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COMMUNICATION CONCEPTS USED BY ADULT EDUCATORS IN AGRICULTURE TO IMPLEMENT EDUCATIONAL CHANGE

Dissertation

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Douglas Harry Pletsch, B.Sc., M.Sc.

The Ohio State University

1968

Approved by

[Signature]
Adviser
Department of Agricultural Education
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VITA

April 29, 1938  Born - Grey County, Ontario, Canada
1958 .......  Diploma in Agriculture, The Ontario Agricultural College, Guelph, Canada
1962 .......  B.Sc., The Ontario Agricultural College, Guelph, Canada
1962-1965 .. Agricultural Missionary, Cristianopolis, Goias, Brazil
1966 .......  M.Sc., The Ohio State University, Columbus, Ohio

FIELDS OF STUDY

Major Field:
Agricultural Education. Professor Robert W. McCormick

Minor Fields:
Agricultural Economics. Professor Mervin G. Smith
Communication. Professor Edgar Dale
Research and Evaluation. Professor Clarence J. Cunningham
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CHAPTER I

THE PROBLEM AND ITS SETTING

The vocational education departments in the public schools and the Cooperative Extension Service are educational agencies by definition and by practice.

The Cooperative Extension Service - the largest single adult education organization ever created - came into being with the passage of the Smith Lever Act in 1914. By the end of World War I a strong agricultural extension service had been established in every state and the Cooperative Extension Service had become a recognized addition to our national educational system.¹

In fulfilling its responsibilities, vocational and technical education in agriculture contributes to the general education objectives of the public schools. This is attained through study of the application of principles of science to the production, processing, distribution, and servicing operations in agriculture. Vocational education in agriculture also concerns itself with the development of attitudes and abilities needed for effective leadership and citizenship.²


Adult educators in cooperative extension and vocational agriculture attempt to bring about changes in the behavior of their clientele. These behavioral changes may be of a cognitive, affective or psychomotor dimension. Communication becomes important and must take place in form regardless of the nature of the desired behavioral change.

Agricultural agencies including cooperative extension and vocational agriculture are cited as examples of effective vehicles for performing the "change agent" role in closing the gap between theory and practice in agriculture. Essentially these educators have served as the communication link between the university based researcher and farmer practitioner. However, there is ample evidence that this communication link has not been as effective or efficient with the lower socio-economic groups in agriculture as it has been with the middle and upper socio-economic strata.

In addition to the need for bringing about educational change with the clientele of cooperative extension and vocational agriculture, there is the equally urgent need

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to implement educational or program innovations within these educational systems. The classification schema of processes related to and necessary for educational change within a system includes as a central function the process of diffusion. This process clearly is related to communication since the functions to be performed are to inform and build conviction about innovations.5

There is very clearly a plethora of research findings in the area of communication spread through several discipline areas. These models, theories and concepts can be extremely useful to educators in cooperative extension and vocational agriculture if they are synthesized into a body of the most relevant concepts and made available for the training of these educators. Bhola points out that the fund of knowledge in this area is so considerable that a synthesis of available research findings and conceptualizations is bound to be rewarding.6

The dynamic environment in which adult education programs in agriculture are conducted today presents a challenge to the communicative ability of professionals in the field. There is the continuing need to function as change agents in the diffusion of innovations in

5Ibid.

6Harbans S. Bhola, Innovation Research and Theory. (Columbus: School of Education, The Ohio State University, 1965), p. 35.
agriculture as well as the implementation of educational change within the adult education organization. The two major problems are: (1) adjusting to the changing dimensions of the role these educators are to play, and (2) developing the intellectual competencies needed in the performance of their role.

**Purpose**

The general purpose of this study was to identify, define and operationalize the communication concepts required by adult educators in agriculture to fulfill their role as educational change agents.

**Specific Objectives**

The following objectives were identified to facilitate the pursuit of this study:

1. To determine the anticipated intellectual behavioral requirements for future competence in communication.

2. To identify relevant communication concepts from the behavioral sciences.

3. To define and describe the concepts.

4. To develop suggested educational objectives for use in staff development programs.
Basic Assumptions

Several basic assumptions of this study were made.

1. In general, present cooperative extension and vocational agricultural educators need increased levels of understanding of fundamental concepts relating to communication as the basis for leading more effective programs.

2. Communication is more effective if those involved understand the basic concepts.

3. Subjective judgments made by authorities in the field of communication are valid evidence in determining priorities of relevant concepts.

4. Communication concepts do not remain static. Changing times and situations will dictate those concepts most useful.

5. There are some commonalities to all communication behavior.

Limitations of the Study

1. The procedure used to formulate the groupings of communication concepts was largely subjective in nature.

2. The study was conducted over the relatively short period of one year.

3. The audience for the study was identified as cooperative extension and vocational agricultural educators in graduate and in-service training programs.
Procedure

The general design for this study was based fundamentally on the idea that in the initial step in the development of a comprehensive training program for professional workers, regardless of appropriate and valid objectives, two dimensions are paramount. First, the intellectual behavioral requirements of the job must be identified. Second, relevant knowledge required to develop the intellectual behaviors must be identified and described as the basis for the development of the training program.

