AN ANALYSIS OF COMMUNICATIONS PATTERNS AND TECHNOLOGY FOR STATE EXTENSION SPECIALISTS--A MARKETING APPROACH

Thesis for the Degree of M. S.

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PAUL EUGENE KINDINGER

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ABSTRACT

Cooperative Extension must adapt to the modern society in which it exists. No longer is agriculture and the rural way of life the most prominent feature in society. Millions of farm families have migrated to new occupations and geographic areas. They still look upon extension however, as being a vital source of useful, current information. These people, as well as those still on farms, seek out information not only about farming, but also concerning community development, responsible government environmental quality and in general improving the quality of their lives.

Extension, to remain viable, must develop programs congruent with the needs of its' clientele. This is not an easy task. Added programs call for additional funds and trained personnel. Certain forces in society are making the acquisition of these resources increasingly difficult to obtain.

The purpose of this study has been to examine the adaptability of modern communication technology to meet the increasing demand for information while averting the problems of finding additional men and money. Clientele needs were assessed via a mail questionnaire. As suspected

their needs were diverse. Needs were segmented to provide fewer categories for purposes of analysis.

A second questionnaire was mailed to State Extension Specialists. This survey was concerned with obtaining a breakdown of time spent for job related activities and their opinion toward possible use of modern communication technology.

Primary data compiled from the two questionnaires, plus selected secondary data derived from literature and personal interviews, were then utilized to examine the adaptability of modern communication equipment. This equipment was viewed primarily with respect to its applicability in developing a technological sub-system for use in communicating with large and small clientele groups. Several forms of technology are available. Feasible alternatives include tele-writer, conference call, tele-lecture and several visual transmission technologies. The feasibility of any one or a combination, will depend not only on the funds available, but also the size and location of audience, frequency of use and the amount of existing equipment available.

The data indicate that although face-to-face contact is important to clientele and S.E.S.,* modern technology could be successfully applied. S.E.S. efficiency would be

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*State Extension Specialists

enhanced by reducing the amount of time spent for travel, meetings and repetition of meetings. More time could be devoted to other aspects of the S.E.S.'s appointment. Additional resource personnel could be utilized, thus offering the opportunity for more information and a wider variety of information to be transmitted.

Recommendations in this study, call for the implementation of a total communication system as soon as possible. Emphasis in this study is directed to the development of one part or a sub-system to the total. Specific recommendations are pointed toward the sub-system dealing with group meetings.

Preceding implementation of this sub-system, further study is recommended concerning the precise costs and benefits of the system. Further study is also necessary to formulate policy decisions. Post-implementation studies should be conducted to assess the change in clientele attitudes toward use of technology and toward extension programs.

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By

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To my typist Mrs. Mary Hamilton for her patience and expediency in preparing the final manuscript.

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CHAPTER I

INTRODUCTION

Background and Problems

It has been the philosophy and policy of Cooperative Extension to be a problem-oriented organization. Established by the Smith-Lever Act of 1914, Cooperative Extension attempts to conduct research and encourage a free, direct flow of communication between its people and the public. In its educational role, Cooperative Extension Service must interpret, disseminate and encourage practical use of knowledge. Originally most of this knowledge was directed toward the continuing education of farmers, farm wives and their families. Since the early days of extension's inception, our society has transcended our agricultural heritage to become a modern, booming, bustling, urban-suburban complex. Today fewer than 1,000,000 commercial farms make up the core of agriculture as compared to 1914 when approximately one-third of the 32,000,000 population was still involved in agriculture.[1] Thus, a vital need for information and continuing education exists not only with rural families but, also with urban and suburban residents. Today,

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[1] Wittwer, S. H., Communication--Extension's Lifeline, A talk presented at the Public Information Awards Banquet of the National Association of County Agricultural Agents, Ohio State University, Columbus, Ohio, Sept. 10, 1971. Also unpublished journal article No. 5654 of the Michigan Agricultural Experiment Station.

the problems involved are more complex in nature and effect a diverse cross-section of individuals, groups and organizations within our society.

With the inclusion of many new programs to meet the needs of these additional clientele, present methods of communications become rapidly antiquated. The Extension Specialist is called upon frequently to prepare and deliver speeches, workshops, seminars, etc. about research and information at his disposal regarding problems of concern to the various groups in society. The cost (i.e., salaries and travel expenses) of this method of information dissemination is becoming prohibitive in light of changing appropriations (revenue) to extension. There are several forces in our society today that add a sense of urgency to the need for research and implementation of more effective methods of communication. This sense of urgency arises from such factors as: (1) an increasing need for extension programs and personnel (under the present system),[2] (2) already rising staff and budget requirements,[3] (3) increased threat of unionization at the university level which could lead to restricted new programming by limiting the number of personnel available, and (4) the threat of reduced or restricted budgets from legislators.

One purpose of this study is thus, to examine and develop alternative communications methods for use by extension personnel in an effort to avert the problems mentioned above. If such problems are not

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[2] See Appendix A.

[3] See Appendix B.

researched and planned for in advance, a serious curtailment of extension's role could result.

A second problem being dealt with in this study is that of effectively meeting or fulfilling peoples' (extension clienteles) felt needs for information and services which extension is capable of providing. It should be realized however, that felt needs comprise only a portion of the total needs which clientele may possess. Total needs may include needs that are not recognized or considered important. By taking what may be termed a marketing approach, this study hopes to assess clientele needs for various extension programs and determine if significant market segments exist for such programs. It is felt that by linking peoples' needs to new communication technology Extension Specialist will be better able to plan and meet these needs. Adoption of a marketing approach will also allow for flexibility and planned change in extension programs by introducing the dynamic human element into decision-making.

This study will not however, suggest that any one final system is "the" best one for extension. The primary purpose of this research is to lay the groundwork and furnish the necessary review and background to the problems. This study cannot deal effectively with the entire extension communication system. It attempts to look at one portion of the extension network, that concerned with State Extension Specialist. It is hoped that an improved system of communicating with clientele, can eliminate unnecessary travel and contact time for the Specialist. Hopefully this research can be extended to a broader application in the development of a total feasible communication system which can

be used in conjunction with other agencies (i.e., state departments, educational institutions, hospitals, police agencies, etc.).

The primary purpose of this study is to examine how the present communication system used by Extension Specialists might be improved. To accomplish this, a study will be made first of the clientele for extension programs to determine what types of information are most needed from extension. Secondly, evaluation will be made of the methods presently used by State Specialists in preparing and providing information to the people. Then, an examination of present and future communication technology will be made. Finally, and most importantly, an attempt will be made to discuss the communications technology available for meeting the needs of clientele.

Objectives

Very little if any prior research has been conducted concerning the problems mentioned earlier. Such neglect could have disasterous results in terms of the prestige of Michigan's extension programs. The objectives are relatively broad and general in scope. They can be stated as follows:

(1) To determine the purpose(s) and methods of communication used by State Extension Specialists.

(2) To delineate and segment clientele needs for extension programs.

(3) To study present and future communication technology for improving the ability of extension to fulfill the needs of its' clientele.

(4) To consider possible, feasible methods of communication for use by Extension Specialists combining present and future communication technology.

Hypotheses

It would be extremely difficult to customize extension's offerings to meet everyone's individual needs. However, it is believed that where enough similar categories of common interest exist, extension can segment the market for extension services. This would allow extension to focus more directly on consumers felt needs. Total needs could be defined and categorized in a comprehensive study. However, it is hypothesized:

H1 - Clientele felt needs can be defined and categorized.

This study was initiated, in part, with the belief that Extension Specialists spend a good deal of unnecessary time for preparation and travel in conjunction with clientele meetings. Thus, a second hypothesis is:

H2 - Improved communication technology will increase the Extension Specialists efficiency by reducing travel time thus increasing time available for other extension activities.

Finally, it was believed that improved communication technology could fulfill the necessary information exchange function as well or better than personal contact for certain subject areas. This is especially true when the specialist is meeting with groups of individuals concerning areas of policy or community interest. Therefore the third hypothesis is:

H3 - Improved communications technology will allow State Extension Specialists to participate as effectively with clientele groups with respect to information exchange as would face-to-fact contact.

Procedures and Methods

(1) Basic communication purpose(s) and methods used by State Extension Specialists in the total learning environment were identified from secondary and primary information.

(a) A survey of procedures used by Extension Specialist was made. This survey focused on types of programs held; time necessary for preparation, travel and presentation; number of program duplications in various areas. Primary information was gathered via a mail questionnaire.

(2) Clientele program breakdown or segmentation were viewed to determine the adaptability of various communication systems (equipment). Particular interest was given to the potential for expanding areas of extension involvement.

(a) Attempts were made to identify the clientele needs through a mail survey.

(3) Present and future availability of communication technologies were studied to determine their applicability to fulfilling the needs of the clientele.

(a) The degree of complementarity between extension advocates and those of other public and private agencies was viewed with respect to establishing complementary facilities for cost sharing benefits.

Sampling

Primary information for this research was derived from administering two separate questionnaires. Questionnaire number one was directed to State Extension Specialists. The second questionnaire was sent to New Horizons and Kellogg Farmer participants.[4]

The purpose of questionnaire number one was to determine procedures used by Specialists when communicating with clientele. This

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[4]Kellogg Farmers Study Program is a leadership program designed to help farm people make decisions on public issues. New Horizons is also a program to help develop rural community leadership. It is designed to help rural people make decisions on public issues.

survey focused on types of programs held, time necessary for preparation, travel and presentation plus program duplication.[5] It was distributed to 160 Specialists, part-time, and full-time with all but two of them located on the Michigan State University Campus. A wide variety of disciplines were represented in the total population.

A second questionnaire was mailed to extension clientele.[6] Its' primary purpose was to discern the types of information or services desired or needed by them. Approximately 250 questionnaires were mailed. Due to the nature of New Horizons and Kellogg Farmers groups, the sample was biased and a test of statistical significance could not be made. These groups were chosen because they were felt to represent the leadership of a cross-section of their respective communities and the general population. Both groups are familiar with extension and are community leaders (opinion leaders) who represent the opinions of more than just personal preferences.

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[5] See Appendix C.

[6] See Appendix D.

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[5]See Appendix C.

[6]See Appendix D.

CHAPTER II

CONCEPTUAL FRAMEWORK

Market Concept

"Under the market concept, the customer is at the top of the organization chart."[1] "A market oriented approach involves going into the market place to determine what the consumer needs, wants or desires. Then a company must translate these consumer needs or desires into products and marketing programs. . . ."[2] "When the marketing concept is accepted as a matter of corporate philosophy, marketing becomes the basis for designing total systems of action. Fundamental strategies of the business are conceived and implemented on the basis of market needs, forces and opportunities."[3] "Marketing is, therefore, not merely a limited specialized activity of the business, but rather a perspective for the total management team."[4]

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[1]Kelly, Eugene J. and Lazer, William, Managerial Marketing - Perspectives and Viewpoints, Richard D. Irwin, Inc., 3rd edition, 1967.

[2]Eickhoff, William D., Marketing vs. R & D Orientation Among Agribusiness Firms - Survival by Proper Direction, A paper presented at American Marketing Association Agribusiness Conference, St. Louis, Missouri, Nov. 6 & 7, 1969.

[3]Kelly and Lazer, op cit.

[4]Lazer, William, Marketing Management - A Systems Perspective, John Wiley and Sons, Inc., 1971.

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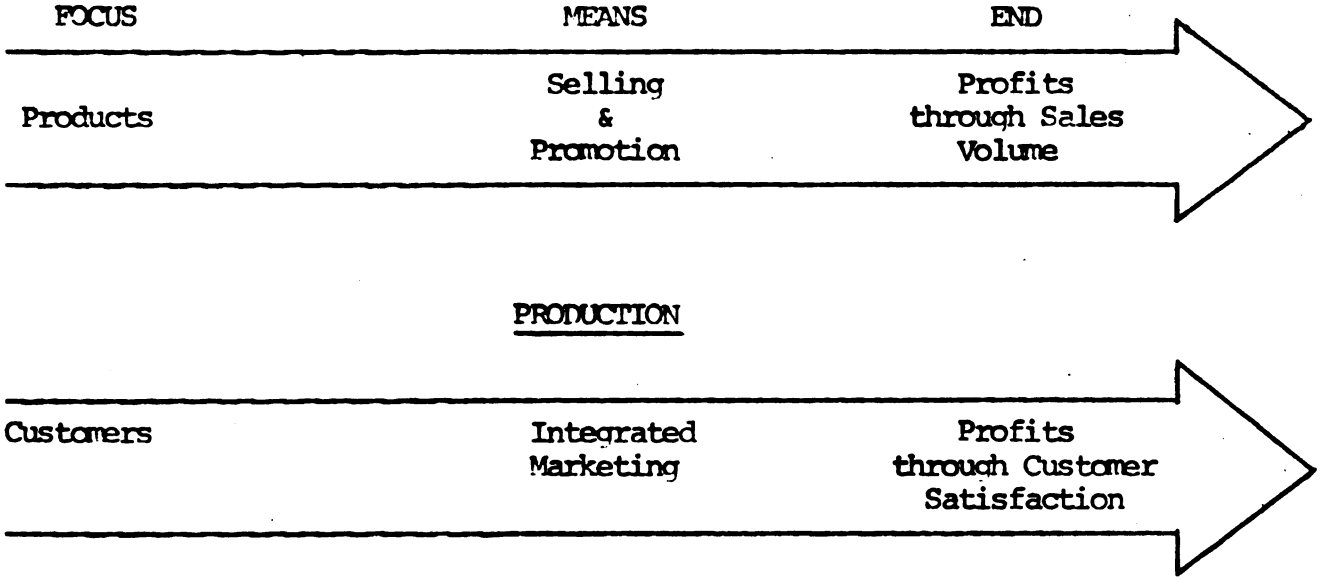
[3] Kelly and Lazer, op cit.

[4] Lazer, William, Marketing Management - A Systems Perspective, John Wiley and Sons, Inc., 1971.

The marketing approach conceptually, is the antithesis of the production approach. Diagram 2-1 will help illustrate the differences between these approaches:

Diagram 2-1[5]



The empirical world rarely exhibits these two concepts in pure form. Extension utilizes a combination of the two approaches. Sectors of the economy (i.e. farmers) however, are necessarily geared to the production approach. A problem in terms of extension arises when the production appraoch dominates over the marketing approach. In this instance the amount of information flowing through exchange channels could overload extension personnel and inhibit the performance of their

[5]Kotler, Philip, Marketing Management Analysis, Planning and Control, Prentice Hall Publishers, 1967.

total job assignment. In this case too much information would be available thus making it more difficult to obtain and assimilate data that is meaningful and relevant to the operating environment.

When a marketing approach is utilized throughout an organization planning, organizing, actuating and controlling resources are made easier by including change as an accepted part of operating procedure. A great advantage of the marketing approach is its emphasis on planned innovation. Management must assume responsibility for establishing market objectives, policies, programs and standards, allocate resources and measure the effectiveness of market activities which are congruent with consumer needs and satisfaction. The marketing orientation thus operates to help adjust and plan extension's efforts to meet clientele needs in a more meaningful manner.

Planned innovation and thorough marketing management must accept certain precepts: (1) acceptance of change as a constant, (2) recognition of the centrality of consumer needs and wants, (3) adoption of a systems approach[6] to marketing issues, (4) recognition and application of meaningful concepts from other disciplines, and the acceptance of theoretical constructs and findings as helpful in managing marketing effort, and (5) recognition of the relationship between marketing and other aspects of managements.[7] Acceptance of these basic precepts will help the organization in its difficult task of planning, assessing and adjusting to the needs and desires of the consumer.

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[6]Systems Approach is a way of looking at the total Marketing operation. It first views the total program and then allows the manager to view various segments of the total on an individual basis. The overview gained allows more effective planning.

[7]Lazer, op cit.

How far this approach can be carried varies dependent upon resources available, objectives and tolerance for change. No strict criteria are available to tell the firm when to stop trying to meet the consumer's needs.

The marketing approach is being applied in this study because extension is directly concerned with helping and educating people. Extension can best accomplish these objectives if it has a good feeling and understanding of people's needs. The market concept implies by its very nature that it is of no usefulness to produce something unless there is a need or desire for it. It was felt that extension could operate more effectively and that a more effective communications system could be designed, if clientele needs were known. A marketing appraoch should provide a more realistic look at clientele, their beliefs and feelings. It then becomes a major task of Cooperative Extension to translate these needs and wants, both actual and potential, into programs and services that extension is capable of producing.

The market approach is by no means infallible. It is often difficult to measure the strength of people's needs and wants. However, it does allow for better planning and decision making within the organization. In the case of extension programs, it is quite likely that consumer tastes and preferences will change over time. If a total systems marketing approach is adopted, and the consumer is the focus of operation, then extension will remain abreast of change and be flexible enough to meet change in a meaningful way.

Market Segmentation

"Segmenting the market is the process of grouping individuals whose expected reactions to a firm's marketing efforts will be similar during a specified time period.[8] "The purpose of segmentation is to determine differences among buyers which may be consequential in choosing among them or marketing to them."[9]

The ideal situation would be to look at each individual in the market and tailor a program to meet their total needs. Extension, however, is committed to fulfilling the needs of many different people thus eliminating this possibility. It is however, one purpose of extension to look at people's needs and tailor programs for significant portions of those clientele.

Before a market segment can be analyzed, the variables or factors which will be used as a basis for segmentation must be decided upon. Certain tests can be applied to these factors to determine their validity. "They should: (1) indicate the responsiveness of the group to marketing effort, (2) be identifiable in the market place, (3) lend themselves to the collection of information on the buyer's characteristics, (4) produce segments relatively isolated from one another, (5) be consistent indicators over time and (6) produce segments large enough to be worth considering for separate market cultivation, (a) the segment should be the smallest unit for which it is practical to tailor a separate

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[8]Cole, David L., Precise Market Definition, Michigan Farm Economics, Department of Agricultural Economics, February 1971, No. 337.

[9]Kotler, op cit.

marketing program."[10] Once markets are segmented according to these tests, further analysis and ranking is possible.

Market segmentation allows extension to focus on more specific needs and wants and thus develop programs congruent with the felt needs of clientele. The marketing concept, in conjunction with the concept of market segmentation can provide a truly clientele oriented, clientele satisfying system for extension. Extension stands to continue to gain in three ways: (1) they will be in a better position to spot and compare market opportunities or ways to serve clientele; (2) they can use this knowledge of the marketing response differences of the various market segments to guide the allocation of their total budget; (3) extension can make finer adjustments of their product, services and appeals.[11] Segmentation offers an opportunity to cultivate special interests, generate new ideas and enthusiasm for a product. These opportunities may be actual or potential.

