PERCEPTIONS OF OKLAHOMA COOPERATIVE EXTENSION

PERSONNEL REGARDING THEIR USE OF ELECTRONIC

TECHNOLOGY IN DISSEMINATING EXTENSION

EDUCATION INFORMATION

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INTRODUCTION

The potential for disseminating useful and up-to-date extension
education information through the new electronic communications
technology has been recognized to have great potential (Clark, 1983).
This relatively new communications technology which comprises teleconfer-
encing, audioconferencing, videoconferencing, satellite conferencing and
computer conferencing has been successfully utilized in extension educa-
tion. Olgren and Parker (1983) cited examples in which the technology
facilitated extension education information dissemination:

1. The University of Illinois used Audioconferencing to provide
up-to-date information to cooperative extension personnel located in 90
counties and regional offices.

2. The University of Minnesota Agriculture Experiment Service
make teleconferencing available to all 92 county offices via meet-me
bridging. It is used for meetings and educational program for
extension clientele.

3. The University of Nevada at Reno provides continuing education
programs to adults in the state. The Audioconferencing system links 20
locations with a meet-me bridging.

4. The University of Texas Health Science Center operates a
dedicated Audioconferencing network to provide continuing education to
health professionals and personnel at 90 locations.

5. Utah State University connects 10 extension offices through dial-up teleconferencing mainly for administrative meetings and in-service training.

In all these examples, the mode of extension communications was greatly transformed by using electronic communication technology. Marveling at the transformation capability of electronic communication technology, Toffler (1980) stated that we are on the edge of a new wave, one that will be as important as the industrial revolution – an electronic revolution that will change our entire economy, our city structure, our communications potential, our values, and even our politics.

On the current electronic communications revolution and the phenomenal effect of electronic communications technology on our communication potential, Hald (1982) wrote:

> The introduction of microelectronic capabilities into the home, classroom, and office is initiating a period of explosive innovation and is changing our perceptions of the world around us; in essence, a New Rennaissance is taking place. Microelectronic technology is dramatically increasing our ability to recall information, communicate, create knowledge, and understand complex relationships. We are moving from a society perceived as resource-constrained to one that is "information rich." We are entering a new era in which economic growth is derived from exchange of information and the creation of knowledge rather than accelerated consumption of natural resources (p. 9).

Smith (1978) stated that the use of electronic communication technology is creating trends in extension information dissemination. Among these are: (1) increasing storage of ever greater amounts of knowledge in computerized data banks, and increasing accessibility of that information at decentralized locations, (2) the evolution and increasing use of communication systems to reduce both travel and paper work; (3) an increase in the amount and variety of all types of

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television materials, including educational materials that will be available to the home television screen; (4) the evolution of the home terminal, replacing the present television set, that will combine television reception, videotape or videodisk player, and data display, the latter combined with keyboards for accessing computerized information; and (5) a gradual lowering of the costs of these technologies so that ultimately, it will become more expensive to conduct much extension education business in traditional ways.

Statement of the Problem

The Telecommunications Committee of the Division of Agriculture, Oklahoma State University, surveyed the county extension officers early in January 1984 and recognized, among other things, the wide use of certain electronic communications equipment. However, a primary concern of the committee was to determine the extent of use of this equipment in disseminating extension education information. This concern was also shared among individuals who make use of electronic communications equipment in disseminating information. At the same time, the committee was interested in other concerns such as determining problems and hindrances of using electronic communications equipment for disseminating information; the possibility of establishing a central videotape library; and if extension personnel desire some form of additional training in using certain instructional methods and electronic communications equipment.

Based upon the concerns of the telecommunications committee and other interested extension administrators, the investigation of the use of electronic communications equipment was considered. A review of

pertinent literature has indirectly revealed that little or no attention has been given to investigating the perceptions of Oklahoma Cooperative Extension Personnel regarding their use of electronic communications equipment in disseminating extension education information. This study seeks to rectify this problem.

Problem

The problem of investigation was, basically, the need to know the nature and extent to which Oklahoma Cooperative Extension Personnel utilize electronic communications equipment in disseminating extension education information.

Purpose of this Study

The major purpose of the study was to determine the nature and extent of use of electronic communications equipment by Oklahoma Cooperative Extension Personnel in disseminating extension education information. A concomitant purpose of the study was to analyze perceptual responses of six selected groups of cooperative extension personnel: (1) Area specialized agents; (2) County extension directors; (3) Extension agents – 4H; (4) Extension home-economists; (5) Extension agriculture agents and (6) Extension home-economists – 4H, regarding their anticipated use of certain electronic communications equipment for conducting extension activities.

Objectives of the Study

In order to accomplish the purpose of this study, the following objectives were set forth:

1. To summarize the survey conducted by the telecommunications committee on availability of electronic communications equipment in extension field offices.

2. To determine the anticipated use of electronic communications equipment for disseminating extension education information.

3. To determine respondent perceptions regarding problems and hindrances of using electronic communications equipment.

4. To determine the anticipated use of slidetapes and videotapes containing extension education information topics located in a central library.

5. To secure respondent perceptual need for additional training in using certain instructional methods and electronic communications equipment.

6. To secure respondent perceptions regarding the extent to which the use of electronic communications equipment accomplishes certain extension information disseminating objectives.

7. To secure respondent perceptions regarding anticipated use of certain electronic communications equipment for conducting extension service.

Rational for the Study

With the increasing use of electronic communications equipment in the cooperative extension service function, it is necessary to investigate the perceptions of Oklahoma Cooperative Extension Service Personnel

regarding their use of these equipment. The need for an empirical investigation into how extension personnel perceive themselves as using electronic communications equipment in disseminating extension education information is essential if we are to help them improve their teaching and communication skills.

There is ne d to find out what the extension personnel perceive as their strong points or handicaps in using electronic communications equipment for disseminating extension education information. It is also of relevance, if we can determine the training needs of the extension personnel and problems encountered in utilizing these equipment. In addition, a look at the possibility of establishing a central library of slidetapes and videotapes on various subject areas should be very useful.

According to the American Association of Agriculture Editors (1976), since effective communication is an integral part of effective extension work, it is rather important that cooperative extension personnel make use of modern communications technologies and methods in extension teaching. With this in mind, this study sets out to investigate perceptions of extension personnel regarding their use of electronic communications equipment in disseminating extension education information.

Assumptions of the Study

Concerning this research, the following assumptions were made:

1. The responses made by the Cooperative Extension Personnel were accurate and sincere.

2. That the statements of the instrument, developed by the researcher and thoroughly scrutinized by a body of experts, would adequately measure the perceptions of cooperative extension personnel

regarding their use of electronic communications equipment in disseminating extension education information.

3. The data from this study could be used to devise a means for providing additional training to extension personnel in utilizing electronic communications equipment for disseminating extension education information.

Limitations of the Study

As in most research investigations, this study has its limitations. They are as follows:

1. The study was limited to selected categories of personnel employed by Oklahoma Cooperative Extension Service.

2. Generalization to other populations should not be made until additional studies can verify the findings of this investigation.

3. The section with additional training needs is proposed to meet the existing situation and immediate future.

4. The normative survey section of this study was accomplished through the use of a questionnaire.

Definition of Terms

Various terms and technical expressions used in this study are defined as follows:

Teleconference: Two-way electronic communication between two or more groups, or three or more individuals, who are in separate locations; includes group communication via audio, audiographics, video, and computer systems. Teleconferencing as used in this study makes reference to a meeting between Extension personnel and his clientele facilitated by

electronic media (Olgren and Parker, 1983).

Audioconferencing: Two-way electronic voice communication between two or more groups, or three or more individuals, who are in separate locations.

Videoconferencing: A kind of teleconference between two or more groups facilitated by exchange of television signals. Sometimes referred to as a duplex television (Parker, 1982).

Extension Personnel: Change agent, extension agent, extension director, as used in this study, extension personnel makes a reference to Oklahoma area specialized agents, extension directors, extension agents – 4H, extension home-economists, extension agriculture agents, and extension home-economists – 4H, who are responsible for providing information on new farming and home-making ideas to their clientele.

Information: The communication or reception of knowledge and intelligence. As used in this study, it refers to communication of scientifically based agriculture and home-ecomomics research to the farmers, home-makers, and interested person or persons by the extension personnel (Smith, 1978).

Electronic Communication: A general term referring to the transmission and reception of information in analog or digital form over a telecommunication channel (Olgren and Parker, 1983).

Extension Education: An applied science consisting of content derived from research, accumulated field experiences, and relevant principles drawn from the behavioral sciences synthesized with useful technology into a body of philosophy, principles, contents and methods focused on problems of out-of school education for adults and youths (Legans, 1958).

Microcomputer: A microprocessor plus other components, such as memories, clocks, and various interface devices that collectively operate as stored program (Smith, 1978).

Population: Any set or group of things that are alike in respect to particular characteristics.

Computer Conference: A kind of teleconference between two or more manned data-gathering terminals in which a computer facilitates synchronous point-to-point connections (Parker and Olgren, 1982).

Communication Satellite: A "relay system" in orbit above the earth's surface for telecommunications signals such as voice, video, and data; requires earth stations to transmit and receive the signal at the ground locations (Olgren and Parker, 1983).

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The purpose of this chapter was to review literature associated
with the subject of this study. The major divisions of literature for
the study are: (1) Historical advances in information technology;
(2) Uses and benefits of electronic communications technology; (3) The
communication, diffusion and adoption process; (4) Extension personnel
training needs in using electronic communication technology; and
(5) The future use of electronic communication technology: A projected
view of the use of video and computers in Extension work.

Historical Advances in Information

Technology

Resnikoff (1980) writing in the 1980 <u>Communication Yearbook</u> stated:

History has recorded three previous great advances in infor-
mation technology, and each of them changed civilization in
a major way. The first, 5000 years ago, was the invention
of writing systems by the ancient Egyptians and the
Akkadians. . . Because civilization is not possible without
a system of recording knowledge for the future use, the
development of the technology of writing is interwoven with
the rise of the first high civilizations.

The second great advance in information technology occurred
about 3,00 years ago along the eastern rim of the
Mediterranean Sea, where the first primitive alphabets were
invented and quickly adopted by the Greeks whose civiliza-
tion rapidly rose thereafter to previously unparalleled
heights . . . The invention of the alphabet democratized

> writing and reading in principle at least, by reducing the inventory of special figures to thirty or so, for time could be spared from productive work or from other interests to learn the little that was needed to have input and output access to the store of a society's accumulated wisdom.
>
> The third great technological advancement in communication was the application of moveable type to printing in the fifteenth century. . . The technology of printing greatly stimulated the increase of new knowledge by making it possible to rapidly and accurately transmit and diffuse that which is known (pp. 115-116).

In the same fashion advances in today's information technology provide our generation with capabilities to store, transmit, retrieve, and analyze information on a scale heretofore unprecedent (Resnikoff, 1980).

Today, communication and information technologies have set the pace in what has come to be called the "electronic revolution" (Dizard, 1982). The new information technologies are based on advances in microelectronics that make it possible to store and process large quantities of information at low cost and in little time, while related developments in telecommunication have provided methods for conveying information in quantities, at speeds, and over distances that have already changed our lives in important ways and will change the lives of our successors in even more significant ways (Resnikoff, 1980).

As new communications technologies are introduced, older, more traditional ones wane in importance and the supplementary media will take and hold people exposed to the ever-increasing amount of information. Figure 1 depicts the historical chronology of innovations in communication.
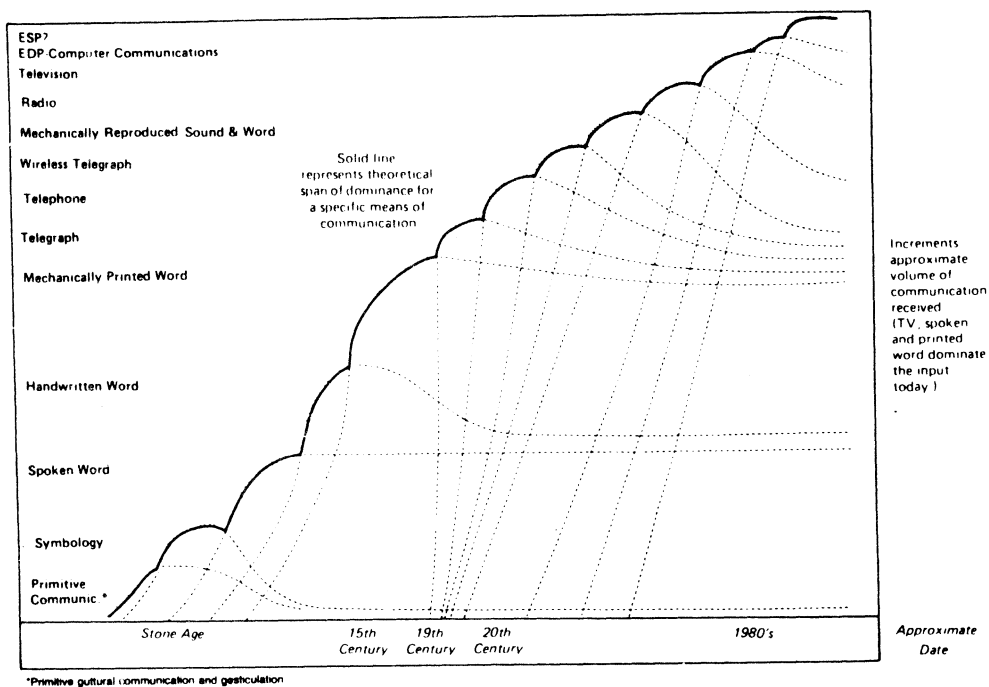
Source: Molitor Graham, "The Information Society: the Path to
          Post-Industrial Growth," in Communication Tomorrow: The
          Coming of the Information Society. New York: The Futurist
          Society, Inc. 1982, p. 87.

Figure 1. Historical Chronology of Innovations in Communication

Uses and Benefits of Electronic

Communications Technology

Smith (1981) points out that electronic communications technology
is multifaced and includes teleconferencing, audioconferencing,
videoconferencing, computer conferencing, and various output devices
(including microcomputers, videodisk non-impact printers and other
image media) as well as interactive terminals. Electronic communication
technology is everywhere around us and its impact on our daily life,

especially our communication capabilities, is startling (Scanlon, 1982). Scanlon (1982) maintains that this new technology is the force that will reset the course of our culture. Not only will this techno-logy contribute substantially to the education process through easier and more efficient information dissemination, but also, offer the same at reduced cost in the long-run (Condry, 1983).

Cooper (1983) noted that the only word that comes to mind when thinking about electronic communications technology is Change. Since cooperative extension personnel are very well involved in the process of change – change of behavior through information dissemination and other related functions, it is desirable that these personnel adopt a technology that can speed up the change process.

Lionberger (1982) pointed out that in transferring or disseminating information, change agents should use as many communication channels as possible. The importance of using electronic communications technolo-gies, including audioconferencing, videoconferencing and computer conferencing as one of these channels was emphasized by Cooper (1983). According to him:

> If the issue is information transfer, maybe 'holding meetings' can be defined in a broader context. . .if educators are going to use new methods of delivery—electronic or otherwise—one or more of the barriers of time, place, and cost must be breached. . .many of the new electronic communication technologies hold promise of making information transfer better fit the time of the clientele and change agent involved (p. 1).

Cooper further recommended six major questions that should be considered in selecting the type of communications technology or channels to employ in disseminating information:

1. What is the primary purpose of the information transfer or the nature of the problem?

2. Is the information transfer a one-time or an on-going
    activity?
3. What constraints exist for the information transfer
    regarding cost, schedule, number of participants, and
    access to participants?
4. What experiences do you have in planning and delivering
    the information?
5. How does the use of communication channels aid the
    learning process?
6. What alternative delivery channels cost, especially on
    a unit per clientele basis; and does your organization
    support the use of such communications channel (p. 3)?

Only when satisfactory answers to these questions are forthcoming,

should you decide on a technology or channel for transferring the

information (Cooper, 1983).

Audioconferencing: Use, Strengths and Weaknesses

Audioconferencing is a two-way electronic voice communication

between two or more groups, or three or more individuals, who are in

separate locations (Olgren and Parker, 1983). Audioconferencing has

been widely utilized by agribusiness firms for educational and

non-educational pursuits. The ease of communicating with a larger group

located in wide and different geographical locations makes this channel

of communication more appealing to professionals and communication

specialists (Hiltz, 1978).

Ohio State University and the University of Wisconsin-Extension

services pioneered the use of audioconferencing in extension education

in the early 60's (Parker and Olgren, 1982). As earlier mentioned in

the last chapter, the University of Illinois Cooperative Extension

Service implemented the use of audioconferencing in 1970 to provide

up-to-date information to extension personnel and their clients located

in several regional offices and counties. Programs as inservice

training, specialized seminars, workshops and meetings are conducted through the system (Olgren and Parker, 1983).

In a comparative survey conducted by the CIP communication group in 1981, it was found that 74 percent of the fifty-five University's extension service surveyed reached their clientele through audioconferencing. This is in comparison to 52 percent of 55 business firms, who used the same channel in reaching their clientele (Giersh, 1982).

Roger (1982) claimed that audioconferencing has a distinct advantage over traditional modes of communication, especially with regards to time and money saved. Few other electronic innovations with potentials in agriculture extension have the capability that audioconferencing has. The ready convenience that it provides for extension personnel to reach their clientele out in the field within a split second is a tremendous advancement in the function of the extension work (Giersh, 1982).

Clark (1983), who spent thirteen years in sales and marketing in various segments of the computer industry, including local area networking, addressed audioconferencing as a cost-effective, efficient alternative for improving communication of information. Placing audioconferencing within the context of other existing modes of communication, Clark pointed out that audioconferencing makes more impression on the receiver. She added, audiographics which is one part of audioconferencing communication technology offers clear cost and performance advantage for most typical meetings over any other communication channel.

For organizations such as the Cooperative Extension Service, which require time and money expenditure for meeting preparation and coordination, audioconferencing improves administrative effectiveness by reducing costs, improving time management and enhancing communication quality

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(Giersh, 1982). Parker and Olgren (1983) cited the following as benefits

associated with the use of audioconferencing:

1. Audioconferencing is an effective substitute to face-to-face meetings where the two parties involved are widely located in geographical distance.

2. Audioconferencing meetings tend to be shorter and better organized than face-to-face meetings.

3. Audioconferencing improves productivity through reduced travel time and more efficient communication.

4. Audioconferencing provides faster decision making and access to additional resource people; problems can be addressed as they arise.

5. Audioconferencing allows for rapid follow-up meetings to put decision into action.

6. Audioconferencing improves the quality and quantity of communications among extension centers and the University's headquarters of the centers.

7. Audioconferencing reduces travel costs when used for at least 50 to 60 percent of all meetings.

8. Audioconferencing is an efficient means of accessing and communicating extension information, and it can be integrated with automated office technologies.

9. Audioconferencing enhances the image of the extension personnel as innovative leaders.

10. Audioconferencing increases the participation of clientele to heighten commitment to solving the problem at hand (p. 23).

Johansen, McNeal, and Nylan (1977) of the institute for the future, outlined the following as the strengths and weaknesses of audioconferencing:

Strengths

- Audioconferencing meetings are adequate for a number of typical business and research situations; they are particularly satisfactory for communication tasks which stress information exchange and problem-solving.

- In intense communications, such as bargaining or
  negotiation, audio meetings may offer subtle
  advantages to some participants.

- Audioconferencing permits rapid communications, with
  less level.

- Audioconferencing permits accurate communication.

- Audioconferencing promotes controlled participation.

Weaknesses

- Audioconferencing meetings are not satisfactory for
  tasks which stress interpersonal communication, such
  as negotiation or getting to know someone.

- Audioconferencing can create an impersonal, uncooper-
  ative communication environment.

- Audioconferencing meetings are personally demanding.

- The use of audioconferencing too frequently, has a
  negative expectation of audio (pp. 4-5).

Videoconferencing: Uses, Strengths

and Weaknesses

Videoconferencing is one of the major electronic communication

technology facilitated by satellite capabilities. According to Smith

(1978), videoconferencing is a two-way visual link between two parties

who are separated by substantial distances. Not only does it allow for

dissemination of educational materials to numerous recipients on a

regional and national basis, but also that of specialized materials

to parties who are widely dispersed and/or situated in relatively

geographic isolation (Smith, 1978).

In a report submitted to the Institute for the Future, Johansen

et al. (1977) emphasized the importance of videoconferencing:

In the use of teleconferencing, one can accomplish
a great deal using audio alone, or the computer, or

audio with some graphics capability. . . however, video-
conferencing gives the audio, the capability to present
information in the best of visual forms to the receiver
(p. 3).

