality services that were conceived in the federal legislation passed in 1986 (PL 99-457) are still not fully available, there is no doubt that young children and their families have a much better chance of locating services in the 1990's than they did in the previous decade (Hebbeler, Smith, and Black 1991). While some support services are increasingly available for individual children, child care for preschoolers with special needs continues to be limited (Kontos 1988).

One of the many barriers that continue to exist is the shortage of trained personnel. The spirit of recent federal legislation--including the Individuals with Disabilities Education Act (IDEA), P.L. 101-476, and the 1991 Amendments to IDEA, P.L.102-119--continues to stress the importance of young children being served with nondisabled children to the fullest extent possible. Yet, professionals working in typical early childhood settings may have had little or no previous experience and training in meeting the special needs of some of these children (Klein and Sheehan 1987). This situation not only impedes the implementation of the federal regulations but also, more critically, has a daily impact on the lives of families.

Difficulty in locating acceptable child care is a major issue for many families. Sixty two percent of all children under age 18 have mothers who are in the workforce (Willer et al. 1991). The use of family daycare for fulltime employed mothers has been estimated at 24%, and child care centers are used by approximately 35% of working mothers (Willer et al. 1991). Young children with special needs may be found in these, as well as other, child care contexts. In a study which specifically examined the needs of families with young children with disabilities, approximately one-half of the mothers were employed either full or part-time. Yet, three out of five of these families were unable to obtain child care (Stowell and Price 1989).

Not only must child care be available, but available child care must be adequate to meet the needs of all families, both with and without special needs. Caregivers must be trained to work with the developmental needs of all children.

Teachers of young children must also have training in coursework and field experience in early childhood special education. Yet, the shortage of fully educated entry-level personnel, coupled with the predominance of minimally trained

personnel in the work force, has created a situation in which professional training is needed simultaneously for both preservice and in-service professionals.

Moreover, teachers who work in rural areas face additional burdens in obtaining coursework due to the necessity of traveling great distances to attend classes. Distance education, more recently interactive television with the capability of broadcasting courses from a single site to distant locations, provides both on-campus students and working professionals access to college coursework; it also offers instructors new pedagogical possibilities and students increased access to new technologies for learning.

Over the last few years, several projects have explored the feasibility of distance education for providing coursework in early intervention. The Educational Television Intervention Programs Project in Tennessee has used public television and a series of videotapes to demonstrate skills that infants and toddlers develop between birth and age three (Folio and Richey 1987). Distance education has also been used to deliver training to childcare practitioners in rural areas (Ferguson and Manburg 1985). The media used in this training included print, telephone, video, and computer. Two-way audio and video, telephone, and electronic mail were used effectively to train personnel in two preschools in Utah (Pitcher, Rule, and Stowitschek 1986).

In a comparison of traditional course delivery and a two-way interactive television system, Egan et al. (1988) found no differences in learning performance between on-campus students and distance learners in a special education methods course.

These studies, in which telecommunications was utilized for personnel training, raise interesting questions. Is distance education an effective training option for the wide range of personnel in the field who are providing direct services to young children and their families (including child care providers, Head Start home visitors, center-based teachers, and therapists)? Is ITV an effective alternative to traditional face-to-face courses for preservice students located at the college campus? How can the training needs of practicing professionals be balanced with those of preservice students to provide an interactive climate for teaching and learning?

DESCRIPTION OF THE PRESENT STUDY

This study sought to build on the work of Egan et al. (1988), which found no difference in performance between on-campus and distance learners. As in the Egan et al. study, students on-site (on-campus) and at distant sites were compared for differences in course performance and in their ratings of course effectiveness. In the present study, four areas of effectiveness, based on the capabilities of the delivery medium: 1) use of video (published programs); 2) lecture presentations; 3) small group activities; and 4) discussions between the on-site and remote sites via telephone hookup.

This study also examined differences regarding on- and off-campus students' use of the special aspects of ITV coursework. For example, each class was videotaped and these tapes were

available immediately following class to both on-campus students and to students at remote sites for review. An additional aspect was the opportunity for on-campus students to interact with practicing professionals.

METHOD

An introductory course in working with young children with special needs and their families was offered over the Community College of Maine's Interactive Television System (ITV), currently referred to as the Education Network, and simultaneously taught in a "live" university classroom. This undergraduate course was delivered over a period of fourteen weeks.

Participants:

Students participating in this study were divided into two groups: on-campus and off-site students. The on-campus group consisted of thirty-four undergraduate early education majors. The off-campus groups included a total of 131 students at forty-five different sites; the number of students in each of these sites ranged from one to thirteen. For many students (61.6%) this was the first ITV course that they had taken.