Extension might also benefit from a more effective communications channel. One that has increased capacity with fewer obstructions to fulfilling peoples needs.

"At its best, the successful application of market segmentation tells the marketer where to expand his efforts, and a great deal about how they should be spent in terms of the marketing mix, advertising appeals and distribution channels to be used."[12]

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[10] Cole, op cit.

[11] Kotler, op cit.

[12] Cole, op cit.

Communications - Information Exchange

Communications serves four basic functions which include: (1) information exchange, (2) compliance, (3) conflict resolution, and (4) leisure. This study will look primarily at the information exchange function.

Information exchange is facilitated by the number of cues being presented by the communicator to his audience. In writing for instance the message is conveyed entirely by symbols. Radio or telephone adds another dimension in the form of audio signals and voice patterns. Each new dimension allows the receiver to derive a more complete analysis of the source of information. Television adds the dimension of visual sensitivity.

Extension has taken the position as expressed by its early philosophy, that face-to-face communication is best in terms of meeting people and understanding their needs. "The weight of personal influence of extension workers in the United States has been demonstrated many times." "This influence combined with sound information, is basic to successful educational extension work."[13]

From a communications standpoint this position may have a great deal of validity and may therefore, offer one of the most difficult criticisms against utilizing improved technology. Face-to-face communications offers the most complete picture of the communicator. More sensory cues are involved in a simultaneous manner. However, a recent

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[13]Kelsey, Lincoln D. & Hearne, Cannon C., Cooperative Extension Work, 3rd edition, Comstock Publishing Associates, Ithaca, New York, 1963.

study by Ewbank and Baker[14] reports the findings of an experiment which compared a telelecture[15] with a traditional, face-to-face lecture with respect to: (1) recall of information and (2) audience attitude toward the message medium. They report that: the tele-lecture audience did not differ significantly from the traditional lecture in its ability to recall information. In answer to the second question raised, they found that tele-lecture audience did not differ significantly from traditional-lecture in its expressed attitudes toward the interest level or in the amount of new information in the message. Audiences did, however, differ significantly as to the estimation of how much more could have been learned from the other manner of presentation. Members of the tele-lecture audience thought they could learn more information from traditional lecture. Those who heard traditional lecture did not believe that they could learn more from tele-lecture. The conclusions of the Ewbank-Baker study have a great implication for extension and this study. They conclude that: (1) when the speaker's behavioral objective is to provide information to an audience, there may be little reason to choose a "live" traditional lecture; (2) listeners assign nearly equal weight to interest and new information in the message whether the medium is traditional or tele-lecture. Thus extension people should find little resistence to the new idea of tele-lecture; (3) people

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[14] Ewbank, H. L., Jr., and Baker, E. E., Tele-Lecture or Traditional Lecture?, Journal of Cooperative Extension, Spring 1968.

[15] Tele-lecture is a system much like a normal telephone service. It offers two-way (i.e., feedback) capabilities over a 24 hour private line. The equipment involves a handset resembling a regular telephone with a connecting loudspeaker.

hearing the tele-lecture perceive themselves to acquire more new information than if the message were presented in a traditional manner.[16]

Source

The source, pattern and channel of communications will also have an effect on the information exchange function activities as we are concerned with them here.

Source credibility is one of the major factors which can influence communications or exchange. If there is role or status conflict between receiver and sender, then communication is likely to break down. The concepts of role and status are quite closely related to a person's attitudes, beliefs and values which can also significantly affect perception and judgment. Emotions, beliefs, etc. in some cases induce noise or barriers into a system, thus reducing the flow and capacity of information exchange.

Another factor related to source is that the closer the intention of the source to the expectations of the receivers, the more probable the success of the communication. Communication researchers often argue that a person will listen to those views already closest in line with their thinking. For instance, at election times it has been shown that Republicans tend to favor programs and advertisements sponsored by Republicans and the same is true of Democrats.[17] With respect to extension activities, this would seem to indicate the necessity of

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[16] Ewbank and Baker, op cit.

[17] Sheff, Thomas T., Toward A Sociological Model of Consensus, Taken from a reprint of an article in the American Sociological Review.

assessing people's needs and designing programs which are congruent with people's expectations and needs.

Finally, with regard to source, a receiver will respond either positively or negatively dependent upon his judgment of the source's expertise, trust and dynamism. A great deal of this judgment hinges on past or similar experiences with the person or persons from the same organization. This means that the State Specialist should make certain that his information is meaningful to a significant number of clientele. In addition, he must be aware of resentment for extension personnel or ideas.

Channel

Channel[18] capacity is one of the more important problems currently faced by extension. Extension presently operates on the concept that informal educational contacts should be carried out in the most direct way.[19] Evidence suggests that this concept leads to the possibility of overloading people and flooding the channel with information. Further evidence indicates that it is common for managers to believe that a reduction in communication restrictions should lead to a more adequately functioning organization.

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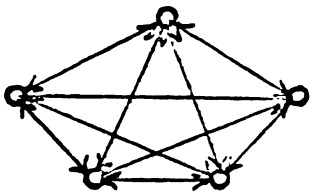
[18]Channel is the descriptive word for the medium or network by which the message flows from sender to receiver. Channels are either formal or informal. This study is primarily with formal channels.

[19]Michigan Cooperative Extension Service, Job Responsibility - Channels of Contact, A paper, 1 March, 1969.

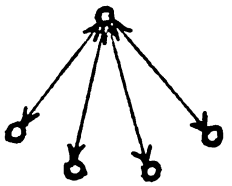
Recent communications research has shed some light on the problem of channel or network design and information exchange. Guetzkow and Simon[20] in replicating earlier experiments performed by Leavett[21] have conducted a good deal of research in this area. Their research calls on groups of five individuals to exchange information with the objective of solving a problem or a similar task where missing information is possessed by other group members. The only difference between groups is channel design. Experiments are then performed to determine which group is most effective in terms of exchanging information and completing the task in the least time.

Three principle channel designs are utilized. They are illustrated in diagram 2-2:

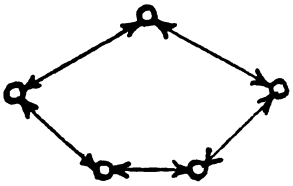
Diagram 2-2



ALL CHANNEL



WHEEL



CIRCLE

The all channel design is completely free of restrictions. Members are free to interact with any other member. No leader is designated.

The wheel design provides a leader and all members are free to interact with him but they do not interact with each other.

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[20] Guetzkow, Harold, & Simon, Herbert A., The Impact of Certain Communications Nets Upon Organization and Performance in Task-Oriented Groups, Management Science, 1:233-250, 1955.

[21] Leavitt, Harold et al.

Interaction is most restricted with the circle design. The only possible interaction allowed is with the persons immediately next to group members. Again no leader is designated.

The findings of their study have important implications for designing a communication system especially where group interaction is involved. They found that the wheel design is most effective for information exchange task completion. All channel design was least effective in accomplishing the task, but most effective in maintaining group satisfaction and cohesiveness. This would suggest that some combination of the two designs might be most effective when designing a new channel for extension. Similar to the wheel design, a leader may be provided in the person of the State Extension Specialists and the audience through interaction channels can provide important feedback information. At the same time an all channel pattern could be utilized for audience interaction thus maintaining satisfaction or happiness for them.

Feedback

A discussion of feedback is important for two reasons. One, to show the necessity of determining people's needs and two, to consider the implication when designing a new communications system for extension.

The findings of an experiment in which the effects of feedback on communication were tested, will illustrate the importance: (1) on completion of the circuit between sender and receiver, feedback increases the accuracy with which information is transmitted; (2) feedback also increases receiver and sender confidence in what they have accomplished;

(3) the cost of feedback is time; (4) zero feedback engenders some hostility in the receiver that becomes perceptible when the situation changes from zero to free feedback; (5) zero feedback engenders doubt in the sender.[23] Although somewhat limited in scope, their study serves to show the importance of a two-way link. Once feedback occurs, subsequent necessity for feedback are reduced thus eliminating time and need for repetition.

Opinion Leadership

"Opinion leadership is defined as the degree to which an individual is sought for information and advice by other fellow members in his system."[24] This person can exist at virtually any level in the extension communication system. However, for purposes of this study the definition will be restricted to those other than State Specialists. The primary opinion leaders among extension clientele are those who are seen by their peers as being community leaders. This was one of the reasons for choosing the New Horizons and Kellogg Farmer groups for study. They should represent a synthesis of prevalent views and needs in their respective communities since they are the representative leadership in that community. This does not mean that they are representative of all of the communities needs.

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[23] Leavitt, Harold J., & Mueller, Ronald A. H., Some Effects of Feedback on Communication, Travistock Publications Ltd., Human Relations, 4:401-410, 1951.

[24] Jain, Nemi Chand, Communications Patterns and Effectiveness of Professionals Performing Linking Roles in a Research Dissemination Organization, Ph.D. Thesis for the Department of Communication, Michigan State University, 1970.

CHAPTER III

LITERATURE AND RESEARCH

Philosophy and Purpose of Extension

In the beginning, Extension was created because of a rural problem. The Morrill Land-Grant Act provided that all people should be, or have the opportunity to be, educated. When people (and Congress) realized that the concept was acceptable but not feasible, they finally, under the Smith-Lever Act, provided the basis for educating "people" by creating the Extension Service. The idea was to share the knowledge of libraries and professors and make it applicable to the people actually facing the problems. Over time, institutional and traditional developments have more or less forced the Extension Service into serving primarily rural people. Dr. Fred J. Peabody, Personnel Director for Michigan Cooperative Extension has discussed several ideas concerning the philosophy and role of Extension in a modern context.[1] "To be really relevant to a majority of people in society, we (Extension) must also deal with the urban population." He stated that, "Some people look at Extension as a non-credit, off campus, adult education and problem solving course." To remain viable Extension must take the direction that current problems lead. "Extension must be flexible and adapt to meet the needs of the people and the times."

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[1] Ideas generated during a personal interview with Dr. Fred J. Peabody in his office.

Although the primary goal for the Extension worker is economic, (e.g., improve production or welfare) it carries with it many subtle implications or sub-goals which are implicit in the motto "Helping others to help themselves." Aside from the economic arena where the object is to actually improve the physical conditions of peoples lives and the development of community life, family life, and leadership development, lies the difficulty actually attaching a substantive value to the more subtle implications of Extension work.

Extension Systems

An effort was made to adopt the extension base to modern society and update, where necessary, extension programs by the joint U.S.D.A.—N.A.S.U.L.G.C. report.[2] In its recommendations the committee tries to recognize the need for Extension, in its broadened role, to cooperate with other institutions and organizations. They acknowledge that Extension cannot and should not do all things for all people. "It is a critical decision for the nation to commit itself to provide and conduct innovative, relevant and effective extension type programs for people who need practical knowledge." This report calls for the spirit and goals of the past to be fused with the efforts of the present and objectives of the future.

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[2]U.S.D.A.—N.A.S.U.L.G.O. (National Association of State Universities and Land-Grant Colleges) Joint Committee, A People and A Spirit, Printing and Publications Service, Colorado State University, Fort Collins, Colorado, 1968.

Specific recommendations include a variety of new programs to reach different levels of society. In trying to do a thorough job the committee also forecasts that in light of the present mode of operation and taking into account budget constraints, the increased manpower requirements for such recommendations will increase significantly.[3] (Appendix A shows the tremendous increase in manpower which is called for.) Inclusion of broadened social, economic, and quality aspects of life and human development will call for increased funding, much more so than presently required for "traditional programs in agriculture."[4]

Presently, Michigan's Extension Service is developing a touch-tone phone computer system, programmed to deliver information concerning very specific problems concerned primarily with commercial agriculture. The system is low cost to the user and serves as a supplement to bulletins. Its basic purpose is to minimize or reduce the mistakes and risks, spent in making decisions concerning farming and other areas where programs may be added in the future.[5] This system is an effective way to handle and evaluate the tremendous amount of information and the large number of variables under consideration in answering specific problems. Its applicability however to a group situation is limited. It can serve as a valuable supplement to other communications systems.

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[3] A People and A Spirit, op cit.

[4] A People and A Spirit, op cit.

[5] The use of this system was discussed in a personal interview with Dr. Steve Harsh in his office.

The prime emphasis in this research however, is on a system which can be used by State Specialists in dealing with group problems. Ideally this should contain some provision for a two-way interaction.[6] Drawing on this idea, one or two attempts have been made in Michigan to design such a process. Purely communicative information is often transmitted by radio. It is desirable however, to replace as much of the face-to-face environment when dealing with groups, as possible. The Resource Development people conducted a series called "Town Meeting of the Air." These presentations were originated from a local TV station to groups of people at specific meeting places, at a designated time etc. They viewed the program together and then by special telephone connections were allowed to ask questions directly of the program originator. Success was termed good but coordination of such an enterprise required a great deal of extra effort on the part of extension personnel.[7]

A similar experiment was recently completed in the Vincennes Indiana area. "Community 70" was a thirteen week series produced jointly by the Purdue Cooperative Extension Service and Vincennes University, a community junior college. The series, presented via public television, was designed to call attention to the more important problems of the area, and to suggest some alternative solutions. Some of the topics include—Comprehensive Community Planning; How is Local Government to be Financed, Industrial Development; Organizing for Better Schools; etc. During each program, a resource specialist presented information

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[6]Two-way interaction is synonomous here with feedback.

[7]This effort was mentioned during an interview with Einer Olstrom in his office.

about a community problem. Panel members consisting of labor union heads, housewives, doctors and university staff, would then react. In addition, telephone lines were provided to allow viewers to call in their questions or comments.

The series was publicized through newspaper articles and advertising over local television and radio stations. "The series was so popular with citizens, panel participants, resource personnel, and university staff that another is being planned." The second series will be based on the Wabash Valley Comprehensive Study and is entitled "Solving Problems of the Wabash Valley." This series will consider such topics as land use, pollution, water needs, recreation and organizing for action. Follow-up seminars are also being scheduled.

"These series are proving to be an excellent way both to use the public television medium and to cooperate with a community college in doing community development work.[8]

Another similar system utilizing video-tape and portable video equipment, has been used for instructional purposes by Michigan 4-H personnel. The capability of this system lies primarily in building a training program with county Extension Agents as the most frequent users.[9] This system seems limited in capacity to develop a spontaneous two-way communications channel.

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[8]Beach, Billy, Community Development Via Television, USDA, Extension Service Review, Vol. 42, No. 6, June 1971.

[9]This System was discussed with Dr. William Tedrick during a personal interview conducted in his office.

Wisconsin's Experience

Wisconsin has developed one of the leading statewide two-way communications systems in the nation. The ETN-SCA[10] system involves two separate facilities for serving the people. Operated by extension, the system has developed so it covers a wide spectrum of different groups.

SCA, of least interest here, is a one-way, F-M radio operation. It is primarily educational in nature being quite useful for weekly book reviews, agricultural news and information, in-depth news analysis and numerous other types of information that do not require interaction. It can be quite useful as a means of extending the boundaries of various academic departments. However, it is limited by the fact it provides only one way communications to outlaying areas.

A more noteworthy system is ETN. It began operation in 1965 at the University of Wisconsin. Starting with only nineteen receiving stations, it has grown until today there are approximately 150 locations serving about 80,000 people per year. Diversity is a key-word in the ETN system. A wide variety of programs are offered to a wide variety of groups. The system operates state-wide and can be linked to any area in other states or countries. A typical program, with the ETN system will contact approximately 200 people. Some programs however, (i.e., one involving a church organization) have reached over 1,000 people throughout the state.

ETN is basically a private telephone network developed in cooperation with Wisconsin Bell Telephone system. It takes the form

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[10]Educational Telephone Network and Subsidairy Communications Authorization.

of a huge party line, with stations located at courthouses, U. of W. campuses and hospitals. Each station has identical equipment, a telephone handset (much like a regular telephone) and a loudspeaker.

The cost of the network is approximately $6800.00 per month. This cost figure includes equipment, rental fees, installation and what is termed "mileage" or the amount of line which is rented by extension from Bell. The cost of rental varies depending upon distance of the area from Madison.

From Madison there are seven major lines to outlying areas. Most of the system utilizes regular telephone wire for transmission. To some areas however microwave transmission is utilized. The base system has at least one receiving location in each county throughout Wisconsin, plus it is connected with 58 hospitals and 5 libraries.[11] ETN is in operation 9 months of the year (due to limited usage in summer months) from 7 a.m. to 10 p.m. Monday through Friday, 7 a.m. to 12 on Saturday and is closed on Sunday. (See Appendix K for typical weekly schedule). The system operates on a priority basis. First priority is given to community education or professional courses, credit courses from the university receive second priority with third priority going to conferences, meetings or information services.

The network belongs to the University Extension. Anyone in extension can use the system free. For people outside the system the basic cost is $100.00 per hour. This is to cover the extension's line time which normally runs $95.00 per hour. In addition the user pays

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[11] See Appendix E.

for any slides or additional materials or out-of-pocket expenses paid for by extension. They also pay for set-up costs and any long distance calls involved during the session.

A liberal estimate of what it would cost to establish a system equal or better than the one in Wisconsin was 15 to 20 thousand dollars,[12] This of course would vary dependent on how much and what type of equipment was purchased plus how much was purchased or rented.

ETN is a two-way communications network. It has flexibility in terms of expansion and connections with other systems (i.e., electro writer, TV, or Public Broadcast, etc.). One of the major advantages is the timliness of the information. Not only does the system provide people with services which they might otherwise be denied, but the information is available to everyone at once with the added provision of answering questions on the spot. The primary advantage Wisconsin maintains over Michigan is the fact that they have developed a master communications plan. A plan which attempts to tie all of the states communication systems together. This facilitates both cooperation and planning.

Studies by Michigan Legislature

Consideration has been given in recent years to developing a state-wide educational TV network in Michigan. In 1966 a study was conducted to assess the feasibility of such a system in Michigan. It

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[12]This information plus the basic information concerning Wisconsin's ETN-SCA systems was derived from personal interviews with Mr. Dave Crowell and Mr. Denny Gilbertson conducted at the University of Wisconsin.

was funded by a $[illegible] grant from legislature.[13] This report gives considerable insight as to the nature and extent of the problems when instituting systems of this nature. Although many individual high quality facilities for educational TV exist, problems arise due to: (1) the autonomy of the institutions involved, (2) the diversity of the existing institutions, (3) lack of cooperation between institutions and agencies, (4) differences between geographic areas (i.e., it is easier to implement such innovations where the population is scattered, unlike Michigan) and, (5) administrative problems (i.e., lack of authority, responsibility, leadership and funds in some areas, although funding is not as great a problem as lack of leadership).