Black (1982) noted that the reason for the importance of videoconferencing

can be found in the fact that American institutions--organizations,

corporations, and associations have become complex. In order to maintain

in their members and clienteles a sense of belonging and commitment,

these organizations have sought new ways of communicating. Supporting

this idea, Black (1982) added:

> The impact of a live video presentation, often on larger-
> than-life screens, should not be underestimated. The
> videoconferencing format is not intended as a substitute
> for face-to-face communications; rather, it makes possible
> communications that would otherwise have been handled
> through much less direct means. For example, if a corpor-
> ate executive wished to announce a major organizational
> change, introduce a new business policy, or unveil a new
> product, previous approaches might have included a
> simple memo or possibly a videotape. These technologies,
> although inexpensive, don't have much personal impact and
> certainly don't allow for live question and answer inter-
> action. A live videoconference on the other hand, is
> much more vivid and involving (p. 87).

Nichols (1982) discussed three major ways in which videoconferencing

facilitates or promotes information flow:

1. Timely decision making situations frequently arise where

problem-solving to setting goals require input from off-site personnel.

The absence of this input while travel plans are arranged and executed

can often cause considerable delays and suspend progress. Videoconfer-

encing facilities allow off-site personnel to be consulted on short

notice and speed the decision process.

2. Effective time utilization - Videoconferencing allows people

to participate in meetings with remote personnel without expanding the

additional time required for travel to and from the remote location.

This can provide considerable benefit to executives who frequently interface with off-site personnel.

3. Broadening the decision base - The expense and inconvenience of travel tends to limit participation in intercity meetings. Meetings conducted via videoconferencing will encourage wider participation by including personnel who have contributions to make, but who may otherwise not have participated. Videoconferencing allows both locations to call in personnel with specific expertise as unanticipated subjects arise.

Johansen, et al. (1977) also indicated the strengths and weaknesses of Videoconferencing as follows:

Strengths

- Meetings are satisfactory for wide range of typical extension communication tasks, but are particularly valuable - compared to nonvisual media - for complex communication situations.

- Video is more effective than nonvisual media for tasks which stress interpersonal communication.

- The visual capabilities inherent in video systems are important advantages for some types of group communication.

- Video meetings are orderly, but not necessarily hierachical.

- New users tend to respond positively to video.

- Video meetings may be more 'persuasive'.

Weakneses

- Video meetings are not perceived as satisfactory for communicating with strangers or people of different ranks; furthermore, they may not be necessary for many tasks for which they are satisfactory.

- While better than audio for some interpersonal tasks, video meetings may not match the quality of face-to-face meetings.

- Some of the characteristics of video may be perceived as disadvantages by the users (pp. 4-5).

Penrose (1984) suggested six main elements that should be found with videoconferencing as: (1) high quality yet inconspicuous audio system, (2) full-motion color video system, (3) freeze-fram or slow-scan video system, (4) high-resolution graphics via a facsimile or digital system, (5) a control to establish the transmission system and (6) special features, such as electronic blackboards, titlers, and electronic cursors. To exploit the videoconferencing medium, Morton (1982) suggests these steps: (1) identify conference goals, (2) plan before the conference, (3) bring in special technology, such as video-taped inserts, computer graphics, and editing, (4) review the script, (5) prepare participants, (6) evaluate your audience, (7) organize your script to meet your goals, (8) make the question and answer session essentially spontaneous, (9) rehearse (through several stages), (10) organize your props, cueing, and lighting, (11) check the microphone, (12) suppress nervous gestures, (13) allow yourself time to become accustomed to the set, (14) learn to relax, (15) get a good night's sleep, and finally, (16) prepare for the psychological challenge.

Lidz (1983) claimed that videoconferencing is relatively still expensive when compared to other electronic communications technology; and stated that its use will be cost-effective when users: (1) Need to disseminate vital information quickly to a number of sources simultane-ously; (2) have a potential gathering of over 350 clientele who are based in several localities; (3) have complex presentations or demonstra-tions that would otherwise take valuable time in educating clientele location; (4) have tight schedules but, need to advise the clienteles who cannot spare time away from their homes or work; and (5) no otherwise suitable communication alternative is more economical.

Computer Conferencing: Uses, Strengths

and Weaknesses

Olgren and Parker (1983) defined computer conferencing as a group communication through computer. It involves the sharing of computer files, remote terminal equipment and telecommunication channels in a two-way group communication.

Discussing extensively what computer conferencing does, Johansen et al. (1977) writes:

> Computer conferencing allows people at different locations to exchange typewritten messages through a computer, even though the individuals may not be connected to the computer simultaneously, and even when the location of the individual is unpredictable. A typical 'conference' generally takes place over a period of days or weeks.
>
> The computer provides a sort of electronic mail system, in which messages are delivered to a 'mailbox' in the computer, where they are stored. Participants check their mailboxes periodically, as one might check a message board of the office. They can respond to items of interest by composing typed messages which are almost instantaneously deposited in the 'mailboxes' of those to whom the message is addressed.
>
> Participants require access to a computer terminal, which may or may not be portable. Terminals have keyboard resembling an ordinary typewriter, and use either a television-like screen or a paper for displaying text. Through standard phone lines the terminals can be connected to a central computer. Thus participants might be located virtually anywhere in the world.
>
> A participant will call the computer, identify himself (via account numbers and passwords), and then use typed commands to get the mail in their mailbox typed at the computer terminal lasting from a minute to two hours, depending on the work to be done. A typical session might last ten minutes, and be repeated every one or two days (p. 2).

Advantages of computer conferencing suggested by Olgren and Parker (1983) are as follows:

1. Computer conferencing allows people to participate in meetings at any time. Users do not have to be on-line simultaneously but can access, read, and respond to communications at a time that is convenient to them.

2. It can be used for on-going conferences that may last any length of time.

3. Users of computer conferencing can send messages either publicly to the entire conference group or privately to an individual.

4. Computer conferencing allows holding of a simultaneous meeting among several locations very easily.

Johansen et al. (1977) outlined the strengths and weaknesses of computer conferencing as follows:

Strengths

- Computer conferencing increases continuity of communication by making it less dependent on time and space.

- It is possible to get a sense of interpersonal interaction with computer conferencing.

- Computer conferencing is particularly well suited to tasks involving the management of technical information.

- Computer conferencing promotes equity and flexibility of roles in the communication situation.

- Computer conferencing can be used by people without highly specialized skills.

Weaknesses

- The written communication inherent in computer conferencing is less efficient than other media.

- The self-activated nature of the medium may inhibit its use.

- The communication process in computer conferencing is very demanding.

- The sense of interpersonal interaction is sometimes weak in computer conferencing (p. 2).

Other Electronic Delivery Technologies:

Audiocassettes, videocassettes, videodisk, telephone and cable television are other important electronic communication technologies that are quickly being adapted to extension work. They hold promise for information transfer to the clientele. Cooper (1983) gave vivid descriptions of these technologies as follows:

(a) Audio Cassettes - This is a fairly old electronic technology where information is recorded and played back by the user. Where one is primarily concerned with cognitive information transfer, audiocassettes may prove adequate and certainly can prove cost effective.

(b) Video Cassettes - This recorder type electronic technology adds visual motion to audio. Again, where the primary emphasis is cognitive information transfer, video cassettes may prove both cost effective and time saving to the learner. However, the problem most frequently experienced with videocassettes involves cost and availability of playback equipment.

(c) Videodisc - This new electronic technology places a vast amount of video and audio information on a relatively small disc for rapid retrieval, with proper equipment, and 'branching' based upon decisions made by the learner. Videodisc applications generally fall into one of three categories: linear access, access by remote control, and computer-controlled access.

(d) Telephone - We must not forget the telephone when thinking of electronic technology for holding meetings. Popular examples of good audioconferencing are the pioneering work of the University of Wisconsin and the 'electronic blackboard' work of the Bell System. Another popular informaton transfer using the dial-access system. Using the dial-access, one can call a number and get advice on issues ranging from health and child care to prayer and inspiration.

(e) Cable Television - Cable television is a system for disseminating television over wire instead of over the air. It is a local system of distribution, covering a particular community. . .most cable

system consists of three basic elements: (1) a
large antenna for bringing over-the-air broadcast
television signals from distant points; (2) a control
station called headend, where signals are brought
back up to strength, and in some instances, changed
to different channels from the ones on which they
were originally broadcast; and (3) a system of
coaxial cable strung on poles or laid underground,
extending throughout the community, for delivering
the signals to homes subscribing to the cable
system (pp. 3-4).

With the capabilities of these technologies extension personnel can

reach their clientele through faster and more effective ways.

The Communication, Diffusion and Adoption

of Information

The Academic American Encyclopedia (1983) defines communication

as a variety of behaviors, processes, and technologies by which an idea

is transferred from a source to one or more receivers with the intent

to change their behavior. Many other definitions of communications

have been offered. William and Charles (1965) point out that:

. . . Communication may be thought of as the
transmission of meanings through the use of
symbols. Communication involves an originating
source, a message, and a destination (p. 419).

Ray (1982) defines communication as a process in which there is a

sender-communicator, a message, a receiver-audience, and a response

by the audience. In the process of communication, the element of

interference plays a major role on the interpretation of the message

received. This idea is shown by the diagram in Figure 2. According

to Kemp (1975), effective communication depends upon how active the

receiver of the information is. He is expected to react by answering,

questionning or performing mentally and physically in the process of

communication.

INTERFERENCE

| Message Idea | → | Code Language, facial expression | → | Channel Print Air Waves |

Sender — Writer | Speaker

FEEDBACK

Receiver — Reader | Listener

| Channel Print Air Waves | ← | Code Language, facial expression | ← | Message Idea |
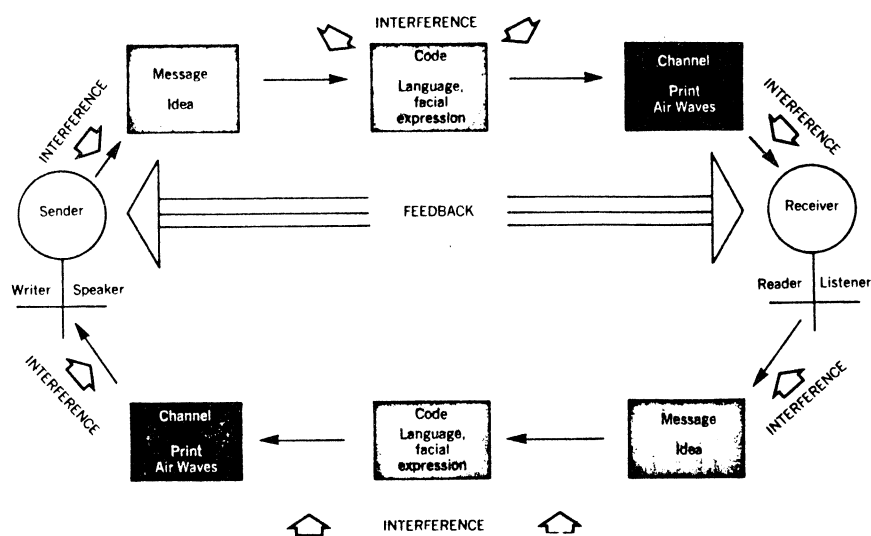
INTERFERENCE

Source: Swanson R. and Marquardt C. On Communication.
         Beverly Hills, California: Benziger & Glenco,
         Inc., 1974, p. 17.

Figure 2. A Complete Model of the Communication
           Process, Including Interference

Roger (1974) pointed out that feedback is a response by the receiver

to the source's message, which the source may subsequently use to

modify his further messages. Emphasis on feedback, however, assumes

greater equality of the participants in a communication event (Kemp,

1975).

Bolton and Boyer (1977) maintains that a characteristic model of

communication is based on the explanation that all communications are

concerned with three questions: (1) how accurate can the symbols of communication be transmitted; (2) how precisely are the symbols carrying the intended meaning; and (3) how effectively is the received meaning affecting conduct in the desired way. The degree to which any model of communication answers these questions determines how effective the communication process is.

According to Boshear (1977) to maximize effective communication, one should: (1) seek to clarify their ideas before communicating; (2) examine the true purpose of each communication; (3) consider the total physical and human setting when communicating; (4) consult others, where appropriate in planning communication; (5) take the opportunity, when it arises to convey something of help or value to the receiver; (6) follow-up communication; (7) communicate for tomorrow as well as for today; (8) seek to understand people by being a good listener. An effective communication model must think about people in relation to their motivation, thoughts, feelings, and behavior (Boshear, 1977).

Feliciano (1974) lists the following as strategies that contribute to effective message presentation:

1. The message should have reasonable balance between information and motivation.

2. The message should be geared to the needs and interests of the intended audience;

3. The message should place emphasis on the positive rather than negative aspects of the results;

4. Words, phrases, settings, and characteristics of the message should be familiar to the intended users;

5. The message must have realistic illustrations with adequate explanations;

6. The message carrier should strive to use personal, rather than impersonal approaches in presenting the message; and

7. The message carrier should use local names and examples, and the language of the intended users (pp. 22-24).

Although these strategies are designed to help an individual communicate his message in a more refined fashion, extension personnel should realize that effective communication is a very difficult task that requires that the individual communicator cultivate a relationship with his clientele that will result in mutual understanding of what is being said (Bolton and Boyer, 1977).

Diffusion and Adoption Process

According to Roling (1981), diffusion is usually seen as a god-sent autonomous process which assures the trickle-down of income and welfare generating ideas which thereby guarantees their distribution among members of a populace. The more complex and expensive the practice, the longer the required diffusion.

Roger (1961) dealt extensively with what constitutes the adoption period in his study of 104 farmers in the State of Ohio. According to him:

> The adoption period is the length of time required for the adoption process to occur. In the present study it was measured by the number of years between awareness and adoption for an individual. Data was secured from 104 farmers in Ohio as well as from several other field studies to show that: (1) farmers vary widely (as do innovations) as to the length of the adoption period, (2) innovators have shorter adoption periods than laggards, and (3) social characteristics of farmers are generally more closely related to adoption period scores than is information gather behavior (p. 31). (See Figure 3.)

The proportion who adopt—

Majority

—from early to late

Innovators

Early Adopters

Late Adopters

Time when adoptions start ——————————————————Time when adoptions end
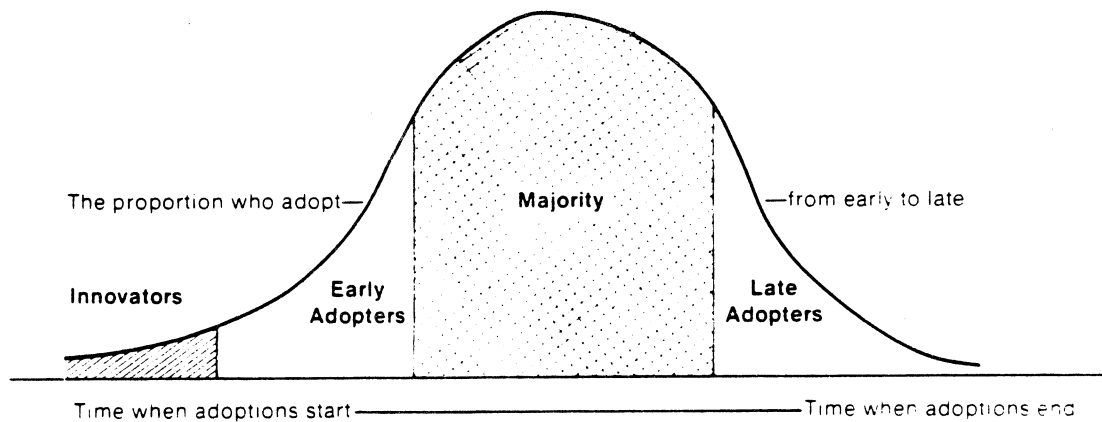
Source: Lionberger, H.F. and Gwin, P.H. Communication Strategies: A Guide for Agricultural Change Agents. Denville, Illinois, 1982, p. 71.

Figure 3. A Typical Adoption Pattern

The American Association of Agriculture Editors (1976) summarized research findings on the diffusion process as follows:

1. There is no real change in the opinions, attitudes or actions resulting from a mass media campaign on public affairs.

2. The influential persons exert influence on someone like themselves, but the opinion leaders are more exposed to the mass media than are others.

3. There is specialization in opinion leadership – a woman who is influential with respect to good food buys is not necessarily influential about what to serve for a dinner party.

4. Different innovations require different kinds of adopting units – individual adoption, cooperating group adoption, and group–decision adoption. The latter leaves no room at all for non–adopters.

5. Commercial sources are becoming more credible and have moved up in the standings in recent years.

6. Earlier knowers of an innovation have more education than later knowers and have greater exposure to interpersonal channels of communication.

7. Earlier adopters have more years of education than do
   later adopters, have greater ability to deal with
   abstractions than do later adopters and seek informa-
   tion about innovations more than later adopters.

8. Mass media channels are relatively more important at
   the knowledge function, and interpersonal channels
   are relatively more important than interpersonal
   channels for earlier adopters than later adopters
   (p. 14).

Feliciano (1974) offered a number of specific strategies for

inducing acceptance of innovations, namely:

1. An understanding and acceptance of clientele and their
   farming practices by the extension agent. This
   acceptance facilitates the acceptance of the new
   farming practices by the clientele.

2. Minimizing the social distance between the extension
   agent and the clientele. This enables the latter to
   identify themselves with the extension agent and
   become receptive to change.

3. Planning and working out extension programs with
   and through the community leaders or the early
   innovators. Since people identify themselves with
   their local leaders and hold them in high esteem,
   an authoritative acceptance of a new innovation by
   the leaders, always leads to adoption of the
   innovation by the people.

4. Continuity, availability, and adequacy of extension
   information program helps in ensuring continued
   practice of the newly adopted innovations.

5. A multi-disciplinary approach which introduces the
   innovation as part of a total community program
   helps greatly in motivating clientele acceptance
   of new innovations (pp. 26-27).

Roling (1981) noted that the diffusion strategies currently

practiced by the change agencies often lead to increased inequity and

gave the following reasons as to why this is so:

1. Innovations take time to diffuse. Even if it takes ten years

for a cash crop to diffuse, those who plant it relatively earlier

receive an extra income over additional years which puts them ahead of

others, so that the late adopters may find it impossible to catch up.

2. Early adopters reap "windfall profits". They start producing at a time when the product is still relatively scarce and when its prices are still high.

3. Having available funds relatively earlier than others, allows acquisition of additional resources when they are still relatively cheaper.

4. Diffusion research generally assumes that the innovation is the message, reflecting current practice in which little effort is made to construct the message carefully to promote the innovation or to guide the message as it diffuses so as to avoid distortions. It is known that messages lose fidelity very quickly. It is also unlikely that second-hand information can provide as much, as specific, or reliable information as messages received first-hand.

5. Credit is given to those farmers who are able to provide collateral, so costly, and therefore often profitable, innovations can be more readily adopted by those who are relatively better off.

6. As inequities begin to emerge, farmers start to experience feelings of relative success and failure. Those who experience success begin to learn that they can determine their own fate and learn to adapt their wants to their gets.

Based on the above reasons, Rolings concluded that (1) The diffusion process leads to inequitable development unless preventive measures are undertaken; (2) Diffusion research information has fallen short in its diagonistic function because the process has taken innovation as the message while neglecting the difference between the technology and recommendations for its use; and (3) The normative role which

diffusion theory plays is detrimental to policies aimed at more equitable distribution of income.

<div align="center">Extension Personnel Training Needs for Using

Electronic Communications Technology</div>

With the advent of the new electronic communications technology in information dissemination, new demands are being placed on extension personnel. Extension workers are being called upon to change their presentation styles to styles more appropriate to the new modes of disseminating information. According to Chute (1982), these new modes of communication, offer reliability and flexibility to the user. Considering this fact, extension personnel stand the opportunity of improving their communication effectiveness by increasing their use of this relatively new technology.

Two major avenues open to extension personnel for gaining practical skills in using this new innovative technology are: (1) In-service training programs; and (2) Electronic communication workshops (Chute, 1982). According to ECOP subcommittee on personnel training (1977), experienced staff members need in-service training and experiences to assist them with the following: (1) developing technical competencies to keep abreast of change; (2) exploring educational and technological content in varying depths to extend personal competencies and (3) taking a broader view of their functions and responsibilities and utilizing up-to-date approaches in carrying out these responsibilities.

In-Service Training Programs

There are many components which must be included in designing
effective in-service programs. According to Cockran (1980), an
effective in-service training program should provide specific details
about: (1) specific goals and objectives; (2) designing activities;
(3) available resources; (4) participants' awareness and readiness; and
(5) evaluation. Long (1978) points out that in-service training in the
use of educational communications equipment would be most suitable and
effective for improving the employee's skill, when the training methods
used are suited to the needs of the employee.

Rakow (1981) specified four criteria that can help developers of
in-service programs evaluate it for results:

1. <u>System Focus</u> - The focus of the program should be
   presented in the context of the organization's
   overall goal. Such a training program should provide
   the employees with background information and the
   overall expectations of the organization.

2. <u>Media Selection</u> - The program should incorporate use
   of specific instructional technology to teach specific
   skills.

3. <u>Skill Transfer</u> - The program should afford the employee
   the opportunity to transfer skills learned during the
   training experience to the job situation.

