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AUTHOR Pultorak, Edward G.
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ABSTRACT

Arguing that, with the advancement of new technologies, multimedia extension programs (or telecourses) can now provide two-way audio and video interaction to homebound students and to students in distant locations in a very cost efficient and effective manner, this paper provides a look at multimedia extension programs for institutions of higher education in the 1990s. The following issues are addressed: (1) problems of traditional extension programs; (2) trends favoring multimedia programs; (3) factors to consider for telecourse implementation or improvement; (4) findings of a recently completed study addressing current uses of multimedia extension programs; and (5) common problems encountered. A discussion of possible future uses of such programs in teacher training programs concludes the paper. (DB)

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LOOKING INTO THE 90'S:
MULTIMEDIA EXTENSION PROGRAMS

A paper presented at the
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By

Dr. Edward G. Pultorak
Assistant Professor of Curriculum & Instruction
College of Education
Southern Illinois University at Carbondale

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ABSTRACT

With the advancement of new technologies, multimedia extension programs (or telecourses) can now provide two-way audio and video interaction to homebound students and to students from distant locations in a very cost efficient and effective manner.

This paper provides a look into the 1990's regarding multimedia extension programs for higher education institutions. Addressed will be: problems of traditional extension programs, trends favoring multimedia programs, factors to consider for telecourse implementation or improvement, findings of a recently completed study addressing current uses of multimedia extension programs, and common problems encountered. Further, a discussion regarding possible future uses in teacher training programs is included.

INTRODUCTION

Multimedia extension programs (or telecourses) are increasing in popularity and have evolved considerably in the past several years. For instance, in 1987 less than ten states were promoting distance learning, while in 1988 more than two-thirds of the states reported involvement in telecourses (Office of Technology Assessment, 1989).

What sets today's telecourses apart from previous attempts? First, the possibility of a two-way audio and video interactive capacity now provides learner and teacher with immediate feedback. New technologies have improved communication capabilities enabling students and instructors to interact both audibly and visually in a more effective and personal way. As a result, instructors and students are increasingly accepting this educational delivery method of learning and sharing information. Second, administrators are finding that telecourses are more convenient, effective, and cost-efficient than traditional extension programs.

This paper provides a look into the 1990's regarding multimedia extension programs for higher education institutions. Addressed will be: problems of traditional extension programs, trends favoring multimedia programs, factors to consider for telecourse implementation or improvement, findings of a recently completed study addressing current uses of multimedia extension programs, and common problems encountered. Further, a discussion regarding possible future uses in teacher training programs is included.

PROBLEMS OF TRADITIONAL EXTENSION PROGRAMS

Some common problems encountered with traditional extension

programs which have left them somewhat crippled are:

- Enrollment constraints at the distant site
- Transportation of necessary equipment to distant locations
- Travel of university personnel to the remote site

Enrollment constraints have commonly been a problem for traditional extension programs. Once a distant site is selected for a course offering, enrollment must exceed a minimum number of students for the course to be cost-efficient. With telecourses, professors can instruct in a normal classroom, with studio equipment, and interactive instruction can be transmitted to multiple-sites requiring fewer students per site. These sites can be set-up in such places as public schools, libraries, or individual houses for homebound students.

Transportation is an additional problem commonly experienced in traditional extension programs. Professors are required to travel several miles (in some cases, 2-3 hours one-way) to instruct a small group of students. The time spent in travel is "dead time" and of no value to the students, professor, or institution. In addition to travel time, the professor is required to lug course materials and equipment to the distant location much like a traveling salesman.

TRENDS FAVORING MULTIMEDIA EXTENSION PROGRAMS

Trends favoring the use of telecourses in place of traditional extension programs are:

- Effectiveness of instruction
- Cost efficiency-- time & travel
- Convenience for students (multiple sites)
- Availability to homebound students
- The institution teaches, not one instructor
- Specially trained staff prepares learning materials
- Availability of state-of-the-art multimedia equipment

Perhaps the most important question to ask is: "How effective

are courses which are taught at distance sites via multimedia equipment?" According to a study conducted by the Office of Technology Assessment (1989), in most cases, telecourses are as effective as face-to-face instruction. Further, one student enrolled in a telecourse responded, ". . . an environment is created that is virtually like being in the front row of a lecture hall" (Ward, 1990). An additional student commented, ". . . this experience provided me not only with classes I would otherwise not be able to take, but an opportunity to work with some of the most advanced technology of today, which is a learning experience within itself" (Office of Technology Assessment, 1989).

Cost is yet another concern of institutions. In the last several years, the cost of electronic equipment (e.g. computers, studio cameras) has drastically fallen. This drop in prices has greatly improved the affordability of equipment necessary to teach interactive telecourses. According to a report completed by the Office of Technology Assessment in 1989, this form of delivery is cost-effective when compared to traditional methods of instructional delivery, saving on travel and employee time. And with a continual drop in equipment prices, the amount of money required to offer telecourses is decreasing with each year.