Based on such problems the McBride study makes several recommendations which would utilize existing facilities thus eliminating major initial building expenses. Phase one of their recommendations, represents a transition from the present autonomously operated communications complex which provides an incomplete service, to the ultimate integrated statewide multiple-channel communications system. The plan calls for an integration and coordination which achieves even greater service without loss of autonomy. It was termed, a positive approach. The commission took pains to point out that "unless coordination is provided, there will inevitably develop a number of unrelated, overlapping independent and costly information exchange systems."[14]

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[13] McBride, Jack G., Christiansen, Kenneth A., The Michigan Educational Television Feasibility Study--A Report to the Michigan State Board of Education, July 1967.

[14] McBride, op cit.

Appendix B of the McBride Report is noted that, "Television is only one of several promising tools now available to strengthen the educational enterprise at national, regional state or local levels. There is a growing awareness among educational planners that the bonus in planning and use of media may be a program more responsive to social and individual needs."[15]

Subsequent years saw little or no action taken by legislature. Such items have been placed at a relatively low level of priority. Not until 1970 when a follow-up study was conducted to investigate why no action had been taken in the previous study and recommendations, was anything done.[16] It was again pointed out that Michigan must develop a quality interrelated communications system to serve the needs of educational institutions, of government, private business and industry. The state senate in Senate Resolution No. 82 of 14 July 1969 noted that "Michigan is now one of eight states in the country without such a system (telecommunications) and that the lack of such a facility is 'indeed shocking' for a state 'purporting to maintain one of the finest educational systems in the nation'." This report did however, differ in that its final recommendations based on previous studies, new information and legislative hearings, states "That any effort to reform Michigan education requires a total approach. . . ." "To carry out this total approach, citizens of Michigan must organize their efforts for a

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[15]McBride, Appendix B--Current Status of Michigan Educational Communication.

[16]Starm, Anthony, A Report and Recommendations of the Senate Education Committee on Educational Telecommunications, presented to the Michigan Senate, March 1970.

concerned thrust at improving our educational system. An Educational Telecommunications System for Michigan must not be restricted to one media form such as an ETV Network. They propose an educational system composed of media best suited to particular demographic needs (i.e., different systems for Detroit and Sault Ste. Marie) without excluding presently operating media forms. This effort was thus termed a broad approach to the problem.

CHAPTER IV

CLIENTELE NEEDS

The Questionnaire

A questionnaire designed to solicit clientele needs,[1] was mailed to 259 people throughout Michigan[2] 158 or 61 per cent were returned. This questionnaire, plus selected secondary data, facilitate the determination and segmentation of needs.

Demographic Factors

The sample for this study included representatives of 46 different counties in Michigan. 89.1 per cent were rural residents with the remaining 10.9 per cent residing in either a village, town or city.[3] These figures are consistent with the 1969-70 EMIS[4] report which lists farmers and rural non-farm people as comprising the largest single audience for extension programs. (These data indicate that a primary audience for extension programs.) These data indicate that a primary audience for extension still exists in rural areas.

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[1] See Appendix D.

[2] Kellogg Farmer Study Participants and New Horizons Study Participants.

[3] As defined on the questionnaire in Appendix D.

[4] Extension Management Information System.

This does not mean however, that extension programs cannot, are not, or should not be extended into urban and suburban areas. A great deal of effort is expended each year trying to extend the 4-H youth programs into new areas, especially the inner-city. Evidence of expanded efforts in this area are provided by the fact that youth and youth programs are the second largest audience for extension.

Educational attainment, by respondents, was varied. Table 4-A gives a more detailed breakdown of educational levels.

The trend toward high school graduates and above was congruent with U.S. Department of Labor statistics showing an average of 12.3 years of school completed.[5] Education was thought to be a significant explanatory variable. One that could cause important differences in the types of information demanded by clientele. Evidence from the data gathered in this study however, are inconclusive with regard to its exact effect. People with less than a high school education generally demanded the same types of information as those with more education. The present research design does not allow formulation of a definite conclusion.

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[5]U.S. Department of Labor, A Supplement to the Manpower Report of the President, Statistics on Manpower, March 1969, pp. 37 as of March 1968.

Table 4-A

Educational Levels of Clientele Sampled

Level	Percent of Total
Eighth grade or less	2.5
Attended high school/didn't graduate	1.3
High school graduate	22.2
Attended college/didn't graduate	15.8
Short-course graduate*	29.1
College graduate/4 year	22.8
Professional**	5.7
	99.4
No Answer	.6
	100.0%

*Most people in this category were graduates of agricultural short course.

**Doctors, lawyers, or other advanced college degree holders.

Association with extension ranged from one to thirty-three years. 23.1 percent of the total had been associated nine years or less. Those with ten through twenty years association comprised the largest segment with 59 percent of the total. And twenth-one to thirty-three years represented only 16.5 percent. This variable was tested to determine if it had any influence on clientele needs. It was believed that clientele having a shorter

length of association with extension would be less familiar with traditional extension programs and would respond more freely when expressing felt needs. Evidence suggested only a slight trend for those over 21 years to not respond as much as those with 20 years or less association. The effect however, was negligible. Almost all categories offered an average of four responses.

32.1 percent of the people in the sample indicated that they had dealt with a State Extension Specialist. Their opinion of extension personnel was favorable, though an occasional strong dissent was lodged against particular individuals. 94.9 percent said they were either satisfied or very satisfied with extension personnel.

This dimension is important primarily from a communications standpoint, but also as a major explanatory variable in assessing needs. Source credibility and clientele perception of the source of a message can have a profound effect on the way a person views the entire organization. A person who is favorably disposed to individuals in an organization or group and can align with their ideas, is more likely to adopt the goals and ideas of that group than is the person who is not happy or satisfied with major aspects of the organization such as its leaders and field personnel. Thus, some measure of the clientele perception was needed to help explain responses to questions concerning felt needs.

Demand for Information

The method of determining needs was to ask clientele to list their felt needs and express their opinions freely. There are problems with this approach and it often draws a certain amount of criticism from economists. Several factors add however, to its feasibility for use in this study. One is the method of funding extension programs. They are funded vis a' vis tax dollars.[6] This eliminates use of the economic tool of price-quality demand relationship.

Secondly, it was believed that the method used in this study would allow the respondents to express new ideas and subjective preferences which might not be ascertained by other methods. The method chosen did supply the type of information necessary to delineate and categorize needs in the manner hoped for. Its' importance lies not in its strict statistical validity, but with the information it generates, the key issues and alternatives which can be defined and the guides it provides for evaluating available choices.

It was believed that people who were satisfied with the quality of information provided by extension would not find it necessary to express their needs as freely as those

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[6]Three sources of funds are used, Federal, State, and County. This information is taken from: A Look: The Budget 1970-71, Cooperative Extension Service, Michigan State University, July 1970.

who were dissatisfied. This did not prove to be the case. When clientele were asked to express their present level of satisfaction with the quality of information the results show high level of satisfaction.

Table 4-B

Clientele Satisfaction with the Quality of Information Presently Provided by Extension Personnel

Clientele Opinion Toward the Quality of Information	Percent of Total Clientele Sampled Holding that Opinion
Very Satisfied	35.4
Satisfied	53.8
No Opinion	2.5
Dissatisfied	7.0
Very Dissatisfied	0.0
No Answer	1.3
Total	100.0

Traditionalists in extension might argue that, if people are satisfied with the present quality of information, why change? Two reasons can be stated in opposition to their stance. One, the results shown in Table 4-B do not tell how satisfied people are with the type or variety of information and services offered. And secondly, despite the fact that such a large portion were satisfied, people

expressed a favorable degree of willingness to change or try new technology. This second point is dealt with in a more detailed manner later in this chapter.

The primary purpose of asking clientele to express their ideas and opinions was to assess the felt needs for various kinds of information, material and services. It is necessary to assess needs before planning and other necessary decisions can be made concerning use of modern communication technology.

A total of sixty-seven individual need categories were derived. These needs were then analyzed and categorized under ten broad headings. This facilitated more meaningful comparisons. Table 4-C lists the category heading and the breakdown of subject areas under each.

Table 4-C shows that the need for information concerning rural development and community planning constitutes the largest area of demand. This is closely followed by public affairs and administration with agricultural production and management third, again closely followed by marketing. Fifth and sixth are home economics and environmental quality. The 1969-70 E.M.I.S.[7] offers a means of comparison for these results. It lists agricultural production as the area in which the single greatest portion of time is spent by extension staff. Agricultural production is

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[7]E.M.I.S. Report, op cit.

Table 4-C

Clientele Felt Needs

Part I

Marketing	
Specific Areas of Marketing Information Requested By Clientele Sampled	Accumulative Percent of Clientele Requesting Information in a Specific Area
(a) Livestock	9.5
(b) Pricing Reports	16.0
(c) Organizations	5.1
(d) Crops	9.5
(e) Fruit and Vegetables	1.8
(f) Production volume & projections	3.1
(g) Retailing & advertising Agricultural Commodity	1.8
Total	46.8

Part II

Agricultural Production & Management	
Specific Areas of Agricultural Production & Management Requested by Clientele Sampled	Accumulative Percent of Clientele Requesting Information in a Specific Area
(a) Fruit Crops	3.0
(b) Dairy	3.2
(c) Feed & Grain Crops	6.2
(d) Ag. Chemicals & Fertilizers	6.3
(e) Animal Health, Nutrition, Breeding	6.2
(f) Farm Management	6.4
(g) Lease, Rental & Share Agreements	.6
(h) Farming Methods and Techniques	19.2
(i) Farm Safety	.6
(j) Beef	1.2
(k) Insect & Pesticide Control	.6
Total	53.5

Table 4-C - Continued

Part III

Environmental Quality	
Specific Areas of Environmental Quality Requested by Clientele Sampled	Accumulative Percent of Clientele[8] Requesting Information in a Specific Area
(a) Agricultural role	5.7
(b) Air, water pollution	22.3
(c) Solid waste disposal	2.5
(d) Conservation	.6
Total	31.1

Part IV

Rural Development & Community Resource Planning	
Specific Areas of Rural Development & Community Resource Planning Requested by Clientele Sampled	Accumulative Percent of Clientele Requesting Information in a Specific Area
(a) Land use	8.9
(b) Zoning	30.1
(c) Urban problems	2.5
(d) Housing	1.9
(e) Building codes	1.9
(f) Water rights	2.5
(g) Parks & recreation	1.2
(h) Schools	2.5
(i) Rural finance & credit	3.1
(j) Rural development	3.6
(k) Community development	6.9
Total	65.1

[8]Since people could respond freely, the percentage figures are accumulative and should not be interpreted as a percent of total. It does offer the relative demand information necessary for comparative purposes.

Table 4-C - Continued

Part V

Public Affairs & Administration

Specific Areas of Public Affairs & Administration Requested by Clientele Sampled	Accumulative Percent of Clientele Requesting Information in a Specific Area
(a) Labor problems	6.3
(b) Ag. legislation	8.3
(c) Tax laws	21.8
(d) Consumer information	11.5
(e) Drug & drug abuse	4.4
(f) Leadership development	3.0
(g) Senior citizen programs	1.2
(h) Involvement in government	5.6
(i) Low income & welfare	1.8
Total	63.9

Part VI

Home Economics & Management

Specific Areas of Home Economics & Management Requested by Clientele Sampled	Accumulative Percent of Clientele Requesting Information in a Specific Area
(a) Family planning & child care	5.7
(b) Gardening & lawn care	3.7
(c) Human nutrition	1.2
(d) Budget management	3.8
(e) Home economics general	1.9
(f) Human & family relationships	7.4
(g) Food products & preparation	1.9
(h) New products	3.8
(i) Health & safety	3.8
(j) Sewing	.6
Total	33.8

Table 4-C - Continued

Part VII

Weather Information	.6

Part VIII

Real Estate - Buying & Selling	.6

Part IX

Retail Business Management	1.3

Part X

General Economics Conditions (i.e., wage-price freeze)	3.2

followed by 4-H youth, family living, resource development and marketing, in that order.

Rural respondents were compared to those residing in villages, towns or cities to determine whether or not their needs are dissimilar. All respondents indicated concern with the major issues listed in Table 4-C. There were however, slight differences in needs between rural and non-rural. Farmers were more concerned with items directly having an effect on their business and management of that operation. Whereas, people living in non-rural areas were more concerned with matters affecting the home as well as senior citizen programs. Although these differences were not prime areas of concern, there is reason to believe that they would exist in the general population. Conclusive proof however, cannot be gathered from the present data.

The categories delineated in Table 4-C hold important implications for the design of communication systems. Many of the areas listed under Rural development or Public affairs offer excellent opportunities for application of modern communication technology which are capable of dealing with groups. The problems and policy implications allow for the effective use of group situations calling for a high degree of interaction and feedback.

Several other important variables which could affect demand for information, were also measured. Among them are the importance of face-to-face contact, the number of times they presently meet with S.E.S. how often clientele felt it was necessary, and their opinions concerning the use of other various communication technology.

These data are invaluable when designing a new communication system for use by S.E.S. They suggest which media can best be used to reduce face-to-face communication while attempting to maintain clientele satisfaction. Furthermore, an indication of the continuing need for face-to-face contact even after implementation of a modern system, can be ascertained. They are important not only for analyzing the feasibility of such a system, but also for making future budget estimates related to travel and similar expenses. It should be realized that modern technology cannot completely eliminate the need for personal contact. The reinforcement offered by even one face-to-face visit is extremely valuable in maintaining public confidence.

Nearly 80 percent of the clientele sampled indicated that face-to-face contact was either important or very important. They met with S.E.S. ranging from 1 to 35 times per year. Only 22 percent however, said they met S.E.S. 7 or more times whereas, 55.1 percent met S.E.S. 6 times or less. People when asked how often (under present conditions) they felt it necessary to have face-to-face contact with S.E.S., expressed a desire for more personal visits. Table 4-D shows the feelings of clientele concerning the number of times they would like to meet with S.E.S. Extension presently uses a variety of media to reach clientele and disseminate information. A number of these were evaluated to assess which ones clientele found most educational. This can be important when designing a system utilizing modern technology. Some of the forms presently used could be incorporated into the new system. Others could be continued as supplementary information services to help relieve overloading the main channel.

The methods of clientele found most educational are shown in Table 4-E.

Table 4-D

Number of Times Clientele Feel It Is Necessary to Meet With S.E.S. (Under Present System)

Number of Times Clientele feel it is Necessary to meet S.E.S.	Percent of Total Clientele Sampled for Each Category
Once Per Year	13.9
Every Six Months	28.5
Every Three Months	25.9
Once Per Month	13.3
More Than Once Per Month	3.8
No Answer	14.6
Total	100.0

Table 4-E

Present Methods of Presentation Clientele Find Most Educational (in Order of Indicated Preference)

(1) Lecture With Slides

(2) Pamphlets or Brochures

(3) Panel Discussions

(4) Radio Programs

(5) Other*

(6) Magazine Articles

(7) Lecture

(8) Television

*Usually newspaper articles.

Many of these methods could be directly incorporated into a system using modern technology. This would facilitate clientele adjustment to such a system. Clientele would find the information more valuable if the method of presentation was familiar and was one which they felt provided educational material.

To test the convictions of the respondents with regard to the importance of face-to-face contact, they were asked to indicate their satisfaction or dissatisfaction with certain proposed media forms offering two-way communications.[9]

Table 4-F offers a summary of the results.

Table 4-F

Clientele Opinion of Proposed Media Forms

Clientele Opinion of Proposed Media Forms	Percent of Total Clientele Sampled Holding That Opinion	
	Audio	Visual
Very Satisfied	7.0	9.5
Satisfied-about as happy as face-to-face	31.0	37.3
No Opinion	13.0	13.9
Dissatisfied-would prefer face-to-face	43.0	35.4
Very dissatisfied-would not like it at all	4.4	1.9
No Answer	1.6	2.0
Total	100.0	100.0

*Both the proposed Audio and Visual would provide immediate feedback response.

[9] See questions 12 and 13 in Appendix D.

These results are of a consistent nature with those indicated by Ewbank and Baker.[10] They found people when asked beforehand were more favorably disposed to personal contact or live[11] situations but when tested after using other media forms (i.e., tele-lecture) they found very little difference in satisfaction between live lecture and tele-lecture. It is suspected that the same would hold true here. This belief is based on the response to a question asking if they felt face-to-face contact would be as necessary with S.E.S. when some form of two-way communication (radio or TV) was used. Only 12.7 percent said yes it would be necessary; 36.7 percent said I don't know; while 50.6 percent indicated No, it would not be necessary.

It is important to note the proportion of clientele (38 percent for audio and 46.8 percent for visual) who indicated that alternative methods of communicating may be acceptable and which would reduce the necessity for frequent face-to-face contact. These results hold tremendous implication for extension. Despite the evidence suggesting the importance of face-to-face contact, a large portion of clientele sampled are willing to try alternative forms of communication. Implementation of such media forms would allow the S.E.S. to reduce the amount of travel and repeat performances necessary to meet clientele needs. It would, at the same time, reduce the time spent in meetings

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[10] Ewbank and Baker, op cit.

[11] Lecture-type situations.

This would enable the S.E.S. to spend more time with other aspects of his appointment while maintaining a close contact with clientele and their needs.

Summary

Clientele needs can be broken down into identifiable market segments. Their demand for information services can be identified and classed under broad headings. The segments for information needs are relatively isolated by subject areas from one another thus allowing S.E.S. to approach problems in a more specific manner. Smaller areas of demand can be separated readily from the other major areas. Each area can be considered separately for information development. A problem arising in segmenting the clientele market is that of determining how consistent these indicators are over time. Clientele needs will change thus, creating some difficulty in assessing consistency.

CHAPTER V

STATE EXTENSION SPECIALIST

The Questionnaire

Each of the 160 State Extension Specialists[1] received a cover letter and a questionnaire.[2] Ninety of these, or 56 percent, were returned. The results of this questionnaire offer data concerning the amount of time spent by S.E.S. for various job related activities, the type of communication and instructional technology now being utilized, and their opinion concerning the use of different media forms.