4. <u>Performance Objectives</u> - The program should be based on
   the skills that employees need to apply on the job
   (pp. 29-30).

The need for adequate staff training in the Cooperative Extension
Service was emphasized by Ussery (1963):

The total effectiveness of extension depends upon the
effectiveness of each staff member. Well placed
training and development programs for extension staff
members are essential to the success of extension and
the well being of the people (p. 4).

For training of extension personnel in the use of electronic communica-

tion technology to be beneficial, information incorporating the

technology within a coherent and microtraining framework, is necessary

(Hargie and Sounders, 1981).

The National Task Force on Cooperative Extension In-service

training (1960) defined in-service training as follows:

> In-service training is that phase of organized learning
> experience which is provided employees by agencies
> throughout the employment period. It is training directed
> towards developing understanding of job operations and
> standards, agency philosophy, policies, and procedures, . .
> and the on-the -job training in both subject matter and in
> educational methods for experienced personnel at all levels
> of the organization (pp. 1-2).

The importance of in-service training was recognized by Dunlap

(1958) when he wrote:

> . . . an organization is known by the people who make up
> its staff. Continuous in-service and professional
> training is essential for a staff to be competent in
> interpreting new developments in subject matter, teaching
> methods and procedures and in keeping various publics
> informed (pp. 213-214).

Electronic Communications Workshops

Another avenue open to the extension agent to gain professional

skills in using electronic communications technology in extension work

is through attendance at workshops designed to offer teaching of

such skills. According to Hall and Loucks (1978) the objectives of

such workshops are always formulated to meet the personal requirements

of the participants. However, Ghute (1982) reported that certain

concerns have been expressed by previous participants at such workshops.

Some of these concerns of participants are:

1. Participants do not understand what is being said.

2. Teleconferencing is not as good as face-to-face
   communication.

3. We do not know how much training and experience
   are required to operate these types of equipment.

4. The equipment might break down.

5. There are no visual aids such as body language.

6. If the phones go dead at a key point, how do
   I obtain information?

7. How do I deal with interruptions (p. 300)?

Addressing these concerns, Baird and Mason (1982) write:

Most of the attitudes hindering full acceptance of a
new communication technology centers around a common,
albeit difficulty-to-knowledge human reaction to change:
Fear of the unknown, fear of failure, of inadequacy,
fear of loss of power. In addition, there may be risks
in giving up old and comfortable habits both psycholog-
ical and social (p. 282).

To be effective and acceptable, any workshop given on the improvement

of skills in using this communications technology, must appeal to the

participants in terms of its relative advantage and opportunities

offered (Baird and Mason, 1982).

The Future Use of Electronic Communications

Technology: A Projected View of the Use of

Video and Computers in Extension Work

As time goes on, extension personnel will find themselves using

more and more varieties of electronic communications technology. Gay

(1982) reported that in 1977, an exploratory study was conducted in

Maine using small-gauge video as an intervention tool in a herbicide

spraying conflict. Video was used to promote dialogue between citizens

protesting the use of aerial spraying and the blueberry growers' industry.

Not only did video serve to document the environment problem, but it enabled both parties to see themselves as well as the other side without direct threat or antagonism (Gay, 1982).

Commenting on the implication of using video in Extension work, Gay (1982) further writes:

> Video is a means for helping groups communicate with one another, whether the difficulties arise from defensiveness, hostility, or inhibiting factors. Video can be used to record individual's thoughts on an issue, can be played back to the person for accuracy, and then shown to those on the other side of the controversy. The process is unique because it requires people be responsibile for solving their own problems. The Extension agents serve as facilitators, not participants. . . Video can also be used to document physical conditions requiring change. It's a valuable tool for providing evidence to the opposing sides, when they may not understand the actual conditions (pp. 22-24).

Discussing the future of electronic communications technology in extension programming, Tengal (1979) writes:

> . . . We're living in the midst of a very exciting revolution – the electronic revolution; and computers are parts of this revolution. . . Because computers have the ability to manipulate information, a new form of literacy is possible. The common man will be able to make decisions on the basis of quantitative data rather than relying solely on experienced-based information. It will be Extension's role to help people operate in this mode.
>
> In the future, extension's role will be to help our clientele use the information available through computer technology to their best advantage. This includes Extension making available the information necessary to solve problems and help clientele make decisions based on the larger quantities of information that will be available (pp. 17-18).

In a survey conducted for the South Carolina Educational Television (SCETV) by the ELRA Group of East Lansing, Michigan, under a grant from the National Telecommunication and Information Agency, it was estimated that the nation's largest organizations using electronic

media, especially teleconferencing, will increase from the 1983-84 level of 2.5 million users to a 1986-87 level of 3.3 million users. It is anticipated that many current users of audio-visual communication equipment will accelerate their use of teleconferencing, including the use of equipment such as slow-scan video, full motion video, facsimile, electronic blackboard, closed captioned television, subcarrier, cable television, teletype for the deaf and instruction television fixed service (ELRA News Release, 1983). Table I is a summary of demand projections for teleconferencing by the nation's largest organizations.

Summary

The major purpose of this chapter was to review literature in the following areas: (1) Historical advances in information technology; (2) Uses and benefits of electronic communication technology; (3) Communication, diffusion and adoption process; (4) Extension personnel training need in using electronic communication technology; and (5) The future use of electronic communication technology: A projected view on the use of video and computers in extension work. From the amount of literature gathered, there are indications that as the improvement in this innovative technology unfolds in the next decades, several major strengths of the technology will be identified by the users in extension communication work. The challenge for the extension personnel therefore, will be how well can they develop creative and innovative programs that will inspire the clientele to adopt the information disseminated through the technology.

TABLE I

1986–87 TELECONFERENCE DEMAND PROJECTIONS

User Category		Population Size	Number of Users	Average Conferences Per User	Total Conferences ('00U)
Known	Audio Only	341	168	2820	457.0
Users	Both	341	55	784	41.6
	Visual Only	341	87	338	28.0
Potential	Audio Only	5000	1381	2106	2346.1
Users	Both	5000	182	190	27.9
	Visual Only	5000	297	282	74.5
	Total Audio				3103.1
	Total Both				69.5
	Total Visual				102.5
	Grand Total				3275.1

Source: ELRA Group News Release, "Study Predicts Growth in Teleconferencing," ERLA News (November 1983), p. 2.

CHAPTER III

DESIGN AND METHODOLOGY

Introduction

This section of the dissertation deals with the procedure followed

in: (1) Selection and Development of the Questionnaire; (2) Validating

the Questionnaire; (3) The Population and Administration of the

Questionnaire; (4) Collection of Data; and (5) Analysis of Data.

Selection and Development of the Questionnaire

The questionnaire was developed with the expressed purpose of

determining the nature and extent of use of electronic communications

equipment in disseminating extension education information. Two forms

of the questionnaire were constructed (See Appendix A). The first

questionnaire (form A) was developed by the Telecommunications Committee

of the Division of Agriculture, Oklahoma State University. Permission

for its use in this study was granted by the chairman of the Committee.

The questionnaire solicited information on the availability of electronic

communications equipment in extension field offices. The second ques-

tionnaire (form B) was developed with the help of the researcher's

graduate committee. The questionnaire, which was divided into four

parts, elicited information on: (1) the respondent's demographic infor-

mation; (2) frequency of use of electronic communication equipment in

disseminating extension education information; (3) problems and hindrances encountered by cooperative extension personnel in using electronic communications equipment; (4) anticipated use of slidetapes and videotapes containing information on selected subject areas, located in a central library; (5) additional training needed to help respondent feel comfortable in using certain instructional methods and electronic communication equipment; (6) the extent to which the use of electronic communications equipment accomplishes certain extension education information dissemination objectives; and (7) anticipated use of electronic communication equipment for conducting certain extension activities.

While the first questionnaire (form A) was designed to solicit a 'Yes' or 'No' answer and an essay type response, the second questionnaire (form B) used a Likert-type scale to elicit responses from six groups of extension personnel surveyed. The scale used in the first part of this questionnaire (form B) consisted of the following categories: 5 = (Very Often); 4 = (Often); 3 = (Sometimes); 2 = (Seldom); 1 = (Never). In the second and third parts, the categories of the scale used were: 5 = (Very Much); 4 = (Much); 3 = (Some); 2 = (Little); 1 = (None). The fourth part of the questionnaire offered the respondent options of five types of electronic communication equipment. The options were: Audioconferencing equipment; Videoconferencing equipment; Slidetape equipment; Videotape equipment; and the Microcomputer, respectively.

Validating the Questionnaire

In developing a questionnaire for any study, one faces the problems of measurement, including reliability and validity. According to

Hubbard (1939), questionnaires are "peculiarly vulnerable" when employed for collecting personal information. He pointed out that with respect to questionnaire useage: (1) some respondents are more dependable than others, hence a few questionnaires circulated among competent people would give more valid data than a wider distribution which include unqualified people; (2) where respondents have standards of mechanical aids the agreement is more valid, hence the value of defining terms or supplying definite criteria where judgment is involved; and (3) the opinions or perceptions of a group as a whole are more valuable than those of individuals, hence the need for relying upon averages in the measures of a group's opinion or perception.

The second questionnaire (form B) was pilot tested on a group of twelve Oklahoma State University students who were former personnel of the cooperative extension service and are closely associated with the use of electronic communications equipment in disseminating extension education information. The questionnaire applied in the pilot test was reviewed and changes made, where needed. The revised questionnaire was submitted to a panel of cooperative extension specialists and members of the Division of Agriculture Telecommunications Committee for review. The instrument was checked for clarity and correct language usage. On the basis of their recommendations the questionnaire was again revised and submitted to the researcher's graduate committee. The instrument was considered as face and content valid for this particular study.

<div align="center">The Population and Administration
of the Questionnaire</div>

The population for this study was extension personnel employed in
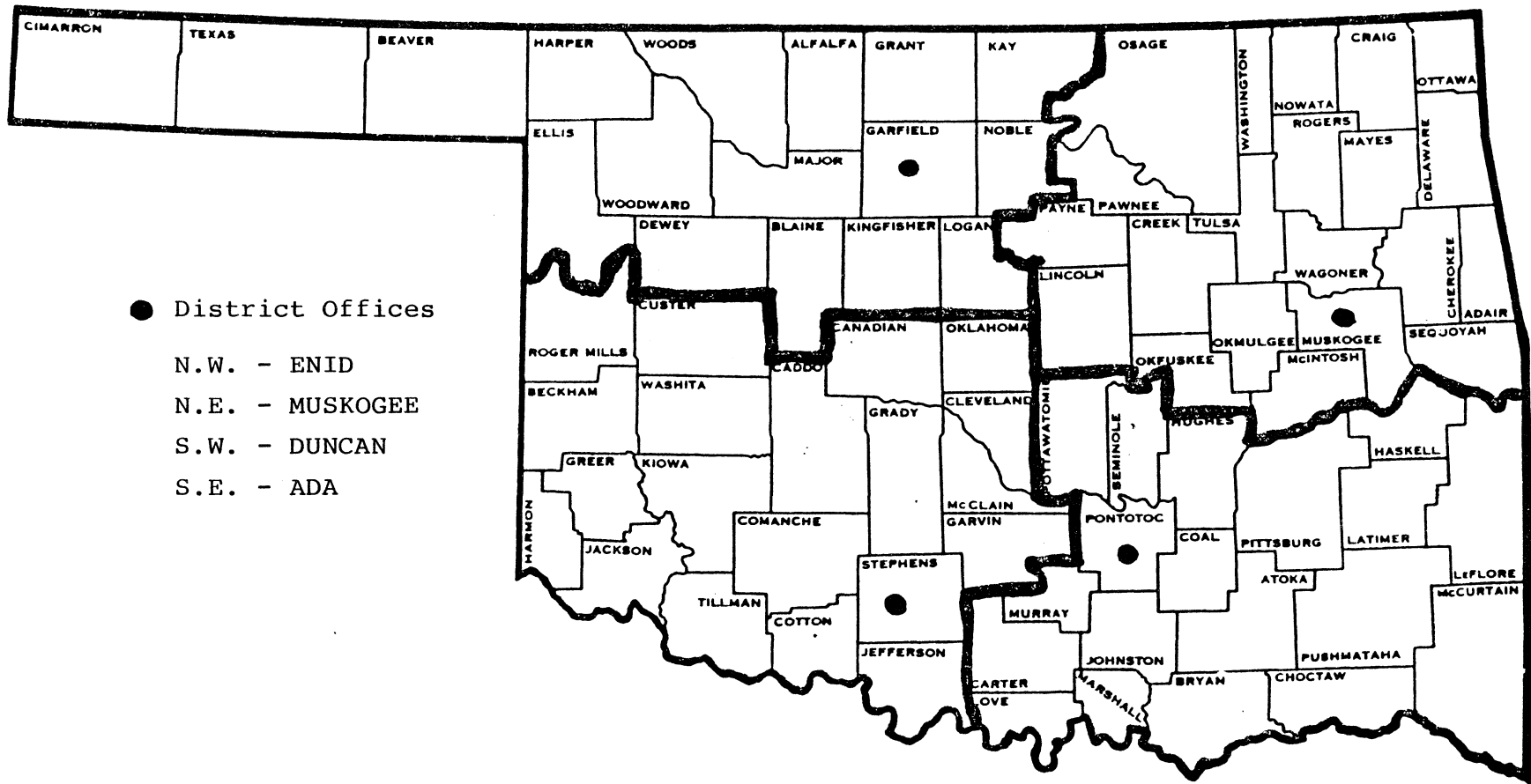
Figure 4. Oklahoma State University Cooperative Extension Service Administrative Districts

the Cooperative Extension Service of the State of Oklahoma. At present, there are 267 extension personnel employed by the State of Oklahoma in the categories of the six groups of interest. They formed the target population.

The State of Oklahoma Cooperative Extension field offices are divided into four administrative districts (See Figure 4). As of March, 1983, each administrative district had a district office. For the North West district – Enid; North East district – Muskogee; South West district – Duncan; and South East district – Ada. Apart from 38 Area Specialized agents, the organizational structure of the extension service comprises 77 County extension directors, 77 Extension home economists, 16 Extension home economists – 4H; 40 Extension agents – 4H; 21 Extension agents specialized programs. At the time of this study, some of the positions in one or two categories of jobs were vacant. This provided the total potential population for the study of 267 extension personnel.

<div align="center">Collection of Data</div>

To achieve maximum return of questionnaires, it was necessary to solicit the help and permission of the administrators of Oklahoma Cooperative Extension Service. A cover letter from the Associate Direc-tor, Oklahoma Cooperative Extension Service, was enclosed explaining the importance and value of the study (See Appendix B). The question-naires were mailed to each of the 267 Cooperative Extension Personnel in Oklahoma, on March 21, 1984. A self-addressed, stamped envelope was enclosed to encourage a prompt response.

The first survey resulted in 197 (73.78%) returns from the

extension personnel. On April 10, 1984, a follow-up letter was mailed to the non-respondents stressing the importance of their participation. The follow-up increased the returns to 221 (82.77%).

Analysis of Data

The raw data collected for this study was classified as either nominal or ordinal in nature. It was coded and key punched into the IBM system 370 at Oklahoma State University's Computer Center. The Statistical Package for Social Sciences (1983) was used in computing the data.

The data was analyzed using basic descriptive statistics. According to Key (1974), the primary use of descriptive statistics is to describe information or data through the use of numbers. In the opinion of Bartz (1976), descriptive statistics refers to the meaningful values which describe the result of a particular behavior. For each item on the questionnaire, a frequency count and percentage of response were calculated. Mean response and rank order were also used in describing the nature of some of the findings.

In referring to the mean responses in some tables in this dissertation, it was necessary to assign values to response categories and define the range and real limits of each category. The scale used to determine the mean response of the respondents regarding the frequency of use of electronic communication equipment, and anticipated use of slidetapes and videotapes containing extension education subject areas

is as follows:

Response Categories	Numerical Value	Range of Real Limits for Categories
Very often	5	4.5 – 5.00
Often	4	3.5 – 4.49
Sometimes	3	2.5 – 3.49
Seldom	2	1.5 – 2.49
Never	1	1.0 – 1.49

The scale used to determine the mean response of the respondents regarding the additional training needed to feel comfortable in using certain instructional methods and electronic communication equipment, and the extent to which the use of electronic communication accomplishes certain extension education information disseminating objectives is as follows:

Response Categories	Numerical Value	Range of Real Limits for Categories
Very Much	5	4.5 – 5.00
Much	4	3.5 – 4.49
Some	3	2.5 – 3.49
Little	2	1.5 – 2.49
None	1	1.0 – 1.49

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

This study was designed and carried out with the purpose of deter-
mining the nature and extent of use of electronic communications
equipment by cooperative extension personnel for disseminating extension
education information. In addition, it was designed to analyze percep-
tions of selected groups of respondents comprised of area specialized
agents, county extension directors, extension agent-4-H, extension home-
economists-4-H regarding need for additional training in using certain
instructional methods and electronic communications equipment.

The focus of this chapter was to describe and analyze collected data
in keeping with the objectives outlined earlier in the study. The
tables included in this chapter were designed to aid in achieving the
purpose of the study. It must be noted that the number of respondents
varied throughout the tables. This was partly due to those who did not
respond to certain parts of the instruments as it did not apply to
their job area.

Population

The target population for this study included 267 cooperative
extension personnel. To speak more specifically, the population

consisted of 38 area specialized agents, 77 county extension directors, 77 extension home-economists, 16 extension home-economists-4-H, 40 extension agents-4-H programs, and 21 extension agents-specialized programs. Each of these personnel was mailed a questionnaire with a follow-up reminder two and a half weeks after the initial mailing. The mail questionnaire was selected as the data gathering instrument because it offered the most economical method for obtaining data, even though a lower percentage of return and relatively incomplete responses could be expected (Wilson, 1955).

Of the 267 cooperative extension personnel corresponded with, only 221 responded giving an 82.77 percent return. The data analyzed and described was basically from these 221 respondents.

Findings of the Study

The findings of this study were presented in two major sections. The first major section comprising Tables II through VI, was a summary of responses by cooperative extension personnel to the Telecommunication's Committee survey conducted with form A. Tables VI through XXXI, forming the second major section, was an analysis and description of data collected with form B from the same group of personnel.

The Telecommunication's Committee Survey

Table II presented information on the following questions: (1) Does your office have a microcomputer? If yes, give brand and model? If no, does your office plan to get one in the near future? Accessories? Please describe; (2) Does your office have a terminal? Please describe; (3) Do you use cable television service in your programming? Please

TABLE II

AVAILABILITY OF ELECTRONIC COMMUNICATIONS EQUIPMENT
IN EXTENSION FIELD OFFICES AS REPORTED BY
COOPERATIVE EXTENSION PERSONNEL

Electronic Communication Equipment	Statewide			Models of Equipment Indicated
	County	Area	District	
Microcomputer	I6	2	I	TRS Models I2, I6, 80
(a)Printers	I5	6	I	Non-specific*
(b)Modems	7	3	0	Non-specific*
Terminals	7	3	0	Non-specific*
Cable Television	I0	I	0	Non-specific*
Video Equipment:				
(a)Office owned	I0	3	0	Non-specific*
(b)Borrow/Rent	34	I	0	VCR-Sony, Beta Max.
Audiotele-conferencing Equipment				
(a)Office owned	27	6	0	Non-specific*
(b)Borrow/Rent	I6	0	0	Non-specific*
Satellite communication Equipment				
(a)Office owned	0	0	0	Non-specific*
(b)Borrow/Rent	I0	0	0	Non-specific*

*No specific model of this electronic Communications
   Equipment was indicated by the respondents.

describe; (4) Does your office have video equipment? Please describe;
(5) If your office does not have video equipment, do you have local
contacts from whom you can borrow it? Please describe; (6) Does your
office plan to get any in the near future? Please describe; (7)Does your
office have audioteleconferencing equipment or local contacts from whom
you can borrow it? and (8) Does your office plan to get one in the
future? Please describe." The data in Table II indicated a wide use of
microcomputers, printers, modems, terminals, cable television, video-
equipment, audioteleconferencing equipment and satellite communications
equipment. Ownership of these pieces of equipment was reported by some
extension field office. Other coopertive extension field office with-
out these devices indicated that they borrow or rent some of them for
use in disseminating extension education information.

Highlights of Table II included 16 county offices reporting owner-
ship of microcomputers, 27 reporting ownership of audioteleconferencing
equipment, and 34 county offices indicating they borrowed or rented
video equipment for use in disseminating extension education information.
None of the reporting extension field offices indicated the ownership
of satellite communications equipment.

Data in Table III showed responses by cooperative extension personnel
to the question "Have you ever been involved in a satellite telecon-
ference?" While 33 responded "yes", 89 gave a negative responses and 13
did not respond to the question. The type of satellite teleconferencing
in which extension personnel were reported by involved were shown in
Table IV. Prominent involvement of the respondents in the satellite
teleconference conducted by the Telecommunications Center at Oklahoma
State University in 1983 for the state veterinarians.