Four stages were envisioned with each stage related to the objectives of the study. These stages were: (1) the determination of the anticipated behavioral requirements for future competence in communication; (2) the identification of relevant concepts from behavioral science disciplines; (3) the definition and description of the concepts; and (4) the development of suggested education objectives. Under each stage the proposed procedure was described, although these stages were not conceived of as being discrete since there was a degree of interrelationship among each of the stages. The stages, therefore, were suggested to help achieve clarity in the procedural aspects of the study.

The following procedure was projected in accomplishing the task of determining the anticipated intellectual behavioral requirements:

1. A review was made of the relevant technical, social and economic trends in society. This was done by reviewing appropriate research reports and appropriate projections by experts in relevant fields.

2. Changes in cooperative extension and vocational agriculture which needed to be effected to cope with the technical, social, and economics trends were compiled. In order to accomplish this task, relevant reports and articles by leaders in the two fields and by other experts in governmental and educational fields were studied.

3. Based on the review, a list of anticipated intellectual behavioral requirements for future competence in communication was developed for cooperative extension and vocational agricultural educators.

STAGE II. The Identification of Relevant Concepts.

The following procedure was planned at this stage:

1. The concepts relevant to communication were identified.
2. The concepts which were identified were reviewed by the National Extension Curriculum Committee at Asheville, North Carolina, August 7-9, 1967. Suggestions were given as to their relevancy to the intellectual behavioral requirements of the cooperative extension and vocational agricultural educator's job.

3. The communication concepts identified were subjected to a screening process involving the following tests:

(a) Authorities in the field of cooperative extension and vocational agriculture were contacted and asked to check those concepts most important to their respective field; (b) the intellectual behavioral requirements were summarized and systematically grouped. These groups were compared and contrasted to determine the important concepts involved; (c) situation analysis were used to identify those concepts that were most evident; (d) concepts used in definitions of communication were considered; and (e) indexes of books written by specialists in communication were consulted to determine important concepts.

Those concepts that were checked in four or five of the above tests were rated as most important, those checked in three cases as being of much importance, those checked in two cases as being of some importance and those with one or no checks as interesting possibilities.
that may deserve greater attention in future studies.

STAGE III. **The Definition and Description of the Concepts.**

At this stage, the following procedure was followed.

1. Based on a comprehensive review of the literature and research in the communication area, applicable theory and knowledge was used in further developing the "most relevant" concepts. Dr. Edgar Dale, Professor of Education and an eminent authority on communication, suggested areas and references for consideration and reviewed periodically the work being done.

STAGE IV. **The Identification of Suggested Educational Objectives for Training Programs.**

The following procedure was used at this stage:

1. Experts in the field of cooperative extension and vocational agriculture suggested a list of educational objectives for training programs based on the concept definition and application.

2. Authorities in the field of communication, cooperative extension, and vocational agriculture reviewed the suggested objectives and suggested changes.
Need for the Study

The people in the world number about 3.3 billion and the increase in population is so rapid that by the year 2000 there will be from 5.0 to 7.5 billion with the most likely estimate being between 6.0 and 6.5 billion. At the time, the land presently suitable for cultivation is limited to about 3.0 billion acres or 10 percent of the land surface.

The world is composed of two drastically different sectors. On the one hand there is the "income explosion" being experienced by the developed areas, where food supplies have increased faster than population. On the other hand there is the "population explosion" in the underdeveloped areas. This is leading to a rapidly growing demand for U. S. agricultural products. There is also the grim reminder that in the world as a whole, two out of three people are hungry.

Greater understanding on the part of adult educators is necessary to strive for the solution to this problem. There are two obvious approaches to the food problem. Man can either, (1) control population growth, or (2) accelerate the growth in the supply of food to match or exceed the increase in the number of people. A combination of the two approaches is the most realistic.

Resistance to population control comes from religious,
institutional, social and economical barriers. Crop production is limited because of economically usable land available. The land area of the earth is around 33 billion acres, but only about 10 percent of this area is being used for crops.  

One needs to recognize that agriculture is extremely dynamic and unanticipated changes will occur. There is a need for quicker, more efficient innovations of improved methods to meet the crises with which we are faced today. Communication is a factor that will enhance or slow up this change depending upon its effectiveness in diffusing new and superior information to the producer, distributor, and consumer.

Progress is slowed as a result of too many people saying the wrong things, at the wrong times, in the wrong ways, to the wrong people. Much misunderstanding results from faulty communication. What is needed is more people saying the right things, at the right time, in the right way to the right people.  

The responsibility for much of the dissemination of new information will lie with cooperative extension and

---

Wallace Barr, "World and U. S. Food Needs - Where Will it Come From." (Columbus: Ohio State University), Talk given before Annual Meeting of Agricultural Ammonia Institute, St. Louis, Missouri, January 19, 1966.

vocational agricultural educators. Improvement in communication must precede controlled population and increased food supply to result in a more pleasant life for the world community.

