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Implementation of Satellite Videoconferencing in the Minnesota Extension Service

Rae Montgomery, Sheila Craig,
Brent Larson, and Jerrold Tesmer

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Educational Development System
 405 Coffey Hall, 1420 Eckles Avenue
 University of Minnesota, St. Paul MN 55108

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Implementation of Satellite Videoconferencing in the Minnesota Extension Service

by Rae Montgomery, Sheila Craig, Brent Larson, and Jerrold Tesmer*

ABSTRACT

The Distance Education Project was undertaken in 1990 by the Educational Development System, a unit of the Minnesota Extension Service. The purpose of the project was the installation and use of satellite technology for extension programming. By 1992, more than 40 satellite dishes were installed throughout Minnesota.

This report chronicles a research effort to identify trends and unique variables to assist decision-makers who were considering expanding the system and improving programming. Ten county offices were selected for the study, and county agents participated in a site visit and survey in 1991. The study found that county extension agents are concerned about: availability of appropriate programming for clientele, adequate time for marketing and promotion, and screening of potential programs.

INTRODUCTION

In 1990, the Educational Development System (EDS), a unit of the Minnesota Extension Service (MES), began a technology *implementation* project called the Distance Education Project. The main goal of the project is the adoption and implementation of satellite technology within MES for program delivery. EDS assists in the planning, preparation, and delivery of educational programming in MES. (Coyle [1991] chronicled the project's start.)

The three major components of the Distance Education Project are 1) technology system development, 2) programming and program development, and 3) staff development and evaluation. Key to the success of this project was the purchase and installation of more than 40 satellite receiving dishes throughout the Minnesota Extension Service statewide network.

A research project was undertaken in 1991 to assess implementation issues regarding satellite programming in 10 MES county extension offices. The purpose of this research project was to identify trends throughout the system as well as unique variables that would assist decision-makers who were considering the purchase of additional dishes and seeking to improve programming efforts. The research project was a collaborative effort of the Educational Development System and the Fillmore County Office of the Minnesota Extension Service.

**Rae Montgomery is an EDS distance education project manager; Sheila Craig, Brent Larson, and Jerrold Tesmer are extension educators in Fillmore County.*

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REVIEW OF THE LITERATURE

Presented here are recent (since 1988) research studies from four states who are members of the Cooperative Extension System, a federal agency in the U.S. Department of Agriculture.

In 1989, the Alabama Cooperative Extension Service surveyed nine state extension services which were using satellite videoconferencing (Barker and Beasley, 1989). The survey found that the primary use of satellite videoconferencing was for instructional programs in agriculture. Concerns reported at the county downlink sites dealt with the quality of programs, the need for technical training at downlink sites, technical problems with the dishes, and limited interaction. Other concerns were of an organizational nature (e.g., attracting clients, adequate lead time), facilities, and access to specialists via satellite technology rather than in person.

A 1989 survey of extension agents in Ohio (Whiting, Gerakis, and Tucker, 1989) found that the greatest advantages with satellite videoconferencing were 1) access to extension specialists and other experts, and 2) efficiency. The greatest disadvantages of the technology were 1) getting access to a downlink dish, 2) technical problems and lack of technical reliability, and 3) lack of professional quality. Lack of publicity for the programs and remoteness of the speaker were also concerns. Respondents stated that timely, important topics and high-quality presentations -- high technical quality and excellent presentation and teaching skills -- were critical for successful programming.

Viewers evaluating early videoconferences (before 1988) in Ohio initially focused on video and audio quality, program length, and the quality of charts and graphs. Over time, viewers focused on program content rather than technical aspects.

FINDINGS

The findings reported are primarily from the data collected in October. When significant changes occurred between the April and October data collection points, those changes are noted. The data are presented in the five categories identified above.

Procedures and Access

County sites receive information about future satellite programs primarily by accessing the satellite programming listing updated monthly on the MES EXTEND-U computer bulletin board, which is accessed regularly by all county offices. Information sources are shown in Table 1.