Off-site students represented a wide range of professionals, including teachers, child care providers, consultants, and therapists. These practitioners were employed in a variety of settings including child care, Head Start programs, regular and therapeutic nursery school programs, elementary schools, and various state agencies. Some students were also parents of children with special needs. Like the on-campus students, some of the off-campus participants were enrolled in undergraduate degree programs; other participants enrolled in the course as part of a certification requirement (CDA or ECSE) or because of general interest in the subject matter. There was no additional cost to students who enrolled in off-campus sites.

Procedure:

The Education Network uses two-way audio and one-way video to link the instructor and students. There were four telephone lines for interaction between the university classroom and the off-campus sites. Students at the off-campus sites could "call in" by pressing a button and speak with the instructor at any time during the "live" course. If all four lines were being used, the student heard a busy signal, and could place the call later. This situation is similar to a condition in which several students in a classroom raise their hands to volunteer information or ask a question. The instructor calls on one student at a time.

Students in the off-campus sites viewed the instructor on a television monitor; the on-campus participants sat in a classroom with the instructor. Each class was two and one-half hours in length. Class sessions were designed to include several types of learning activities: information was presented by lecture, during which students could ask (or call in) questions to clarify their understanding; a video was shown to illustrate certain concepts covered in the lecture; a small-group activity allowed students to discuss concepts and relate them to the video or their own experience; class discussion allowed both groups of students to share ideas with the instructor.

During the small group discussions, students who were alone at their off-campus sites were asked to call in to class, where they were linked to three other solitary individuals through a telephone bridge. This bridge allowed the four solitary students to talk to others as in a conference call.

Class discussions were designed so that all off-campus groups could call in and share information with on-campus students and with the instructor. On-campus students could pose questions to students at the remote sites by means of microphones in the broadcast classroom.

Materials:

The course was videotaped and tapes of each class session were available for all students to view upon request, whether they were enrolled on or off campus. There was no additional cost to the students for using the videotapes.

Data collection:

During the course, students were asked to complete two survey instruments. A description of each of these instruments follows.

1. Demographic questionnaire. This instrument was designed to collect information about students, including occupation, work setting, and whether or not they were enrolled in a degree program. This questionnaire was administered during the first weeks of the course.
2. Survey instrument. The second instrument was designed to assess student perception of the effectiveness of coursework over ITV and was administered during class at the completion of the course. This survey included statements that used a five-point Likert scale with a rating of 1 representing a low score and 5 representing a high score. Included were questions designed to allow students to rate the teaching techniques--lecture, videotapes, small groups, and discussions--employed in the course. Additional questions assessed student use of the class video tapes and use of the telephone (students at off-campus sites only); open-ended questions allowed students to provide feedback to the instructor regarding any aspect of the course. This instrument had been field tested and used previously in five other early childhood education courses.

The two instruments were analyzed using descriptive statistics and one-way ANOVAs. The open-ended questions were coded by two independent observers.

RESULTS

The results of the study provided information about the differences between on-campus and off-campus participants in their learning performance, evaluation of course components, and use of the media. Off-campus participants were investigated on the basis of 1) group size and 2) the remoteness of the site.

The initial analysis compared on-site participants with all off-site participants. A subsequent analysis redefined the groups as remote sites, university sites, and on-campus sites. Remote sites

were those which had never had university courses on a regular basis prior to implementation of the ITV system. The university sites had an established university presence with "live" course delivery for at least two years prior to the installation of the ITV system. In reporting results, both types of groupings (on-campus/off-campus and remote/university sites/on-campus) are included and identified, as appropriate.

Evaluation of Learning Performance:

Results include the participants' performance on exams. In this analysis, the on-campus students were compared to all others off campus. The mean exam score of on-campus students (n=34) was 88.25; that of off-campus students (n=131) was 90.22. A t-test indicated no significant differences between group means.

Evaluation of Course Components:

Responses of the on- and off-campus groups (university and distant sites) on the two survey instruments were analyzed for similarities and differences. On a five-point Likert scale (with 1 being low and 5 being high), all groups indicated high mean ratings for different aspects of the course. Mean ratings of all participants for discussion, lecture, small group, and video tapes illustrating concepts covered in lecture were 3.38, 4.03, 3.29, and 4.32, respectively.