TABLE III

COOPERATIVE EXTENSION PERSONNEL RESPONSES
ON INVOLVEMENT IN SATELLITE
TELECONFERENCE

	RESPONSES		
Question	YES	NO	DIDN'T ANSWER
Have you ever been involved in Satellite Teleconference?	33	89	I3

TABLE IV

TYPES OF SATELLITE TELECONFERENCES IN WHICH THE
COOPERATIVE EXTENSION PERSONNEL WERE
REPORTEDLY INVOLVED

Health Programs

Oklahoma State University Telecommunication Center's
Statewide program to up-date Veterinarian.

Health Care cost containment conducted by the Chamber of
Commerce.

District Veterinarian training.

Veterinarian Science Medical Program.

Home Economics and Consumer Service Programs

Clothing and Textiles design.

Sewing by satellite.

Dress making through satellite.

Seminar and Classes on house management.

The responses to the question, "If a central library of videotapes were available, how would you use them?" by cooperative extension personnel was summarized in Table V.

Presented in Table VI were the responses to the question, "What subjects would you like included in a videotape?" The list of subject areas indicated by the respondents includes Animal Science, Agronomy, Horticulture, Home Economics, and Law Enforcement.

Selected Characteristics of Cooperative
Extension Personnel Participating in the Study

Characteristics of respondents evidenced substantial differences among the population studied. Differences occurred by years of experience in extension work, district of work, job title, and highest degree obtained.

Data in Table VII presented the distribution of respondents according to job categories. The two largest job categories were county extension directors and extension home economists. Each represented 32.1 percent of all respondents. The area specialized agents represented 15.4 percent of the respondents; extension agents-4-H, 8.6 percent; extension agriculture agents, 7.7 percent; and extension home economists, 4.1 percent. There were 46 extension personnel who did not respond to the survey. This gives a total of 267 for the population contained in this study.

Table VIII provided a breakdown of respondents by supervisory district. The southwest district had the highest representation of respondents with 29.4 percent of the 221 respondents. Twenty-six point two percent indicated that they work in the southeast district, 25.8 percent in the

TABLE V

THE ANTICIPATED USE OF A CENTRAL VIDEOTAPE
LIBRARY BY COOPERATIVE
EXTENSION PERSONNEL

Individual leadership training activities: Public speaking
contests, FFA Creed Contest, Leadership camps and conferences,
Judging contest, and Proficiency award.

Educational meetings and inservice training of staffs.

Programs in Agriculture and 4-H Training.

Training of expanded food, nutrition and educational programs
(EFNEP) aides.

Educational Programs for Adults and Youths.

Master Gardener Training programs.

Commodity Programs.

TABLE VI

SUBJECT AREAS TO BE INCLUDED IN THE
VIDEOTAPE LIBRARY BY COOPERATIVE
EXTENSION PERSONNEL

Animal Science: Livestock Judging fundamentals, Livestock
Production, Livestock grooming and showing, and Veterinarian
Care.
Agronomy: Wheat and Alfalfa Management, Harvesting, Weed
control, Insect and disease control.

Horticulture: All areas.
Home Economics: Cake Decorations, food preservation - canning,
freezing, drying, nutrition and consumer matters, sewing and
child development.
Law Enforcement: Crime Prevention in the Neighbourhood.

TABLE VII

DISTRIBUTION OF RESPONDENTS ACCORDING
TO JOB CATEGORIES

| | Frequency Distribution | |
Job Categories	N	%
Area Specialized Agents	34	15.4
County Extension Directors	71	32.1
Extension Agents-4H	19	8.6
Extension Home Economists	71	32.1
Extension Agriculture Agents	17	7.7
Extension Home Economists-4H	9	4.1
Total Respondents	221	100.0

TABLE VIII

DISTRIBUTION OF RESPONDENTS ACCORDING TO
SUPERVISORY DISTRICT

| | Frequency Distribution | |
Supervisory District	N	%
Northwest	41	18.6
Southwest	65	29.4
Northeast	57	25.8
Southeast	58	26.2
Total Respondents	221	100.0

northeast, and 18.6 percent in the northwest.

Presented in Table IX was the distribution of respondents by the various educational levels completed. The data indicated that a total of six, or 2.7 percent, of the respondents had completed a doctoral degree. Another 50.7 percent of the respondents indicated they had completed a Master's degree. The data also indicated that 42.1 percent, or 93 respondents, had a Bachelor's degree. The remaining respondents, 4.5 percent, indicated that they had other educational qualifications.

As shown in Table X, 25.3 percent of the respondents had 11 to 20 years experience in extension work. While 55, or 24.9 percent of the respondents had six to 10 years experience, 20.4 percent had served for less than five years in the extension service. It should be noted that 39 respondents had over 20 years experience related to extension work. The remaining 26, or 11.8 percent, had served for 16 to 20 years in the cooperative extension service.

Anticipated Use of Electronic Communications
Equipment if Readily Available and of High Quality

Anticipated use of electronic communications equipment if readily available and of high quality by cooperative extension personnel for dis-seminating extension education information was summarized in Table XI. An overall mean response of 3.54 was calculated which meant that the respondents indicated that they would use all electronic communications equipment, "often". However, audioconferencing equipment and video-conferencing equipment would be used "sometimes". The other three types had mean responses that were fairly close. They were: microcomputer, 3.71; videotape, 3.77; and slidetape, 3.81. These mean responses fell

TABLE IX

DISTRIBUTION OF RESPONDENTS ACCORDING
TO LEVELS OF EDUCATION COMPLETED

Educational levels	Frequency Distribution	
Completed	N	%
Bachelor's Degree	93	42.1
Master's Degree	112	50.7
Doctor's Degree	6	2.7
Other	10	4.5
Total	221	100.0

TABLE X

DISTRIBUTION OF RESPONDENTS ACCORDING TO
EXTENSION EXPERIENCE

	Frequency Distribution	
Years of Experience	N	%
0 - 5	45	20.4
6 - 10	55	24.9
11 - 15	56	25.3
16 - 20	26	11.8
20 +	39	17.6
Total	221	100.0

TABLE XI

ANTICIPATED USE OF ELECTRONIC COMMUNICATIONS
EQUIPMENT IF READILY AVAILABLE
AND OF HIGH QUALITY

N = 221

Electronic	RESPONSES										Mean
Communication	Very Often		Often		Sometimes		Seldom		Never		Mean
Equipment	N	%	N	%	N	%	N	%	N	%	Response
Audioconferenc-ing	14	6.4	56	25.6	92	42.0	49	22.4	8	3.7	3.09
Videoconferenc-ing	25	11.4	60	27.4	96	43.8	33	15.1	5	2.3	3.31
Slidetape	52	23.6	90	40.9	64	29.1	13	5.9	1	0.5	3.81
Videotape	48	21.8	90	40.9	66	30.0	16	7.3	0	0.0	3.77
Microcomputer	49	22.3	87	39.5	62	28.2	15	6.8	7	3.2	3.71
Overall Mean Response											3.54

Scale Real Limits: Never (1.0-1.49) ; Seldom (1.5-2.49); Sometimes (2.5-3.49);
Often (3.5-4.49); Very Often (4.5-5.00).

in the category limits established for "often" as a level of use.

Problems and Hindrances Related to Using
Electronic Communications Equipment

Data presented in Table XII provided information on the perceptual responses of cooperative extension personnel regarding the problems and hindrances related to using electronic communications equipment in disseminating extension education information. An overall mean response of 3.60 calculated for all problems and hindrances related to using electronic communications equipment in disseminating extension education information meant that these problems and hindrances were encountered, "often". The lowest level mean response of 3.39 was associated with the problem of standardization of equipment. This meant that this problem was "sometimes" encountered by the respondents. "Availability of the equipment" was perceived as an "often" encountered problem as reflected in its high mean response of 3.74. Except for the problem of "lack of training", the other five problems fell within the category limits established as "often" encountered problems. The problem of "lack of training" was perceived to be encountered "sometimes". This is reflected in its mean responses of 3.47.

Anticipated Use of Slidetapes and Videotapes
Containing Extension Educaton Information

Table XIII illustrates the point that cooperative extension personnel anticipated the use of slidetapes and videotapes on animal science information topics, "sometimes". This was revealed by the overall mean responses of 3.23. The lowest mean response was calculated for

TABLE XII

PERCEPTUAL RESPONSES OF COOPERATIVE EXTENSION PERSONNEL
REGARDING PROBLEMS AND HINDRANCES ENCOUNTERED IN
USING ELECTRONIC COMMUNICATIONS EQUIPMENT

N =221

Problems and Hindrances	RESPONSES										Mean Response
	Very Often		Often		Sometimes		Seldom		Never		
	N	%	N	%	N	%	N	%	N	%	
Availability of Equipment	62	28.1	73	33.0	60	27.1	19	8.6	7	3.2	3.74
Bulkiness of Equipment	51	23.2	80	36.4	61	27.7	21	9.5	7	3.2	3.67
Lack of access to a Visual library	53	24.1	77	35.0	71	32.3	13	5.9	6	2.7	3.72
Subject material out of date	56	25.5	70	31.8	72	32.7	19	8.6	3	1.4	3.71
Low availability of prepared tapes	41	18.6	78	35.5	73	33.2	24	10.9	4	1.8	3.58
Lack of training	31	14.1	76	34.5	83	37.7	25	11.4	5	2.3	3.47
Lack of standardization of Equip.	30	14.3	68	30.8	72	34.3	33	15.7	7	3.3	3.39

Overall Mean Response											3.60

Scale Real limits: Never (1.0-1.49) ; Seldom (1.5-2.49) ; Sometimes (2.5-3.49); Often (3.5-4.49); Very Often (4.5-5.00).

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TABLE XIII

PERCEPTUAL RESPONSES OF COOPERATIVE EXTENSION PERSONNEL REGARDING ANTICIPATED
USE OF SLIDETAPES AND VIDEOTAPES ON ANIMAL SCIENCE INFORMATION TOPICS

N = 221

Animal Science Information Topics	RESPONSES										Mean Response
	Very Often		Often		Sometimes		Seldom		Never		
	N	%	N	%	N	%	N	%	N	%	
Livestock Judging	23	14.7	48	30.8	53	34.0	20	12.8	12	7.7	3.32
Livestock Grooming	22	14.6	44	29.1	54	35.8	18	11.9	13	8.6	3.29
Animal Health	26	17.3	48	32.0	50	22.6	13	8.7	13	8.7	3.41
Beef Production	19	13.1	50	34.5	46	31.7	15	10.3	15	10.3	3.30
Dairy Prod	20	13.9	42	29.2	47	32.6	21	14.4	14	9.7	3.23
Swine Prod	17	12.0	39	27.5	49	34.5	22	15.5	15	10.6	3.19
Sheep Prod	18	12.9	35	25.0	51	36.4	20	14.3	16	11.4	3.14
Horse Prod	15	10.9	39	28.3	49	35.5	19	13.8	16	11.6	3.13
Cow/Calf Mgmt	20	14.3	35	25.0	51	23.1	18	12.9	16	11.4	3.18
Stocker Cattle Management	18	12.8	44	31.2	43	30.5	18	12.8	18	12.8	3.18

Overall Mean Response											3.23

Scale Real limits: Never (1.0-1.49) ; Seldom (1.5-2.49) ; Sometimes (2.5-3.49) ;
Often (3.5-4.49) ; Very Often (4.5-5.00).

slidetapes and videotapes on horse production which was 3.13. The highest mean response of 3.41 was calculated for slidetapes and videotapes on animal health. Mean responses for the remaining animal science information topics varied between the above mean responses. It is interesting to note that the mean responses for use of slidetapes and videotapes on all animal science information topics fell in the the "sometimes" category limit.

Table XIV provided perceptual responses of cooperative extension personnel regarding anticipated use of slidetapes and videotapes on agronomic information topics. Overall, extension personnel provided data which lead to a mean response for all tapes on agronomic information topics of 3.24. This meant that respondents anticipated the use of slidetapes and videotapes on agronomic information topics at the "sometimes" category limit. Slidetapes and videotapes on plant propagation had a mean response of 3.19. This is compared to slidetapes and videotapes on both wheat and forage production, which individually, had the highest mean response, 3.28. All other agronomic information topics on slidetapes and videotapes fell in the category limit of "sometimes" with little variation among the numerical mean responses.

Data presented in Table XV provided information on the perceptual responses of cooperative extension personnel regarding anticipated use of slidetapes and videotapes on agriculture-economics information topics. The investigator would like to point out that slidetapes and videotapes on marketing techniques had the highest mean response of 3.41 which represented a "sometimes" category limit. Following closely

TABLE XIV

PERCEPTUAL RESPONSES OF COOPERATIVE EXTENSION PERSONNEL REGARDING ANTICIPATED
USE OF SLIDETAPES AND VIDEOTAPES ON AGRONOMIC INFORMATION TOPICS

N = 221

Agronomic Information Topics	RESPONSES										Mean Response
	Very Often		Often		Sometimes		Seldom		Never		
	N	%	N	%	N	%	N	%	N	%	
Wheat Production	21	14.9	43	30.5	45	31.9	18	12.8	14	9.9	3.28
Alfalfa Production	21	14.7	42	29.4	49	34.3	12	8.4	19	13.3	3.24
Cotton Production	17	12.1	45	31.9	49	34.8	12	8.5	18	12.8	3.22
Forage Production	22	15.8	40	28.8	48	34.5	13	9.4	16	11.5	3.28
Soil Preparation	21	15.1	40	28.8	43	30.9	17	12.2	18	12.9	3.21
Plant Propagation	22	15.7	38	27.1	42	30.0	21	15.0	17	12.1	3.19
Pasture Management	23	16.0	43	29.9	41	28.5	22	15.3	15	10.4	3.26

Overall Mean
Response   3.24

Scale of Real limits: Never (1.0-1.49) ; Seldom (1.5-2.49) ; Sometimes (2.5-3.49) ;
Often (3.5-4.49) ; Very Often (4.5-5.00).

TABLE XV

PERCEPTUAL RESPONSES OF COOPERATIVE EXTENSION PERSONNEL REGARDING ANTICIPATED
USE OF SLIDETAPES AND VIDEOTAPES ON AGRICULTURE ECONOMICS INFORMATION TOPICS

N =221

Agriculture Economics Information Topics	RESPONSES										Mean Response
	Very Often		Often		Sometimes		Seldom		Never		
	N	%	N	%	N	%	N	%	N	%	
Farm and Business Management	22	15.2	47	32.4	42	29.0	19	13.1	15	10.3	3.29
Marketing Techniques	25	17.4	51	35.4	41	28.5	12	8.3	15	10.4	3.41
Book & Record Keeping	23	15.8	46	31.5	47	32.2	13	8.9	17	11.6	3.31
Tax Preparation	22	15.3	40	27.8	49	34.0	16	11.1	17	11.8	3.24
Overall Mean Response											3.31

Scale Real limits: Never (1.0-1.49) ; Seldom (1.5-2.49) ; Sometimes (2.5-3.49) ;
Often (3.5-4.49) ; Very Often (4.5-5.00).

were the slidetapes and videotapes on book and record keeping, 3.31 and

farm and business management, 3.29. The use of tapes on these latter

two information topics fell in the "sometimes" response category. All

of the remaining mean responses fell lower than that of book and record

keeping, with the lowest one being tax preparation. The mean response

of 3.31 for the tax preparation tapes fell within the range of limits

established for "sometimes" response category. The overall mean

response for all tapes on agriculture economics information topic was

3.31 which was translated to mean that these tapes would be used

"sometimes".

A comparison of the mean responses for the anticipated use of

slidetapes and videotapes on the following horticulture information

topics: greenhouse management, gardening, grafting, tree pruning, and

landscaping was offered in Table XVI. Cooperative extension personnel

anticipated the use of tapes on the above mentioned information topics

"sometimes". This was evidenced by the overall mean response of 3.09.

A low mean response of 3.05 was calculated for the slidetapes and

videotapes on "grafting", while a high mean response of 3.21 was cal-

culated for "greenhouse management" tapes. The mean response for the

other three horticulture information topics on slidetapes and videotapes

fell within the highest and lowest mean responses and within the range

of real limits associated with the "sometimes" category.

Table XVII was developed to provide information on the perceptual

responses of cooperative extension personnel regarding anticipated use

of slidetapes and videotapes on entomology information topics. All the

slidetapes and videotapes with the listed entomology information topics

would be used "sometimes" as anticipated by the cooperative extension

TABLE XVI

PERCEPTUAL RESPONSES OF COOPERATIVE EXTENSION PERSONNEL REGARDING
ANTICIPATED USE OF SLIDETAPES AND VIDEOTAPES ON
HORTICULTURE INFORMATION TOPICS

N = 221

| Horticulture Information Topics | RESPONSES | | | | | | | | | | Mean Response |
| | Very Often | | Often | | Sometimes | | Seldom | | Never | | |
	N	%	N	%	N	%	N	%	N	%	
Greenhouse Management	21	15.0	38	27.1	48	34.3	15	10.7	18	12.9	3.21
Gardening	14	10.1	37	26.8	46	33.3	24	17.4	17	12.3	3.05
Grafting	14	10.2	32	23.4	50	36.5	22	16.1	19	13.9	3.00
Tree Prunning	19	13.9	35	25.5	41	29.9	26	19.0	16	11.7	3.11
Landscaping	17	12.4	33	24.1	46	33.6	27	19.7	14	10.2	3.09

| Overall Mean Response | | | | | | | | | | | 3.09 |

Scale Real limits: Never (1.0-1.49) ; Seldom (1.5-2.49) ; Sometimes (2.5-3.49) ;
Often (3.5-4.49) ; Very Often (4.5-5.00).

TABLE XVII

PERCEPTUAL RESPONSES OF COOPERATIVE EXTENSION PERSONNEL REGARDING ANTICIPATED
USE OF SLIDETAPES AND VIDEOTAPES ON ENTOMOLOGY INFORMATION TOPICS

N = 221

| Entomology Information Topics | RESPONSES | | | | | | | | | | Mean Response |
| | Very Often | | Often | | Sometimes | | Seldom | | Never | | |
	N	%	N	%	N	%	N	%	N	%	
Insect Identification	17	12.5	43	31.6	37	27.2	24	17.6	15	11.0	3.16
Disease Control	15	10.7	37	26.4	43	30.7	28	20.0	17	12.1	3.04
Integrated Pest Management	14	10.3	36	26.5	39	28.7	31	22.8	16	11.8	3.00

| Overall Mean Response | | | | | | | | | | | 3.06 |

Scale Real limits: Never (1.0-1.49) ; Seldom (1.5-2.49) ; Sometimes (2.5-3.49) ;
Often (3.5-4.49) ; Very Often (4.5-5.00).

personnel and as disclosed by their overall mean response of 3.06.
There was a difference of only 0.16 in the mean responses between tapes
on "integrated pest management" whose tabulated mean response was low
at 3.00 and those on "Insect Identification" whose mean response was
high at 3.16. According to the limits established for response cate-
gories, all the mean responses indicated on the table showed that slide-
tapes and videotapes on entomology information topics fell in the
"sometimes" category.

Data presented in Table XVIII provided information on the percep-
tual responses of cooperative extension personnel regarding anticipated
use of slidetapes and videotapes on home economists information topics.
An overall mean response of 3.38 was calculated which indicated that
slidetapes and videotapes on home economists information topics would be
used "sometimes" by the res ondents. Slidetapes and videotapes on
"leadership development" had a mean response of 3.34, which meant that
respondents anticipated the use of this tape, "sometimes". The highest
mean response for the anticipated use of slidetapes and videotapes by
respondents was calcualted for the "nutrition" information topic, whose
mean response was 3.49. All the remaining home economics information
topics on tapes fell within the response category of "sometimes". As
indicated in the table, the mean responses for the remaining home
economics information topics were; resource management, 3.44; foods and
sewing, 3.43; clothing, 3.41; family relationships, 3.43; housing and
interior design, 3.38; home equipment, 3.36; and, child development,
3.35.

TABLE XVIII

PERCEPTUAL RESPONSES OF COOPERATIVE EXTENSION PERSONNEL REGARDING ANTICIPATED
USE OF SLIDETAPES AND VIDEOTAPES ON HOME ECONOMICS INFORMATION TOPICS

N=221

Home Economics Information Topics	Very Often		Often		Sometimes		Seldom		Never		Mean Response
	N	%	N	%	N	%	N	%	N	%	
Family Relationship	26	16.7	51	32.7	49	31.4	17	10.9	13	8.3	3.39
Child Development	23	16.2	51	35.9	32	22.5	17	12.0	18	12.7	3.35
Foods	35	24.1	46	31.7	22	15.2	19	13.1	19	13.1	3.43
Nutrition	41	28.1	42	28.8	20	13.7	25	17.1	17	11.6	3.49
Clothing	34	15.4	45	30.6	25	17.0	25	17.0	17	11.6	3.41
Sewing	36	24.8	42	29.0	25	17.2	24	16.6	17	11.7	3.43
Resource Management	36	25.0	41	28.5	29	20.1	19	13.2	18	12.5	3.44
Housing and Interior Design	33	23.1	42	29.4	27	18.9	20	14.0	20	14.0	3.38
Home Equipment	31	21.7	42	29.4	30	21.0	19	13.3	20	14.0	3.36
Leadership Development	26	18.1	50	34.7	27	18.8	21	14.6	19	13.2	3.34
Teaching Methodologie	25	15.8	45	28.5	33	20.9	29	18.4	25	15.8	3.14
Overall Mean Response											3.38

Scale Real limits: Never (0.5-1.49); Seldom (1.5-2.49) ; Sometimes (2.5-3.49) ;
Often (3.5-4.49) ; Very Often (4.5-5.49).