Adult educators must be informed about and efficient in the use of new developments in media and alert to the possibilities of applying new learning experiences. More effective use of communication is needed to contribute to the whole process of social change. A close relationship exists between technical-economic change and social-political change. Communication can help teach the farmer that there are more efficient ways to do the same farm work; it can help to destroy barriers in the social structure; and it can help develop initiative and creative capacity to help the individual, the nation, and the world to accelerate economic development.9

The existing competencies of adult educators must be developed further if they are to accelerate the adoption of innovations among their clientele as well as implement educational innovations within their own programs. The current background of training experienced by present cooperative extension and vocational agricultural educators

9D. T. Myren, (ed.), First Interamerican Research Symposium on the Role of Communications in Agricultural Development. p. 11.
is inadequate for the effective performance of their assigned roles. The increased need to develop programs directed toward the economically disadvantaged accentuates the need for an improved understanding of the relevant concepts in communication.

The National In-Service Training Task Force of the Extension Committee on Organization and Policy of the Land-Grant College Association identified the following nine areas of competency as essential for a successful extension worker: (1) understanding social systems, (2) program planning and development, (3) understanding human development, (4) extension organization and administration, (5) the educational process, (6) communication, (7) effective thinking, (8) technical knowledge and (9) research and evaluation. McCormick states that Ohio extension agents felt they needed the most training in "program planning and development", "effective thinking", and "communication". The following statement might well express the reason for these needs.

"Blocks and frustrations must be removed. People must be studied as individuals and in group situations and their drives and motives explored. The process requires the accurate use of words to convey intended meanings and realization that persons vary in the readiness with which they receive new ideas. Those who are called"

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innovators are always in a receptive mood. At the other extreme are the laggards who will never believe what they hear or see. In between are all the rest of us ordinary folks who need to be stimulated from one to six or eight times before we will adopt a new practice.11

Staff development programs which will help these adult educators develop the intellectual skills and abilities necessary for the implementation of their roles are urgently needed if adult education programs in agriculture are to remain viable. The concern with adult education programs directed toward the disadvantaged further enlarges this need. A clear conception of the objectives to be attained is essential in planning and conducting staff development programs. Tyler indicates that, educational objectives become the criteria by which materials are selected, content is outlined, instructional procedures are developed and examinations are prepared.12 Mager indicates that an instructor, must select procedures, content and methods which are relevant to the objectives, cause the student to interact with appropriate subject matter in accordance with the principles of learning and finally measure or evaluate the students performance


according to the objectives or goals originally selected. It is cogently clear that any effective staff development program must begin with a careful delineation of educational objectives.

Extension workers, teachers, writers, public officials, and all other persons communicating ideas have a grave responsibility to do so with full knowledge of the power and ethics involved. The manipulation of humans through communication has been both used and abused throughout history. In the Extension Service we say our job is to give the facts and let the people make their own decisions. In arriving at their conclusions they are, however, influenced by the particular facts you have chosen to present, the way you present them, who you are, what institution you represent, and other less obvious factors. We must admit that to teach is to persuade. A reporter sees what he can and writes what his vocabulary enables him to express.

The identification of educational objectives involves three fundamental areas. These areas include: (1) the identification of the learner, (2) the behavioral change to be sought, and (3) the content to be emphasized. Bloom points out that, "educational objectives as they have been used by evaluators, teachers and curriculum workers, are relatively specific statements of the


14Kelsey and Hearne, op. cit., pp. 264-265.

15Mager, op. cit., p. 6.
characteristics the students should possess after completing
the course or program.\textsuperscript{16}

With reference to behavioral change, two taxonomies
or classifications of educational objectives have been
developed to assist educators in establishing educational
objectives. Bloom and his associates have established
six major classifications of cognitive behavior: (1)
knowledge, (2) comprehension, (3) application, (4) anal­
ysis, (5) synthesis, and (6) evaluation.\textsuperscript{17} The effective
domain (valuing) of educational objectives has been
classified by Krathwohl and his associates as follows:
(1) receiving or attending, (2) responding, (3) valuing,
(4) organizing, and (5) characterization by a value or
concept.\textsuperscript{18} In both classifications, as one moves from the
lower to the higher points on the continuum, the upper
behaviors are described as the most complex. These two
classification schemes are extremely useful to the
educator in precisely identifying the behavioral change to
be sought.

\textsuperscript{16}N. L. Gage, (ed.), Handbook of Research on Teaching.

\textsuperscript{17}Bloom, \textit{op. cit.}, p. 18.

\textsuperscript{18}David R. Krathwohl, \textit{et al.}, Taxonomy of Educational
Objectives - The Classification of Education Goals -
Handbook II: Affective Domain. (New York: David McKay Co.,
The content area of the educational objective also must be identified precisely and in relation to the desired intellectual behavior. Gagne in his hierarchy of learned capabilities, suggests that concepts become the fundamental bases for complex learning. Concepts must be understood before principles can be grasped, since principles are defined by Gagne as a relationship that exists between two or more concepts. Problem-solving or strategy-using -- the highest intellectual capability -- is the application of concepts to the problems of living. In the development of intellectual skills and abilities the identification of concepts which are relevant to the desired intellectual behaviors is a highly important step in defining educational objectives.19

Organization of the Study

The study is organized in six chapters. The first chapter deals with such background factors and information which have relevance for understanding and appreciating the implications of the study. The second chapter investigates further the relationship of communication in

the diffusion and the adoption of agricultural and educational innovations.