State Specialists - Background Information

Age is often linked by researchers to a person's values, beliefs and attitudes thus, affecting his perception and willingness to change or innovate. Therefore, age was viewed as a possible explanatory variable in this study. There was however, no apparent relation between age and the variables against which it was tested. It was tested against such variables as the number of hours spent for administrative matters, research, travel, meetings, etc., satisfaction with

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[1] This figure includes thirty-two administrators.

[2] See Appendix C.

other media forms, educational ability of other media and whether they would recommend their job to others.

The age of specialists ranged from twenty-five to sixty-six years. A bimodal tendency exists with slightly larger groups at ages 25-35 and 46-55. Table 5-A gives the complete breakdown by age groups.

Table 5-A

Age Groups of State Extension Specialist

Age Group	Percent of Total S.E.S. in that Age Group
25-35	38.2
36-45	19.0
46-55	27.4
56 and above	14.4
No Answer	1.0
	100.0

Number of years in extension was ascertained in an effort to determine what effect this might have on influencing adoption of change. It was felt that persons associated with extension for a shorter period of time may be less resistant to the adoption of new methods of communications as compared to those associated for longer periods who might hold rigid traditional values. When tested against feelings concerning used and happiness with different media forms providing two-way channels, no apparent relationship was found.

The range for number of years in extension was one to thirty-eight years. Thirty-eight percent, the largest single group, had been with extension one through five years. Table 5-B gives a more detailed analysis of years in extension.

Table 5-B

Number of Years State Extension Specialists Have Spent in Extension Work

Number of Years S.E.S. in Extension (by Groups)		Percent of Total S.E.S. in Each Group
1-5		38.0
6-10		13.2
11-15		17.7
16-20		7.8
21-25		14.4
26-30		3.3
Over 30		4.4
		98.8
	No Answer	1.2
	Total	100.0

The respondents were representative of 31 different disciplines or specialized areas.[3]

[3]See Appendix F.

The distribution of academic rank showed only a slight tendency toward the upper ranks. Table 5-C lists the distribution of academic rank among S.E.S.

Table 5-C

Academic Rank of State Extension Specialists

Categories of Academic Rank	Percent of Total S.E.S. in Each Category
Professor	32.2
Associate Professor	23.3
Assistant Professor	18.9
Instructor	11.1
Other*	13.3
No Answer	1.2
Total	100.0

*These were mostly people who hold entirely specialists appointments.

Extension Specialists are appointed on a variety of arrangements from a few hours per week to full-time (which means that the persons total effort is deovted to extension activities). This is usually accomplished on a percentage basis. Using 40 hours per week as a standard, 20 hours per week would be considered a 50 percent extension appointment.

It is necessary in this study to discount for those S.E.S. spending only a few hours each week in extension. This does not mean

that their answers hold no meaning, it implies however, that they cannot be considered of the same importance when viewing feelings concerning travel and meetings as those devoting 50 percent or more of their time to extension. The people who indicated spending 6 through 12 hours per week in extension comprised only 8.8 percent of the total. Most of their extension time was spent for either research or administrative matters.

The overall mean number of hours devoted to extension was 34.9. The range was 6 to 63 hours per week, with the three largest groups devoting 20 (12.2 percent), 30 (12.2 percent) or 40 (31.1 percent) hours per week.

Using this information as a base, a breakdown of time was made to determine how many hours per week are spent for administrative matters, research, travel, meetings with extension clientele and others. The results are depicted in Table 5-D. Of those specialists who indicated spending only one hour per week in travel 3.3 percent of the S.E.S. out of a possible 4.4 percent, came from the group spending less than 50 percent of their time in extension. The same trend was evident for meetings. Those under 20 hours per week in extension account for all of those spending one hour per week in meetings and 3.3 percent of those spending only two hours per week.

Specialists were also asked to express their opinion concerning the amount of time spent for administrative matterns, research, etc. It was thought that specialists who indicated that too much time was spent in background, travel or meetings would be more willing to accept the use of modern communication technology. This relationship did not

Table 5-D

Number of Hours Worked by S.E.S. in Various Activities

Number of Hours Worked Per Week Per Job Activity	Activity (percentage of S.E.S.)				
	Admin.	Research	Travel	Meetings	Other*
1	14.4	13.3	4.4	1.1	---
2	11.1	6.7	7.8	5.6	1.1
3	6.7	4.4	3.3	5.6	2.2
4	15.6	4.4	16.7	7.8	5.6
5	10.0	6.7	21.1	10.0	7.8
6	414	1.3	4.4	5.6	3.3
7	1.2	---	1.3	1.2	3.6
8	6.7	5.6	10.0	10.0	2.2
9	1.1	---	---	1.1	2.2
10	7.8	12.2	13.3	14.4	2.2
11	---	1.1	1.1	---	1.1
12	3.3	2.2	1.1	4.4	4.4
13	1.1	---	---	---	3.3
14	1.1	---	---	2.2	2.2
15	4.4	1.1	2.2	8.9	8.9
16	---	---	1.1	1.1	1.1
17	---	---	---	---	---
18	---	1.1	---	---	1.1
19	---	1.1	---	---	1.1
20	4.4	3.3	---	5.6	8.9
24	---	1.1	---	1.1	1.1
25	---	---	---	1.1	2.2
27	---	---	---	---	1.1
30	---	2.2	---	3.3	1.1
35	---	---	---	---	1.1
38	1.1	---	---	---	1.1

*Evidence suggests these matters to be primarily administrative by nature.

exist. Also, it was believed that a majority of the specialists would feel too much time is presently being spent in these areas, especially travel and meetings. Table 5-E demonstrates the feelings of S.E.S. toward their job related activities.

Table 5-E

Feelings of State Extension Specialists Toward Job Related Activities

Major Job Related Activities	Opinion of S.E.S. Toward Each by Percent of Total				
	Too Much	About Right	Not Enough	No Answer	Total
Administrative Matters	28.9	68.9	----	2.2	100
Research	5.6	32.2	34.4	27.8	100
Travel	22.2	60.0	6.7	11.1	100
Meetings	13.3	63.3	15.6	7.8	100
Other	5.6	41.1	16.7	36.7	100

Specialists, with the exception of research, felt that the amount of time being spent on job activities is about right. This finding does imply that more time could be devoted to research. The proposed use of modern communication technology to eliminate some travel and also eliminate the necessity for repeat performances at different times and in different areas, could provide the opportunity for more research activity. At the same time (all other things constant) this could increase efficiency. Efficiency would be increased by reducing

the total necessary time for accomplishing the same basic purpose which previously required more travel and presentation time.

Additional information concerning the amount of travel, when it occurs, how often speeches are repeated etc., was included to: (1) obtain a more accurate estimate of the amount of time and number of miles driven in connection with group meetings. This was important from the standpoint of examining efficiency and determining the feasibility of modern technology. (2) Help in the examination of various pieces of communication technology with respect to the size of group and frequency of use expected. And (3) offer insight as to the ability of various technology to facilitate information exchange. This is especially useful later when considered in conjunction with the purpose of S.E.S. meetings.

The majority of S.E.S. meetings occurs during normal working hours.[4] However, 21.1 percent said meetings occur primarily at night or on weekends. Seventy percent said that workshops or speeches are repeated to different areas of the state. The number of times they are normally repeated is indicated by Table 5-F.

The data indicate that speeches are repeated three to five times. If instead, S.E.S. were able to prepare one presentation, meet with all groups at once[5] and react to a majority of their questions, this would eliminate duplication of materials, travel time and presentation time. This could be especially valuable for those who are often

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[4]Eight a.m. to five p.m.

[5]It is realized that this is not always possible due to situations where problems arise a presentation is given and may call for further clarification.

Table 5-F

Number of Times State Extension Specialists Repeat Speeches or Workshops Per Year

Number of Times Repeated	Percent of Total S.E.S. Repeating that Number of Times
1	5.6
2	7.8
3	21.1
4	8.9
5	12.2
6	2.2
8	2.2
10	5.6
12	2.2
15	1.1
18	1.1
No Answer	30.0
Total	100.0

called upon to travel and meet after normal working hours. The overall objective of utilizing modern technology is not to eliminate all travel and face-to-face contact by S.E.S., but is to create the means whereby extension can better utilize existing specialists, call upon specialists in more fields and reduce the need for the sharp increase in manpower

requirements in the years ahead.[6]

Three additional questions contained in the survey were also designed to solicit information concerning travel. Two of the questions concern the amount of travel, and the number of hours spent for travel, per week, during both the academic year[7] and the summer months.[8] It was believed that some differences between the periods would exist due to the vacations, slowdown in program schedules, etc. Data suggests however, that this is not the case. The mode for each period was 200 miles and four hours, indicating a year-round demand for S.E.S. contact and travel.

Specialists were then asked to supply a breakdown for background, travel and actual contact time on a single meeting basis, when meeting groups of clientele. Table 5-G show the results. Based on figures in Table 5-D it is possible to arrive at some average figures concerning the time spent per week in travel and meetings by S.E.S. Specialists who spend between 20 and 39 hours per week for extension activities, devote on the average, 9.4 hours per week for travel and group meetings. Those with 40 or more hours per week in extension spend on the average of 12.7 hours per week in those activities.

For instance, if a S.E.S. devotes 30 hours per week to extension and averages 9.4 hours for travel and group meetings, then nearly one-third of his time is spent for these activities. The remaining time must be divided for research, administrative matters, preparation for

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[7]September 15 through June 15.

[8]June 16 through September 14.

Table 5-G

Number of Hours State Extension Specialists Spend For Background, Travel and Contact (On A Single Meeting Basis)

Number of Hours Spent for Each Activity	Expressed as a Percent of the Total S.E.S. Spending that Amount of Time		
	Background	Travel	Contact
1	5.6	4.4	31.1
2	21.1	30.0	34.4
3	10.0	16.7	8.9
4	12.2	26.7	6.7
6	6.7	1.1	2.2
7	----	1.1	1.1
8	10.0	1.1	----
9	1.1	----	----
10	7.8	----	----
12	2.2	----	1.1
15	2.2	----	----
20	1.1	----	----
30	1.1	----	----
40	2.2	----	----
No Answer	13.3	15.6	12.2
Total	100.0	100.0	100.0

meetings etc. A person spending 40 hours per week in extension, will average one and a half days per week out of the office for the purpose of clientele meetings and travel.

Certain conclusions can be drawn based on this data. Age was not an important variable in explaining differences in other variables. Two age groups are prominent in extension--the young 25-35 and middle age, 46-55.

The number of years in extension did not effect S.E.S. willingness to accept new forms of communication technology. Therefore, the problems when adopting new technology would not necessarily lie with convincing the "older" traditionalists. Any acceptance or rejection would likely come from any S.E.S. regardless of years in extension.

S.E.S. who devote 20 or more hours per week are the ones most concerned with travel and group meetings. On the average 9.4 hours per week for those spending 20-39 hours and 12.7 for full time S.E.S. The speeches and workshops presented by S.E.S. are often repeated. This means that a great deal of time is spent on the road and for meetings dealing with the same subject matter.

In fiscal year 1970-71, extension spent $244,289.76 for S.E.S. travel.[9] This averages to $1823.05 per specialist. More specialists will be added to the payroll, salaries of existing S.E.S. will rise, and more meetings will be attended throughout the state. The use of electronic media could help eliminate some of the travel costs and reduce the need for hiring additional S.E.S.[10]

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[9] A Look: The Budget, op cit.

[10] See Appendix C for budget estimates concerning the cost of hiring additional personnel and travel.

Methods and Purpose

Extension Specialists must travel to meet people and disseminate information pertinent to clientele needs. A variety of purposes were evaluated to determine their importance as seen by S.E.S. Table 5-H show the S.E.S. purpose when meeting with clientele:

Table 5-H

State Extension Specialists Purpose of Meeting With Clientele (Listed in Order of Importance)

(1) Informational talks
(2) Other*
(3) Individual**
(4) Committee Meetings
(5) Community Leaders
(6) Business Executives
(7) Luncheon Speeches

*Includes county extension agents, leadership groups etc.

**Primarily farmers on a one-to-one basis.

It is important to note that information talks are the number one reason S.E.S. meet with clientele. These results indicate that S.E.S. most often do deal with groups.

It is also important to note the number of people reached per contact. When designing a system utilizing choices of various technology, it is extremely important to know the average audience size. Various units of equipment are designed to accomodate only a particular

number of people. Thus, knowing approximate audience size in conjunction with location and frequency of use allows system designers to plan a more feasible system. By not over or under utilizing equipment in a particular area, spending money for additional installation or purchase (or rental) of equipment may be avoided. Knowing audience size thus helps accomodate proper planning and equipment use.

Table 5-I gives some indication of the average number of clientele dealt with per meeting.

Table 5-I

Average Number of People Reached by State Extension Specialists

Average Number of People Reached Per Contact	Percent of Total S.E.S. Indicating That Number Of People (Average)
1-5	6.7
6-10	12.2
11-25	15.6
26-50	36.7
51-75	12.2
76-100	6.7
Over 100	2.2
No Answer	7.8
Total	100.0

87.8 percent of the S.E.S. surveyed indicated that they used instructional aids either all of the time or frequently. The most popular devide was slides (in response to the questionnaire). This compares favorably with clientele who indicate lecture with slides as being the most educational method of presentation presently used by S.E.S. Other popular devices were transparencies, charts and graphs, films, tape recordings and programmed texts, in that order. These findings indicate that ancellary visual program devised are popular with S.E.S. This must be considered when a final system is designed. Not only will incorporation of these devices foster acceptance by S.E.S., but may provide necessary educational and entertaining material to clientele if some form of visual communication is not chosen. Use of such devices may explain ambiguous material and facilitate more meaningful feedback.

Eleven of the S.E.S. had been involved previously with tele-lecture and only four S.E.S. had used TV where two-way communications was available. The limited exposure to these media did not lead to any conclusive feelings for or against them by people who had experienced their use.

S.E.S. were asked their opinion concerning possible use of either radio, tele-lecture or TV with provisions for immediate feedback. They were asked first if such forms of communication would be as satisfying to use. Then S.E.S. were asked to give their opinion as to the educational properties of these forms.[11] The happiness or satisfaction

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[11]See Appendix C, questions 20, 21, 22, 23.

and educational dimension were separated to help in assessing the feasibility of utilizing modern technology. Many S.E.S. indicated that they would not feel as happy when using tele-lecture or some other media form, but thought such forms would be as educational to clientele as personal or face-to-face communications.[12] These two dimensions (satisfaction and educational capability) actually test the strength of the S.E.S. with regard to face-to-face contact. It was shown that S.E.S. would prefer some form of visual two-way linkage. Visual media would, they felt, offer more educational value and would be more satisfying to use than audio. This is important from the aspect of recommending the form of media to use in designing a system. It would appear that S.E.S. prefer to have something that is as near to face-to-face as possible. However, if the purpose of clientele contact were merely education, other forms should be considered.

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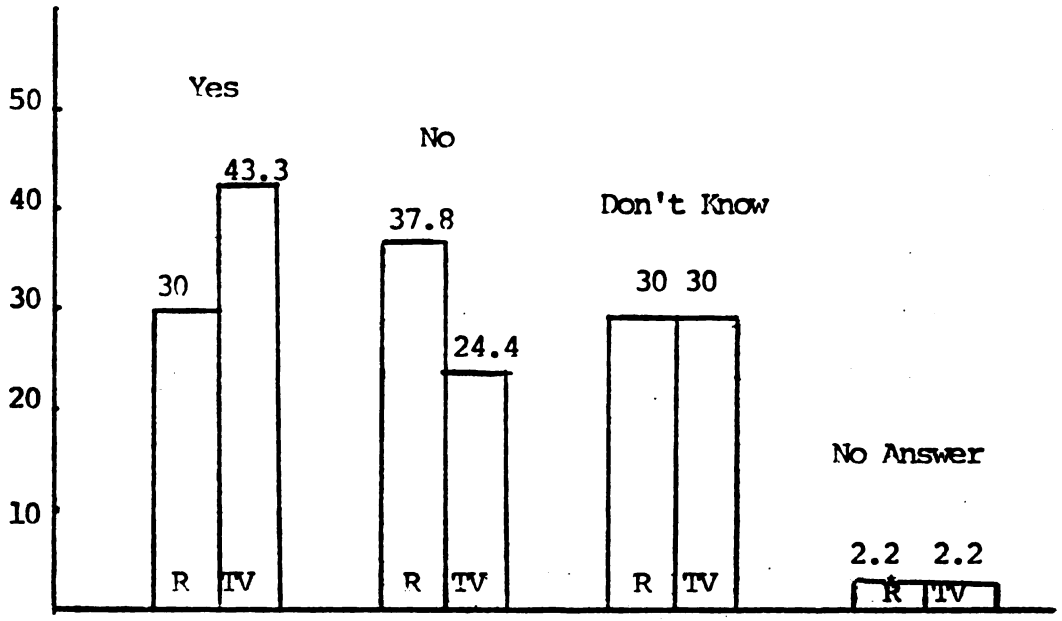
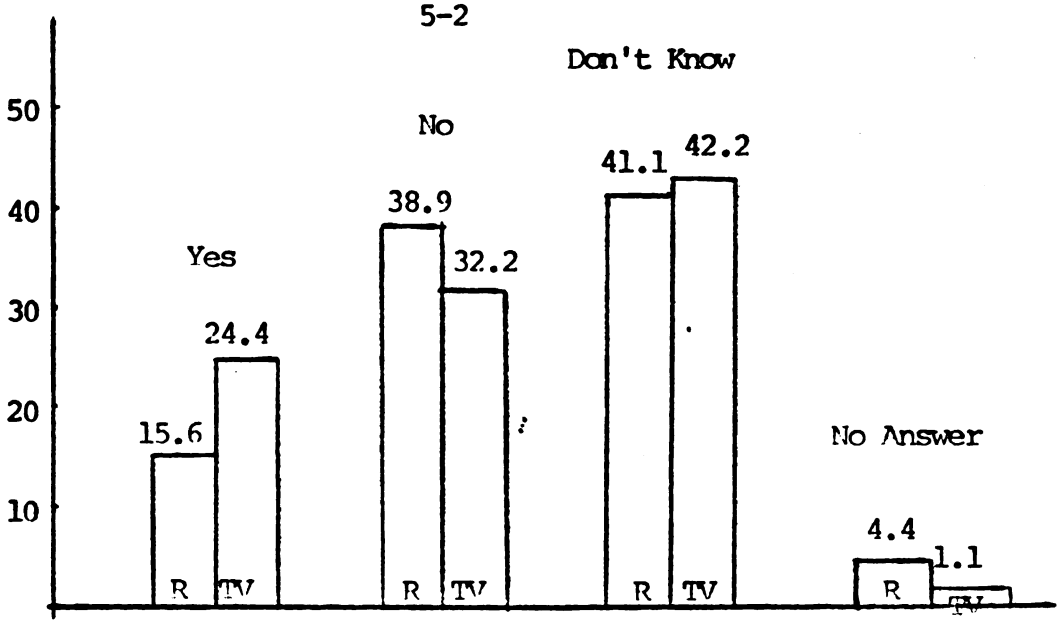
[12]See Figure 5-1 and 5-2, page 65.