Additional Training Needed in Using Certain

Instructional Methods and Electronic

Communications Equipment

The data in Table XIX were presented to provide information on per-
ceived additional training needed by respondents in using certain

instructional methods for disseminating extension education information.

These data reflected perceptions of all respondents. The overall mean

response of 2.60 indicated that additional training needed in using

certain instructional methods was perceived to be at the "some" level. As

indicated by the "role playing" low mean response of 2.53, respondents

perceived additional training needed for using this instructional

method to be at the "some" level. Except for "combined media", additional

training needed by respondents in using other instructional methods fell

in the same category as that of "role playing". "Combined Media" has

the highest mean response of 3.57, indicating that respondents perceived

additional training needed by them for using this instructional method to

be at a "much" level.

Table XX illustrated additional training needed by respondents in

using certain electronic communications equipment for disseminating

extension education information. As perceived by the respondents, addi-

tional training needed in using all the equipment was at "some" level.

This was revealed by the overall mean response of 3.02 for all the

rated equipment. The lowest mean response of 2.56 was calculated for

additional training needed for using the "overhead projector". The

highest mean response of 3.56 was calculated for additional training

needed for using the "videodisc player". While the mean response for

TABLE XIX

PERCEPTUAL RESPONSES OF COOPERATIVE EXTENSION PERSONNEL REGARDING ADDITIONAL
TRAINING NEEDED IN USING CERTAIN INSTRUCTIONAL METHODS

Instructional Methods	RESPONSES										Mean Response
	Very Much		Much		Some		Little		None		
	N	%	N	%	N	%	N	%	N	%	
Panel Discussion	16	8.0	45	22.5	55	27.5	61	30.5	23	11.5	2.85
Group Discussion	14	6.7	29	13.9	67	32.2	71	34.1	27	13.0	2.67
Lecture Method	11	5.2	23	10.8	76	35.7	77	36.2	26	12.2	2.61
Buzz Group	10	4.6	22	10.2	77	35.6	81	37.5	26	12.0	2.58
Committee	9	4.1	22	10.1	76	35.0	86	39.6	24	11.1	2.57
Games	5	2.3	28	12.9	79	36.4	78	35.9	27	12.4	2.57
Team Teaching	4	1.8	24	11.1	80	36.9	81	37.3	28	12.9	2.52
Demonstration Method	5	2.3	26	11.9	84	38.5	76	34.9	27	12.4	2.57
Problem Solving	4	1.8	22	10.1	87	39.9	74	33.9	31	14.2	2.51
Role Playing	5	2.3	19	8.7	88	40.2	83	37.9	24	11.0	2.53
Programmed Instruction	5	2.3	26	11.8	80	36.4	86	39.1	23	10.5	2.56
Microcomputer Assisted Instruction	5	2.3	31	14.0	81	36.8	85	38.6	18	8.2	2.64
Combined Media	39	17.6	80	36.2	73	33.0	26	11.8	3	1.4	3.57
Overall Mean Response											2.60

Scale Real limits: None (1.0-1.49) ; Little (1.5-2.49); Some (2.5-3.49);
Much (3.5-4.49) ; Very Much (4.5-5.00).

TABLE XX

PERCEPTUAL RESPONSES OF COOPERATIVE EXTENSION PERSONNEL REGARDING ADDITIONAL
TRAINING NEEDED IN USING CERTAIN ELECTRONIC COMMUNICATIONS EQUIPMENT

Electronic Communication Equipment	RESPONSES										Mean Response
	Very Much		Much		Some		Little		None		
	N	%	N	%	N	%	N	%	N	%	
Video Recorder & Camera	36	16.3	80	36.2	75	33.9	24	10.9	6	2.7	3.53
Videodisc Player	42	19.0	70	31.7	80	36.2	27	12.2	2	0.9	3.56
Cable T.V.	36	16.3	62	28.1	71	32.1	44	19.9	8	3.6	3.34
Audiotape Recorder	24	10.9	59	26.7	58	26.2	50	22.6	30	13.6	2.99
35MM slide Projector	24	10.9	39	17.6	61	27.6	44	19.9	53	24.0	2.72
35MM Camera	22	10.0	54	24.4	56	25.5	45	20.5	43	19.5	2.85
Satellite Delivery Dish	28	12.7	58	26.4	54	24.5	46	20.9	34	15.5	3.00
16MM Movie Projector	11	5.0	47	21.4	53	24.1	53	24.1	56	25.5	2.56
Overall Mean Response											3.02

Scale Real limits: None (1.0-1.49) ; Little (1.5-2.49) ; Some (2.5-3.49) ;
Much (3.5-4.49) ; Very Much (4.5-5.00).

additional training needed for useing equipment as the "cable television", "audiotape recorder", "35mm slide projector", 35mm camera", "satellite delivery dish", and "16mm movie projector" fell in the "same" category, that for the "videodisc player", fell in the "much category."

Extent Which the Use of Electronic Communications

Equipment Accomplishes Certain Extension Education

Information Disseminating Objectives

Findings shown in Table XXI concerned the extent to which respondents felt the use of electronic communications equipment accomplishes certain extension information disseminating objectives. Upon analyzing the perceptual responses of cooperative extension personnel, it was found that the overall mean response for all extension education information disseminating objectives was 3.62. This was interpreted to mean that cooperative extension personnel felt that the use of electronic communications equipment accomplishes the extension education information disseminating objective to a "much" extent. The information disseminating objective of "supplementing clientel learning experience" had the highest calculated mean response of 3.81. This meant that the use of electronic communications equipment accomplishes this objective to a "much" extent. The lowest mean response of 3.00 was calculated for the objective of "motivating the clientele". This mean response fell in the category established as "some" extent. Another extension education information disseminating objective falling in this same category was that of "improving the quality of communication". The remaining extension eduation information disseminating objectives fell within the range indicated as "much" extent.

TABLE XXI

COOPERATIVE EXTENSION PERSONNEL RESPONSES REGARDING EXTENT WHICH THE USE OF
ELECTRONIC COMMUNICATIONS EQUIPMENT ACCOMPLISHES CERTAIN EXTENSION
EDUCATION INFORMATION DISSEMINATING OBJECTIVES

| | RESPONSES | | | | | | | | | | Mean |
| Information Disseminating Objectives | Very Much | | Much | | Some | | Little | | None | | |
	N	%	N	%	N	%	N	%	N	%	Response
Motivating the Clientele	21	9.5	66	30.0	59	26.8	42	19.1	32	14.5	3.00
Improving the quality of Communication	27	12.3	94	42.7	55	25.0	30	13.6	14	6.4	3.41
Improving the quality of Education by providing up-to-date Information	34	15.4	93	42.1	57	25.8	31	14.0	6	2.7	3.53
Increasing the participation of the Clientele	42	19.0	97	43.9	58	26.1	18	8.1	6	2.7	3.68
Enhancing the Image of the Extension personnel as a leader	39	17.6	96	43.4	63	28.5	19	8.6	4	1.8	3.67
Supplementing other learning experiences	48	21.7	100	45.2	57	25.8	14	6.3	2	0.9	3.81
Arouses interest by attracting attention of the clientele	48	21.7	100	45.2	55	24.9	15	6.8	3	1.4	3.79
Vitalizing Instruction & discussions	46	20.8	96	43.4	60	27.1	18	8.1	1	0.5	3.71
Gives different pictures and sound experiences in activities	41	18.6	101	45.7	58	26.2	19	8.6	2	0.9	3.72
Helping develop & change attitudes	43	19.5	95	43.0	63	28.5	17	7.7	3	1.4	3.72
Increasing specialist availability at lower cost	42	19.0	100	45.5	54	24.5	23	10.5	1	0.5	3.72

| Overall Mean Response | | | | | | | | | | | 3.62 |

Scale Real limits: None (1.0-1.49); Little (1.5-2.49) ; Some (2.5-3.49) ; Much (3.5-4.49); Very Much (4.5-5.00).

Anticipated Use of Certain Electronic

Communications Equipment for Conducting

Extension Activities

Findings shown in Table XXII allowed making comparisons between perceptual responses of the six groups of cooperative extension personnel regarding anticipated use of electronic communications equipment for conducting leadership training activities. Overall, most of the respondents anticipated using "slidetapes" for conducting leadership training activities. This is reflected by the 61 percent of all respondents indicating that they would most likely use "slidetapes" for conducting this extension education activity. In descending order, combined respondents anticipated using the remaining electronic communications equipment for conducting leadership training activities: (1) "videotape"; (2) "videoconference equipment"; (3) "audioconference equipment"; and (4) "microcomputer".

"Videoconference equipment" was the most likely type of electronic communications equipment that the respondent group of area specialized agents anticipated using for conducting leadership training activities. The respondent group of area specialized agents indicated "microcomputer" as the least likely electronics communications equipment that they anticipated using for conducting leadership training activities. Both respondent groups of county extension directors and extension home economists indicated "slidetapes" and "microcomputer" respectively, as the most likely and the least likely electronic communications equipment they anticipated using for conducting leadership training activities. While the respondent group of extension agents-4-H indicated "videotape" as the most likely electronic communications equipment

TABLE XXII

PERCEPTUAL RESPONSES OF SIX GROUPS OF COOPERATIVE EXTENSION PERSONNEL
REGARDING ANTICIPATED USE OF ELECTRONIC COMMUNICATIONS EQUIPMENT
FOR CONDUCTING LEADERSHIP TRAINING

	RESPONSES								
	Audio-Conference Equipment		Video-Conference Equipment		Slidetape		Videotape		Micro-Computer	
Response Groups	N	%	N	%	N	%	N	%	N	%
Area Specialized Agents (N=34)	10	17.2	15	25.9	14	24.1	13	22.4	5	10.3
County Extension Directors (N=71)	23	15.1	34	22.4	45	29.6	34	22.4	16.	10.5
Extension Agents -4H (N=19)	7	12.5	11	19.6	14	25.0	16	28.6	8	14.3
Extension Home Economists (N=71)	25	16.0	35	21.5	45	28.2	39	23.9	17	10.4
Extension Agric Agents (N=17)	8	17.8	11	24.4	10	22.2	11	24.4	5	11.1
Extension Home Economists-4H (N=9)	4	15.4	5	19.2	7	26.9	7	26.9	3	11.5
Overall Response (N=221)	77	35.0	111	51.0	135	61.0	120	55.0	54	24.0

anticipated for use in conducting leadership training activities, the extension agriculture agents indicated "videoconference equipment" or "videotape". The latter respondent group, extension agriculture agents, would least likely use the "microcomputer" for conducting leadership training activities. The respondent group of extension home economists 4-H would most likely use either "slidetape" or "videotape" for conducting leadership training activities. Extension agents-4-H would least likely use "audioconference equipment" for conducting leadership training activities.

Data presented in Table XXIII allowed making comparisons between the perceptual responses of the six groups of cooperative extension personnel regarding anticipated use of electronic communications equipment for conducting educational meetings. The "slidetape" was indicated as the most likely type of electronic communications equipment that all respondents anticipated using for conducting educational meetings. The least likely was the "microcomputer".

While the respondent groups of county-extension directors, extension home economists, and extension home economists-4-H indicated "slidetape" as the most likely type of electronic communications equipment they anticipated using for conducting educational meetings, the area specialized agents indicated "videoconference equipment" as the most likely electronic communication equipment they anticipated using for the same purpose. Extension agriculture agents anticipated using either "videoconference equipment" or "slidetape". In a similar fashion, while the respondent groups of area specialized agents, county extension directors, extension agents-4-H, and extension home economists-4-H indicated "audioconference equipment" as the least likely electronic

TABLE XXIII

PERCEPTUAL RESPONSES OF SIX GROUPS OF COOPERATIVE EXTENSION PERSONNEL
REGARDING ANTICIPATED USE OF ELECTRONIC COMMUNICATIONS EQUIPMENT
FOR CONDUCTING EDUCATIONAL MEETINGS

					RESPONSES					
	Audio-Conference Equipment		Video-Conference Equipment		Slidetape		Videotape		Micro-Computer	
Response Groups	N	%	N	%	N	%	N	%	N	%
Area Specialized Agents (N=34)	II	I3.3	2I	25.3	I8	2I.7	20	24.I	I3	I5.7
County Extension Directors(N=7I)	28	I5.5	35	I9.3	46	25.4	43	23.8	29	I6.0
Extension Agents -4H (N=I9)	9	I6.I	I2	2I.4	I3	23.2	I2	2I.4	I0	I7.6
Extension Home Economists (N=7I)	25	I7.2	32	2I.2	43	28.5	35	23.2	I5	9.9
Extension Agric Agents (N=I7)	II	2I.2	I2	23.I	I2	23.I	I0	I9.2	7	I3.5
Extension Home Economists-4H (N=9)	3	I3.0	4	I7.4	7	30.4	5	2I.7	4	I7.4
Overall Response (N=22I)	87	39.3	II6	52.5	I39	62.9	I25	56.6	78	35.3

communications equipment they anticipated using for conducting educational meetings, the respondent groups of extension home economists and extension agriculture agents indicated microcomputer as the least likely electronic communications equipment they would use for the same purpose.

Table XXIV was formulated to allow for comparison of perceptual responses of the six groups of cooperative extension personnel regarding anticipated use of electronic communications equipment for conducting field days. Overall, most of the respondents anticipated using "videotape" for conducting field days. The respondent groups of extension agents-4-H, extension home economists and extension agriculture agents indicated "videotape" as the most likely electronic communications equipment that they anticipated using for conducting field days. However, the respondent group of agriculture agents indicated that apart from videotape, they would most likely use "videoconference equipment" for conducting the field days.

"Audioconference equipment" was the least likely electronic communications equipment that the respondent groups of area specialized agents, county extension directors, extension agents-4-H, extension agriculture agents and extension home economists-4-H anticipated using for conducting field days. The respondent groups of area specialized agents and extension home economists-4-H would most likley use either "slidetape" or "microcomputer" for conducting field days. While the respondent group of extension home economists would most likely use either "slidetape" or "videoconference equipment" for conducting field days, county extension directors would most likely use "videoconference equipment".

Findings shown in Table XXV allowed making comparisons of the

TABLE XXIV

PERCEPTUAL RESPONSES OF SIX GROUPS OF COOPERATIVE EXTENSION PERSONNEL
REGARDING ANTICIPATED USE OF ELECTRONIC COMMUNICATIONS EQUIPMENT
FOR CONDUCTING FIELD DAYS ACTIVITIES

					RESPONSES					
	Audio-Conference Equipment		Video-Conference Equipment		Slidetape		Videotape		Micro-Computer	
Response Groups	N	%	N	%	N	%	N	%	N	%
Area Specialized Agents (N=34)	I0	I5.6	I4	2I.9	I5	23.4	I4	2I.9	II	I7.2
County Extension Directors (N=7I)	I4	I3.I	28	26.2	23	2I.5	27	25.2	I5	I4.0
Extension Agents -4H (N=I9)	6	I5.4	7	I7.9	9	23.I	II	28.2	6	I5.4
Extension Home Economists (N=7I)	II	I5.7	I7	24.3	I7	24.3	I9	27.I	5	8.6
Extension Agric Agents (N=I7)	5	I2.5	I0	25.0	8	20.0	I0	25.0	7	I7.5
Extension Home Economists-4H (N=9)	2	I0.5	3	I5.8	5	26.3	4	2I.I	5	26.3
Overall Response (N=22I)	48	2I.7	79	35.7	77	34.8	85	38.5	49	22.2

TABLE XXV

PERCEPTUAL RESPONSES OF SIX GROUPS OF COOPERATIVE EXTENSION PERSONNEL
REGARDING ANTICIPATED USE OF ELECTRONIC COMMUNICATIONS EQUIPMENT
FOR CONDUCTING DEMONSTRATION ACTIVITY

	RESPONSES									
	Audio-Conference Equipment		Video-Conference Equipment		Slidetape		Videotape		Micro-Computer	
Response Groups	N	%	N	%	N	%	N	%	N	%
Area Specialized Agents (N=34)	II	I4.9	I3	I7.6	I6	2I.6	I8	24.3	I5	2I.6
County Extension Directors (N=7I)	I8	II.3	33	20.6	37	23.I	44	27.5	28	I7.5
Extension Agents -4H (N=I9)	5	I2.2	9	22.0	9	22.0	I0	24.4	8	I9.5
Extension Home Economists (N=7I)	I7	I5.3	22	I9.8	28	25.2	29	26.I	I5	I3.5
Extension Agric Agents (N=I7)	5	I3.2	II	28.9	8	2I.I	I0	26.3	4	I0.5
Extension Home Economists-4H (N=9)	3	I3.6	5	22.7	6	27.3	5	22.7	3	I3.6
Overall Response (N=22I)	59	26.7	93	42.I	I04	47.0	II6	52.5	73	33.0

* Cummulative Response

perceptual responses of the six groups of cooperative extension person-
nel regarding anticipated use of electronic communications equipment for
conducting demonstration activities. Overall, most of the respondents
anticipated using "videotape" for conducting demonstration activities.
This is reflected by the 52.5 percent of all respondents indicating
that they would most likely use "videotape" for conducting this extension
education activity. In descending order, combined respondents antici-
pated using the remaining electronic communications equipment for con-
ducting demonstration activities.

The respondent groups of area specialized agents and extension
home economists would most likely use "videotape" for conducting demon-
stration activities and would least likely use "audioconference equipment".
While the respondent groups of county extension directors, extension
agents-4-H, and extension home economists would most likely use "video-
tape" for conducting demonstration activities, they would least likely
use "audioconference equipment".

The respondent group of extension agriculture agents would most
likely use "videoconference equipment" for conducting demonstration
activities and least likley use "microcomputer". Either "audioconfer-
ence equipment" or "microcomputer" would least likely be used by exten-
sion home economists-4-H for conducting demonstration activities.
"Slidetape" was the most likely type of electronic communications equip-
ment that the respondent group of extension home economists-4-H antici-
pated using for conducting demonstration activities.

Examinations of data in Table XXVI allowed making comparison of the
perceptual responses of the six groups of cooperative extension person-
nel regarding anticipated use of electronic communications equipment for

TABLE XXVI

PERCEPTUAL RESPONSES OF SIX GROUPS OF COOPERATIVE EXTENSION PERSONNEL
REGARDING ANTICIPATED USE OF ELECTRONIC COMMUNICATIONS EQUIPMENT
FOR CONDUCTING CLUB MEETINGS

	RESPONSES									
	Audio-Conference Equipment		Video Conference Equipment		Slidetape		Videotape		Micro-Computer	
Response Groups	N	%	N	%	N	%	N	%	N	%
Area Specialized Agents (N=34)	8	16.3	9	18.4	11	22.4	15	30.6	5	12.3
County Extension Directors (N=71)	17	13.4	19	15.0	43	33.9	37	29.1	11	8.7
Extension Agents -4H (N=19)	5	10.6	8	17.0	14	29.8	13	27.7	7	14.9
Extension Home Economists (N=71)	11	12.5	12	13.6	37	42.0	17	19.3	11	12.5
Extension Agric Agents (N=17)	6	16.2	10	27.0	8	21.6	9	24.3	4	10.8
Extension Home Economists-4H (N=9)	2	10.5	4	21.1	6	31.6	5	26.3	2	10.5
Overall Responses (N=221)	49	22.2	62	28.0	119	53.8	96	43.4	40	18.1

conducting club meetings. Overall, most of the respondents anticipated using "slidetape" for conducting club meetings. This is reflected by the 53.8 percent of all respondents who indicated that they would most likely use "slidetape" for conducting club meetings. In descending order combined respondents anticipated using the remaining electronic communications equipment for conducting club meetings: (1) "videotape"; (2) "videoconference equipment"; (3) "audioconference equipment"; and (4) "microcomputer".

"Slidetape" was the most likely electronic communications equipment that the respondent groups of county extension directors, extension agents-4-H, extension home economists, and extension home economists-4-H anticipated using for conducting club meetings. The least likely electronic communications equipment which these groups of respondents anticipated using for conducting club meetings were "microcomputers" and "audioconference equipment".

While the respondent groups of area specialized agents and extension agriculture agents most likely anticipated using "videotape" and "videoconference equipment" for conducting club meetings, they least likely anticipated using "microcomputers" for the same purpose.