The next four chapters deal with the different aspects related to the study of communication concepts. The third chapter deals with the determination of the anticipated intellectual behavioral requirements for future competence in communication among professional cooperative extension and vocational agricultural educators. The fourth chapter is concerned with the identification, definition, and description of communication concepts, including the related theory and knowledge necessary for the development of intellectual skills and abilities in the use of the concepts. The fifth chapter deals with the development of suggested educational objectives for training programs in communication. The sixth chapter gives an overall view of the several areas of the topic; summary, conclusions, and recommendations are consolidated in this chapter.

Definitions

"Communication is defined as the sharing of ideas and feelings in a mood of mutuality. It is a two way process." Communication at its best is an interaction, a transaction, a situation in which modification of one's ideas is a logical and often necessary part of the process. Communication means getting into the other fellow's shoes, and
permitting him to get into ours. It means an empathic relationship, sensing the way a given idea or experience affects other persons.20

The term "communication" comes from the Latin word "communis" -- means common. Communication, is, therefore, a conscious attempt to share information, ideas, attitudes and the like with others. It has to do with the way people get ideas, the process by which two or more people exchange ideas, facts, feelings or impressions in ways that each gains a common understanding of the meaning and intent of messages. The essence of communication, then, is getting the receiver and the sender tuned together for a particular message. Good communication, therefore, is the essence of good teaching. One cannot teach if he cannot communicate.21

In agricultural terms, communication can be thought of as the bridge that unites the producer of information with its user; i.e., source, message, and receiver, coincide with production, distribution, and utilization.22

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21 Leagans, op. cit., p. 5.

22 Myren, op. cit., p. 12.
Communication allows the individual to obtain information and to give him the motivation which allows him to broaden the field of possible decision.23

Concept - It has been found that when people are trying to solve a problem or deal with a new situation that they have some kind of image; something they have in mind as to what they are doing, a conceptualization of the situation.

A concept is something in your mind which isn't an actual reality because you are attempting to perceive things that are not obvious and are trying to get below what you can actually observe directly. Each person has a concept of a human being, a person carrying on a new behavior, his getting rewards or satisfactions. Each person has a concept about communication, a guide to understanding the communication you observe.24 The concepts may be general enough to include specifics, but yet not a statement of relationships. It may form the basis for problem-solving; for interpreting and analyzing problems. In the final analysis concepts form the structure of the discipline of communication.

23Ibid., p. 38-42.
24Talk given by Dr. Ralph W. Tyler, at the Extension Curriculum Development Conference, (Washington, D. C., December 8-12, 1963), p. 3.
CHAPTER II

THE IMPORTANCE OF COMMUNICATION IN THE ADOPTION AND DIFFUSION OF AGRICULTURAL INNOVATIONS

Introduction

More than ever before, communication looms high on the list of items that aid in the process of social and individual change. Indeed, it is impossible to have any kind of change taking place without some form of communication having taken place.

Many agricultural specialists, including the more than 20,000 cooperative extension and vocational agricultural educators are not satisfied with the speed at which new ideas are being distributed. In order to keep pace with a rapidly expanding technology the specialist of necessity is interested in the most effective and efficient means of communication to improve information flow through the various channels to his clientele.

The specialist has asked some very basic questions. How are ideas best distributed -- when, where and to whom?
From whom, or what source, do farmers get their ideas? How do you best combine a variety of media?\textsuperscript{1}

Much work has been done on the process of diffusion and the adoption of agricultural innovation. Emphasis has been devoted to understanding and implementing educational change. A brief review of the most relevant literature is presented here to clarify some concepts necessary for suggesting more effective and efficient means of communicating new ideas.

Considerations in Anticipating Change

We speak generally of change taking place through the adoption of innovations. What is an innovation? Rogers states:

An innovation is an idea perceived as new by the individual. It really matters little, as far as human behavior is concerned, whether or not an idea is "objectively" new as measured by the amount of time elapsed since its first use or discovery. It is the newness of the idea to the individual that determines his reaction to it.\textsuperscript{2}

Lionberger has used innovation to mean: (1) an idea or practice which departs from those generally prevailing


among an aggregate of people who may be regarded as targets of change directed efforts; or (2) a change in technology.  

Barnett has looked on an innovation as a creative process; a personal goal seeking activity; or adaptability ... the capacity to take on new practices and discard outmoded ones.  

Bhola thinks of an innovation as a concept (about military organization, curriculum construction, marketing practices, or agricultural methods), an attitude (about communal or racial harmony, women voting rights), a tool with accompanying skills (16 mm film projector, and insecticide spraying machine) or two or more of these together introduced to an individual, group, institution, or culture that had not functionally incorporated it before.  

However, all innovations are not readily adopted by all potential users. Why? Perhaps it is not advantageous for the person to adopt the innovation but this is impossible to know unless the particular idea is tried.


5Bhola, op. cit., p. 15.
Somewhere in the process of diffusion and adoption, communication has a very important role to play. Communication is but one factor that must be viewed in relation to other factors and variables that exist.