5-1



S.E.S. Feelings toward the use of proposed media. This diagram represents the comparative educational value of both audio (R) and visual (TV) with a two-way channel as compared to face-to-face contact.

5-2



S.E.S. Feelings toward the use of proposed media. This diagram represents the comparative levels of satisfaction associated with the use of audio (R) and visual (TV) technology which provides a two-way channel as compared to face-to-face contact.

CHAPTER VI

COMMUNICATIONS TECHNOLOGY

In Light of Needs

The data gathered for this study indicates that people's needs with regard to extension information are diverse. A single information sub-system cannot effectively meet all of the requirements toward fulfilling clientele needs. What is needed instead, is a total system which is capable of handling individual specific problems as well as group situations. It should be capable of dealing with the diversity of subject matter as well as the diversity of audience situations. It must be carefully planned and coordinated so as to achieve purpose and usefulness not only for extension, but also for statewide, regional, national or even international agencies involved with business, government, medicine, etc. A total, unified plan and system must be developed. "An educational communications systems is likely to require supplementary data services, central computers and virtually unlimited file access. The system can utilize both voice and TV communications on private or public broadcast concepts. In short, a broad communications system can provide an electronic tie between virtually every person in the state and all of the information and learning centers that are interconnected

for both visual and written information."[1] Only by developing a total coordinated system can effective use be made of the present (and future) available facilities which rank among the best in the nation. Planning can best be accomplished when a total unified system exists rather than a number of overlapping separate facilities.

Clientele needs show the necessity for a sub-system which can accomodate individual, specific questions which are technical or complex in nature. These questions require that information be drawn from a variety of disciplines. This type of situation calls for customized, individual information which is available for immediate access. It is only one part, or a sub-system, to the total necessary plan.

Michigan is developing the necessary technologies for handling individual problems. Computers are being used to transmit information which is designed to fit a situation peculiar to a single persons needs. The problem can be phoned directly into a computer and analyzed in light of all existing variables. An optimal solution can thus be obtained. The problem at the computer end is development of a sufficient supply of information and linking the computer to other areas where the information is readily available (i.e., libraries). There is also a problem in linking and coordinating the various computer systems to one another.

This study is concerned with the other half or sub-system in the development of a total system. Reference here is to communications technology for effectively dealing with and coordinating small and large

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[1]Atlantic Research Corporation, Jansky & Bailey Broadcast Television Department, Educational Communications for Michigan-a Engineering Feasibility Study, Washington D. C., July 1967. This study was complementary to the McBride Report on Educational Television presented to the State of Michigan Department of Education.

group activities and meetings. This sub-system must be developed in conjunction with and be compatable to the sub-system dealing with specific problems. It is that part of the total system designed to deal with problems concerning rural planning, community development, marketing problems etc. It relates to those clientele needs which are better understood by group or community involvement. Development of such a system can no longer be overlooked. As previously mentioned, it is of little or no consequence to develop separate facilities, even when they are of excellent caliber, if they are not capable of functioning as part of a total system. What is derived from such an approach is not usefulness, planning or coordination, but instead waste and misallocated resources due to duplication of time, effort and equipment. Clientele needs are better met by careful planning and development of a system which is compatable with their needs.

The purpose of this chapter then, is to examine a variety of modern communications technologies. They will be viewed as to their applicability in fulfilling clientele needs. Just as importantly, they will be examined in light of developing a total system sometime in the future.

Today's Methods

Extension presently utilizes a plethora of media to reach clientele. Personal contact in the form of informational talks, individuals, committee meetings, etc. is a primary method of reaching clientele.[2] Other methods include pamphlets and brochures, radio

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[2]Chapter Five, Ibid.

programs, magazine articles, newspaper articles, etc.[3]

Personal contact is costly in terms of the S.E.S.'s time and the use of extension funds for travel. The other methods used by S.E.S. do not offer the dimension of timeliness[4] that can be obtained by personal contact. Another problem associated with the use of such a variety of media involves the overloading or flooding information exchange channels. If fewer media forms could be utilized on a consistent and frequent basis, this problem could be eliminated. It essentially involves better assessing the needs of clientele and planning to directly fulfill those needs. Media such as magazines are good supplementary material. They should be used as means of reaching those clientele unable to participate in use of modern technology. Personal contact by S.E.S. was found to be desirable, but on a less frequent basis.[5] Use of modern electronic technology would eliminate the need for much of the material presently mailed to county extension personnel. If relieved from the burden of examining a large amount of material to ascertain those facts pertinent to his situation, then perhaps the county personnel could assume a greater role in making personal contacts at the individual level. He would also serve a more useful role in remaining abreast with clientele needs over time.

This study has thus far, examined clientele needs and identified major areas of common interest. It has examined the amount of time spent

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[3]Chapter Four, Ibid.

[4]As per Mr. Dave Crowell, University of Wisconsin. It refers to the ability to present, current or timely material and then receive feedback.

[5]Chapter Five, Ibid.

by S.E.S. for job related activities and the purpose and method they presently employ in attempting to fulfill clientele needs. The findings to this point indicate that the use of electronic communication technology could eliminate or reapportion the amount of time spent by S.E.S. and would enable him to focus more directly on clientele needs.

It is now necessary to examine available and future communications in an effort to determine their possible applicability and feasibility in fulfilling the needs of extension, S.E.S. and clientele. Use of data derived from both secondary and primary sources will be used in assessing pertinent feasibility factors.

Present Technology

Discussion will be restricted to that technology which is relevant to group situations (i.e., meetings). Equipment designed for this purpose is flexible and can be used in numerous combinations and systems. In the final analysis, extension must decide on "a" system which will not only fulfill their immediate and long range needs, but will link to other facilities within the state. This would include other communication networks or facilities, government agencies and departments, medical facilities etc. Any system developed by extension should be compatable with other agencies not only for cost sharing and economic reasons, but also to facilitate development of a total communications system in Michigan. This system in turn should not only fulfill the needs of Michigan residents, but allow these facilities to be linked to regional, interregional and national systems.

Present Technology—Tele-Writer

Tele-writer is an electronic device capable of transmitting visual signals over ordinary telephone lines. It is designed primarily to serve as a supplement for audio presentations.

Tele-writer is designed to transmit visual reproductions of writing, charts, graphs, figures, etc. Basically, the equipment consists of a sending unit and a receiving unit. It is capable of being used in any one of three methods: (1) tele-writer only, (2) alternatively with voice transmission, or (3) simultaneously with voice.[6] Tele-writer alone only is not particularly meaningful for group situations. It could be however, an important ancellary service for audio equipment. This later approach has been demonstrated in teaching experiments where audio lecture was supplemented by tele-writer. The tele-writer was used to detail explanations and demonstrate formulas for a group of engineers located several miles away.[7] Such equipment facilitated educational programs which otherwise would not have been possible. The tele-writer sending unit involves two or three rather elementary concepts. A device resembling a normal ball point or felt pen is attached to a free moving arm. This is referred to as a captive pen.

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[6]When simultaneous transmission is used, two individual circuits are required, whereas, the other situations described require only one. This information plus a great deal of basic information concerning systems, usage and costs was obtained from personal interviews with Mr. Ed West and Mr. Al Coping of the Bell Telephone Business Office at 220 M.A.C. Avenue, East Lansing, Michigan.

[7]Lear-Seger Experiment, Bell Telephone. This experiment involved the teaching of graduate level engineering courses via Tele-lecture and Tele-writer to employees of Lear-Seger Corporation in Grand Rapids, Michigan. The course eminated from Michigan State University, East Lansing, Michigan.

The captive pen is manipulated by the writer and implants a message onto a sensitized roll of paper. The images are then picked up and transmitted via an FM signal to a receiving station located at the opposite (i.e., audience) end. The receiver then uses the FM signal to operate a pen similar to the one at the sending station. This pen operates parallel to the master pen and transmits images onto a transparent clear plastic roll. Then, in a manner similar to a regular overhead projector, the image is projected on a screen. To permit sending information (i.e., writing) back and forth, it is necessary to locate a sending and a receiving unit at each end. This operation by itself, still only requires one circuit.

Several companies produce telewriting equipment. A popular unit is VERB[8] produced by Victor Comptometer Corporation. Most units are capable of utilizing transmission equipment similar to that provided by Bell Telephone and others.

Tele-writer can be a valuable asset when it is necessary to portray figures, graphs, etc., to groups. Information concerning community tax problems, marketing reports, rental agreements or family budgeting problems, which represent areas of concern to clientele, could make use of tele-writer if extension should choose audio technology.

Present Technology--Conference Call

Designed after the telephone party-line concept, conference calls are one means of providing audio programs to groups of clientele. Utilizing existing telephone lines, conference call can provide service to anywhere from three through fourteen locations at one time. Used in

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[8]Victor Electronic Remote Blackboard. See Appendix H.

conjunction with tele-writer or some other form of visual aid, conference call can provide an effective method of presenting a wide range of material to groups.

Conference call can best be used to serve those areas where usage is less frequent, of shorter duration, and audiences are relatively small. In such areas, conference call lectures could be located in school classrooms, county or township government offices, etc. Conference call can provide timely, useful information, on a more frequent basis to areas where a dedicated system[9] is not feasible. Use of this method for presenting information to clientele could eliminate some of the travel to sparsely populated, outlying areas. At the same time up-to-date information could still be provided to fulfill their needs.

Bell Telephone has recently introduced a relatively inexpensive portable conference call unit.[10] It is compact in nature measuring twelve inches square and five inches high. It resembles a telephone with an attached speaker. Volume and voice reproduction quality are adequate for accomodating up to fifty people in one room. If occasionally extra capacity is needed, it is possible to use input jacks provided on the unit to plug in additional speakers. Installation requires only a service line if none exists, a plug in jack and additional speakers if required. Maintenance costs are negligible for this system.

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[9]This is a full time or 24 hour private line circuit designed expressly to carry Tele-lecture information.

[10]See Appendix I for cost figures.

This equipment proves a basic means of providing two-way audio communication to smaller groups of extension clientele. Used in conjunction with tele-writer, this system would offer a fair degree of flexibility in terms of presenting information and meeting clientele needs. It is possible to involve resource personnel from other areas of the state or nation. As is true of any equipment considered in this study, conference call cannot completely replace face-to-face contact. The conference call is however, a very basic, relatively inexpensive method of replacing at least a portion of the present travel and face-to-face contact. Although the data in this study indicates a more favorable attitude from both specialist and clientele, the conference call system is a feasible alternative as an initial step or as a budgetary necessity.

Present Technology—Tele-Lecture

Tele-lecture is a two-way, full-time or dedicated,[11] network telephone system. It differs from conference call with respect to the equipment involved, frequency of use and nature of the programming. Since it operates on a full-time basis and is slightly more expensive to operate,[12] larger audiences and frequent use by specialists are needed to obtain economies in operation. It is thus recommended for areas where these requisites would be fulfilled and sustained over time.

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[11] Regular telephone calls are not handled by this system. However, outside phone calls can be connected to it.

[12] See Appendix J for cost figures.

Tele-lecture equipment is more stationary in nature than conference call. It can however, upon installation of special plug jacks, be moved from one location to another. The equipment consists basically of a telephone receiver without a dial, and a small loudspeaker. To speak over the system, one merely lifts the receiver, depresses a button and talks in a normal voice with steady speed. The system utilizes existing telephone lines where available. To eliminate unnecessary installation costs, the handset and speaker are installed where they can be left for further use or immediate access.

This system can also be likened to a larger party line. It is however, once in operation, accessible to anyone at any time who has access to the handset. It requires no special dialing etc. Wisconsin, since the inception of their tele-lecture operations, have experienced rapid growth in user acceptance. The average audience per program is now about 200 people. Total yearly usage has risen to over 80,000 persons. They are able to reach large numbers of people at virtually any hour of the day or night and are able to provide a wide variety of entertaining and educational experiences.[13] A main advantage over conference call is the ability to reach larger audiences in a greater number of geographic locations. Although clientele surveyed for this study indicate a more positive feeling with regard to television or visual media, they did choose lecture with slides as the present method used by S.E.S. as the most educational. Armed with this finding plus the results

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[13]See Appendix K.

indicated in the Ewbank-Baker study[14] concerning audience reaction to live lecture vs. tele-lecture, it is not unreasonable to assume that this type of system would not be successful in Michigan. The system offers educational programming possibilities beyond those presently offered by extension. Such a system could cover a wider spectrum of educational material, provide a more in-depth and timely analysis of current problems and events, plus draw from a wider variety of resources. Present methods and instructional aids could be eliminated or where necessary, used only as supplements.

At the same time, the Wisconsin experience has demonstrated by actual empirical evidence, that the necessity for travel and time spent in meeting clientele is greatly reduced. Their (Wisconsin's) system has allowed doctors to consult with outlying areas of the state during emergency cases. New medical practices and procedures are also discussed by medical personnel throughout Wisconsin. Many of these same educational opportunities are available for civic groups and organizations.

The nature of programs presented over tele-lecture vary from formal seminars to current market news. Similar programming is highly feasible in Michigan. Clientele needs are diverse and even though needs can be categorized, there still exists a necessity of discussing a wide array of topics.

Tele-lecture is flexible with regard to use and compatability with other electronic equipment. It is very compatable with many of the instructional aids presently used by S.E.S. (i.e., slides, transparencies, etc.). It may also be complementary to television transmission

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[14] Chapter Three, Ibid.

where immediate feedback is desired.

Tele-lecture offers possible cost-sharing benefits between various agencies. Again, Wisconsin serves as a prime example. Users are expected to pay cost of usage fees covering equipment and line rental.[15] Any additional expenses incurred by extension is also charged to the user.

Michigan State University's new medical facility is also currently involved with investigating the use of various media for use in contact or instruction with other medical schools and physicians. Herin lies an excellent opportunity for extension to develop a cost-sharing base of operations with another department. The Wisconsin system has proven very adaptable to the needs of the medical profession. This and other possible hopes for cost-sharing, should be explored fully by extension. Civic clubs and organizations offer excellent areas for possible exploration. Governmental and other educational institutions or departments are also potential users and supporters.

The tele-lecture is a rather inexpensive means of reaching a large number of people. It can utilize existing transmission wires and microwave facilities. Opportunity for use of supplemental instructional aids is highly feasible. The system has empirical evidence to support its educational potential. Cost-sharing arrangements with state, county or local public and private agencies is highly possible. Use of such a system should be explored as a means of implementing "a" basic form of communication for promoting extension programs.

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[15]Chapter Three, Ibid.

SCA - FM Multiplexing

SCA, stands for Subsidary Communications Authorization. It is an FM (sub) channel or subcarrier in addition to primary FM broadcast services. Basically, the additional channel is multiplexed or "piggy-backed" with a normal FM frequency. This signal cannot be picked up by normal receivers. Special receiving equipment is necessary to separate the two signals. These special SCA signals can be used for voice transmission or specialized data transmission (i.e., tele-writer).

SCA is basically a one-way service. It provides a high quality audio signal. Since SCA is one-way (i.e., no feedback provisions), it has limited use for group situations as they are being studied here. SCA's importance lies in providing such services as up-to-date information on weather, marketing or other subject areas where interaction may not be necessary. It differs from present methods of disseminating information (i.e., radio or TV programs) in that SCA can offer a more factual, in-depth analysis of current situations than is normally provided over other broadcast, public media. This is primarily due to the increased amount of time which is available for the discussion of a single topic without interruption.

Visual Communications

Transmission of video signals are handled by two basic systems; closed circuit (cable) and open circuit (broadcast) channels. Closed circuit TV or community antenna TV systems share a common technical feature in that picture and sound signals are conveyed by wire transmission lines or coaxial cable to the viewers TV set. CATV in particular, is

generally inadequate for mass direct reception. It requires receivers and amplifiers. CCTV is generally utilized for education purposes at colleges and universtities.[16]

A more flexible and feasible method of transmission is microwave relay. This is often referred to as a common carrier. Microwave is defined as radio waves above UHF frequencies and are of very short wave length acting almost like light waves. This relay system is capable of transmitting video and audio signals by using highly directional relays at a distance typically near thirty miles. Bell Telephone Company makes extensive use of microwave facilities on both a national, regional and local basis, to transmit signals both inter and intrastate.[17]

No matter what method of transmission may be chosen, there still remains to be considered the additional cost of studio, equipment, technicians, etc. In areas where such facilities are not presently available, they must be provided. This is a costly undertaking. It does not appear possible that extension would be able to finance a total statewide communications system using solely visual transmission. It would be possible however, to take advantage of existing facilities. Use of WMSB-TV at Michigan State or the new channel 23 for MSU in conjunction with stations such as Bay City channel 19, Mt. Pleasant channel 14 or Detroit channel 56, could provide video transmission to metropolitan areas. By utilizing and linking existing networks, automatic cost-sharing benefits and economic advantages can be achieved. For

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[16] See Appendix L for further information and cost details.

[17] Stamm, Anthony, op cit.

instance, each station would handle its own equipment and personnel costs yet would be able to draw on programs and educational opportunities at the other locations. This could allow a wider area of total video-type transmission. Cost of line rental or microwave facilities, could be a shared fixed cost paid either by users on a time-period basis or shared jointly by all stations.

Clientele and S.E.S. alike, indicated a more positive feeling with regard to visual communications which provide for two-way channel. This was preferred over a similar system offering only audio presentations. Communication specialists would also argue that the visual media offer a much more complete perception of the source and message.

Television is an adaptable, flexible medium. Perhaps it would be feasible if some form of cooperation between existing facilities were arranged. Use of television would again open a wider range of programming possibilities. This media when provided with a feedback capability, constitutes a vast improvement over bulletins, newspaper articles, one-way radio and TV programs and other media presently used by S.E.S.