An initial inspection of data in Table XXVII, which provided for comparison of perceptual responses of the six groups of cooperative extension personnel regarding anticipated use of electronic communications equipment for conducting clientele office visits, revealed that overall, respondents would most likely use "microcomputer" for conducting clientele office visits. "Slidetape" and "videotape" were the two most likely electronic communications equipment, after "microcomputer", that all respondents anticipated using for conducting

TABLE XXVII

PERCEPTUAL RESPONSES OF SIX GROUPS OF COOPERATIVE EXTENSION PERSONNEL
REGARDING ANTICIPATED USE OF ELECTRONIC COMMUNICATIONS EQUIPMENT
FOR CLIENTELE OFFICE VISITS

	RESPONSES									
	Audio-Conference Equipment		Video-Conference Equipment		Slidetape		Videotape		Micro-Computer	
Response Groups	N	%	N	%	N	%	N	%	N	%
Area Specialized Agents (N=34)	II	I8.0	9	I4.8	IO	I6.4	II	I8.0	20	32.8
County Extension Directors (N=7I)	I7	I7.0	I4	I4.0	24	24.0	2I	2I.0	24	24.0
Extension Agents -4H (N=I9)	5	I6.7	5	I6.7	8	26.7	7	23.3	5	I6.7
Extension Home Economists (N=7I)	8	I0.3	9	II.5	II	I4.I	I3	I6.7	37	47.4
Extension Agric Agents (N=I7)	7	2I.9	7	2I.9	6	I8.8	6	I8.8	6	I8.8
Extension Home Economists-4H (N=9)	4	28.6	2	I4.3	2	I4.3	3	2I.4	3	2I.4
Overall Responses(N=22I)	52	23.5	46	20.8	6I	27.6	6I	27.6	95	42.9

clientele office visits. The next two most often chosen electronic com-
munications equipment were "audioconference equipment" and "videocon-
ference equipment", respectively.

The respondent groups of county extension directors anticipated
using "slidetape" and "microcomputer" equally for conducting clientele
office visits, while extension agents-4-H indicated "slidetape" as most
likely. The respondent groups of area specialized agents and extension
home economists indicated "microcomputer" as the most likely electronic
communications equipment they anticipated using for conducting clientele
office visits. While the former respondent group indicated "videocon-
ference equipment" as the least likely electronic communications equip-
ment anticipated for conducting clientele office visits, the latter
respondent group indicated "audioconference equipment". If there is
any difference between the most likely and the least likely electronic
communications equipment anticipated for conducting clientele office
visits by the respondent groups of extension agriculture agents and
that of extension home economists-4-H, it is very hard to tell. Both
the least likely and the most likely electronic communications equip-
ment chosen by both respondent groups were separated by an insignifi-
cant response margin.

Findings shown in Table XXVIII allowed making comparisons of the
perceptual responses of the six groups of cooperative extension per-
sonnel regarding anticipated use of electronic communications equipment
for conducting civic club programs. Overall, most of the respondents
anticipated using either "slidetape" or videotape" most often for
conducting civic club programs. This was reflected by the number of
responses associated with these two types of electronic communications

TABLE XXVIII

PERCEPTUAL RESPONSES OF SIX GROUPS OF COOPERATIVE EXTENSION PERSONNEL
REGARDING ANTICIPATED USE OF ELECTRONIC COMMUNICATIONS EQUIPMENT
FOR CIVIC CLUB PROGRAMS

	RESPONSES									
	Audio-Conference Equipment		Video-Conference Equipment		Slidetape		Videotape		Micro-Computer	
Response Groups	N	%	N	%	N	%	N	%	N	%
Area Specialized Agents (N=34)	10	14.1	14	19.7	17	23.9	21	29.6	9	12.7
County Extension Directors (N=71)	14	11.8	17	14.3	36	30.3	41	34.5	11	9.2
Extension Agents -4H (N=19)	6	13.6	9	20.5	14	31.8	8	18.2	7	15.9
Extension Home Economists (N=71)	13	10.9	17	14.3	47	16.0	35	29.4	7	5.9
Extension Agric Agents (N=17)	6	15.4	6	15.4	9	23.1	11	28.2	7	17.9
Extension Home Economists-4H (N=9)	3	11.5	5	19.2	6	23.1	5	19.2	7	17.5
Overall Response (N=221)	52	23.5	68	30.8	129	58.4	121	54.7	48	21.7

equipment. While "slidetape" was chosen by 129 respondents, "videotape" was chosen by a close 121 respondents. In descending order, the combined respondents anticipated using the remaining electronic communications equipment for conducting civic club programs: (1) "videoconference equipment"; (2) "audioconference equipment"; and (3) "microcomputer".

Four of the six respondent groups, area specialized agents, county extension directors, extension home economists, and extension agriculture agents indicated that they would most likely use "videotape" for conducting civic club programs. While the respondent group of extension agents-4-H indicated "slidetape" as the most likely electronic communications equipment they anticipated using for conducting civic club programs, extension home economists-4-H indicated "microcomputer" and extension agents-4-H indicated "slidetapes" as the electronic communications equipment that they anticipated using for the same purpose. The respondent groups of area specialized agents, county extension directors, and extension home economists indicated "microcomputer" as the least likely electronic communications equipment they anticipate using for conducting civic club programs. The remaining respondent groups, extension agents-4-H, extension agriculture agents, and extension home economists would least likely use "audioconference equipment" for conducting civic club programs.

Inspection of the data presented in Table XXIX allowed the comparison of the anticipated use of electronic communications equipment for conducting advisory committee meetings and indicated by the six groups of cooeprative extension personnel. Overall, most of the respondents anticipated using "slidetape" for conducting advisory committee meetings. This was reflected by the 48.2 percent of all respondents who indicated

TABLE XXIX

PERCEPTUAL RESPONSES OF SIX GROUPS OF COOPERATIVE EXTENSION PERSONNEL
REGARDING ANTICIPATED USE OF ELECTRONIC COMMUNICATIONS EQUIPMENT
FOR CONDUCTING ADVISORY COMMITTEE MEETINGS

	RESPONSES									
	Audio-Conference Equipment		Video-Conference Equipment		Slidetape		Videotape		Micro-Computer	
Response Groups	N	%	N	%	N	%	N	%	N	%
Area Specialized Agents (N=34)	I2	I6.7	I4	I9.4	I9	26.4	I9	26.4	8	II.I
County Extension Directors (N=7I)	2I	I7.4	22	I8.2	32	26.4	33	27.3	I3	I0.7
Extension Agents -4H (N=I9)	9	I9.I	8	I7.0	9	I9.I	I3	27.7	8	I7.0
Extension Home Economist (N=7I)	I4	I3.5	I9	I8.4	3I	30.I	24	23.3	I5	I4.6
Extension Agric Agents (N=I7)	6	I7.I	8	22.9	9	25.7	7	20.0	5	I4.3
Extension Home Economists-4H (N=9)	3	I4.3	5	23.8	6	28.6	3	I4.3	4	I9.0
Overall Response (N=22I)	65	29.4	76	34.4	I06	48.0	99	44.7	53	24.0

that they would most likely use "slidetape" for conducting this exten-
sion activity. In descending order the combined respondents anticipated
using the remaining electronic communications equipment for conducting
advisory committee meetings" (1)"videotape"; (2) "videoconference
equipment"; (3) "audioconference equipment"; and (4) "microcomputer".

"Videotape" was the most likely electronic communications equip-
ment that the respondent groups of county extension directors, area
specialized agents, extension agents-4-H, and extension home economists
anticipated using for conducting advisory committee meetings.   The
least likely electronic communications equipment indicated for the same
purpose by the above four respondent groups, in order of mention, were
"audioconference equipment", "microcomputer", "or "videoconference
equipment", and "audioconference equipment". While the respondent
groups of extension agriculture agents and extension home economists-4-H
indicated "slidetape" as the most likely electronic communications
equipment they anticipated using for conducting advisory committee meet-
ings they differed on the least likely electronic communications
equipment that they would use for the same purpose. While the respond-
ent groups of extension agriculture agents anticipated using "micro-
computer", extension home economists anticipated using "audioconference
equipment."

Data in Table XXX was presented for comparison of perceptual
responses of the six groups of cooperative extension personnel regarding
anticipated use of electronic communications equipment for conducting
personal development and study. Overall, most of the respondents
anticipated using "videotape" for conducting personal development and
study. This was reflected by the 43.9 percent of all respondents who

TABLE XXX

PERCEPTUAL RESPONSES OF SIX GROUPS OF COOPERATIVE EXTENSION PERSONNEL
REGARDING ANTICIPATED USE OF ELECTRONIC COMMUNICATIONS EQUIPMENT
FOR CONDUCTING PERSONAL DEVELOPMENT AND STUDY

	RESPONSES									
	Audio-Conference Equipment		Video-Conference Equipment		Slidetape		Videotape		Micro-Computer	
Response Groups	N	%	N	%	N	%	N	%	N	%
Area Specialized Agents (N=34)	I6	20.0	I6	20.0	I6	20.0	I6	20.0	I6	20.0
County Extension Directors (N=7I)	25	2I.6	2I	I8.I	23	I9.8	3I	26.7	I6	I3.8
Extension Agents -4H (N=I9)	9	I6.I	II	I9.6	I2	2I.4	I3	23.2	II	I9.6
Extension Home Economists (N=7I)	24	I8.6	23	I7.8	22	I7.I	24	I8.6	36	27.9
Extension Agric Agents (N=I7)	9	23.I	7	I7.9	8	20.5	I0	25.6	5	I2.8
Extension Home Economists-4H (N=9)	5	25.0	4	20.0	5	25.0	3	I5.0	3	I5.0
Overall Response (N=22I)	88	39.8	82	37.I	86	38.9	97	43.9	87	39.4

indicated that they will most likely use "videotape" for conducting this extension activity. Following closely to "videotape" in the order of most likely electronic communication equipment anticipated for use in conducting personal development by respondents were "audioconference equipment", "microcomputer", "slidetape", and "videoconference equipment".

Four of the respondent groups, county extension directors, extension agents-4-H, extension home economists, and extension agriculture agents, indicated that they would most likely use "videotape" for conducting personal development and study. While the respondent group of area specialized agents would not give preference to any of the five electronic communications equipment for conducting personal development and study activity, extension home economists-4-H would most likely use "audioconference equipment" or "slidetape" for conducting the same extension activity. The least likely electronic communications equipment anticipated for use in conducting personal development study by the respondent group of extension home economists were "videotape" and "microcomputer". While the respondent groups of county extension directors and extension agriculture agents would least likley use the "microcomputer" for conducting personal development and study, extension home economists and extension agents-4-H would least likely use "slidetapes" and "audioconferencing equipment", respectively, for the same purpose.

Table XXXI was formulated to allow for comparison of perceptual responses of six groups of cooperative extension personnel regarding anticipated use of electronic communications equipment for conducting staff conferences. Overall, most of the respondents anticipated using

TABLE XXXI

PERCEPTUAL RESPONSES OF SIX GROUPS OF COOPERATIVE EXTENSION PERSONNEL
REGARDING ANTICIPATED USE OF ELECTRONIC COMMUNICATIONS EQUIPMENT
FOR CONDUCTING STAFF CONFERENCES

	RESPONSES									
	Audio-Conference Equipment		Video Conference Equipment		Slidetape		Videotape		Micro-Computer	
Response Groups	N	%	N	%	N	%	N	%	N	%
Area Specialized Agents (N=34)	16	25.4	15	23.8	11	17.5	11	17.5	10	15.8
County Extension Directors (N=71)	20	20.6	24	24.7	20	20.6	19	19.6	14	14.4
Extension Agents -4H (N=19)	11	24.4	11	24.4	8	17.8	6	13.3	9	20.0
Extension Home Economists (N=71)	19	21.6	18	20.5	12	13.6	16	18.2	23	26.1
Extension Agric Agents (N=17)	6	15.4	10	25.6	7	18.0	8	20.5	8	20.5
Extension Home Economists-4H	5	27.8	2	11.1	2	11.1	3	16.7	6	33.3
Overall Response (N=221)	77	34.8	80	36.2	60	27.1	63	28.5	70	31.6

"videoconference equipment" for conducting staff conferences. Following
closely to "videoconference equipment", in order of the most likely
electronic communications equipment anticipated for use in conducting
staff conferences by respondents, were "audioconference equipment",
"microcomputer", "videotape", and "microcomputer".

While the respondent groups of county extension directors and ex-
tension agriculture agents indicated that they would most likely
use "videoconference equipment" for conducting staff conferences, area
specialized agents and extension home economists indicated "audiocon-
ference equipment" for the same purpose. The respondent group of
extension agents-4-H indicated that they would most likely use either
"audioconference equipment" or "videoconference equipment" for conducting
staff conferences. The respondent group of extension home economists
4-H indicated that they would most likely use the "microcomputer" for
conducting staff conferences.

The respondent groups of area specialized agents and county exten-
sion directors would least likley use "microcomputer" for conducting
staff conferences, while the respondent groups of extension agents-4-H
would least likely use "videotape" for the same purpose. In a similar
fashion, the respondent groups of extension agriculture agents would
least likely use "audioconference equipment". The respondent group of
extension home economists-4-H would least likely use either "video-
conference equipment" or "slidetape".

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this chapter was to present a summary review of the study problem, the design and methodology, and major findings. Also presented are conclusions and recommendations resulting from analysis and interpretation of the data.

Summary of the Study

Purpose of the Study

The primary purpose of this study was to determine the nature and extent of use of electronic communications equipment by Oklahoma Cooperative Extension Personnel for disseminating extension education information.

Objectives of the Study

In order for this research study to accomplish its purpose, the following objectives were developed for consideration:

1. To summarize the survey conducted by the telecommunications committee on the availability of electronic communications equipment in extension field offices.

2. To determine the anticipated use of electronic communications equipment for disseminating extension education information.

3. To determine respondent perceptions regarding problems and hindrances of using electronic communications equipment.

4. To determine the anticipated use of slidetapes and videotapes containing extension education information topics located in a central library.

5. To secure respondent perceptual need for additional training in using certain instructional methods and electronic communications equipment.

6. To secure respondent perceptions regarding the extent to which the use of electronic communications equipment accomplishes certain extension information disseminating objectives.

7. To secure respondent perceptions regarding anticipated use of certain electronic communications equipment for conducting extension activities.

Rationale for the Study

As the need to disseminate extension education information faster and cheaper becomes pressing, extension personnel will have to take advantage of the use of electronic communications equipment. Also, they will find it necessary to familiarize themselves with the various available electronic communications equipment and the options which they offer in communicating ideas to the clientele. Furthermore, the need for additional training in using this innovative technology will become one of priority for both the extension personnel as well as the cooperative extension administration. Also, the advantages which a central library of videotapes and slidetapes on extension education information offers will becomes more obvious. It was hoped that the findings

of this study would assist the Oklahoma Cooperative Extension Adminis-
tration make objective decisions regarding the need for additional
training for extension personnel in using electronic communications
equipment. Further, the findings of this study were intended to help
or aid the Oklahoma State University's Division of Agriculture Tele-
communications Committee make recommendations for the provision of
electronic communications equipment to the extension field offices by
the cooperative extension administration.

Design and Conduct of the Study

Following a review of research and literature related to this study,
the major tasks involved in the design and methodology were: (1) select-
ing and developing the questionnaire, (2) validating the questionnaire,
(3) establishing the study population and administering the question-
naire, (4) establishing a procedure for data collection, and (5) a method
for analyzing and describing the collected data.

The study population consisted of 267 cooperative extension person-
nel employed by the State of Oklahoma for the purpose of this study,
the 267 extension personnel were divided into six groups: area specialized
agents, county extension directors, extension agents-4-H, extension
home economists, extension agriculture agents, and extension home
economists-4-H. Mailed questionnaires were utilized to collect data for
this study from these extension personnel. Each of the personnel in the
outlined groups were mailed a questionnaire in March 1984. Two hundred
and twenty-one completed and returned the questionnaire for an 82.77
percent return of the population.

Findings of the Study

As previously stated, the major focus of this study was to determine the perceptions of cooperative extension personnel regarding their present use of electronic communications equipment. In order to determine the perceptions of the respondent, the researcher used the number, percentages, frequency distribution, cumulative response, and mean response to analyze the data. It should be noted that not all these statistical manipulations were utilized in all the cases considered in the tables. Mean response and rank order were beneficial in summarizing each item on the instrument. With regard to the major concerns of this study, the findings are summarized in the following sections.

Availability of Electronic Communications Equipment in Extension Field Offices. It was found through a survey of the extension personnel at their mid-winter conference that 16 county extension offices had microcomputers, 34 borrowed or rented video equipment for use, 27 extension field offices owned at least one type of audio conference equipment. A majority of the respondents surveyed indicated that they borrowed or rented video equipment used in disseminating extension education information.

In a current inventory survey taken by the extension administration to determine the actual numbers of different electronic communications equipment in extension field offices (See Appendix D), the following information was found:

1. Six county field offices (Altus, Chickasha, Cheyenne, Cleveland, Duncan, and Oklahoma) in the southwest supervisory district had microcomputers, nine county field offices

Duncan, Chickasha, McClain, Oklahoma, Caddo, Custer, Altus,
Hobart, Roger Mills) had audioconferencing equipment and
none of the county field offices owned a Satellite Dish.

2. In the southeast supervisory district, five county field
   offices (Pontotoc, Pittsburg, Marshall, Seminole, Choctaw)
   had microcomputers. Two county field offices (Pittsburg and
   Pontotoc) had videoconference equipment.

3. In the northeast supervisory district, nine county field
   offices had microcomputers, and audioconference equip-
   ment.

4. In the northwest supervisory district, six county field offices
   (Garfield, Texas, Woodward, Cimarron, Beaver, and Woods) had
   either a microcomputer, video equipment, or teleconferencing
   equipment readily available for their use.

Selected Characteristics of the Personnel Participating in the
Study. The study respondents included 221 cooperative extension person-
nel. In terms of job classifications, 34 (15.4%) served as area
specialized agents, 71 (32.1%), as county extension directors, 19 (1.6%),
as extension agents-4-H, 71 (32.1%), as extension home economists, 17
(7.7%), as extension agriculture agents, and nine (4.1%), as extension
home economists-4-H.

Of the 221 respondents, 41 (18.6%) served in the northwest super-
visory district, 65 (29.4), in the southwest, 57 (25.8%), in the north-
east, and 58 (26.2%) in the southeast.

Ninety-three (42.1%) of the respondents held bachelor's degrees,
112 (50.7%), master's degrees, six (2.7%), doctor's degrees, and 10
(4.5%), indicated that they were pursuing other qualifications.

Summary of Mean Responses Concerning the Anticipated Use of
Electronic Communications Equipment. Data in Table XXXII is a summary
of mean responses concerning the anticipated use of electronic com-
munications equipment. It is important to notice that except for audio-
conferencing and videoconferencing equipment, all the electronic
communications equipment fell in the "often" category of use. Audio-
conferencing and videoconferencing equipment fell in the "sometimes"
category of use. In terms of rank order, "slidetape" was ranked as the
type of electronic communications equipment which would most frequently
be used in disseminating extension education information. Videotape was
ranked second, microcomputer, third, videoconferencing equipment, fourth,
and audioconferencing equipment, fifth.

Summary of Mean Responses Regarding Problems and Hindrances
Encountered in Using Electronic Communications Equipment. Table XXXIII
provides a summary of mean responses regarding problems and hindrances
encountered in using electronic communications equipment. It was found
that cooperative extension personnel encountered all, except two
problems and hindrances, "often". "Lack of training" and "Lack of
standardization of equipment" were encountered only "sometimes". The
"availability of equipment" was ranked as the number one problem
encountered by cooperative extension personnel in using electronic
communications equipment. This was followed by "Lack of Access to a
Visual Library". Other problems ranked in numerical order to the two
above are: third, "Subject Materials Out of Date"; fourth "Bulkiness
of Equipment"; fifth, "Low Availability of Prepared Tapes"; sixth,
"Lack of Training"; and seventh, "Lack of Standardization of Equipment".