**The Adoption Process**

Rogers defines the adoption process as the mental process through which an individual passes from first hearing about an innovation to final adoption. Five stages in the adoption process are: awareness, interest, evaluation, trial and adoption.⁶

The diffusion process, on the other hand, is the spread of a new idea from its source of invention or creation to its ultimate users or adopters.⁷

Kelsey and Hearne prefer to use the same terminology as it relates to communication. They state that the spreading of information and the stages through which it passes has been called the diffusion process. It is a specific segment of communication, the process by which an idea gets from its source of origin to its place of ultimate use. It is primarily a description of the mental processes that take place. There are five clearly defined

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⁶Rogers, *op. cit.* p. 17.

stages of development; awareness, interest, evaluation, trial and adoption.\(^8\)

In this review we have chosen to separate the diffusion, adoption process in the pattern designated by Rogers. The stages in the adoption process take on the following meanings: (1) **Awareness.** This is the stage at which the individual first learns about the innovation but lacks complete information about it. The awareness stage very often comes about by accident or as a result of seeking for something entirely different. (2) **Interest.** At this stage the individual wants to find out more about the new idea. It is his wish to receive information as to the utility of the idea in his situation. Of particular interest to the communicator is the place he seeks this information. (3) **Evaluation.** At this stage the individual actually applies the innovation "mentally" to his present and future anticipated situation. (4) **Trial.** If the evaluation stage has been rewarding to the individual then he will use the innovation on a small scale to determine its actual advantage in his situation. (5) **Adoption.** It is at this stage that the individual decides to continue the full use of the innovation.\(^9\)

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\(^9\)Rogers, *op. cit.*, pp. 81-86.
Other researchers have classified these phases somewhat differently. Lewin's three phase process: (1) **unfreeze** involving a creation of dissatisfaction with the present, (2) **move** to a new condition to achieve some type of reward, (3) **refreeze** involving the establishment of an equilibrium after a new level of behavior has been reached.\(^\text{10}\)

Farnsworth suggested an application model to education suggesting the following sequence: recognize and articulate the need, propose a solution, create interest in the suggested solution, demonstrate usefulness, invite group and public interest, obtain official approval and financing, and remove legal restrictions.\(^\text{11}\)

Regardless as to how these stages are classified in the final analysis the individual or society must decide to adopt or reject the innovation. Either he adopts or he rejects and even after he has adopted he may discontinue its use for some reason.

For our discussion it seems useful to think primarily of the process of adoption of innovations as the "(1) acceptance, (2) over time, (3) of some specific item - an idea or practice, (4) by individuals, groups or other


\(^{11}\)Ibid., p. 1.
adopting units, linked to (5) specific channels of communication, (6) to a social structure, and (7) to a given system of value or culture.\textsuperscript{12}

A process of adoption similar to that mentioned above is important as it relates to the acceptance or rejection of new ideas. Although this process does not tell why ideas will be accepted or rejected it does help the researcher look more closely at those things that are most likely to influence the individual or group "target". These items are examined more closely as to their comparative value in the discussion that follows.

\textbf{Acceptance}

Acceptance may be thought of as the adoption stage or the time at which the individual decides to continue full use of the idea or innovation.\textsuperscript{13}

Some farmers will try almost any new idea that comes along, while others will accept an idea only after it is proven in their neighborhood.

Researchers have tried hard to find ways of narrowing the gap between the early and the late adopters. Some new


\textsuperscript{13}\text{Rogers, op. cit. p. 86.}
ideas and practices are accepted quickly, and with little apparent effort, while others are accepted only after years of effort by agencies and leaders working with rural people.\textsuperscript{14}

Over Time

The length of time required for a person or group to adopt a new idea will depend on the whole environment that affects the individual's decision regarding the proposed change. Rogers refers to the adoption period as the length of time required for an individual to pass through the adoption process from awareness to adoption. This period may be mentioned in days, months or years. The length of time will depend greatly on the (1) relative advantage, (2) compatibility, (3) complexity, (4) divisibility, and (5) communicability of the idea.\textsuperscript{15}

Reception or nonreception of an innovation depends upon such factors as past experiences, social values, mental set, and state of knowledge of the potential adopters. It is quite possible that a person could drive past 100 miles of hybrid corn but still not "see" or be

\textsuperscript{14}Cooperative Extension Service, How Farm People Accept New Ideas, Official Report No. 5 (reprint) (Iowa State University, November, 1962), pp. 3.

\textsuperscript{15}Rogers, op. cit. pp. 105-110.
aware of hybrid corn, thus there is a selective factor that must be considered.

Rogers says that generally the first individuals to adopt innovations require a shorter adoption period than do relatively later adopters.\textsuperscript{16} Lionberger states that ordinarily, adoptions are very slow at first, after an initial slow start, they increase at an increasing rate until approximately half of the potential adopters have accepted the change. After this, acceptance continues, but at a decreasing rate.\textsuperscript{17}

Finally, the person attempting to speed up the process of acceptance of new ideas and practices must be aware of the total process and the sequence of influences at different points in this process. It is necessary to intermesh the impersonal with the personal and the technical with the nontechnical. In this sense the influencing of change is an art which requires sensitivity to the many phases of the acceptance process; it also requires the ability to make most effective use of the various means of influencing acceptance.\textsuperscript{18}

\textbf{Some Specific Item - An Idea or Practice}

Chin describes five levels of change which may be considered as related to five types of innovations:

"(1) \textbf{Substitution}, where one element is merely substituted

\textsuperscript{16}Rogers, op. cit. p. 111.