Another trend favoring the implementation of telecourses is multiple-site capability. Students are more likely to enroll in courses and programs if they are nearby and convenient-- especially those individuals who are employed and attend part-time. Further, telecourses make it possible to offer classes to handicapped, or homebound students-- those who are normally deprived of an equal

education.

An additional trend favoring telecourses is the development of state-of-the-art equipment. Such equipment as laser video discs, digitized slides, satellite dishes, microwaves, electronic writing tables (so students can "come to the board"), cordless telephones, fax machines, touchpads used for automatic polling, and electronic mail are now available and currently being implemented into telecourses.

In many cases the quality of instruction for telecourses is better than traditional courses. With telecourses, classes are often taught by the institution and not by one instructor. Experts in specific areas of study are assigned to teach a particular portion of the class to ensure the highest quality of instruction is provided for students. Further, for telecourses with high enrollments, specially trained staff can be hired to prepare learning materials and instructional aids.

FACTORS TO CONSIDER FOR TELECOURSE IMPLEMENTATION OR IMPROVEMENT

Below is a list of some factors to consider for telecourse implementation or improvement. This is not meant to be a complete list, but rather some common elements that should be considered.

- Determination of need
- Equipment available
- Amount of face-to-face
- Available at private homes or only at larger sites
- Classroom facilitator needed
- How to select instructors
- Record keeping and advisement
- Examination and assessment

The first factor to consider is whether or not there is really a need for telecourses. To determine this, ask a few questions. How

many extension courses are being taught at your institution? If only a few, it may not be feasible to offer telecourses. What type of classes do you wish to deliver via telecommunications? Graduate level classes and courses not requiring laboratory experiments and hands-on activities usually offer the greatest success. How many additional students will be able to enroll in classes as a result of telecourses (e.g. homebound students, students from distant locations)? If this number meets or exceeds the minimum number necessary to offer certain courses, telecourses may be very suitable. These and similar types of questions will help you make an informed decision regarding the need for telecourses.

To determine cost, research which type of equipment is available by your institution and/or local corporations. In some cases, you will find that corporations are willing to donate either money or equipment if courses offered will promote educational training for their employees. In terms of equipment, interactiveness is a major concern. Many telecourses presently offered are only one-way audio and video (student can see and hear the instructor, instructor can not see or hear students) which limits student interaction. In many cases, students simply watch a taped lesson. This is the least expensive method of delivering telecourses but is not the most effective. A more effective delivery method is live two-way audio and video where the instructor and students can interact with each other during the presented information. Even though two-way audio and video telecourses are more expensive, according to Ward (1990), ". . . with rapid developments in technology, two-way audio and video telecourses are becoming increasingly affordable and are projected as the standard for the future."

With telecourses, it is important to consider how much face-to-face time should be available for students. That is, the amount of time students can interact in person with the instructor or facilitator (a trained individual to monitor students at remote sites). If presentations are taped, this time may occur at the end of each tape. Or, if sessions are live, the amount of face-to-face time may occur less often because of the interactivity available during the session. Interaction is crucial to the success of any course. As a side note, some states require that at least one facilitator be present at each site during class sessions.

The number of facilitators necessary for each telecourse will be determined by state requirement, type of course, and number of sites. If sessions are live, it is important to consider the number of sites available for students. Too many sites (more than 3 or 4) can make it very difficult on the instructor if several students are at each site. It may be decided to offer instruction in private homes, not only at larger sites. If this is the case, special arrangements are necessary to down link instruction into individual homes but facilitators may not be necessary.

The next factor to consider is how to select instructors for telecourses. It might be advisable to select instructors much like network anchors are selected such as requiring the submission of a video taped screen test of a presented lesson. Of course, other standards still should be met such as being an expert in the content area and having previous teaching experience.

Record keeping and advisement is yet another area that should be considered. Who will do the record keeping and advisement? Will

this occur on campus or at the distant sites? Perhaps this could be the responsibility of the facilitators, but only if they are trained in these areas.

Examinations and student assessment must be handled with great care. Students must be monitored during testing periods to ensure that tests are not completed using outside sources. Also, if tests are sent to distant sites via a fax machine or similar device, it is possible for students to receive multiple copies of the test and share with others who plan on taking the class in the future. Although student assessment is necessary, it is important to investigate the new variables that enter the situation when testing occurs at distant sites.

FINDINGS OF A RECENTLY COMPLETED STUDY

The following information is the result of a survey I completed pertaining to extension courses delivered via telecommunications. The purpose of the study was to provide valuable and practical information regarding the implementation and implications of telecourses. Institutions with reputations of having successful telecourses were asked to participate in this study. Reputations were not based upon demographic information (e.g. size, location), but rather on the researcher's knowledge of program success. All participating institutions were public universities, most with teacher education programs, and represented several states.