Table 1

Information Sources for Future Satellite Programs

Source	Percent
Satellite listing on EXTEND-U	91%
News releases on EXTEND-U	57%
From MES Program Leaders	57%
From MES Specialists	48%
From other MES County Agents	26%
Other sources/agencies	22%
Directly from the program provider	22%

When asked how they would like to be alerted of future satellite programs, county staff identified the EXTEND-U computer bulletin board system as the primary vehicle. Other options are presented in Table 2.

Table 2

Desired Sources of Notification of Programming

Source	Percent
Special notice over EXTEND-U	87%
News releases over EXTEND-U	65%
Organize sites in advance	57%
Mail a special notice	30%
Send a flyer	30%
Don't organize sites in advance	13%
Send news releases to the media	0%

There was unanimous agreement that news releases should be sent to the county offices for editing and release to the media, and not directly to the media.

All county sites indicated that neighboring counties could have access to their satellite dish, but very few requests had been received.

Sites that have had satellite dishes six months or more suggested this advice for novice satellite receiving sites: staff familiarity with downlink technology (e.g., timer, alignment, tuning, videocassette recorder functions), and appropriate planning (e.g., publicity, getting the audience in place).

In April, the greatest concerns regarding satellite technology included: lead time for planning and promotion; staff time devoted to hosting programs, marketing, and evaluation; availability of appropriate topics; and charging clientele.

The concerns in October were: cost-benefit (primarily staff time) for downlinking to small numbers of participants, marketing issues (e.g., time to evaluate programs to feel "safe" at publicizing them, generating audiences), and program topics not meeting local needs.

During the six-month period, county sites downlinked between four and 23 satellite videoconferences and averaged 11 programs per office (i.e., approximately two per month). Two thirds of the programs were downlinked to an audience in attendance, and half were videotaped for later viewing. Nearly one-third of the programs were produced all or in part by the Minnesota Extension Service and nearly two-thirds were produced by extension services in other states.

Audience Motivation

In April, agents stated that the greatest audience barriers for satellite programming were audience preference for face-to-face interaction and program registration fees. In October, the most frequently mentioned barriers were: the timing of programs, passivity of watching television, uncertain value of programs, and audience awareness of programs. One early concern was that participant fees would affect the size of the audience. Along with the lack of face-to-face interaction remaining a concern by October, other potential barriers emerged regarding content and awareness of programs and audience availability.

There was also some change of perception by agents regarding incentives that might encourage audiences to utilize satellite programming. In April, the incentives mentioned by agents included travel cost savings and access to programming they wouldn't otherwise receive. In October, the most-often mentioned incentives were: increasing awareness among other agencies of available programs; offering college or continuing education credit for programs; and quality, in-depth programs that meet the needs of the audience. As with barriers, the shift was away from the technology itself toward audience-preferred content.

Role of Specialists and Developers

Agents primarily scheduled, taped, marketed, and hosted programs. In three offices, the secretary, custodian, or high school staff taped programs, and one secretary scheduled and assisted with marketing. Table 3 provides the range of time spent on satellite programming. The average time spent by staff in county offices on satellite programming was 12 hours per month.

Table 3

County Staff Time Devoted to Satellite Programming Monthly

Activity	Time
Scheduling programs	1-3 hours
Taping programs	0-8 hours
Marketing programs	1-8 hours
Hosting programs	1 hour - 4 days

There was no consensus on who county staff would contact for additional information on programming downlinked from another state. One-third said they had contacted a specialist from the University of Minnesota, one-third had contacted a specialist from the origination state, and one third had contacted no one.

The county staff identified these advantages to satellite programming regarding university specialists: less travel for specialists, time savings, greater access to specialists, and more programming in distant corners of the state.

The disadvantages perceived for specialists' use of satellite technology included: lack of personal contact, cost of producing programs, receiving site equipment concerns, and clientele acceptance of the technology,

Suggestions for specialists and developers to deliver quality programs by satellite included: involve county staff in topic selection, advanced lead time for promotion, send participant materials well in advance of program, suggest local wrap-around programming, allow several points in program for audience participation, and select programming that meets the needs of the audience.

Video Distribution

Most county office staff anticipated that they will videotape many of the satellite programs and develop or add to a videotape lending library. However, staff concerns included managing and organizing a large number of videotapes.