\textsuperscript{17}Herbert F. Lionberger, Adoption of New Ideas and Practices, \textit{(Ames: The Iowa State University Press, 1960)} p. 32.

\textsuperscript{18}Cooperative Extension Service, \textit{op. cit.} p. 11.
for another element already present; (2) Alternation, an apparently minor change in what is already adopted; (3) Perturbations and Variations, involving variation in and around the equilibrium of a system instead of any real change in the structure; (4) Restructuring, which is basic social change requiring reorganization; and (5) Value Orientation Change, involving change in deep-seated cultural value clusters."

This classification is useful because it forms a basis for Rogers classification which identifies five basic characteristics of innovations. Innovations are adopted over varying periods of time. Some take but a few years while others may take fifty or more. What are the characteristics of innovations that affect the rate at which they diffuse and are adopted? The following characteristics have been mentioned previously but they are discussed here in more detail.

(1) Relative Advantage is the degree to which an innovation is superior to ideas it supersedes. This advantage aspect is usually expressed in economic profitability but may also be expressed in the reduction

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of unpleasant labor requirements as for example was 2, 4-D. A crisis may also emphasize the relative advantage of an innovation and often increase its rate of adoption. An example of such a crises would occur if a crop failure resulted from a particular disease. In this case a disease resistant crop or a new crop may be adopted. The relative advantage may be enhanced by strong promotional efforts on the part of the change agent.

(2) **Compatibility** is the degree to which an innovation is consistent with values and past experiences of the adopters. An idea or innovation that is compatible with the cultural norms of the social system will be adopted more readily than one that is not. Also the new idea must be compatible with already accepted ideas. If, for example, a farmer buys a new tractor he is likely to adopt a whole new line of equipment. Thus the adoption of one new idea may result in a chain of compatible adoptions.

(3) **Complexity** is the degree to which an innovation is relatively difficult to understand and use. Generally it has been concluded that the complexity of an innovation, as perceived by members of a social system, affects its rate of adoption. That is, the more complex the idea the longer it will take to become accepted.

(4) **Divisibility** is the degree to which an innovation may be tried on a limited basis. The bulk tank, for
example, is a take it or leave it situation, whereas the use of increased amounts of fertilizer lends itself to divisibility, thus enabling the producer to experiment on a small acreage. The results of the experiment can be tabulated and a decision made as to how far the individual is willing to go.

(5) Communicability is the degree to which the results of an innovation may be diffused to others. The results of some ideas are easily observed and communicated to others, while some innovations are difficult to describe to others. This process is greatly aided by introducing the innovation locally and having the local people talk about it. Adoption can be encouraged by seeing the idea in action. 20

Lionberger has summarized characteristics of innovations that have a bearing on rates of acceptance as being complexity, utility, initial cost, continuing cost, rate of cost recovery, compatibility, communicability, relative advantage, mechanical attraction, saving of time, saving of discomfort, and divisibility.

Varying degrees of support have been found for most of these factors with the cost perhaps being in greatest

20 Rogers, op. cit. pp. 121-134.
dispute and complexity, compatibility and relative advantage being best documented as important factors. 21

By Individuals, Groups or Other Adopting Units

It is well known that individuals adopt certain practices at different times. It is possible, therefore, to classify them according to their time position in the adoption pattern. Rogers suggests five adopter categories as ideal types: (1) Innovators, (Venturesome) persons eager to try new ideas, (2) Early Adopters, (Respect) persons more of an integrated part of the local social system than innovators, (3) Early Majority (Deliberate) those who adopt new ideas just before the average member of the social system, (4) Late Majority (Skeptical) those persons who adopt new ideas just after the average members of a social system, and (5) Laggards (Traditional) those who are last to adopt an innovation. 22

Within a group there exist opinion leaders or key communicators who influence others in the social system toward acceptance or rejection of an idea. These are the individuals to whom others most often go for advice. Innovators are not generally thought of as opinion leaders

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21Lionberger, op. cit. p. 105.

22Rogers, op. cit. pp. 168-172.
because they have to withdraw themselves from the group norms in order to innovate. When they do this they are viewed with skepticism by their peers. The early adopters are thought of as role models in the social system and are in a good position to be opinion leaders.  

Often the group must accept or be forced to accept certain innovations all together. Most community services come under this category. The floridation of water can be cited as an example of one such community service.

**Specific Channels of Communication**

This section deals primarily with the origin and techniques of disseminating information. New information regarding matters related to farming is commonly originated by public and private research centers and by progressive farmers. Therefore, industrial and public research agencies both originate and transmit information. Any person whether farmer or change agent has some control over what is transmitted, how, and in what form.