TABLE XXXII

SUMMARY OF MEAN RESPONSES CONCERNING THE ANTICIPATED
USE OF ELECTRONIC COMMUNICATIONS EQUIPMENT

Electronic Communication Equipment	N	Mean Response	Category of Use	Rank
Audioconferencing	219	3.05	Sometimes	5
Videoconferencing	219	3.31	Sometimes	4
Slidetape	220	3.81	Often	1
Videotape	220	3.77	Often	2
Microcomputer	220	3.71	Often	3

TABLE XXXIII

SUMMARY OF MEAN RESPONSES REGARDING PROBLEMS AND HINDRANCES
ENCOUNTERED IN USING ELECTRONIC COMMUNICATIONS EQUIPMENT

Problems and Hindrances	N	Mean Response	Category	Rank
Availability of Equipment	221	3.74	Often	1
Bulkiness of Equipment	220	3.67	Often	4
Lack of Access to a Visual Library	220	3.72	Often	2
Subject Materials out of date	220	3.71	Often	3
Low Availability of Prepared tapes	220	3.58	Often	5
Lack of Training	220	3.47	Sometimes	6
Lack of Standardization of Equipment	210	3.39	Sometimes	7

Summary of Mean Responses Regarding Anticipated Use of Slidetapes
and Videotapes Containing Extension Education Information. Table XXXIV
provides a summary of mean responses regarding anticipated use of slide-
tapes and videotapes containing extension education information topics
located in a central library. It was found that cooperative extension
personnel anticipated using slidetapes and videotapes for the following
extension education information topics, "sometimes": (1) Animal science
information topics; (2) Agronomic information topics; (3) Agriculture
Economics information topics; (4) Horticulture information topics;
(5) Entomology information topics; and (6) Home Economics information
topics. Although the mean responses for all tapes containing extension
education topics fell in "sometimes" category of anticipated use,
variation in values of the highest to the lowest mean response for each
subject area, differed. For example, the highest mean response for
animal science topics was calculated for "Animal Health", while the
lowest was calculated for "Horse Production". In the case of agronomic
information topics, "Wheat Production" and "Forage Production: tied for
the highest mean response position, while "Plant Propagation" occupied
the lowest. It was found that "Marketing Techniques" had the highest
mean response, and "Tax Preparation", the lowest in the case of
agriculture economics information topics. The highest mean response
for horticulture information topics was for "Greenhouse Management" and
the lowest, "Grafting". Among the three entomology information topics
considered, "Insect Identification" was ranked highest in mean response
and "Integrated Pest Management", the lowest. Finally, in the case of
home economics information topics, "Nutrition" was ranked highest in
mean response and, "Teaching Methodology", lowest. It is important to

TABLE XXXIV

SUMMARY OF MEAN RESPONSES REGARDING ANTICIPATED USE OF
SLIDETAPES AND VIDEOTAPES CONTAINING EXTENSION
EDUCATION INFORMATION TOPICS

Extension Education Information Topics	N	Mean Response	Category	Rank
Animal Science:				
Livestock Judging	156	3.32	Sometimes	2
Livestock Grooming	151	3.29	Sometimes	4
Animal Health	150	3.41	Sometimes	1
Beef Production	145	3.30	Sometimes	3
Dairy Production	144	3.23	Sometimes	5
Swine Production	142	3.19	Sometimes	6
Sheep Production	140	3.14	Sometimes	9
Horse Production	138	3.13	Sometimes	10
Cow/Calf Mgmt.	140	3.18	Sometimes	7.5*
Stocker Calf Mgmt.	141	3.18	Sometimes	7.5*
Agronomy:				
Wheat Production	141	3.28	Sometimes	1.5**
Alfalfa Production	143	3.24	Sometimes	4
Cotton Production	141	3.22	Sometimes	5
Forage Production	139	3.28	Sometimes	1.5**
Soil Production	139	3.21	Sometimes	6
Plant Production	140	3.19	Sometimes	7
Pasture Management	144	3.26	Sometimes	3

TABLE XXXIV (Continued)

Extension Education Information Topics	N	Mean Response	Category	Rank
Agriculture Economics:				
Farm & Business Management	145	3.29	Sometimes	3
Marketing Techniques	144	3.41	Sometimes	3
Book & Record Keeping	146	3.31	Sometimes	1
Tax Preparation	144	3.24	Sometimes	4
Horticulture:				
Greenhouse Management	140	3.21	Sometimes	1
Gardening	138	3.05	Sometimes	4
Grafting	137	3.00	Sometimes	5
Tree Prunning	137	3.11	Sometimes	2
Landscaping	137	3.09	Sometimes	3
Entomology:				
Insect Identification	136	3.16	Sometimes	1
Disease Control	140	3.04	Sometimes	2
Integrated Pest Management	136	3.00	Sometimes	3
Home Economics:				
Family Relationship	156	3.39	Sometimes	6
Child Development	142	3.35	Sometimes	9
Foods	144	3.43	Sometimes	3.5***
Nutrition	146	3.49	Sometimes	1
Clothing	147	3.41	Sometimes	5
Sewing	145	3.43	Sometimes	3.5***
Resource Management	144	3.44	Sometimes	2
Housing & Interior Design	143	3.38	Sometimes	7

TABLE XXXIV (Continued)

Extension Education Information Topics	N	Mean Response	Category	Rank
Home Equipment	143	3.36	Sometimes	8
Leadership Development	144	3.34	Sometimes	10
Teaching Methodologies	158	3.14	Sometimes	11

*A tie in ranking of Animal Science Information topics.

**A tie in ranking of Agronomic Information topics.

***A tie in ranking of Home Economics Information topics.

mention that extension education information topics were classified under subject areas for easy interpretation.

Summary of Mean Responses Regardng Additional Training Needed for Using Certain Instructional Methods. Data in Table XXXV summarizes the mean responses regarding additional training needed for using certain instructional methods. It was found that cooperative extension personnel perceived additional training needed by them for 12 of the 13 instructional methods fell at the category established as "some". Additional training needed for using the 13th instructional method, "combined media", fell in the category established as "much". It was found that there was a three way tie in the mean response for three instructional methods. These were: "Committee", 2.57; "Games", 2.57; and "Demonstration Method". While "Combined Media" was ranked as number one instructional method in which cooperative extension personnel needed additional training in, "Problem Solving" was ranked as number 13.

Summary of Mean Responses Regarding Additional Training Needed for Using Certain Electronic Commmunications Equipment. Table XXXVI is a summary of mean responses regarding additional training needed for using certain electronic communications equipment. The data in the table show that cooperative extension personnel perceived additional training needed by them in using the listed electronic communications equipment to be in the "some" category. Out of the nine types of electronic communications equipment presented, only two had the additional training needed for their use fall in the "much" category. These two were the video recorder and the videodisc player. Additional training needed for using the remaining electronic communications

TABLE XXXV

SUMMARY OF MEAN RESPONSES REGARDING ADDITIONAL TRAINING
NEEDED FOR USING CERTAIN INSTRUCTIONAL METHODS

Instructional Methods	N	Mean Response	Category	Rank
Panel Discussion	200	2.85	Some	2
Group Discussion	208	2.67	Some	4
Lecture Method	213	2.61	Some	5
Buzz Group	216	2.58	Some	6
Committee	217	2.57	Some	7.5*
Games	217	2.57	Some	7.5*
Team Teaching	217	2.52	Some	12
Demonstration Method	218	2.57	Some	7.5*
Problem Solving	218	2.51	Some	13
Role Playing	219	2.53	Some	11
Programmed Instruction	220	2.56	Some	10
Microcomputer Assisted Instruction	220	2.64	Some	3
Combined Media	221	3.57	Some	1

*A tie in ranking of Instructional Method.

TABLE XXXVI

SUMMARY OF MEAN RESPONSES REGARDING ADDITIONAL TRAINING
NEEDED FOR USING CERTAIN ELECTRONIC COMMUNICATIONS
EQUIPMENT

Electronic Communication Equipment	N	Mean Response	Category	Rank
Video Recorder	221	3.53	Much	2
Videodisc Player	221	3.56	Much	1
Cable T.V System	221	3.34	Some	3
Audiotape Recorder	221	2.99	Some	5
35mm Slide Projector	221	2.72	Some	7
35mm Camera	220	2.85	Some	6
Satellite Delivery Dish	220	3.00	Some	4
16mm Movie Projector	220	2.65	Some	8
Overhead Projector	220	2.56	Some	9

equipment fell in the "some" category. While the mean response for the "videodisc player" was ranked as number one, that of the "overhead projector" was ranked as number nine.

Summary of Mean Responses Regarding the Extent to Which the Use of Electronic Communications Equipment Achieves Certain Extension Information Disseminatng Objectives. Table XXXVII provides a summary of mean responses regarding the extent to which the use of electronic communications equipment achieves certain extension information disseminating objectives. It was found that cooperative extension personnel perceived the extent to which the use of electronic communications equipment achieves certain extension education information disseminating objectives to be at least, "some" and at most "much". Cooperative Extension personnel felt that the use of electronic communications equipment achieved the objectives of "motivating the clientele" and "improving the quality" to "some" extent. The remaining extension disseminating objectives fell in the "much" category as the extension personnel perceived these objectives to be achieved at the "much" extent. It was found that there was a three way tie in the mean response of three extension information disseminating objectives. These were: "Gives different pictures and sound experiences in activities", "Help develop and change attitudes", and "increases specialist availability at lower cost". While "supplementing other learning experiences" was ranked as the number one objective which the use of electronic communications equipment helps achieve, "motivating the clientele" was ranked as number 11.

TABLE XXXVII

SUMMARY OF MEAN RESPONSES REGARDING THE EXTENT TO WHICH THE USE OF
ELECTRONIC COMMUNICATIONS EQUIPMENT ACHIEVES CERTAIN
EXTENSION INFORMATION DISSEMINATING OBJECTIVES

Information Disseminating Objectives	N	Mean Response	Category	Rank
Motivating the Clientele	220	3.00	Some	11
Improving the quality of Communication	220	3.41	Some	10
Improving the quality of Education by providing up-to-date information	221	3.53	Much	9
Increasing the participation of the Clientele	221	3.68	Much	7
Enhances the image of the Extension personnel as a leader	221	3.67	Much	8
Supplementing other learning experiences	221	3.81	Much	1
Arouses interest by attracting attention of the clientele	221	3.79	Much	2
Vitalizes instruction & discussions	221	3.76	Much	3
Gives different pictures and sound experiences in activities	221	3.72	Much	4.5*
Helping develop & change attitude	221	3.72	Much	4.5*
Increasing specialist availability at lower cost	220	3.72	Much	4.5*

* A three way tie in ranking of information disseminating objectives.

Overall Summary of Responses of Six Groups

of Cooperative Extension Personnel Regarding

Anticipated Use of Electronic Communications

Equipment for Conducting Extension Activities

Table XXXVIII was a summary of responses of six groups of cooperative extension personnel regarding anticipated use of electronic communications equipment for conducting extension activities. There were variations in the choices of electronic communications equipment which respondent groups anticipated using for conducting each extension activity. For leadership training, four of the respondent groups anticipated using "videotape" or "videoconference equipment", while three of the respondent groups anticipated "slidetape equipment". For educational meetings, almost all (five) of the respondent groups anticipated using "slidetape equipment" while two of the respondent groups anticipated "videoconference equipment". Electronic communications equipment for use with field days was anticipated to be "videotape" or "videoconference equipment" by almost all (five) respondent groups with "slidetapes" anticipated by two.

In the case of demonstration activity, almost all of the respondent groups anticipated using "videotape" or "videoconference equipment" with "slidetape" anticipated by one. For club meetings, four of the respondent groups anticipated using "slidetape" while two anticipated "videotape" or "videoconference equipment" Electronic communications equipment for use with clientele office visits was anticipated to be "microcomputer" or "audioconference equipment" by almost all (five) respondent groups with "slidetape" anticipated by one.

TABLE XXXVIII

OVERALL SUMMARY OF RESPONSES OF SIX GROUPS OF COOPERATIVE EXTENSION PERSONNEL
REGARDING ANTICIPATED USE OF ELECTRONIC COMMUNICATIONS EQUIPMENT FOR
CONDUCTING EXTENSION ACTIVITIES

Extension Activities	Area Specialized Agents' Responses	County Extension Directors' Responses	Extension Agents'-4H Responses	Extension Home Economists' Responses	Extension Agriculture Agents' Responses	Extension Home Economists' -4H Responses
Leadership Training	Video Conference Equipment	Slidetape	Videotape	Slidetape	Videotape or Videoconference Equip.	Slidetape or Videotape
Educational Meetings	Video-Conference Equipment	Slidetape	Slidetape	Slidetape	Slidetape or Videoconference Equip.	Slidetape
Field Days Activities	Slidetape	Video-Conference Equipment	Videotape	Videotape	Videotape or Videoconference Equip.	Slidetape or Videotape
Demonstration Activities	Videotape	Videotape	Videotape	Videotape	Videoconference Equip.	Slidetape
Club-Meetings	Videotape	Slidetape	Slidetape	Slidetape	Videoconference Equip.	Slidetape
Clientele office Visits	Microcomputer	Microcomputer or Slidetape	Slidetape	Microcomputer	Audio- or Video-Conference Equipment	Audio-conference Equipment
Civic Clubs programs	Videotape	Videotape	Slidetape	Slidetape	Videotape	Microcomputer
Advisory Committee Meetings	Slidetape or Videotape	Videotape	Videotape	Videotape	Slidetape	Slidetape
Personal Development and Study	Any of the* Equipment	Videotape	Videotape	Microcomputer	Videotape	Slidetape or Audioconference Equipment
Staff Conferences	Audioconference Equipment	Videoconference Equipment	Auido- or Video-Conference Eq.	Microcomputer	Videoconference Equipment	Microcomputer

*Audioconference Equipment, Videoconference Equipment, Slidetape, Videotape, or Microcomputer.

Regarding civic club programs, three of the respondent groups anticipated using "videotape"; two, "slidetape"; and one "microcomputer". For advisory committee meetings, all of the respondents anticipated using "videotape" or "slidetape". For personal development and study, three of the respondent groups anticipated using "videotape"; one, "micro-computer"; and another one anticipated any of the five electronic communications equipment. For staff conferences, four of the respondent groups anticipated using "audioconference equipment" or "videoconference equipment"; while two anticipated "microcomputer".

Table XXXIX was an attempt to provide an overall summary of the combined groups' responses and their rankings regarding the most likely electronic communications equipment anticipated for use in conducting extension activities. The combined groups' ranking of the anticipated use of the electronic communications equipment indicated that for half of the extension activities the "slidetape equipment" would be the first choice. The "videotape equipment" came in a close second in a number of extension activities for anticipated use with the "microcomputer" anticipated first for only clientele office visits and "videoconference equipment" only for staff conferences. Additional rankings confirmed the same trend among the lower rankings. "Audioconference equipment" had second rankings for personal development and study and staff conferences but it and the "microcomputer" had lower overall rankings by the combined groups for most of the extension activities.

Conclusions

Interpretation of the findings of this study prompted the following conclusions:

TABLE XXXIX

OVERALL SUMMARY OF COMBINED GROUPS RESPONSES AND RANKINGS REGARDING
THE MOST LIKELY ELECTRONIC COMMUNICATIONS EQUIPMENT ANTICIPATED
FOR USE IN CONDUCTING EXTENSION ACTIVITIES

Extension Activities	Combined Groups' First Choice	Combined Groups' Second Choice	Combined Groups' Third Choice	Combined Groups' Fourth Choice	Combined Groups' Fifth Choice
Leadership Training	Slidetape	Videotape	Videoconference Equipment	Audioconference Equipment	Microcomputer
Educational Meetings	Slidetape	Videotape	Videoconference Equipment	Audioconference Equipment	Microcomputer
Field Days Activities	Videotape	Videoconference Equipment	Slidetape	Microcomputer	Audioconference Equipment
Demonstration Activities	Videotape	Slidetape	Videoconference Equipment	Microcomputer	Audioconference Equipment
Club Meetings	Slidetape	Videotape	Videoconference Equipment	Audioconference Equipment	Microcomputer
Clientele office visits	Microcomputer	Slidetape	Videotape	Audioconference Equipment	Videoconference Equipment
Civic Clubs programs	Slidetape	Videotape	Videoconference Equipment	Audioconference Equipment	Microcomputer
Advisory Committee Meetings	Slidetape	Videotape	Videoconference Equipment	Audioconference Equipment	Microcomputer
Personal Development and Study	Videotape	Audioconference Equipment	Microcomputer	Slidetape	Videoconference Equipment
Staff Conferences	Videoconference Equipment	Audioconference Equipment	Microcomputer	Videotape	Slidetape

1. When the initial survey of extension personel regarding avail-
ablity of electronic communications equipment in extension field offices
was compared with the second, it was found that some extension personnel
did not list all the electronic communications equipment available for
their use in the field offices. This would support the idea, not all
extension personnel are aware of all the available electronic communica-
tions equipment in their field offices.

2. The respondents indicated that they would use the "slidetape",
"videotape", and "microcomputer", "often", for disseminating extension
education information if readily available. "Audioconference equipment"
and "videoconference equipment" would be used, "sometimes". This
supports the idea that extension personnel would use electronic communi-
cations equipment readily, if made available to them.

3. Problems and hindrances exist in the use of some relatively new
electronic communications equipment. Extension personnel surveyed
indicated that availability of equipment and lack of access to a visual
library were the two prominent problems currently encountered by them.
This would support the idea that extension personnel are presently hav-
ing problems with using electronic communications equipment, and are
having problems locating a steady source of information to support
continuous use of this equipment.

4. The respondents have indicated that if readily available and
of high quality, they would use slidetapes and videotapes containing
information on livestock judging, wheat production, marketing techniques,
greenhouse management, insect identification, and nutrition more than
any others in a group of subject areas. This supports the idea that
extension personnel would make use of slidetapes and videotapes

containing vital information topics, if made readily available in a central library of slidetapes and videotapes.

5. The respondents greatest needs for additional training in using instructional methods were found in the areas of panel discussion and combined media. Similarly, respondents greatest needs for additional training in using electronic communications equipment were found for the videodisk player and the video camera. Respondents have indicated that they need "some" additional training in using all instructional methods and most electronic communications equipment. This supports the idea that there is a need for method and equipment training.

6. Respondents have indicated that the use of electronic communications equipment helps accomplish most of the extension disseminating objectives. A majority of the extension disseminating objectives were accomplished to a "much" extent through the use of electronic communications equipment. This would support the idea that the use of electronic communications equipment greatly enhances the accomplishment of most extension disseminating objectives.

7. Perceived differences exist among the six groups of extension personnel on what particular choice of electronic communications equipment to use for conducting each extension activity. While the respondent groups of county extension directors, extension agents-4-H, and extension home economists favor the use of videotape and slidetape heavily in conducting most extension activities, the respondent group of extension agriculture agents favor the use of either videoconference equipment or the videotape for the same purpose. The respondent groups of area specialized agents and extension home economists-4-H favor the use of videoconference equipment, slidetape, microcomputer, and

audioconference equipment for conducting most extension activities. This finding supports the idea that respondents will use a variety of electronic communications equipment for conducting extension activities.

8. A general look at the most likely piece of electronic communication equipment that extension personnel anticipate using for conducting extension activities will reveal that the slidetape and videotape equipment are most popular for most extension activities. However, they also indicated the microcomputer and videoconference equipment ranked first for two activities and audioconference equipment ranked second for two. This would indicate also that a variety of electronic communications equipment is needed for extension activities.

<div align="center">Recommendations</div>

The following recommendations were based on the findings of this study and the conclusions that were reached:

1. That the findings of this study be communicated to the Cooperative Extension Administration of the State of Oklahoma, the Telecommunications Committee of the Division of Agriculture, Oklahoma State University, department heads and faculty so that the results of this study may serve as a guide for recommending and making available new and efficient electronic communications equipment to extension personnel for disseminating extension education information.

2. That extension personnel be encouraged to use electronic communications equipment often in disseminating extension education information and that a variety of electronic communication equipment be made available to them as quickly as it can be procured.

3. That extension personnel be made aware of the advantages and

availability of electronic communications equipment currently existing for their use in field offices for disseminating extension education information.

4. That the Cooperative Extension Administration commit time and energy to staff training and development in the use of electronic communications equipment and instructional methods for disseminating extension education information.

5. That high quality slidetapes and videotapes containing extension education information topics that are beneficial to the clientele be developed and made readily available in a central library.

6. That constant up-dating of high quality slidetapes and videotapes containing extension education information topics be encouraged in extension personnel by the Cooperative Extension Administration.

7. That the format and techniques for presenting extension education inforamtion using instructional methods and electronic communications equipment be clearly defined and emphasis placed on clientele needs.

8. That constant workshops on the new ways and uses of electronic communications equipment in extension activities be conducted for the benefit of all extension personnel.

9. That enough operating funds be made available to extension field staff to help encourage continuous use of electronic communications equipment for extension activities.

Recommendations for Further Study

Further study which could provide helpful insight into related aspects of this research include:

1. Determine to what degree extension personnel have excluded the use of electronic communications equipment for disseminating extension education information due to inadequate training.

2. Studies on the adequacy of using only electronic communications equipment for disseminating extension education information should be carried out. This would help determine whether there is need to use other communications equipment in conjunction with electronic communications equipment for disseminating extension education information.

3. For the extension information topics recommended for slidetapes and videotapes, which extension personnel indicated that they would use if readily available, determine more precisely why these topics were rated high amongst the list of subject areas. Was it because of the actual lack of such information for extension personnel use? Was it due to extension personnel area of discipline in college? Or, was it because of the benefits that will accrue to the clientele due to the availability of such extension education information.

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APPENDIXES

APPENDIX A

QUESTIONNAIRES USED FOR THE SURVEY

JANUARY, 1984

FORM A
DIVISION OF AGRICULTURE

TELECOMMUNICATIONS COMMITTEE SURVEY

OF COUNTY/ AREA/ DISTRICT OFFICES

Name _____   Position _____

Name of County, Area or District _____

Please respond to the following questions. We are trying to update our
information regarding telecommunications equipment used in Extension
field offices.

