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Abstract

Cooperative Extension agents and subject matter specialists at land-grant universities throughout the United States use every bit of educational media at their disposal, especially electronic media, to reach their clientele.

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Cooperative Extension agents and subject matter specialists at land-grant universities throughout the United States use every bit of educational media at their disposal, especially electronic media, to reach their clientele. Extension faculty follow the national model, at least in the print mode. But their use of electronic media, specifically videotapes, is sporadic and supplementary. Other than informational tapes sent to professional media by the Extension information staff, there is no ongoing program of education with videotapes, because there is no universal source of videotaped materials or common rationale for using video in Extension outreach programs.

How to use educational video—and why—posed a dual dilemma that only more information could solve. To this end, a survey was sent to 24 county and city Extension offices and support departments on the University of Maryland–College Park campus. While a cover letter showed the survey was an inventory device, an additional, if not more serious, intent was to gauge the attitudes and experience of Extension faculty in regard to videotapes.

In particular we wanted to test the hypothesis that there is a correlation between use of educational video and interest in educational video. We believe that such variables as equipment, years of Extension service, and inventories of film and video may be contributing to an avoidance of educational video and film.

Kathleen A. DeMarco, television specialist with University of Maryland Cooperative Extension, presented this paper at the Research Special Interest Group session, 1984 National ACE Meeting, June 28, Washington, D.C.

With the increasing interface of microcomputers and video recorders, Extension faculty will have an abundance of technology to aid them in educating clientele. But, without an understanding of why personnel use or do not use existing software and hardware, Extension will be hampered in developing educational programs to their future potential.

The Problem

Agents and specialists in Maryland have used audiovisual materials to educate clientele for many years. Traditionally, slide sets in single- or multi-projector units were the preferred method of teaching, but 16 millimeter films have also been part of the audiovisual (AV) instructional packet. By the 1970's, reel-to-reel videotapes and videocassettes in 3/4-inch, U-matic, or 1/2-inch VHS or Beta formats were part of the AV resources as well.

But the various AV techniques available for client education have not been utilized uniformly, nor has a central facility, like an AV library, been available for agents and specialists.

Indeed, how audiovisual materials, specifically films and videotapes, were handled in county offices or on campus was a question for which there was no definite answer. And this question of video-and-film use precipitated more issues such as: 1) what was the inventory of film and video materials in the Maryland Cooperative Extension Service; 2) what equipment was being used to play or develop these materials and 3) what value did Extension faculty put on using video and film materials into their teaching outreach to Maryland citizens.

Survey of the Literature

This last point on media value interested us the most, and it has been a popular topic in the literature of communications and education.

The education section of *Dissertation Abstracts International* contains several abstracts that study the implications of media in educational settings.

A recent dissertation from Louisiana State University (Kosh-Chashmi, 1983) found that "most teachers agree that they can be more effective in their instruction if they know more about proper utilization of educational media." The perception of media as valid teaching tools is the concern of Leslie

Purdy, writing in *Educational Technology*. In her "Community College Instructors and the Use of New Media: Why Some Do and Others Don't," the attitude of the user of the media becomes paramount: "Teachers may often be attracted to experimenting with new devices but fear loss of personal and sole control of teaching to other teachers in a team situation or to media experts." The latter group can have a very different view of the time and quality of the audiovisual program needed than the teachers themselves. In other article in the same journal, Jo Anne Craig discusses the steps necessary for faculty change. In "An Examination of the Faculty Growth Process," she lists six phases in faculty development: 1) awareness, 2) evaluation/identification, 3) selection, 4) experimentation, 5) acceptance, and 6) assimilation.

The advantages of using visual media over print were outlined in a Columbia University project that found "the emotion, enthusiasm, and commitment of the outside consultant were conveyed by the video tape and that this was more significant than the transmission of objective data." Joel Rakow, writing in the *Journal of Education* (1979), noted that traditional forms of communication (i.e., print) do not have to be at different ends of the spectrum.