The source of information may apply to people and agencies that act as a place to obtain information. Mass

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Reference is made to these persons as opinion leaders by Rogers, (1962, p. 209) key communicators by Lionberger, (1960, p. 55), and by others as leaders, informal leaders, information leaders, adoption leaders, fashion leaders, consumption leaders, local influentials, influencers, tastemakers, style setters, sparkplugs, and gatekeepers.
media, including newspapers, magazines, radio and television; agricultural agencies, such as the Cooperative Extension Service, departments of vocational agriculture; commercial sources, primary local dealers and salesmen are those principally involved in the dissemination of information. Generally the dissemination of this material is well planned and executed. In some cases, however, exchange may occur without planning and with little structure as might be the case when two people meet by chance, having common interests.  

Wilkening has indicated that it is possible to predict the function that a specific information source or medium will actually perform in the individual adoption process from the intended or planned function of the agency or source, the kind of organization involved (social structure) and the manner in which the communicating source ordinarily operates. 

The sources from which information come as mentioned previously are described in more detail below to show their importance in the adoption process.

Mass media are most useful as sources of initial information, with farm magazines and farm papers being used

\[24\text{Lionberger, op. cit. p. 43.}\]

\[25\text{Lionberger, op. cit., p. 43.}\]
more frequently than newspapers, radio, or television. These forms of media are most important at the awareness stage especially for the early adopters.

**Agricultural agencies** primarily include the Cooperative Extension Service and departments of vocational agriculture. They are most used at the evaluation and trial stages. They head the list for early adopters and in general as a source of information for all adopters about the special qualities and use of some of the more complex practices including items like soil and water management.

**Commercial sources** are used most at the trial stage since an understanding of new equipment and many new products require special instruction for proper use. There is a great deal of variation connected with this source depending greatly on the innovation.

**Other persons** are used to the greatest extent at the evaluation and trial stages. This is particularly true of the late adopters. When a decision must be made the advice of other farmers takes high priority.26

The sources of information can also be looked at from the standpoint of personal versus impersonal. The terms personal sources of information and personal influence are used to designate communication involving a direct face-to-face exchange between the communicator and the receiver.

26Lionberger, *op. cit.*, pp. 43-47.
Impersonal communication, on the other hand, does not involve a direct face-to-face exchange between the communicator and the communicatee. Impersonal information sources are most important at the awareness stage, and personal sources are most important at the evaluation stage in the adoption process.27

Personal communication is most important at the evaluation stage because: (1) It allows for a two-way exchange of ideas. A clarification or additional information can more easily and satisfactorily be secured. (2) Personal communication is likely to influence behavior and the transfer of ideas because people interacting often have similar values and attitudes. (3) There may well be greater accessibility and credibility because these sources are generally close at hand, well known, and trusted. (4) It is harder to resist because personal contact is more difficult to ignore than impersonal.28

To further understand the personal aspect there must be an understanding of the communicators involved. The cosmopolite goes outside his locality or social group for his information. That is to say that cosmopolite sources of information are more important to him than localite sources.

27 Rogers, op. cit., p. 98.
28 Rogers, op. cit., p. 100.
Cosmopolite sources are more important for earlier adopters than for later adopters. These early adopters or cosmopolites utilize sources that are in closer contact with the origin of new ideas and they also use more sources than later adopters. Eichholz and Rogers found that in general innovativeness varies directly with cosmopoliteness (defined as the degree to which an individual's orientation is external to a particular social system).\textsuperscript{29}

Opinion leaders are usually among the early adopter group rather than the innovators. Lionberger refers to these persons as key communicators or persons who are more important in the communication of information than others. They are generally defined in terms of high mentions received in response to questions regarding persons as sources of information used for general or specific purposes.\textsuperscript{30}

A different approach is taken by Riesman who suggests the following classification: (1) traditional-directed, (2) inner-directed, (3) other-directed. The traditional-directed person according to Riesman reacts to his culture as a unit which is mediated to him through a small number of people that he comes in contact with every day of his

\textsuperscript{29}Miles, op. cit., p. 313.

\textsuperscript{30}Lionberger, op. cit., p. 55.
life. He is expected to behave in an approved way and the operative sanction in his case is the fear of being shamed. 31

Riesman indicates that the inner-directed person acts in tune with his psychic gyroscope incorporated early in life under the influence of his parents and other authority figures and is capable of great stability because of the internalization of a number of principles and guides that he feels guilty about violating.

The other-directed person is attentive to a large social environment but unlike the traditional-directed individual he is cosmopolitan, susceptible to quick changes to fall in line, and capable of a superficial intimacy with every new and unfamiliar person and idea. 32

The "innovator" role, perhaps the most researched, seems to be the key to the whole diffusion and adoption processes. It seems logical that a closer look at some of the characteristics of the innovator might be helpful in suggesting keys to effectiveness in communication. Rogers in general uses the word innovator synonymously with early adopter. Their general characteristics are as follows:

1. Innovators generally are young.

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32 Ibid.
2. Innovators have relatively high social status in terms of amounts of education, prestige ratings and income.