Costs and Charges

Most county sites did not charge extension clients to participate in a videoconference, except for those programs requiring registration fees, and the sites have not profited monetarily. Some small fees were charged to cover refreshments or room rental. Most sites did not charge other agencies for taping programs.

In April, 60 percent of the sites did not have policies for charging clients and other agencies. By October, most offices had developed a no-cost policy for clients and other agencies or at most a modest fee to recover costs.

Relatively few expenses associated with receiving satellite programs were incurred by county offices. Expenses at most offices were \$25 or less, that primarily for blank videotapes. Expenses at several sites included room rental, repairs, and in-service fees.

CONCLUSIONS

Most county extension staff state that satellite videoconferencing has the potential to bring more programs and expertise into their counties. However, after utilizing satellite programming for six months or more, many offices share a concern that the majority of programming available does not meet the needs of their clientele. County offices encouraged campus specialists to originate programs for Minnesota clientele as well as for meetings and in-service training for county staff.

County extension agents have had to adapt to publicizing satellite programs on shorter notice than for face-to-face meetings. Agents stated that they could attract more clientele if they had at least 6-8 weeks notice and detailed information to publicize programs.

Although many satellite programs are available from national sources, a significant amount of time is spent by county staff sorting and evaluating all the information about programs to determine those that may be applicable for their clients. A suggestion from the April interviews that campus specialists could help evaluate potential programs was implemented. Agents also were concerned about devoting time to publicize and host programs for small numbers of participants. Although agents pointed out some attributes of the technology that may be barriers (e.g., lack of personal contact, equipment problems), targeting programs to clientele needs is the primary concern. One county agent's comment reflected these concerns: "(We) sure would like a well-produced, needed, advertised program to see if we could draw a crowd."

RECOMMENDATIONS FOR SATELLITE PROGRAM DEVELOPERS

Given that clients come to videoconferences for information and county extension agents ultimately determine the success of a videoconference through their marketing and local program efforts, the following recommendations are offered for developers to increase the success of a program:

1. Satellite videoconference topics should be determined from needs generated at county extension offices.
2. Satellite programs should be scheduled in advance in the same time frame that face-to-face meetings are scheduled.
3. Detailed content and agenda information for each program should be received in county offices at least 6-8 weeks in advance of the program so that county offices may adequately and accurately promote the program.
4. Developers should include suggestions and support materials for county extension offices to develop wrap around programs.
5. Developers should include materials for clients that are relevant to and coordinated with the program.

POSTSCRIPT

Since the close of data collection for this study, there are systemwide indications that satellite videoconferencing has received increased organizational awareness and acceptance of its use in many situations.

A number of county extension offices report an increased use of satellite videoconferencing since data for this study was collected. One reason for this may be that the data was collected during a time of year when fewer programs of this kind are conducted. County staff believe that more universities are originating programs and that campus extension specialists are more aware of and involved in developing programs and cooperating with counties to downlink programs. County staff also see an increase in use of satellite videoconferencing by agencies other than extension. County offices that installed satellite dishes after October 1991 have been finding ample usage of their dishes by clientele and other agencies, unlike the experience of early users.

The authors suggest that a "critical mass" of awareness of and access to the technology has been reached by the organization and cooperating agencies in a time frame of 18 months. County extension offices installing dishes now will likely not experience low usage during start-up.

REFERENCES

- Barker, D. A. & Beasley, T. (1989). "A survey of satellite uplink usage by Cooperative Extension Systems in the United States." Paper presented to the Agricultural Communicators in Education Technology Conference, Minneapolis, Minnesota, May 1989.
- Coyle, L. (1991). "Distance Education Project: Extending Extension Programming Via Telecommunications Technology," *TDC Research Report No. 21*. St. Paul: Telecommunications Development Center, Minnesota Extension Service, University of Minnesota.
- Oklahoma Cooperative Extension Service. (1989). "A first: satellite videoconferencing." Final report prepared for the W.K. Kellogg Foundation and Oklahoma State University.
- Whiting, L. R. (1988). "The television renaissance in extension education," *Lifelong Learning: An omnibus of practice and research*, 11 (8), pp. 19-22.
- Whiting, L. R., Gerakis, A., & Tucker, M. (1989). "Field faculty evaluation of satellite videoconferencing in Ohio." Interim research report. The Ohio State University.

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