With time this polarity of film versus book, eye versus ear, print versus nonprint achieved considerable modification; yet, the polarization has remained crucial. But in all cases, this polarity is a key to understanding many aspects of the educational technology field, its present as well as its past.

Making data more subjective is the task of both television and the computer. One way to synthesize their efforts, according to a University of Minnesota report in the *ACE Quarterly* (1984), could be with the videodisc, which stores "gigabytes" of computer data, slide and script information, and videotext and film presentations. Still, even the most advance technology cannot take the place of the human brain. Knowing how learning takes place within human beings, either Extension faculty or Extension clientele, comes before their use of technology. Social science researchers now follow the cognitive paradigm, rather than the behavioral theories of 20 and 30 years ago, to explain how learning takes place. In "Cognitive Psychology and Instructional Development: Adopting a Cognitive Perspective for Instructional Design Programs in Higher Education," Gregory Sprague (1981) notes that audiovisual programs depend on parallel instructional development programs and vice versa. To find out how

Maryland Extension faculty might adapt to a cognitive paradigm, a lot of questions needed to be asked, especially the hypothesis: Is there a correlation between use of educational video and interest in educational video?

Methodology

To get the information needed, a list of 20 (open and closed) questions was developed by the television specialist and her intern for the semester. The methodology involved quantitative techniques currently employed in mass communications research.

A written survey of the 20 questions was distributed to a population of 24 Extension offices (23 county locations and one in Baltimore City) and 16 academic departments on the College Park campus, which housed Extension state staff faculty.

Variables in the study included: 1) years of Extension service; 2) knowledge of video or film tape formats; 3) knowledge of video or film tape equipment; 4) experience with producing video or films; 5) experience with use of video or films; 6) interest in using video or film in an educational program, and 7) experience in front of television cameras.

These variables helped to predict: a) the amount of video or film materials extant in Extension offices; b) the amount and kind of video or film equipment available to Extension faculty, and c) the nature of faculty attitudes toward video or film as a teaching tool.

The master questionnaire was coded for the computer, and the returned surveys—N equaled 26—were evaluated with the Statistical Package for the Social Sciences, which provided both descriptive and inferential statistics. The descriptive statistics of mean, median, and mode looked at clustering associations; the variance and standard deviation figures looked at dispersion. All of the questions were evaluated in this way.

Additionally, the inferential statistics of Chi Square, Contingency Coefficient, Symmetric and Asymmetric Lambda, Asymmetric and Symmetric Uncertainty Coefficient and Kendall's Tau helped evaluate several crosstabulations between such variables as: 1) the length of Extension faculty service and experience with videotaped production; 2) the length of Extension faculty service and the use of video for education; 3) the length of Extension faculty service and the size of the

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respondent's videotaped inventory; 4) the length of Extension faculty service and the size of the film inventory; 5) the length of Extension faculty service and respondent's experience in front of a television camera; 6) the use of video for education and the use of video in general, and 7) the use of video for education and the respondent's experience in front of the camera.

In some cases the discrepancies between the actual and expected value of cells was not large and the population was somewhat small; so, some of the inferential data were not statistically significant but followed in the predicted direction.

Analysis of the Respondents' Population

Seventy-five percent or 18 of the 24 Extension field offices responded to the survey, and 50 percent of the campus offices (8 of 16) answered the questions. In most instances (89 percent), one member of each field location completed the questionnaire alone. In one county, two agents did it together; in another, nine agents compiled a report. Eleven of the 18 respondents were county Extension directors with 58 percent having more than 10 years of service. Three of the eight campus respondents were in supervisory roles; more than half of all of the campus faculty answering had more than 10 years of Extension service.

Summary of Findings

The answers could be grouped into five general categories of video or film use:

- I. How used (Program)
- II. Where used (Location)
- III. What used (Inventory)
- IV. Way used (Format)
- V. Amount used (Length)

I. How Used (Program)

Extension faculty who have worked for more than 5 years use videotape more than their colleagues who have worked less than that amount of time. About three-fourths of faculty with 10 or more years used videotapes, only about three-fifths of those with lesser service did. The breakdown was exactly the same for film use as for video use.