I. EQUIPMENT   Circle one

    A. Microcomputers
       - Does your office have a microcomputer? If yes, give
         brand and model.   YES   NO

       If no, does your office plan to get one in the near
       future? Please describe.   YES   NO

       - Accessories? (ex. printer, modem, other?)
         Please describe.   YES   NO

    B. Terminals (equipment used to access a host computer)
        - Does your office have a terminal? Please describe. YES   NO

    C. Cable TV
        - Do you use cable TV service in your programming?
          Please describe.   YES   NO

    D. Video Equipment
        - Does your office have video equipment? Please   YES   NO
          describe.

D. Video Equipment, continued
   - If your office does not have video equipment, do you have local YES   NO
     contacts from whom you can borrow it?   Please describe

   - Does your office plan to get any in the near future?   YES   NO   .
     Please describe

E. Audio Teleconferencing
   - Does your office have audio teleconferencing equipment OR
     local contacts from whom you can borrow it? Please describe   YES   NO

   - Does your office plan to get any in the near future?   YES   NO
     Please describe.

F. Satellite Communications
   - Does your office have access to a satellite downlink (receiving
     dish)? Describe.   YES   NC

   - Have you ever been involved in a satellite teleconferenc?   YES   NO
     Please describe.

II. VIDEOTAPE NEEDS
   - If a central library of videotapes were available, how would
     you use them?

   - What subjects would you like to see included for videotape?
     (Please be as descriptive as possible.)

		Very Often	Often	Sometimes	Seldom	Never

A Job Title:
Area Specialized Agent ___   Ext.Home Economist ___
County Ext. Director ___   Ext.Agric. Agent ___
Ext. Agent - 4H ___   Ext.Home Econo-4H ___

B District :(Circle) NW SW NE SE

C. Highest Degree obtained (Circle ONE)
B.S. M.S. others _____
D. Years of Experience :
0 - 5 yrs ___   16 - 20 yrs ___
6 -10 yrs ___   20 + years ___
11 -15 yrs ___

Instructions : Using the following rating scales, please respond to these Perception questions on the use of Electronic Communication Equipment in disseminating Information : 5 = Very Often; 4 = Often; 3 = Sometimes; 2 = Seldom; 1 = Never.
Check (✓) ONE

PART ONE

1. If it were readily available and of high quality, how often would you use the following equipment for disseminating information?
   - (a) Audioconferencing Equipment............................
   - (b) Videoconferencing Equipment............................
   - (c) Slide-tape Equipment...................................
   - (d) Video-tape Equipment...................................
   - (e) Microcomputer..

2. How often do you encounter the following problems and hindrances in using Electronic Communication Equipment?
   - (a) Availability of Equipment.............................
   - (b) Bulkiness or excessive weight.........................
   - (c) Lack of access to a Visual library....................
   - (d) Subject materials out of date.........................
   - (e) Low availability of prepared tapes....................
   - (f) Lack of training.....................................
   - (g) Lack of standardization of the Equipment..............
   - (h) Others (list) _____

3. If readily available and of high quality, how often would you use slide-tapes and Video-tapes containing information on the following topics: (Please check only topics in your job area)
   - (a) Animal Science - Livestock Judging....................
     - Livestock Grooming and showing........
     - Animal Health........................
     - Beef Production......................
     - Dairy Production.....................
     - Swine Production.....................
     - Sheep Production.....................
     - Horse Production.....................
     - Cow/Calf Management..................
     - Stocker Cattle Management............
   - (b) Agronomy - Wheat Production...........................
     - Alfalfa Production...........................
     - Cotton Production............................
     - Forage Production............................
     - Soil Preparation.............................
     - Plant Propagation............................
     - Pasture Management...........................
   - (c) Agriculture-Economics - Farm and Business Management...
     - Marketing Techniques...........
     - Book and Record Keeping........
     - Tax Preparation................
   - (d) Horticulture - Greenhouse Management...................
     - Gardening..............................
     - Grafting...............................
     - Tree Prunning..........................
     - Landscaping............................
   - (e) Entomology - Insect Identification....................
     - Disease Control.........................
     - Integrated Pest Management..............
   - (f) Home Economics - Family Relationship..................
     - Child Development....................
     - Foods...............................
     - Nutrition...........................
     - Clothing............................
     - Sewing..............................
     - Resource Management.................
     - Housing and Interior Design.........
     - Home Equipment......................
     - Leadership Development..............
     - Teaching Methodologies..............
   - (g) Others (Write-in) _____

Instruction : Using the following scales of Needs rating, respond to questions 4 and 5 as you perceive them : 5 = Very Much; 4 = Much; 3 = Some; 2 = Little; 1 = None. Check (_/) ONE	Very Much (5)	Much (4)	Some (3)	Little (2)	None (1)
PART TWO					
4. How much additional training would you need to feel comfortable in using the following Instructional Methods for disseminating Information : (a) Panel Discussion........................					
(b) Group Discussion........................					
(c) Lecture................................					
(d) Buzz Group.............................					
(e) Committee					
(f) Games..................................					
(g) Team Teaching..........................					
(h) Demonstration Method...................					
(i) Problem Solving........................					
(j) Role Playing...........................					
(k) Programmed Instruction.................					
(l) Microcomputer Assisted Instruction.....					
(m) Combined Media (Audioconference & Videoconference)					
5. How much additional training would you need to feel comfortable in utilizing these Electronic Communication Equipment : (a) Video Recorder and Camera................					
(b) Videodisk Player.......................					
(c) Cable Television system................					
(d) Audiotape Recorder.....................					
(e) 35mm Slide Projector (Carousel)........					
(f) 35mm Camera............................					
(g) Satellite Delivery Dish................					
(h) 16mm Movie Projector...................					
(i) Overhead Projector.....................					

Instruction : To what extent do you feel Electronic Communication Equipment accomplishes the following : (Please rate the benefits using the following scales: 5 = Very Much; 4 = Much; 3 = Some; 2 = Little; 1 = Not at all.)	Very Much (5)	Much (4)	Some (3)	Little (2)	None (1)
PART THREE					
(a) Motivates the clientele.................					
(b) Improves the quality of communication...					
(c) Improves the quality of education by providing up-to-date information................					
(d) Increases the participation of the clientele........					
(e) Enhances the image of the extension personnel as a leader..					
(f) Supplements other learning experiences..					
(g) Arouses interest by attracting attention of the clientele..					
(h) Vitalizes instruction and discussions...					
(i) Gives different pictures and sound experiences in activities					
(j) Helps develop and change attitudes......					
(k) Increases specialist availability at lower cost.........					

Instruction : If the following were readily available Electronic Communication equipment, please check the ones that you would most likely use in carrying out the following extension activities : (You may check (_/) more than one communication equipment for each activity)	Audioconference Equip.	Videoconference Equip.	Slide-tape Equipment	Video-tape Equipment	Microcomputer
PART FOUR					
(a) Leader Training (4H, EHG, etc)...........					
(b) Educational Meeting.....................					
(c) Field days.............................					
(d) Demonstrations.........................					
(e) Club Meetings (4H, EHG, etc)............					
(f) Clientele office visits................					
(g) Programs for civic clubs...............					
(h) Advisory Committee meetings............					
(i) Personal development and study.........					
(j) Staff Conferences......................					
(k) Others (specify)_____					

APPENDIX B

QUESTIONNAIRE COVER LETTERS

TO RESPONDENTS

COOPERATIVE EXTENSION SERVICE

OKLAHOMA STATE UNIVERSITY	DIVISION OF AGRICULTURE
OFFICE OF THE DEAN DIRECTOR	STILLWATER, OKLAHOMA 74078
	405-624-5400

21 March 1984

TO: Selected Cooperative Extension Staff

Dear Colleagues:

As we plan for the future, we feel it is important that you be involved in the development of materials and programs which will effect you. This is especially true as we look at our methods of disseminating educational information.

Mr. Adekoya Adebola, a graduate student in the Department of Agricultural Education, is conducting a study to indentify the needs of County Extension personnel in Oklahoma for material and training in various electronic communication media. Findings of the study should help the Oklahoma Cooperative Extension Service to determine needs and priorities in these areas.

Please assist us in this effort by completing the enclosed questionnaire and returning it to Mr. Adebola in the next few days.

Your assistance in this study is appreciated.

Sincerely yours,

T. Roy Bogle
Associate Director

enclosure

OKLAHOMA STATE UNIVERSITY · STILLWATER

Department of Agricultural Education   74078
448 Agricultural Hall
624-5129

March 21, 1984

Dear Extension Personnel :

We are studying the Perceptions of Cooperative Extension Personnel
regarding the use of Electronic Technology for disseminating
information. This study will assist the Oklahoma Cooperative Extension
Administration make objective decisions about the need for additional
training for extension personnel in the use of electronic communication
equipment. It will also aid the Oklahoma State University
Telecommunications committee make recommendations for the provision
of adequate electronic communication equipment to the extension field
offices.

As your perception is very useful in this study, you have been
selected as one of the competent professionals that should be surveyed.
Please complete both sides of the enclosed questionnaire and return it
through the enclosed self-addressed envelope provided for your
convenience.

Thanks for your time.

                                        Sincerely,

                                        Adekoya, Adebola
                                        Graduate Student,
                                        Dept. of Agric-Education
                                        Oklahoma State University.

TEL/aaa   Dr.James Key, Professor
cc. Dr.Roy Bogle.   Agriculture Education &
    Dr.Roy Lessly.   Chairman of Telecommunication
    Dr.Bob Reisbeck.   Committee.
    Graduate Committee.

APPENDIX C

SECOND MAILING COVER LETTER

FOR QUESTIONNAIRE

OKLAHOMA STATE UNIVERSITY • STILLWATER

Department of Agricultural Education   74078
448 Agricultural Hall
624-5129

April 10, 1984

Dear Extension Personnel :

The response to our question naires has been encouraging.
They are substantiating some thoughts we have had about Extension
Personnels' perception of their use of Electronic Technology for
disseminating information. However, in order to get accurate
results in our study, we need 100% response. Only you, as a
competent professional in the field, can provide the answers we
need.

We realize this is a busy time of the year for Extension
personnel, but we need your help in bringing this study to a
conclusion. In case you have misplaced the first questionnaire,
we are enclosing another one. If you have already mailed your
questionnaire, please disregard this portion of the letter and
accept our appreciation for your prompt response.

                                        Sincerely,

                                        Adekoya, Adebola
                                        Graduate Student,
                                        Dept. Ag.Education.

                                        Dr/James Key,Professor
                                        Agriculture Education
TEL/aaa:Rm   & Chairman of Tele-
enclosure.   communication Committee.

APPENDIX D

INVENTORY SURVEY OF ELECTRONIC

COMMUNICATIONS EQUIPMENT

INVENTORY SURVEY OF ELECTRONIC COMMUNICATION

EQUIPMENT

DISTRICT AND COUNTY	TYPE OF EQUIPMENT
Northeast:	
Creek	Darome Speaker system w/telephone and microphones
Lincoln	Computer - Radio Shack TRS 80 Model 12 Printer - Radio Shack DWP-210
Muskogee	Darome Speaker system/telephone and one microphone. Computer - Radio Shack TRS 80 Model 16 　　　　　　 Radio Shack Model 4P Printer - Radio Shack Daisy Wheel Printer II 　　　　　　 Starwriter F-10 　　　　　　 Radio Shack Model DMP-210
Okmulgee	Teleconference hook-up (telephone w/speaker system)
Osage	Teleconference hook-up (telephone w/speaker system)
Rogers	Darome speaker system w/telephone and microphone. Computer - Radio Shack TRS 80 Model 16 Printer - Starwriter F-10
Wagoner	Panasonic Video-Cassette Recorder and player with Monitor.
Northwest:	
Garfield	Computer - Radio Shack TRS 80 Model III
Texas	Computer - Radio Shack TRS 80 Model III
Wood-ward	Video Equipment - VHS 1/2 inch (120 minutes Teleconferencing equipment.
Cimarron	Teleconferencing Equipment
Beaver	Teleconferencing Equipment
Woods	Teleconferencing Equipment

INVENTORY SURVEY OF ELECTRONIC COMMUNICATION

EQUIPMENT

DISTRICT AND COUNTY	TYPE OF EQUIPMENT
Southeast:	
Pontotoc	Computer - Radio Shack TRS 80 Model 16 Printer - Starwriter F-10
Pittsburg	Computer - Radio Shack TRS 80 Model 16 Printer - Starwriter F-10
Marshall	Computer - Radio Shack TRS 80 Model 12 Printer - Radio Shack TRS 80 Model 16 Daisy Wheel
Seminole	Computer - Radio Shack TRS 80 Model 12 Printer - Radio Shack TRS 80 Model 16 Daisy Wheel
Choctaw	Computer - Radio Shack TRS 80 Model 12 Printer - Daisy Wheel
Pittsburg	Video Equipment - Video Recorder Monitor TV RCA
Pontotoc	Video Equipment - Video Recorder Panasonic NV 8420 Monitor TV Panasonic Model 9022 Teleconference Equipment Bell Conference Phone
Southwest:	
Altus	Computer - Radio Shack TRS 80 Model 16 Audioteleconference Equipment - Darome Speaker system/telephone and microphone.
Chickasha	Computer - Radio Shack TRS 80 Model 16 Audioconference Equipment - Darome Speaker system/telephone and microphone.
Cheyenne	Computer - Radio Shack TRS 80 Model 12
Cleveland	Computer - Vector 4-20
Duncan	Computer - Radio Shack TRS 80 Model 16

INVENTORY SURVEY OF ELECTRONIC COMMUNICATION

EQUIPMENT(CONTINUED)

DISTRICT AND COUNTY	TYPE OF EQUIPMENT
Duncan	Audioconference Equipment - Darome Speaker system/telephone and microphone Video Equipment - VCR Equipment.
Oklahoma	Computer - Radio Shack TRS 80 Model 12 Audioconference Equipment - Darome Speaker system/telephone and microphone Video Equipment - VCR Equipment.
Caddo	Audioconference Equipment - Darome Speaker system/telephone and microphone
Custer	Audioconference Equipment - Darome Speaker system/telephone and microphone
Hobert	Audiconference Equipment - AT & T.
McClain	Audioconference Equipment - Darome Speaker system/telephone and microphone
Roger Mills	Audioconference Equipment - AT & T.

CIMARRON A   TEXAS A   BEAVER A

HARPER   WOODS A   ALFALFA A   GRANT A   KAY A   OSAGE A

ELLIS   B WOODWARD   MAJOR   GARFIELD A●   NOBLE

WASHINGTON A

NOWATA B   CRAIG B   OTTAWA B

ROGERS A   MAYES B   DELAWARE B

DEWEY   BLAINE B   KINGFISHER   LOGAN   PAYNE   PAWNEE   CREEK   TULSA A

A B

CUSTER A   CANADIAN B   OKLAHOMA A   LINCOLN   CREEK B   WAGONER

ROGER MILLS A   CHEROKEE   ADAIR

BECKHAM   WASHITA   CADDO   GRADY   CLEVELAND B   OKFUSKEE B   OKMULGEE A   MUSKOGEE A●   SEQUOYAH

A   A   POTTAWATOMIE B   HUGHES   McINTOSH B

GREER   KIOWA   McCLAIN A   GARVIN A   SEMINOLE B   HASKELL

HARMON B   JACKSON A   COMANCHE B   PONTOTOC A●   COAL   PITTSBURG   LATIMER   LeFLORE

A   STEPHENS ●A   MURRAY B   ATOKA   McCURTAIN

TILLMAN   COTTON   B   JEFFERSON B   JOHNSTON   BRYAN   PUSHMATAHA   CHOCTAW B

CARTER   LOVE B   MARSHALL

● District Offices

A   Counties that have speaker phone jacks and access to a speaker phone

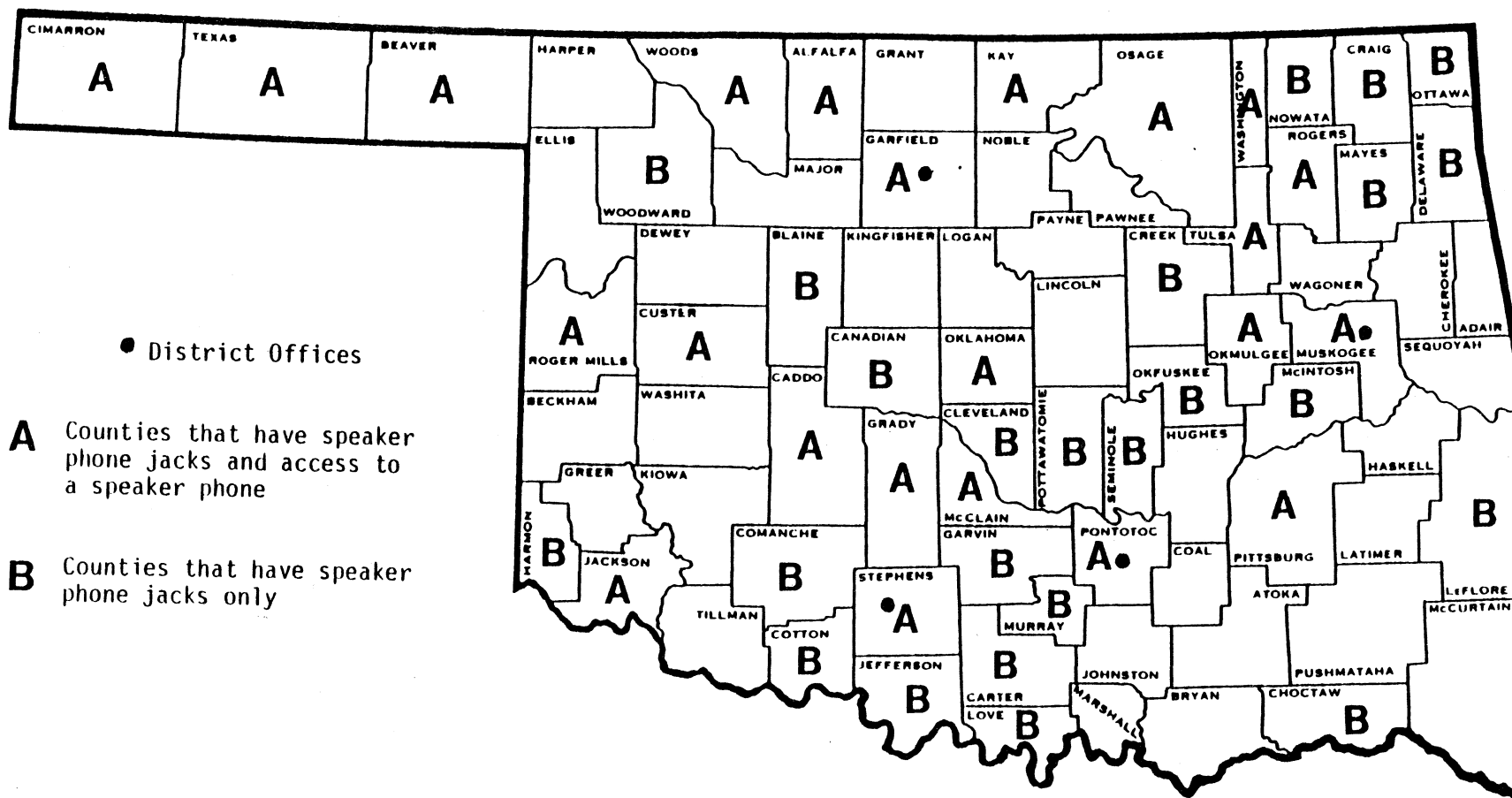B   Counties that have speaker phone jacks only

Figure 5. Counties in the State of Oklahoma with Some Form of Electronic Communication Equipment

VITA

Adebola Adekunle Adekoya

Candidate for the Degree of

Doctor of Education

Thesis: PERCEPTIONS OF OKLAHOMA COOPERATIVE EXTENSION PERSONNEL
REGARDING THEIR USE OF ELECTRONIC TECHNOLOGY IN
DISSEMINATING EXTENSION EDUCATION INFORMATION

Major Field: Agricultural Education

Biographical:

Personal Data: Born in Lagos, Nigeria, January 16, 1956, the son
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Education: Graduated from Comprehensive High School, Aiyetoro,
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Professional Experience: Economics Teacher, Gasikiya College,
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Laboratory Assistant, 1980 SEA/Cooperative Research, Langston
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Association: Member of Southern Agriculture Economics
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Member of Phi Beta Sigma.

Awards: Who's Who in American Universities and Colleges, 1981;
         International Youth in Achievement Award, 1981 and 1983;
         National Dean's List, 1979 at Langston University,
         Langston, Oklahoma; Highest Ranking and Most Outstanding
         Student in Agriculture at Langston University, Langston,
         Oklahoma, 1980; Residence Halls Association Award of
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