Future Technology - Picture-Phone

A convenient and compact form of communication technology is the Picture-Phone. This is a device to transmit both audio and visual signals of sender and receiver simultaneously. This equipment, when put on the market, will offer the most complete and flexible single unit yet devised. It is a compact unit which will offer audio-visual services directly to clientele homes and offices. Bell laboratories, in conjunction with Western Electric Company, have developed and refined this unit.

The Model II Picture-Phone,[18] is much more sophisticated compared with the original test sets. "With the Model II Picture-Phone set, the user can change the size of the field of view to close-up or wide-angle by "zooming" electronically, display drawings and printed matter, move more freely from side to side while remaining 'on camera,' and change the camera focus to transmit larger scenes up to twenty feet away." These developments are important because a wider range of instructional aids can be presented with the lecture and more vividly illustrated. The audience would in turn find such a presentation of material more understandable thus increasing satisfaction and educational benefit.

The compactness of the Picture-Phone unit may be ascertained from the following description:

> The Picture-Phone station set is comprised of a display unit, a control unit, and a service unit. A standard Touch-Tone telephone set equipped with a 12 button dial is used for dialing and for providing regular telephone service. The compact control unit contains four knobs and four push-buttons, and can be placed in a convenient position in front of the Picture-Phone display unit. One knob electronically adjusts the height of the center of the camera's field of view. Another knob regulates the camera's electronic zoom, a third controls the brightness of the displayed image, and a fourth knob is the volume control for the speaker phone. The microphone for the speaker phone is also contained in the control unit.

From a technical viewpoint, picture phone is compatable with such systems as tel-plan or other dial access computer systems due to the normal phone service offered with Picture-Phone. This would allow a farmer to pick up the phone, press the appropriate buttons and reach the computer to ask specific questions concerning his operation. Utilizing the conference call concept, Picture-Phone can allow for a

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[18]Bell Telephone Laboratories, News Release - New Picture Phone Set Zooms and Shows Graphics, Murray Hill, New Jersey, December 1967.

highly selective segmentation of the clientele market by presenting a complete audio and visual program to only those interested or enrolled. The program would be received within the confines of the clientele's home. The cost of the program could be shared by all participants and could be included on their normal monthly telephone bill.

Picture-Phone ties together into one package, the advantages of audio and visual transmission. It would eliminate the need for special transmitting and receiving facilities. It offers flexibility with regard to the number and type of programs to be presented. It can be highly selective in terms of fulfilling clientele needs. The problem of system integrity or security could for the most part, be eliminated. This means that everyone would be registered when they dial and thus would pay their share. This eliminates the "free rider" problem often encountered with other systems (i.e., tele-lecture).

Beyond Picture-Phone little is being done in the way of research on new technology. One Bell official stated that, "probably after Picture-Phone is put on the market we expect only improvements and modifications utilizing basically the same concept."

The Advantages of Technology

The technology discussed in this chapter could have a great affect on S.E.S. and extension in general. Its use would reduce the amount of necessary travel and meeting time, eliminate the necessity of repeating speeches or workshops and would thus allow the S.E.S. more time for other extension activities (i.e., research). Wisconsin's

experience with their EIN-SCA[19] offers empirical and substantial evidence that application of modern technology does create more time for related job activities.

The cost of many phases of the technology could be spread by actively recruiting outside agency participation and use. A highly flexible means of providing information to a larger portion of the population could be attained for a relatively low cost per user. Looking at the expectations for legislative scrutiny of budgets, rising travel costs, additional manpower requirements, university unionization plus increasing clientele demand for involvement and information, extension should look seriously at the effects these will have on future planning and achievement. Data in this study indicate and support the hypothesis that use of modern technology would allow S.E.S. to participate as effectively with clientele groups with respect to information exchange. The Wisconsin experience, Ewbank and Baker study plus the experiment at Vincennes, Indiana, all point to the conclusion that such forms would provide educational material to clientele without a serious decline in effectiveness. The Vincennes experiment especially, provides more recent evidence of successful utilization of modern media facilities and two-way feedback.

Extension is currently experiencing a problem with public image. Personal contact is not the only means of promoting good public relations. The strength and versatility of other state extension organizations where modern technology are being used, attest to this fact. By utilizing modern

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[19] EIN-SCA Chapter Three, Ibid.

communications as discussed in this study, extension in Michigan stands to gain in many ways. S.E.S. efficiency can be improved, extension could further its own public image while simultaneously developing close working relationships with other agencies. Furthermore, by reducing travel, reducing the need for large increases in personnel and budgets, by taking advantage of possible cost-sharing benefits with other agencies, it would be possible to operate within tighter budget constraints which are now only threatening extension operation and programs.

Extension must learn to operate within the limits of modern society and yet help that society grow. Use of modern technology is not the complete answer, but it will allow extension to assume a more active role in shaping society and improving our quality of life. It can provide the needed impetus for developing the total system called for in this study. What is needed now is further testing and study of the ideas and recommendations in this study. Some assessment must be made of the actual and potential costs and benefits in terms of extension's use as well as use by other agencies.

CHAPTER SEVEN

SUMMARY AND RECOMMENDATIONS

Summary

This study has utilized secondary and primary data to analyze the possible use of modern communication technology by S.E.S. for the purpose of fulfilling clientele information needs. Primary data was drawn from two questionnaires. One questionnaire was mailed to selected extension clientele throughout Michigan. It was designed primarily to solicit their felt needs for extension information and their opinion concerning present extension programs and personnel.

The second questionnaire was mailed to all State Extension Specialists. This survey was concerned with obtaining a breakdown of the amount of time spent for various job activities (i.e., administrative matters, research, travel, meetings with clientele and other). It also assessed the feelings of S.E.S. toward the use of modern communications equipment for replacing at least a portion of face-to-face contact with clientele.

Secondary data was derived from personal interviews and a variety of articles and publications. They provided substantiating and supportive evidence to the general findings and conclusions.

The demand for extension information was found to be diverse. Sixty-seven categories of demand were isolated. These initial categories were then broken down into ten broad areas. Six of the ten were found

to produce predominant segments of demand for extension information. These six include: (1) Rural Development and Community Resource Planning, (2) Public Affairs and Administration, (3) Agricultural Production and Management, (4) Marketing, (5) Home Economics and Management, and (6) Environmental Quality. Rural and nonrural residents demonstrated only a slight difference in the type of information demanded. Other variables such as education, years associated with extension and feelings about present programs or personnel, had little or no effect on the type and amount of information demanded.

Clientele expressed satisfaction with current extension programs and personnel. A large majority indicated that face-to-face contact with S.E.S. was important. Thirty-eight percent of the clientele sampled however (with 13 percent indicating no opinion), said that some form of audio presentation with immediate feedback, would be an acceptable replacement for face-to-face presentations. And 46.8 percent (with 13.9 percent indicating no opinion), said that some form of visual communication with a two-way channel, would be an acceptable partial replacement for face-to-face presentations. Additionally, if such forms of communications technology were utilized, 50.6 percent of the clientele sampled felt it would not be necessary to meet S.E.S. as often.

State Extension Specialists felt the amount of time being spent for administrative matters, travel, meetings with clientele and other, is about right. They were divided on feelings about research. Nearly 35 percent expressed a desire for more time in research whereas, only 32 percent were satisfied with their present arrangements in this area.

Despite the satisfaction with the amount of time spent for travel and clientele meetings, the data showed that S.E.S. devoting 20-39 hours per week for extension activities, spent an average of 9.4 hours per week for travel and meetings. Those devoting 40 or more hours per week to extension, averaged 12.7 hours per week in travel and meetings with clientele.

Informational talks were the purpose for meeting clientele most frequently listed by S.E.S. Twenty-six to fifty people was the average audience size most often indicated. Seventy percent of the S.E.S. said that speeches and workshops are repeated. The number of times speeches were repeated varied. Three to five repetitions was normal.

Of the S.E.S. responding to the survey, 30 percent felt that radio or a form of telephone communication would be as educational as face-to-face or "live" presentation. Forty-three percent said TV or some form of visual communications would provide an acceptable replacement for a portion of face-to-face contact. A number of the S.E.S. indicated that they didn't know whether such forms of presentation would be as satisfying for them to use. All responses were of course subjective except for those few who have actually used these systems.

Several alternative forms of communication technology capable of being incorporated into a sub-system for the purpose of meeting with clientele groups, were discussed. Audio forms include conference call, tele-lecture and SCA. Both conference call and tele-lecture have certain advantages over the other dependent upon audience size, location and frequency of use. Both can be used in conjunction with tele-writer, a means of transmitting visual information (i.e., charts, graphs, etc.)

electronically or with other visual aids (i.e., slides, transparencies, etc.). SCA was also discussed. It is primarily a one-way system. It can best be utilized to transmit in-depth analysis of pertinent information (i.e., market news and situation analysis).

Visual communications technology is diverse and complex. It is, at the present time, cost prohibitive for sparsely populated areas on a closed circuit basis. However, arrangements utilizing telephone and regular UHF or VHF station facilities (existing) is within the realm of possibility.

Review of Hypotheses

Three hypotheses were presented at the beginning of this study. These hypotheses will be restated and evaluated.

H_1 - Clientele felt needs can be defined and categorized.

Evidence in support of this hypothesis was obtained from the questionnaire mailed to extension clientele. Their needs were defined on the basis of information or material demanded from extension. Initially, sixty-seven areas of demand were outlined. These were then combined into ten broad categories representing significant areas of clientele demand. With the use of segmentation procedures, it was possible to compare and rank the categories. Six areas of predominant demand were delineated. These were: (1) Rural Development and Community Resource Planning, (2) Public Affairs and Administration, (3) Agricultural Production and Management, (4) Marketing, (5) Home Economics and Management and (6) Environmental Quality. Very little difference was indicated between the needs of rural and nonrural respondents.

H_2 - Improved communication technology will increase the Extension Specialist's efficiency by reducing travel time thus increasing time available for other extension activities.

Hypothesis two may be proven in several ways. Efficiency may be measured at three levels. One case is if total inputs decrease while output is held constant. Secondly, inputs may be held constant and output may change. Finally, both input and output may change in which case a cost-benefit analysis would be required.

Evidence from the primary data in this study indicate a substantial portion of the Specialist's work week is spent in travel or clientele meetings. Those spending 20-39 hours per week in extension devote an average of 9.4 hours in travel and meetings. Those spending forty or more hours per week in extension, devote an average of 12.7 hours per week to travel and clientele meetings. These data also indicate that 35 percent of the S.E.S. feel more time should be given to research activities. Secondary data, drawn from interviews and literature, offer empirical evidence that communications systems already in operation have improved Specialist efficiency (i.e., Wisconsin). Effieicncy is improved because it takes less time to meet with a larger number of people thus, freeing the specialist for performance of other job related activities such as research. The specialist is also able to reduce the need for repeating a speech or workshop through coordinated planning and announcements. This further reduces the need for travel. This is accomplished while improving the quality of output and reducing costs overall.

H_3 - Improved communications technology will allow State Extension Specialists to participate as effectively with clientele groups with respect to information exchange as would face-to-face contact.

This hypothesis was supported by secondary data plus the opinions of specialists and clientele toward the use of such technology. A study by Ewbank and Baker, especially demonstrates the ability of modern technology to fulfill educational needs of clientele. In their conclusion they state, that "when the speakers behavioral objective is to provide new information to an audience, there may be little reason to choose a 'live' or traditional lecture."

Thirty-eight percent of the clientele in this study said they would find some form of audio transmission as educational as face-to-face (13 percent held no opinion). And 46.8 percent said some form of visual communication would be as educational (13.9 percent held no opinion).

S.E.S. also demonstrated a feeling that use of modern technology would be almost as effective (even before experiencing its use). Thirty percent said an audio form of transmission would be as educational as face-to-face (30 percent indicated they didn't know). Whereas, 43.3 percent felt visual communications would be as informative (30 percent held no opinion).

Recommendations

Introduction

The recommendations offered here call for suggested changes and areas for further research. They recognize the necessity for further planning, research and decision-making on the part of extension.

The many problems of implementation are borne in mind while making these suggestions. The author only hopes that change, while slow in occurring, will be in time to avert the problems mentioned at the beginning of this study.

Organizational Structure

The present organizational framework of extension should be reevaluated with regard to overall operations and efficiency in its' communications. It is felt that much could be accomplished by implementing the use of modern communications technology as soon as possible.

The role of the S.E.S. and county extension personnel should be examined in light of the findings reported in this study. Use of modern technology could free some of the time spent by S.E.S. on travel and meetings for other activities.

This study is not advocating the complete replacement of face-to-face contact by S.E.S. It does however, recommend the development and use of electronic communications to fulfill extension's purpose and meeting clientele demands. Such systems can extend both manpower and money.

Sub-System Development

Development of a total communication system or model is highly recommended. Careful consideration must be given to the type and amount of equipment necessary to develop a flexible yet effective communications network. A network for group communications and information must be compatable with the sub-system being developed for individual, more complex problems. In light of these requirements it is recommended

that further studies be conducted concerning cost and benefit of proposed alternative systems as well as their compatability in terms of developing a total system.

These studies should be technical and precise in nature. Equipment costs must be weighted against coverage, usage, longer-run feasibility etc.

Policy and Implementation

It is recommended that further study be conducted to determine policy alternatives and to shed light on difficulties in implementing such a system (i.e., legislative appropriations, other agency involvement, etc.). Every effort should be taken to eliminate possible difficulties in operation and maintenance of the system. Also, every avenue of outside agency involvement for cost-sharing benefits should be explored.

Post-Implementation Effects

Studies designed to measure changes in clientele needs and attitudes should be conducted. It is also recommended that some measure of the systems effectiveness in meeting its stated goals be designed and tested.

A great deal of scientific knowledge could be obtained from the study of possible effects of using a system involving modern electronic technology to replace a portion of face-to-face contact with clientele. At the present time information concerning these effects are limited.

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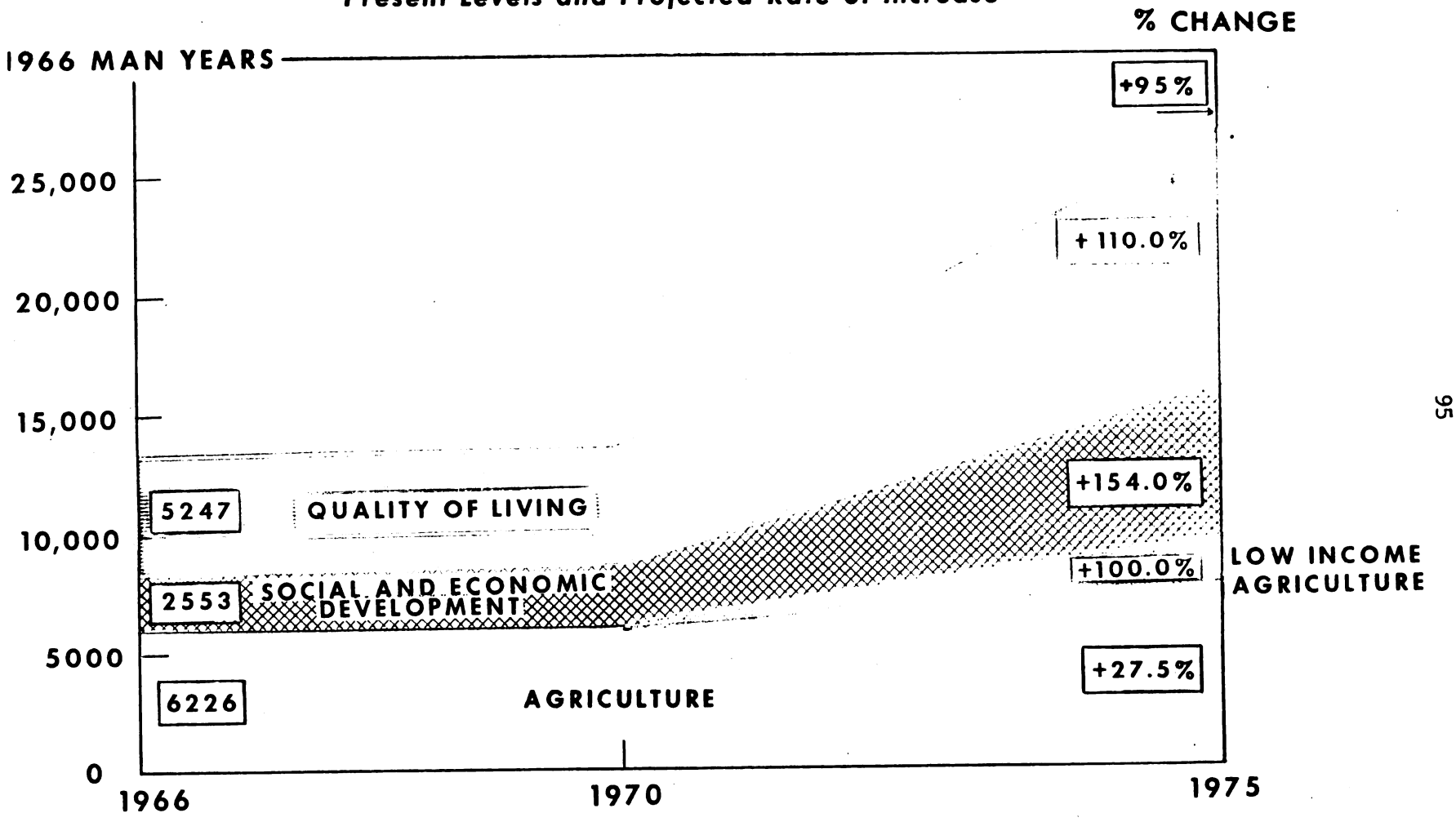
APPENDIX A

STAFFING FOR THE JOB AHEAD

Present Levels and Projected Rate of Increase



APPENDIX B

Staff and Budget Trends
1960-61 to 1970-71

	Total Staff	State Funds	Federal Funds	FNP Funds	Total State-Federal Funds
1960-61	413	$2,321,443	$1,700,020		$4,021,463
1961-62	410	2,321,443	1,780,396		4,101,839
1962-63	407	2,377,312	1,900,888		4,278,200
1963-64	409	2,296,481	2,016,494		4,312,975
1964-65	407	2,534,269	2,093,977		4,628,246
1965-66	374.3	2,534,000	2,181,836		4,715,836
1966-67	384.6	3,166,394	2,387,427		5,553,821
1967-68	394	3,283,394	2,358,130		5,641,524
1968-69	400.9	3.645,523	2,438,621	297,600	6,381,744
1969-70	411.3	4,049,231	2,545,211	850,254	7,444,696
1970-71	421.6	4,541,620	2,682,811*	1,445,670	8,670,101

*Estimated

APPENDIX C

COOPERATIVE EXTENSION SERVICE

MICHIGAN STATE UNIVERSITY • EAST LANSING • MICHIGAN 48823

AND U.S. DEPARTMENT OF AGRICULTURE COOPERATING

Agricultural Economics
Agriculture Hall

Dear Extension Specialist:

This questionnaire will serve as a basis for comparison in designing a new communications system utilizing newer, more advanced technology to communicate with extension's clientele. Since extension operates to communicate and educate its clientele, some measure of the effectiveness in these areas is needed.