Sixty-eight percent of the respondents use videotape with adults; by contrast, only 28 percent use the same medium with children. The lower usage may be explained by realizing how many Extension faculty work with children during a normal workday, and how many 4-H faculty answered this survey. Only four of the 18 Extension agents who filled out questionnaire were 4-H workers; only one of the eight campus personnel sending back a survey was involved in 4-H activities. Statewide, in both field and state staff Extension offices, over 60 Extension faculty work in 4-H.

Videotaped material is most widely used in Maryland Extension for nonbroadcast programs, that is, live-group presentations. Forty percent of those surveyed use video in this way, while slightly less than a third used video for mass media purposes or to "save time." Again, to account for the lower use of video in television programs, we must look at the reasons behind this behavior. Part of the answer may be in identifying the number of Extension faculty who regularly appear on television shows that accommodate video inserts—about 18 Extension faculty.

In addition, we need to know whether the people in this latter group had even the slightest bit of production or technical understanding of what to do with a videotape that they wanted to add to their on-camera presentation. Simply put, did they know which questions to ask the television producer? That is, did they have any idea of the technical requirements (time, machines needed) that video inserts impose on a television show?

Still, video inserts, which agents do not have to produce themselves (that is, prepackaged video they could receive from College Park) could save time in their schedules by saving demonstration time. Perhaps the greatest time-saving would be for specialists, who could prerecord programs now given in person and save expensive travelling. More of this should be done, since 24 percent of those queried do not presently use videotape or films in their work as Extension professionals.

II. Where Used (Location)

Videotapes

About half (42 percent) of the respondents use videotapes in office facilities; a third use them at meeting sites, presumably, away from their headquarters; about 20 percent

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use video materials in a library, and the remainder have smaller usage at community colleges and grammar schools. The adoption of video at the meeting place is encouraging, but the low involvement with library facilities is somewhat disturbing. Usually, community libraries are prime choices as both distribution and limited production sites. Most discouraging of all is the percentage of Extension faculty not involved in video—a third (33 percent) of all those responding.

Film

Extension agents and specialists use film more than video, which is hardly surprising given that the medium and its equipment is commonplace in most American institutions. More than half of the people surveyed use films in their offices, indicating the availability of projectors. A fourth run films at public libraries. Use at schools, including grammar schools and community colleges, ranked lower. Surprisingly, over 50 percent used film in other meeting locations. A fifth of all surveyed do not use film in Extension outreach at all.

Video/Film Equipment

When agents and specialists use film or videotape, most use it in their offices (72 percent) and in nearby schools (32 percent) and fewer at the public library, the latter fact being supported by the earlier question on using videotapes/films at the library.

Since videotapes and films can be used at television stations as well as in playback situations, the survey contained a question on the accessibility of television production studios (see earlier reference to agents' technical understanding of videotapes.) A wide variety of ignorance and understanding was revealed in the answers to this question. Although 68 percent were aware of production studios nearby, only 30 percent knew they had access to them; 22 percent were even unsure about the accessibility. A fourth of the respondents did not know of any studios in their areas.

III. What Used (Inventory)

Facilities (such as studios) and equipment (such as video decks and film projectors) are only as good as the material they handle. That is why we also wanted to know how many and what kinds of video/film programs Extension faculty had

in their county or campus offices. Only by knowing what inventories existed was it possible to know what other materials faculty would be needing in the future.

To that end, the survey included questions on the numbers and kinds of videotapes and films. Sixty-five percent (17 of 26) do not have any videotapes at all; 54 percent have no films. The state office of the Home Economics Department has several dozen videotapes and films. As you would expect from an older art form, film exists in varying quantities in over two-thirds of the respondents' offices. But videotape inventories are very small.