Table 1. Mean Ratings of Course Effectiveness by Students in Remote, University Sites and On-Campus Groups

	Remote Sites (n=45)	Univ. Sites (n=22)	On-campus site (n=16)
Discussion	3.41	3.27	3.42
Lecture	4.24*	3.59*	4.05*
Small Group	3.35	3.23	3.21
Video	4.44	4.18	4.18

*p .05

Lecture was rated differently by the three groups of students (see Table 1). In order, the mean ratings of students at the remote, university, and on-campus sites for lecture were, 4.24, 3.59 and 4.05. The analysis of variance between all three groups indicated a significant effect for lecture $F(1,86) = 3.61, p < .05$. The other course components (discussion, small group work, and video) were not rated significantly different among these three groups of students. It should be noted that, although there were 165 students enrolled in this course, this data reflects the number of students (83) who were present during the data collection. Many of the enrolled students were not able to attend class during the regularly scheduled time due to weather conditions, work schedules, and family commitments; however, they were able to view all class sessions because each session was videotaped.

Answers to the open-ended question of survey instrument #2 revealed that on-campus students valued the work experience of the off-campus participants. On-campus participants noted that they found out about a variety of professional roles in early childhood special education and that they learned about specific

situations within each work setting. Off-campus participants indicated the value of feedback and ideas from others in the field.

Site Size:

Another way to evaluate the course experience for different participants is to consider the size of the group at each location, particularly the off-campus sites. The number of participants per off-campus site varied from one to thirteen. There were fifteen single-person sites. In order to evaluate differences between groups of different sizes, one way ANOVAS were done comparing 1) small groups of 1 (n=15) and, then, 2) small groups of six persons or less (n=45) with all of the larger sites, which had from seven to thirty-one persons (n=35). Again, it should be noted that all students were not present in class on the night that this data was collected.

Results indicated that the single-person sites differed from larger sites in use of the technology and in ratings of the course components. While 40% of the participants in single-person sites reviewed the taped classes for exams, only 7% of those in all other sites combined viewed the tapes. Analysis of variance indicated a significant effect for tape usage for exams $F(1,85)=12.64, p<.001$.

In addition, the single-person sites and small-group sites (1-6 persons) were found to also vary in their ratings of the effectiveness of some of the class components, particularly of the video tapes used to illustrate lecture components (see Table 2). The mean rating of video in single-person sites was 4.71 on a 5-point Likert scale. The analysis of variance indicated a significant effect for the rating of video in the course, $F(1,83)=5.20, p<.05$. Of particular interest is the difference in mean rating of small groups (1-6 persons) when compared to the larger groups (7-31 persons). There were no significant differences for the other course components (discussion, lecture, and small group activities).

Table 2. Mean Ratings of Course Components by Students in Single- and Multiple-Person Sites

	1 Person (n=15)	1-6 Persons (n=45)	7-31 Persons (n=35)
Discussion	3.36	3.54	3.19
Lecture	4.13	4.20	3.85
Small Group	3.23	3.37	3.19
Video	4.71*	4.57***	4.05*

* $p < .05$; *** $p<.001$

DISCUSSION

Student Performance:

Student performance in the course was judged on the basis of exam scores. The mean exam score of on-campus students was slightly lower than the mean exam score of off-campus students, though the difference was not statistically significant. Studies

completed previously in other disciplines indicated that performances by students on achievement-type tests are similar regardless of instructor proximity. Ritchie and Newby (1989) found performance did not vary according to the interactional pattern of distance education, that is, students in live, studio, and simulated distance classrooms performed similarly in achievement, even though their interactions were different.

In a study of preservice education, Egan et al. (1988) found no differences on pretests and posttests of learning performance in a rural preservice teacher course. The present study confirmed the findings of this previous work (Egan et al. 1988; Ritchie & Newby 1989) and added to the understanding that distance does not inhibit performance.

Remote, University and On-Campus Sites:

Empirical research to date has included only limited study of the learner's experience in using telecommunications. The present study helps increase understanding of the nature of the experience for participants on a continuum of remoteness from campus. Results indicate variation in learner experience in locations that were remote, in university sites, and on campus.

The remote sites rated the lecture, video, and small groups components higher than did on-campus students. The appeal of lecture to different groups is of note. Lecture was rated higher, on the average, by participants in remote sites. These are the professionals most removed from coursework and other professional activities. It would appear that the lecture format--the oral communication of dense information--was an appropriate course component for these professionals. Is this appeal due to the familiarity of this pedagogical method in the midst of novel media? Ritchie and Newby (1989) found a pattern of less interaction by distance learners when compared to on-campus students and suggest that technology may have prevented interaction. One implication of the present study is that as familiarity with the media increases, satisfaction with other course components besides lecture may increase, as well.