Your cooperation by filling out and returning the enclosed questionnaire will contribute a great deal to this research effort. This questionnaire, along with one being sent to selected extension clientele, will constitute the primary source of data for this research. The questionnaire attempts to determine how the time of the extension specialist can be better utilized when dealing with clientele. It also tries to assess some of the basic methods utilized in communicating with clientele.

Your time and cooperation are appreciated. Any comments, criticisms, or suggestions are welcomed.

Thank you.

Sincerely,

Paul E. Kindinger
Graduate Assistant

David L. Cole
Assistant Professor
Extension Specialist
Agricultural Economics

PEK/DLC/cm

Enclosure

CONFIDENTIAL

Return to: Mr. Paul Kindinger
Department of Agricultural Economics
Michigan State University
East Lansing, Michigan 48823

Most of the items in this questionnaire are designed so that all you need to do is place a check beside the most appropriate answer or answers. Only a few questions ask for short responses.

1. Age: _____

2. Number of years in Extension: _____

3. What is your specialized area or discipline?

_____

4. What is your rank or title?

_____ (a) Professor

_____ (b) Associate Professor

_____ (c) Assistant Professor

_____ (d) Instructor

_____ (e) Other (please specify):

_____

5. How many hours per week are devoted to Extension?

_____ hours per week

6. Of the time devoted to Extension, how many hours per week are spent for:

_____ (a) Administrative matters

_____ (b) Research

_____ (c) Travel

_____ (d) Meetings with Extension clientele

_____ (e) Other (please specify):

_____

7. Do you feel the time devoted to the above activities is:

	(1) Too much	(2) About right	(3) Not enough
(a) Administrative	_____	_____	_____
(b) Research	_____	_____	_____
(c) Travel	_____	_____	_____
(d) Meetings	_____	_____	_____
(e) Other	_____	_____	_____

8. When do the majority of your meetings with clientele occur?

_____ (a) During the normal working day (8 a.m. through 5 p.m.)

_____ (b) At night

_____ (c) On weekends

9. During the academic year (Sept. 15 to June 15) approximately how much driving (or travel) per week do you do in connection with meeting with Extension clientele?

_____ (a) Number of miles

_____ (b) Number of hours

10. During the summer (June 16 to Sept. 14) how much driving (or travel) do you do in connection with meeting with Extension clientele per week?

_____ (a) Number of miles

_____ (b) Number of hours

11. For what purposes do you most often travel to meet with Extension clientele? Please indicate in order of importance; e.g., 1, 2, 3.

_____ (a) Committee meetings

_____ (b) Informational talks

_____ (c) Luncheon or dinner speeches

_____ (d) To meet with an individual

_____ (e) To meet with business executives concerning corporate problems

_____ (f) To meet only with community leaders or government officials

_____ (g) Other (please specify):

12. When you have a meeting with Extension clientele, how many hours (approximate average) do you spend in:

_____ (a) Background and preparation

_____ (b) Travel

_____ (c) Actual delivery or contact

13. Approximately how many people (on the average) are reached per meeting or contact?

_____ (a) 1 - 5

_____ (b) 6 - 10

_____ (c) 11 - 25

_____ (d) 26 - 50

_____ (e) 51 - 75

_____ (f) 76 - 100

_____ (g) over 100

14. Do you often repeat a speech or workshop in different areas of the state?

_____ (a) Yes

_____ (b) No

15. If you do repeat a speech or workshop, how often is it normally repeated?

_____

16. How often do you use instructional aids?

_____ (a) All of the time

_____ (b) Frequently

_____ (c) Sometimes

_____ (d) Very seldom

_____ (e) Never

17. If you use instructional aids, what kinds of instructional aids do you use?

_____ (a) Transparencies

_____ (b) Slides

_____ (c) Charts, graphs, etc.

_____ (d) Films

_____ (d) Films

_____ (e) Tape recordings

_____ (f) Programmed texts

_____ (g) Other (please specify):

_____

18. Have you ever used any kind of telephone lecture system with two-way communications to several areas at once?

_____ (a) Yes

_____ (b) No

19. Have you ever used a television or video tape system with two-way communications with Extension clientele in several areas at once?

_____ (a) Yes

_____ (b) No

20. If you have used any of the systems mentioned in question 18 or 19, please comment on whether or not you like such systems and whether or not you feel they are as good or as effective as personal contact.

_____

_____

_____

21. Would you feel as <u>happy or satisfied</u> with a Radio or taped presentation that provided immediate feedback as you would with face to face contact?

_____ (a) Yes

_____ (b) Don't know

_____ (c) No

22. Would you feel as happy or satisfied with a television or video tape presentation that provided immediate feedback as you would with face to face contact?

_____ (a) Yes

_____ (b) Don't know

_____ (c) No

23. Would you feel that a Radio or taped presentation that provided immediate feedback could be as informative or educational as a personal, face to face presentation?

_____ (a) Yes

_____ (b) Don't know

_____ (c) No

24. Would you feel a television or video tape presentation that provided immediate feedback could be as informative or educational as a personal face to face presentation?

_____ (a) Yes

_____ (b) Don't know

_____ (c) No

25. With what type of person do you most often communicate when meeting with groups of Extension clientele?

_____ (a) County extension personnel

_____ (b) Community leaders

_____ (c) Farmers

_____ (d) Others (please specify):

_____

26. What do you feel could be done to improve upon or to facilitate the method of communicating with groups of Extension clientele? (please comment)

_____

_____

_____

_____

27. Would you recommend your job to a friend or colleague?

_____ (a) Yes

_____ (b) No

Why?_____

_____

_____

_____

APPENDIX D

COOPERATIVE EXTENSION SERVICE

MICHIGAN STATE UNIVERSITY • EAST LANSING • MICHIGAN 48823

Agricultural Economics
Agriculture Hall

AND U.S. DEPARTMENT OF AGRICULTURE COOPERATING

August 6, 1971

Dear Kellogg Farmer Study Program Participant:

This questionnaire is part of a research effort currently underway at Michigan State University. Its main purpose is to find out what types of information you would like to have or feel is necessary that can be provided by the Cooperative Extension Service.

A main source of information for this research is this questionnaire. Your cooperation in filling out this questionnaire and returning it will be greatly appreciated.

Most of the questions are designed so that all you need to do is check beside the most appropriate answer or answers. There are no right or wrong answers. Respond in the manner you feel is most appropriate. The information will be handled in a strictly confidential manner.

Thank you.

Sincerely,

Paul E. Kindinger
Graduate Assistant

David L. Cole
Assistant Professor
Extension Specialist
Agricultural Economics

COOPERATIVE EXTENSION SERVICE

MICHIGAN STATE UNIVERSITY • EAST LANSING • MICHIGAN 48823

Agricultural Economics
Agriculture Hall

AND U.S. DEPARTMENT OF AGRICULTURE COOPERATING

August 6, 1971

Dear New Horizon Participant:

This questionnaire is part of a research effort currently underway at Michigan State University. Its main purpose is to find out what types of information you would like to have or feel is necessary that can be provided by the Cooperative Extension Service.

A main source of information for this research is this questionnaire. Your cooperation in filling out this questionnaire and returning it will be greatly appreciated.

Most of the questions are designed so that all you need to do is check beside the most appropriate answer or answers. There are no right or wrong answers. Respond in the manner you feel is most appropriate. The information will be handled in a strictly confidential manner.

Thank you.

Sincerely,

Paul E. Kindinger
Graduate Assistant

David L. Cole
Assistant Professor
Extension Specialist
Agricultural Economics

CONFIDENTIAL

Return to:
Mr. Paul Kindinger
Department of Agricultural Economics
203 Cook Hall M.S.U.
East Lansing, Michigan 48823

Most of the questions are designed so that all you need to do is place a check beside the most appropriate answer or answers. Respond in the manner you feel is most appropriate.

1. In what county do you reside?

_____

2. Do you live in:

_____ (a) The country

_____ (b) A village (less than 2,500 people)

_____ (c) Town (2,500 to 9,999)

_____ (d) City (10,000 to 49,999)

_____ (e) Large City (Over 50,000)

3. What is your highest level of education?

_____ (a) Grade 8 or less

_____ (b) Attended High school but didn't complete

_____ (c) High school graduate

_____ (d) Attended college but didn't graduate

_____ (e) Short course graduate;

_____ specify type

_____ specify length

_____ (f) College graduate (4 Yr.)

_____ (g) Professional (please specify):

_____

4. How long have you been associated with people in Cooperative Extension? (Indicate years or fractions of years)

_____

5. What is your opinion of the people you have been associated with from Cooperative Extension?

_____ (a) Very satisfied

_____ (b) Satisfied

_____ (c) No opinion

_____ (d) Dissatisfied

_____ (e) Very dissatisfied

6. What is your opinion of the quality of information provided by those persons?

_____ (a) Very satisfied

_____ (b) Satisfied

_____ (c) No opinion

_____ (d) Dissatisfied

_____ (e) Very dissatisfied

7. What type of person in extension have you dealt with primarily?

_____ (a) County extension personnel

_____ (b) District extension personnel

_____ (c) State extension personnel from Lansing

_____ (d) Other (please specify:)

_____

8. Please list any kind of information, material or subject matter that you feel would be most beneficial to you or the people in your community. Feel free to list as many as you want. (Some examples would be - material on zoning, child care, tax laws, environmental quality, farming methods, marketing livestock or crops, gardening, consumer information, etc., etc.)

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

*** Please list any and all areas that you feel would be beneficial or informational whether or not it is presently provided by Extension.

9. What methods of presentation that extension people have used do you find most educational?

_____ (a) Lecture

_____ (b) Lecture with slides

_____ (c) Pamphlets or brochures

_____ (d) Radio Programs

_____ (e) Television programs

_____ (f) Panel discussions

_____ (g) Magazine articles

_____ (h) Other (please specify):

_____

10. Can you think of some method or combination of methods for communicating ideas and information that you feel might be better than the ones presently being used? (please comment);

_____

_____

_____

_____

11. How important to you is it to have face-to-face or personal contact with State Extension Personnel?

_____ (a) Very important

_____ (b) Important

_____ (c) No opinion

_____ (d) Not important

_____ (e) Not needed at all

12. Would you feel as satisfied or happy if you could listen to a speaker over Radio or Telephone Lecture and were able to communicate and ask questions as the presentation was being given as compared to a live or face-to-face lecture type situation where the speaker is in the room with you?

_____ (a) Very satisfied

_____ (b) About as happy as if the speaker were face-to-face

_____ (c) No opinion

_____ (d) Dissatisfied - would prefer face-to-face contact

_____ (e) Very dissatisfied - would not like it at all

13. Would you feel as satisfied or happy if you could listen to and watch a speaker over Television or Video Tape and were able to communicate and ask questions as the presentation was being given as compared to a live or face-to-face lecture type situation where the speaker is in the room with you?

_____ (a) Very satisfied

_____ (b) About as happy as if the speaker were face-to-face

_____ (c) No opinion

_____ (d) Dissatisfied - would prefer face-to-face contact

_____ (e) Very dissatisfied - would not like it at all

14. How often do you presently meet with State Extension Personnel from Lansing during a twelve month period? (please indicate the number of times).

_____

15. How often do you feel <u>personal</u> contact with State Extension Personnel is desirable?

_____ (a) Once a year

_____ (b) Once every 6 months

_____ (c) Once every 3 months

_____ (d) Once per month

_____ (e) More frequently than once per month

16. If information were presented to you by State Extension Personnel over Radio or Television with provisions for two-way communications, do you feel that it would be necessary to meet as often with them on a personal basis?

_____ (a) Yes

_____ (b) Don't know

_____ (c) No

17. Do you have any further recommendations for making improvements in the Cooperative Extension Service? (please comment):

_____

_____

_____

_____

_____

_____

...ERATIVE EX...

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August 27,

REMINDER

Recently y...
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If you hav...
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Very truly...

David L. ...
Extension ...
in Agricu...

COOPERATIVE EXTENSION SERVICE

MICHIGAN STATE UNIVERSITY • EAST LANSING • MICHIGAN 48823

AND U.S. DEPARTMENT OF AGRICULTURE COOPERATING

Agricultural Economics
Agriculture Hall

August 27, 1971

REMINDER

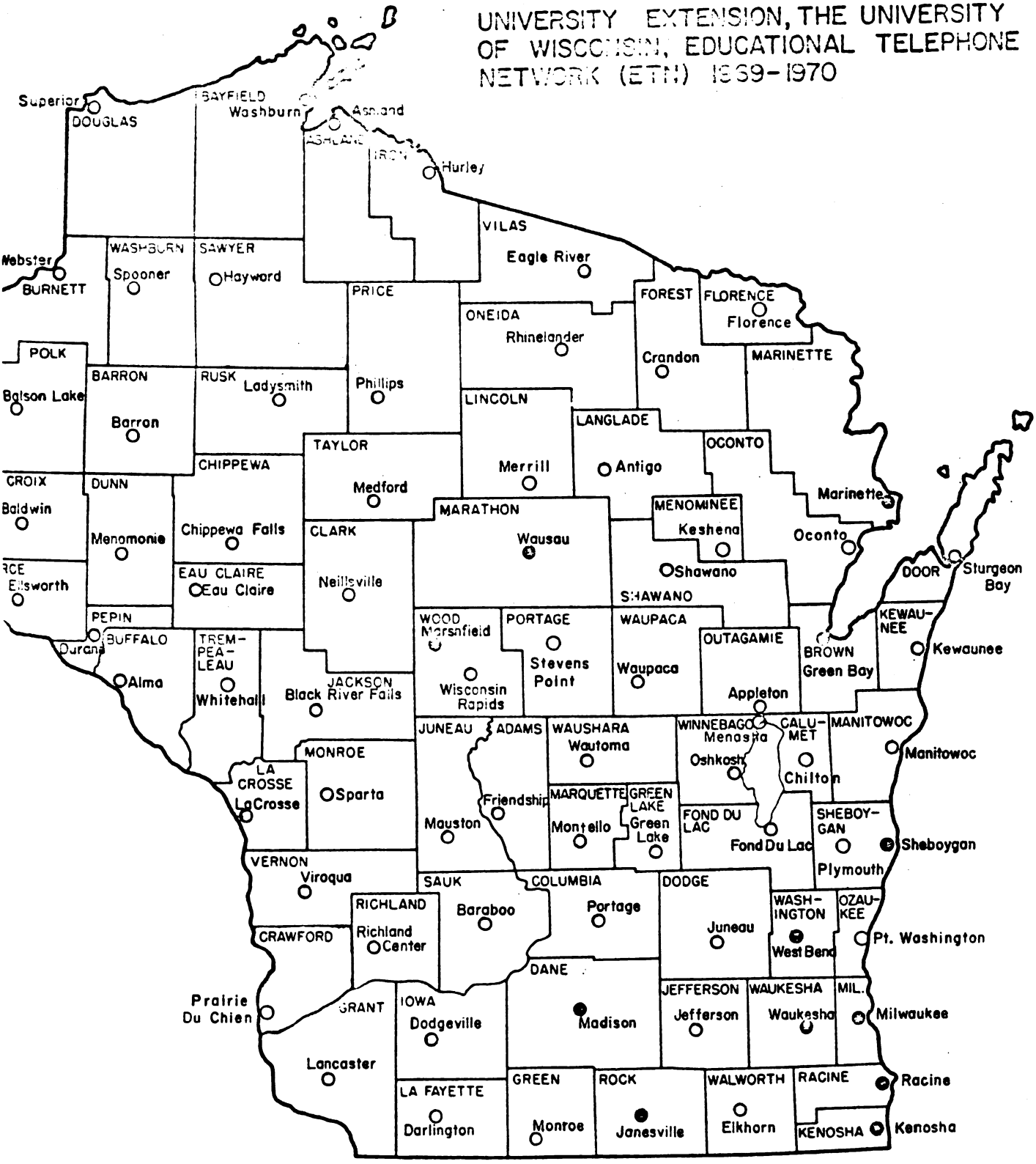
Recently you received a questionnaire concerning the Michigan State University Cooperative Extension communication system. This note is just to remind you of the importance of this questionnaire and your information input.