A further breakdown of videotapes and films by type (3/4, 1/2-inch, etc., and 16mm and 35mm, etc.) show that the most common form of videotape—3/4-inch U-matic—did not even exist in the offices of 22 of the 26 respondents. The second most popular video format—VHS—was absent from the shelves of 21 of the agents or specialists. None of the agents had the Beta format; however, there are no Betamax machines in Extension field offices. The other forms listed on the questionnaire—2-inch, 1-inch, and 1/2-inch reel-to-reel—were virtually nonexistent in offices, but that finding was somewhat expected, for these formats are mostly used in studio settings. The agents and specialists were only asked about these formats to see if they could recognize the shape and be aware of the kinds of video formats used in commercial television.

IV. Way Used (Format)

Having gauged the inventory of films and videotapes, we then learned what form the respondents wanted future video inventories to contain (film inventories are generally restricted to 16mm and 35mm).

The answers could have fallen into six categories (3/4-inch cassette, 1/2-inch VHS, 1/2-inch Beta, 2-inch reel, 1/2-inch reel, and 1-inch reel-to-reel), but only the first three categories attracted the answers. Eleven percent of the respondents wanted 3/4-inch, about a third needed 1/2-inch VHS, 5 percent wanted 1/2-inch Beta. Another 5 percent wanted nothing, and nearly one-half of those surveyed vacillated between 3/4-inch and 1/2-inch, because, in some cases, they did not have a machine to play either form on. Sometimes their machine was housed elsewhere in their district. Another comment, heard in other answers as well, was that video equipment was heavy to lug around.

Ordering more compatible videoplayback machines (perhaps all 1/2-VHS) and placing them in each field office, not just the district representative, would alleviate the cumbersome transfer mentioned above. More videocassette recorders and monitors would also standardize the kind of videotapes needed and, thus, make tape formats more uniform.

V. Amount Used (Length)

A subsequent question on projected needs—future lengths of films and videotapes—offered respondents a choice of nine possible times (2-, 4-, 6-, 8-, 10-, 15-, 20-, 30-, and 60-minutes). The 15-minute length was the most popular (2/3 approved), 20-minute and 10-minute tied for second, 30 and 6 minutes tied for third, and 2-, 4-, and 8-minutes tied for fourth. The 60-minute category was the most unpopular, with only 8 percent of respondents approving of it.

The last four questions in the survey were open-ended, two-way educational items. The first in the series tested knowledge of studio videotape format. Over three-fourths of the respondents did not know what highband videotape was, yet their television programs are recorded on it.

On the positive side, respondents may not have always known what was going on behind the camera in the tape room, but they were very familiar with what to do in front of the lens. Fully 96 percent had been on camera, and 84 percent felt comfortable during the experience. These facts are valuable data for the training sessions conducted by the Information and Publications Department. Knowing that a sample of Extension faculty could relate to an on-camera performance makes some on-camera training unnecessary.

What seems more necessary is in-service education on film/video program development and usage. That topic was explored to some degree in the last question on why people did not use videotapes in their Extension work. Answers showed that—as elsewhere in the survey—there were four major areas of concern:

- insufficient amount of appropriate subject matter is available;
- insufficient amount of equipment is available on which to play video materials;
- existing video equipment is too widely dispersed in the districts, and
- existing video equipment is too heavy for many agents to handle alone.

Conclusion

Mass communication researchers often cite the Cooperative Extension Service model as an excellent diffusion system for agricultural information. Ironically, within some state Extension services, including Maryland, diffusion of communications information, specifically that related to adoption of new video technology, is not as successful as it could be. Like the shoemaker whose children have no shoes, Extension subject matter specialists and agents spend so much time thinking about giving information that they don't think about how they are giving the facts out—that is, traditionally or with audiovisual support. And, they may not be exchanging innovative communications strategies with their peers.

By applying the decentralized model of information diffusion, which Everett M. Rogers describes in his *Diffusions of Innovations*, agents and specialists can still operate within the highly-acclaimed centralized diffusion of the Extension Service. While more videotape and film inventory equipment are needed to bring Maryland Extension up to a functioning communications level, the most important way to increase the use of audiovisual materials in the 40 Extension offices surveyed is to increase interest in and financial support for new technology. Showing faculty and administrators that video and film are not the whole answer in Extension education, but a necessary informational component, is the challenge of communications personnel throughout the land-grant system.

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