The university sites and on-campus groups were less positive about lecture than were the remote sites. Was this negative response due to added exposure to lecture through other coursework? Further investigation of the value of lecture for groups of varying remoteness and/or experience in coursework would be helpful in maximizing the training of preservice and inservice professionals. Additional information regarding learner characteristics--whether the course represents preservice or inservice work for the learner, the age of the learner, etc.--should also be collected. These variables could account for some of the differences found in this study.

Site Size:

Another way to examine the course experience for students is to examine group size. Interaction between and among students during the learning experience is important in a number of ways. After all, interaction is a common means of educational communication. Studies have found that interaction has an effect on attitude about the course (Ritchie and Newby, 1989); however, the effect of various site sizes on interaction between and among students enrolled in ITV coursework needs to be

studied. In the present study, the single-person sites were found to differ from the larger groups. Learners in these sites actively sought information; they used class tapes and the telephone and appreciated the video programs. It is noteworthy that the instructor actively linked these sites through a telephone bridge for small group activities. The increased use of the telephone is probably a direct result of this procedure. The class tapes may have been helpful in furthering their understanding of class material, since there were no peers in the classroom for face-to-face discussion.

Professional Settings:

The present study included a variety of practicing professionals, paraprofessionals, and pre-service professionals interested in early education. One important outcome of the study is the description of the sample. The range of participants illustrates the interest among practitioners in an introductory course for working with young children with special needs. In addition, most of the participants indicated that they would take another course, demonstrating both interest in and satisfaction with the distance education experience.

An unexpected benefit to this course was the blending of preservice and inservice participants. On-campus students working towards their degrees received important exposure to their future peer groups. Open-ended answers revealed that the undergraduates valued hearing about the work experiences of those in the field. In addition, off-campus degree students had increased opportunities to interact with their colleagues.

Typically, a large rural state is limited in its ability to offer training opportunities for all groups of professionals. Offering an introductory course such as that in the present study appears appropriate for meeting several common needs. Many of the professionals working at the elementary level may not have received training specifically in early childhood education. Teachers in preschool settings may have received training for work with young children but not specifically for work with those with special needs. Additionally, introductory coursework is appropriate for parents of children with special needs, whose experience informs them about a specific area of special education and stimulates them to enlarge the knowledge gained from personal experience.

Further investigation of media use and the effectiveness of differing approaches will enhance understanding of the broad audience for early childhood special education. While the performance level of the audience did not vary by instructor proximity and estimation of the effectiveness course components was high for the entire group, some differences were noted. Future studies should investigate more fully the effectiveness of the specific components and capabilities of ITV for the learner. The effect of group size in distance learning deserves further investigation in order to provide students with optimal learning experiences.

REFERENCES

Egan, W.M., McCleary, I.D, Sebastian, J.P., and Lacy, H. 1988. Rural preservice teacher preparation using two-way

interactive television. Rural Special Education Quarterly 9(3):27-33.

Ferguson, R. and Manburg, A. 1985. Distance education, external degrees and modern technology: Delivering training and education to meet the needs. Journal of Children in Contemporary Society 17(3):85-100.

Folio, R. and Richey, D. 1987. ETIPS model for early intervention. In linking programs and resources for rural special education. Proceedings of the Annual National Conference of the American Council on Rural Special Education.

Hebbeler, K.M., Smith, B.J., and Black, T.L. 1991. Federal early childhood special education policy: A model for the improvement of services for children with disabilities. Exceptional Children 53(2):104-112.

Kontos, S. 1988. Family day care as an integrated intervention setting. Topics in Early Childhood Special Education. 8(2):1-14.

Klein, N. and Sheehan, R. 1987. Staff development: A key issue in meeting the needs of young handicapped children in day care settings. Topics in Early Childhood Special Education 7(1):13-27.

Pitcher, S., Rule, S. and Stowitschek, J.J. October, 1986. Inservice training via telecommunications: Almost like being there. Paper presented at the Annual Conference of the National Rural and Small Schools Consortium, Bellingham, WA.

Ritchie, H. and Newby, T.J. 1989. Classroom lecture/discussion vs. live televised instruction: A comparison of effects on student performance, attitude and instruction. The American Journal of Distance Education 3:36-45.

Stowell, P.R. and Price, L.J. 1989. Caring for families who care. (Appropriation No. 3360.2902). Augusta, ME: The Maine Planning and Advisory Council on Developmental Disabilities.

Winey, K. and Squibb, B. 1990. Effective teacher preparation experiences: Student perspectives. Journal of Research in Education 1(1):79-86.

Willer, B., Hofferth, S.L., Kisker, E.E., Divine-Hawkins, P., Farquhar, E., and Glantz, F.B. 1991. The demand and supply of child care in 1990. Washington, D.C.: National Association for the Education of Young Children.

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