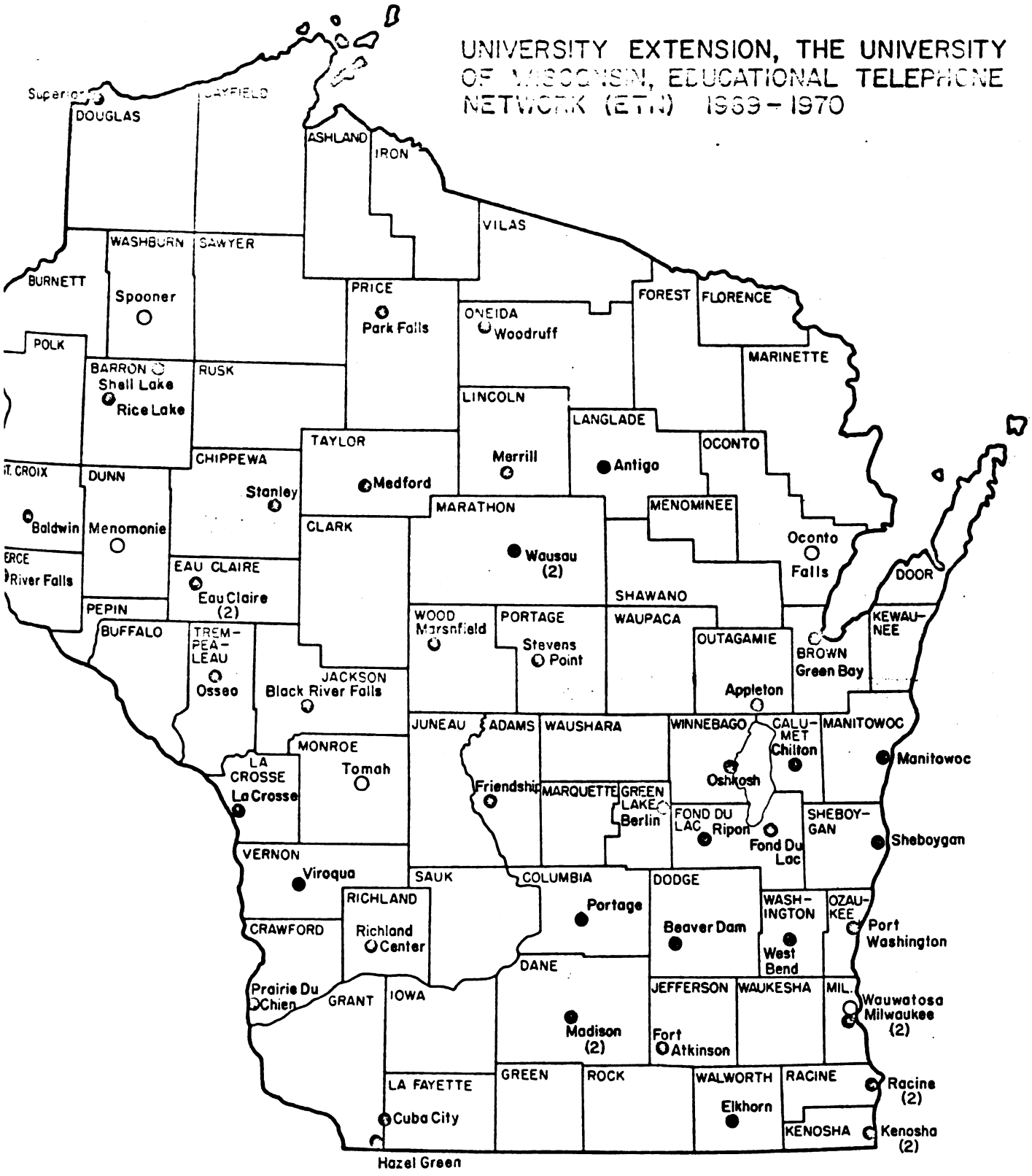
If you have not already returned it, we would like to urge you to do so. Again, thank you for your time and cooperation with this study.

Very truly yours,

David L. Cole
Extension Specialist
in Agricultural Economics

APPENDIX E


UNIVERSITY EXTENSION, THE UNIVERSITY OF WISCONSIN, EDUCATIONAL TELEPHONE NETWORK (ETN) 1969-1970
Superior
DOUGLAS
BAYFIELD
Washburn
Ashland
ASHLAND
IRON
Hurley
VILAS
Eagle River
Webster
BURNETT
WASHBURN
Spooner
SAWYER
Hayward
PRICE
Phillips
ONEIDA
Rhinelander
FOREST
Crandon
FLORENCE
Florence
MARINETTE
POLK
Balsam Lake
BARRON
Barron
RUSK
Ladysmith
LINCOLN
Merrill
LANGLADE
Antigo
OCONTO
Oconto
Marinette
TAYLOR
Medford
CHIPPEWA
Chippewa Falls
CROIX
Baldwin
DUNN
Menomonie
CLARK
Neillsville
MARATHON
Wausau
MENOMINEE
Keshena
SHAWANO
Shawano
DOOR
Sturgeon Bay
RCE
Ellsworth
EAU CLAIRE
Eau Claire
PEPIN
Durand
BUFFALO
Alma
TREMPEALEAU
Whitehall
JACKSON
Black River Falls
WOOD
Marshfield
Wisconsin Rapids
PORTAGE
Stevens Point
WAUPACA
Waupaca
OUTAGAMIE
Appleton
BROWN
Green Bay
KEWAUNEE
Kewaunee
JUNEAU
ADAMS
Friendship
Mauston
WAUSHARA
Wautoma
WINNEBAGO
Menasha
Oshkosh
CALUMET
Chilton
MANITOWOC
Manitowoc
MONROE
Sparta
LA CROSSE
LaCrosse
MARQUETTE
Montello
GREEN LAKE
Green Lake
FOND DU LAC
Fond Du Lac
SHEBOYGAN
Sheboygan
Plymouth
VERNON
Viroqua
SAUK
Baraboo
COLUMBIA
Portage
DODGE
Juneau
WASHINGTON
West Bend
OZAUKEE
Pt. Washington
RICHLAND
Richland Center
CRAWFORD
DANE
Madison
Prairie Du Chien
GRANT
IOWA
Dodgeville
Lancaster
JEFFERSON
Jefferson
WAUKESHA
Waukesha
MIL.
Milwaukee
LA FAYETTE
Darlington
GREEN
Monroe
ROCK
Janesville
WALWORTH
Elkhorn
RACINE
Racine
KENOSHA
Kenosha
● ETN UW CENTER LOCATIONS
○ ETN COUNTY LOCATIONS



● ETN HOSPITAL LOCATIONS

APPENDIX F

S.E.S. Specialized Areas

1. Vegetable Crops
2. Soils
3. Crops
4. Dairy
5. Animal Husbandry
6. Ag. Engineering
7. Horticulture
8. Food Processing and Nutrition
9. Poultry
10. Home Economics
11. Extension Research Editor
12. Fruit Crops
13. Marketing
14. General Agriculture
15. Vet Medicine
16. Adult Education
17. Manpower Training
18. Family Housing
19. Public Policy
20. Farm Management
21. Nematology
22. Landscape Architecture
23. Plant Pathology
24. Administration
25. Entimology
26. Forestry
27. Agricultural Economics
28. 4-H Youth
29. Fur Bearing Animals
30. Family Living
31. Tourism and Recreation

APPENDIX G

An estimate of the cost for providing additional extension specialists under the recommendations of "A People and a Spirit" based on past budget figures and estimates.

Travel Expenses for Resident S.E.S. (Fiscal Year 1970-71)

Instate Travel* $244,289.76

*Figure includes only S.E.S. It includes lodging, meals and mileage. Excluded are figures for travel in home community, outstate, and transportation only. These categories are minimal and are not in line with the major thrust of this study.

Average cost of instate travel per State Extension Specialist (based on 135 specialists as of 1 July 1971) is: $1823.05.

Salary Expenses for S.E.S. (Fiscal Year 1970-71)

Specialists only* $1,788,000.00

*This figure is the budgeted amount actual spending may be slightly less.

Average Salary for Specialists (based on 135 specialists as of 1 July 1971) is: $12,503.

This means that the average expenditure for salary and travel per year/per specialist is $14,326.05. The USDA-NASULGC report "A People and a Spirit" estimate that an average increase of 95 percent in personnel to meet recommended program requirements by 1975. For Michigan this means approximately 15 new specialists must be added each year to meet this prediction. This would require an additional $214,891.00 per year for salaries and travel alone, based on present figures.

APPENDIX H

Name	Manufacturer	Description	Bandwidth	Cost
Blackboard by* Wire	General Telephone and Electronics	Audio Circuit (two-way) to as many as six locations. Video display at receiving points of material written on special pad. May be connected accoustically to two ordinary telephones, one for audio and one for video.	Two telephone lines (3 kilocycles each).	Video transmitter $2,000. Video receiver $4,000. Audio units $500. (A speaker may be used instead).
Magnafax*	Xerox	Facsimile transmitter and receiver may be connected accoustically to an ordinary telephone.	"Telephone line" (3 kilocycles)	$35.00 per mo. plus 2-1/2¢ per minute (to $15 per mo.
Victor Electronic Remote Blackboard	Victor Comtometer Corporation	May send material to several areas at one time. Video display via transmitter and special receiver over an overhead projector. The receiver unit uses a special density paper and acetate etching ink for reproduction. Basically one-way. Simultaneous voice transmission requires an additional telephone line.	Regular telephone line. (3 kilocycles)	Transmitter/$1,000 Receiver/$1,530. Projector/$610.

APPENDIX I

Conference call basically, involves the cost of a long distance telephone call. The charge is determined by the length of the call plus the distance (in airline miles) from the originator. Each location is figured as a separate call. The table below demonstrates the rate schedule used by Bell Telephone (*) in computing the charge for each separate call:

Number of Miles	Cost Per Minute
0 - 20	5¢
21 - 25	10¢
26 - 30	15¢
31 - 50	20¢
51 - 100	25¢
101 - 200	30¢
over 200	35¢

For instance, the distance to Grand Rapids (in airline miles) from East Lansing, is 59 miles. The rate per minute would thus be 25¢. For a one-hour conference call the charge would be $14.75.

All conference calls must be handled through an operator allowing the lines to be interconnected.

Portable Conference Unit

When communication to groups of two or more people is desired at any one location, it is necessary to rent a unit such as the Bell 50-A portable conference set be plugged directly into existing loudspeaker systems. There are charges in addition to the actual call associated with this equipment. The following table lists some of the possible costs:

Charge	Description
$10.00/per month	Rental fee for each 50-A unit.
$50.00	Installation charge for each unit (Usually a one time charge if a unit is kept in operation)
$8.80/per jack	Wall-jack installation (this allows the conference unit to be moved from room-to-room etc. thus allowing individuals and agencies to share a unit).

The rates in this appendix are typical for Michigan. They can be used to price a typical system under varying time, distance and equipment requirements.

The conference set is not designed to operate back-to-back. This simply means that the originator must use an ordinary #500 (or its' equivalent) telephone. This is necessary to avoid unwanted distortion in the voice transmission.

APPENDIX J

Tele-lecture involves the installation of a dedicated or private line from one point directly to another. Once this line is in operation it is available on a 24 hour per day basis. No additional long-distance charge is made outside the monthly rental fees. The following table lists and describes the costs involved:

Cost	Description
$35,00/per month	Rental fee for each unit (one unit = a handset and speakers)
$35.00-$40.00/per unit	Installation charge (one-time fee)
$8.80/per jack	Installation charge for wall jack (only when desired)
$5.00-$6.00/per month	Rental fee for Business line (a line between offices - only when needed)
$4.25/per mile	Rental fee for use of transmission line (figured on airline mileage)**

**The rental of the necessary private line between East Lansing and Grand Rapids is calculated: 59 miles x $4.25 per mile = $250.75 per month. As a means of comparison, the conference call for one hour to Grand Rapids was approximately $15.00. The frequency of use between East Lansing and Grand Rapids can be figured by dividing $15.00 into $250.00 for the tele-lecture line. Approximately 17 hours of conference call could be made for the price of one monthly rental charge for the tele-lecture line.

APPENDIX K

University Extension
The University of Wisconsin

SCA-ETN Schedule
March 15-20, 1971

Time	Title	Clientele	Coordinator	(1)	(2)	(3)
8:30- 8:50am	Community Programs Daily Information	Community Programs Faculty	Audrey Sponem or Pat Cantrell	ETN SCA	no	no
9:00- 10:00am	Community Programs Staff Conference	Community Programs Faculty	Bob Dick	ETN SCA	no	no
1:30- 3:00pm	Teleconference on Staff Develop- ment & Nursing Inservice Education	Directors, Co- ordinators, & In-Staff Devel- opment Directors	Dorothy Hutchison	ETN SCA	yes	yes
4:30- 7:00pm	Learning Environments for Inital Education	Students	Jack Ferver David Davis	ETN	yes	yes
7:00- 8:00pm	Poison Information	Health Profes- sionals and Others	Ann Johnston	ETN SCA	yes	yes
8:00- 9:30pm	Great Decisions 1971	Public	Helen Wenberg	ETN SCA	yes	yes
7:30- 8:30am	General Medical Seminar	Hospital Staff	Ann Johnston	ETN SCA	yes	yes
8:30- 8:50am	Community Programs Daily Information	Community Programs Faculty	Audrey Sponem or Pat Cantrell	ETN SCA	no	no
10:00- 12:00am	Introduction to Library Science (A50)	Librarians Employed in Small Public Libraries	Muriel Fuller	ETN	yes	yes
12:00- 1:00pm	General Medical Seminar	Hospital Staff	Ann Johnston	ETN SCA	yes	yes
1:00- 3:00pm	Medical Library Seminar	Medical Librarians	Ann Johnston	ETN SCA	yes	yes
4:30- 5:30pm	Science & the Elementary School Teacher	Elementary School Teachers	Walter Wheeler	ETN	yes	yes
6:30- 8:00pm	Interaction of Health Professionals	Health Professionals	Ann Johnston	ETN SCA	yes	yes

University Extension
The University of Wisconsin

SCA-ETN Schedule
Page 2.

Time	Topic	Clientele	Coordinator	(1)	(2)	(3)
8:30-9:30pm	[illegible]-The New Probate Code and Estate Planning	Interested Public	Arnon Allen	ETN	yes	yes
8:30-8:50am	Community Programs Daily Information	Community Programs Faculty	Audrey Sponem or Pat Cantrell	ETN SCA	no	no
9:00-10:00am	Hospital Administration	Hospital Administrators	Ann Johnston	ETN SCA	yes	yes
12:00-1:00pm	Hospital Administration	Hospital Administrators	Ann Johnston	ETN SCA	yes	yes
1:30-2:30pm	Nursing Seminar	Registered Nurses	May Hornback	ETN SCA	yes	yes
7:00-8:00pm	Medical Technology	Medical Technologists	Ann Johnston	ETN SCA	yes	yes
7:30-8:30am	General Medical Seminar	Hospital Staff	Ann Johnston	ETN SCA	yes	yes
8:30-8:50am	Community Programs Daily Information	Community Programs Faculty	Audrey Sponem or Pat Cantrell	ETN SCA	no	no
9:50-12:00am	Continuing Education for Public Librarians	Public Librarians	Muriel Fuller	ETN	yes	yes
12:00-1:00pm	General Medical Seminar	Hospital Staff	Ann Johnston	ETN SCA	yes	yes
1:00-3:00pm	Workshop for Clerical Personnel in Departments of Social Service	Clerical Personnel in County Depts. of Soc. Service	Doris Baker	ETN SCA	yes	no
3:30-4:30pm	Nursing Seminar	Registered Nurses	May Hornback	ETN SCA	yes	yes
6:50-9:00pm	Continuing Education for School Librarians & Media Specialists	Librarians & Media Specialists in Public & Private Elementary & Secondary Schools	Muriel Fuller	ETN	yes	yes

University Extension
The University of Wisconsin

SCA-ETN Schedule
Page 3.

Time	Topic	Clientele	Coordinator	(1)	(2)	(3)
8:00-8:50am	Community Programs Daily Information	Community Programs Faculty	Audrey Sponem or Pat Cantrell	ETN SCA	no	no
9:00-11:00am	Youth Emphasis	4-H Youth Agents	Norm Everson	ETN	no	no
12:30-1:30pm	Pediatrics Follow-Up	Pediatricians	Ann Johnston	ETN SCA	yes	yes
1:30-2:30pm	Seminar in Hospital Housekeeping	Hospital Housekeepers	Ann Johnston	ETN SCA	yes	yes
4:00-5:00pm	Communicative Impairment of the Brain Damaged Adult	Health and Health Related Personnel	Ann Johnston	ETN SCA	yes	yes
9:45-10:45pm	Nursing Seminar	Registered Nurses	May Hornback	ETN SCA	yes	yes

APPENDIX L

Existing Educational Television Stations in Michigan

Educational television in Michigan is now represented by three full time stations and a fourth time-shared station. The existing television stations are:

(1) Bay City WCMI-TV Channel 19 Operated by Delta College

(2) Detroit WTVS-TV Channel 56 Operated by the Detroit Educational TV Foundation

(3) Mt. Pleasant WCMU-TV Channel 14 Operated by Central Michigan University

(4) Onondaga WMSB-TV Channel 10 Operated by the Board of Trustees of Michigan State University. (Soon to be converted to UHF Channel 23).

The Capital cost plus the annual transmitting operation cost based on a sixty hour per week operation for each of these stations, is given below:

Station	Capital Cost	Annual Transmitting Operational Cost
Bay City Channel 19	$612,500.00	$49,600.00
Mt. Pleasant Channel 14	610,200.00	49,600.00
Detroit Channel 56	----------	62,100.00
Lansing Channel 23*	612,500.00	49,600.00

*Proposed

These figures show the limitations of extension trying to establish an educational TV network of its' own. However, there does exist a strong possibility of utilizing such existing facilities on a cooperating basis Cost-sharing for the annual operational costs is not improbable.

The figures were taken from the Jansky and Bailey Report supplement to the McBride Educational Television Feasibility Study, July 1967. The Engineering Feasibility Study was conducted under the auspices of Atlantic Research Corporation, Washington D.C.

Estimated Capital Costs for UHF Station
500,000 Watts ERP, @ 1,000 Ft. A.A.T.

Quantity	Equipment	Cost
1	30-kilowatt transmitter, including sideband filter, diplexer and harmonic filters	$210,000.
1	Spare Tubes	15,000.
1	Transmitter Control Console, including picture and waveform monitors and local slide equipment	13,000.
1 set	Transmitter input and monitoring equipment	18,500.
1	Guyed, 1,000 foot antenna supporting tower	150,000.
1	Antenna, 30-gain with lightning protector	35,000.
1	RF load and wattmeter	3,700.
1,100 ft.	6-1/8 inch transmission line (including hangers, elbows, etc.)	34,000.
1	Line pressurizing equipment	1,500.
Misc.	Fixed hangers, adaptors, inside fittings, hardware kits, clamps, connectors, valves and gassing accessories.	2,500.
1 set	Test equipment	7,800.
	Land (40 acres)	40,000.
	Building, site improvement and roadway	40,000.
	Furniture and fixtures	2,500.
	Installation, legal and engineering, freight	19,000.
	Contingencies	20,000.
	Total	612,500.

Transmitter Operating Costs

1. (Typical 30 KW UHF)

	Annual Cost	
	60 hours per week	100 hours per week
AC Power (200 kw/h at .03 kwh)	$18,700.	$31,000.
Tubes and parts @ $2.75 per hour	8,600.	14,300.
Building and property maintenance	2,500.	2,500.
Tower maintenance and painting	800.	800.
Technicians	9,000.	18,000.
Supervision	10,000.	10,000.
Total	$49,600.	$76,600.

2. (Typical 50 KW UHF)

	Annual Cost	
	60 hours per week	100 hours per week
AC Power (300 kw/h at .03 kwh)	$28,100.	$46,800.
Tubes and parts @ $3.75 per hour	11,700.	19,500.
Building and property maintenance	2,500.	2,500.
Tower maintenance and painting	800.	800.
Technicians	9,000.	18,000.
Supervision	10,000.	10,000.
Total	$62,100.	$97,600.

*These appendices are provided to demonstrate the very high capital outlay required to establish an individual television station.