The survey focused on two areas: current use (Part I), and equipment & delivery systems (Part II). Part I focused on cost per student, types of extension courses, effect of geographic location, and success rate. Part II focused on interactiveness, multimedia

equipment, need for classroom facilitators, special methods for selecting instructors, recommended instructional methods, and common problems. Primary findings of interest revealed the following:

1. Participating institutions indicate telecourse offerings ranging from a few (1 - 5) to approximately 600 per year suggesting enormous growth potential.
2. Participating institutions offer more graduate than undergraduate level telecourses.
3. Participating institutions indicate that success is not necessarily related to course type and, therefore, various types of courses can be successfully taught via telecommunications.
4. Participating institutions appear to have more success with telecourses offered in rural areas or small towns than other types of geographic location.
5. Most participating institutions (55%) offer live two-way audio interaction while only one offers two-way video.
6. Only 36% of participating institutions find it necessary to provide a classroom facilitator at remote sites.
7. Most participating institutions recommend lecture as a successful instructional method for telecourses; however, results further indicate that a variety of instructional methods may be employed depending on the content to be presented.
8. Participating institutions are using many types of multimedia equipment to transmit instruction such as: satellite dishes, microwaves, computer terminals, electronic writing tables, cordless telephones, fax machines, electronic mail, and touchpads.
9. Most participating institutions (55%) do not provide special methods for selecting instructors to teach telecourses.
10. Only 55% of the institutions responded to the questions regarding cost. Evidently this is a complicated figure to tabulate; or, perhaps this is confidential information not to be shared with others. Those who responded either made reference to costs per student regarding materials (e.g. \$10-\$15, \$15, \$75, and \$234) or cost per credit hour (e.g. \$44, \$250-\$290).

COMMON PROBLEMS ENCOUNTERED BY INSTITUTIONS USING TELECOURSES

What are some common problems institutions are experiencing regarding the implementation of telecourses? For clarification, problems were classified into four areas: interactiveness, distant sites, technical problems, and administrative concerns. Problems listed are direct quotes from individuals who coordinate telecourses from various institutions. It should be noted that some institutions are experiencing very few problems and highly advocate the implementation of telecourses.

Interactiveness:

- "Interactivity inhibited by phone not always being available."
- "Depending on UPS or the postal system to deliver class materials."
- "Interaction and over-all communications."
- "Communications between students and professors."

Distant Sites:

- "Sites not always available in areas needed."
- "Maintaining personal contacts,"
- "Availability of library resources at remote sites."

Technical Problems:

- "Technical problems at remote sites."
- "Coordination with remote sites: Making sure necessary materials arrive at sites and that equipment works."

Administrative Concerns:

- "Lack of funding from state."
- "Students that do not show for class."
- "Time of day to offer programs."
- "Facilitator training"
- "Communication about programs to appropriate audience."

POSSIBLE FUTURE USES IN TEACHER EDUCATION

Few teacher training institutions are currently implementing telecourses as part of professional course work. As we move into the 1990's, the need to provide instruction and supervision via telecommunications will become more apparent as the cost of travel and supervisory expenses increases.

What are some visionary uses of telecourses? University supervisors could offer seminars to student teachers who are placed several miles from campus in a more cost-efficient way. With a two-way audio and video system, student teachers could interact with each other as well as the university supervisory regarding critical issues of teaching. Guest speakers, such as past methodology professors who specialize in critical issues (e.g. classroom discipline), could collaborate with students concerning their specific needs. New and innovative instructional techniques could be modeled on-campus and transmitted to student teachers at distant sites. This would save on travel time and cost by both the student teacher and the university supervisors.

University supervisors would not have to make as many on-site visits in order to complete live classroom observations (perhaps half could be on-site). If cameras are effectively placed in the classroom where the student is teaching, supervisors could observe teacher and student behaviors from an on-campus location. And, if the student teacher is experiencing some difficulties, the supervisor could invite another colleague to view the live observation with no additional classroom distractions. This would be ideal for beginning supervisors. A conference with the student teacher could occur

directly after the lesson via a two-way audio and video telecourse room.

In-service programs could be offered to teachers and administrators with little or no travel. Educators from other buildings or districts could collaborate with each other regarding educational concerns. And most importantly, the communication gap between teacher training programs and public school personnel (administrators and teachers) could be decreased resulting in more practical course work for prospective teachers.

CONCLUSION

In conclusion, as enrollment in telecourses continues to increase, and solutions to current problems arise, it is believed that this educational delivery approach has the potential of playing an enormous role in bridging the distance gap between universities and their extension programs and providing more cost-effective methods of delivering instruction during the 1990's.

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