3. Impersonal and cosmopolite sources of information are important to innovators.

4. Innovators are cosmopolite.

5. Innovators exert opinion leadership.

6. Innovators are likely to be viewed as deviants by their peers and themselves.33

Miles summarizes the personality traits of innovative administrators as strong, benevolent, intelligent, verbally facile, individualistic and creative. On the other-hand they may be rebellious, alienated, over-idealistic, emotionally unstable and prone to disillusionment and resentment. He further emphasizes that administrators as authority figures are crucial in introducing innovations, particularly those which involve structural change. The reason they are in this position is because organizations are hierarchically ordered in this way. Generally they are more likely to be able to handle the system problems associated with the introduction of an innovation more effectively than other members.34

33Rogers, op. cit., p. 192.

34Miles, op. cit. p. 642.
Most innovations appear to be stimulated, triggered and nurtured by one person or group, however many innovations are rejected. Theoretically, rejection of an innovation might be considered the opposite of adoption. If adoption is the full scale use of an innovation, rejection is the non-use of an innovation and may parallel the steps of awareness, interest, evaluation, trial and adoption.

Some of the responses to the postulate form of rejection are:

1. Rejection through ignorance assumed to exist when a given innovation was unknown, or its complexity led to misunderstanding.

2. Rejection through default expressed by admitting a knowledge of the innovation without any interest in its usage.

3. Rejection by maintaining the status quo, expressed by a teacher who did not accept an innovation because it was not used in the past.

4. Rejection through societal mores, expressed when a teacher thought her society did not find an innovation acceptable, and therefore did not use it herself.

5. Rejection through interpersonal relationships, expressed by indicating that friends did not use an innovation, or that a particular school environment made using an innovation unacceptable.
6. Rejection through erroneous logic, expressed by giving "rational" but unfounded reasons for the rejection of a worthy innovation.

7. Rejection through substitution, expressed when a teacher spoke of using one practice over another that would have required the use of a particular innovation.

8. Rejection through fulfillment, expressed when a teacher was certain she knew the "best" or "only" way to teach, making any innovation completely unnecessary.

9. Rejection through experience, expressed by telling of some incident when an innovation was tried and failed.\textsuperscript{35}

Social Structure and Adoption

Carlson suggests that social structure involves the relations that exist among people. He defines social structure in terms of the distribution and differentiation of statuses, roles, and patterns of interaction or communication among members of a social system. For example, a farmer living in a neighborhood always has people living near him. He is not at liberty to disregard their interests and expectations, at least if he has any concern about what they think of him.\textsuperscript{36}

The message in regards to an innovation is therefore

\textsuperscript{35}Miles, \textit{op. cit.}, pp. 307-309.

\textsuperscript{36}Lionberger, \textit{op. cit.}, pp. 68-69.
received by the individual who is a part of the social context which is the determining factor in exposure, evaluation and action. Therefore, persons who are members of the group respond differently to some messages than those who are not. Group membership may hinder the person from being exposed to the message. If, however, group members have norms that are favorable to the message there is more likely to be a favorable response from those members of the group than from those who are not. Response may vary with the importance that the receiver attaches to his group membership. The overt response is related, however, to the accessibility of appropriate social mechanisms for the expression of the suggested action. These groups may be the result of formations within a geographical area, locality, neighborhood, family, social cliques, reference groups or formal groups.37

Within any of these groups there may be persons who will adopt innovations regardless of the decisions of other individuals in the group or social system. Another situation arises when the individual may be forced to adopt if the group as a whole approves an innovation.

37Lionberger, Ibid.
A Given System of Values or Culture

Culture is the total man-made part of his environment. There are the nonmaterial aspects, unlike those things that man has made and can be examined are not always readily detected, examined and understood. They include ideas of right and wrong, attitudes toward and importance to differing degrees of people, places and things.38

A program of change should be tailored to fit cultural values that differ to some degree from those of their clientele. This is particularly true in the case of cross-cultural change agents. Unless the change agent is aware of these differences in cultural values he is likely to destroy his linkage with his clientele by his actions in introducing new ideas.

The discrepancy between traditional practices in the agricultures of the developing countries and modern processes shows that rapid strides in agricultural progress can be made. A pre-condition of this progress, however, is the dissemination of knowledge to thousands (sometimes hundreds of thousands) of individual, scattered farmers.39

Bhagwati continues by saying that this is an enormously difficult task since these farmers tend to be shrewd and realistic in their evaluation of new ideas being handed

38Lionberger, op. cit., p. 90.
39Rogers, op. cit., p. 278.
out by government officials. Western farm techniques imported into Japan had to be abandoned and replaced by techniques more suited to Japanese conditions of farm size, weather and soil. He suggests demonstration farms are a must and that these should be located close to the villagers or farm population. These farms need to be manned by well trained workers. 40

Rogers gives the example of an irrigation engineer from the Far East who went home from the U. S. convinced of the value of digging wells. Over 100 wells were constructed before it was realized that the people thought the water was artificial. They feared the water would harm their crops and they refused to adopt this new idea. 41

Similarly, a study of the failure to convince Los Molinos people to use boiled water was traced largely to the cultural belief that boiled water was less "cold" and, hence, appropriate only for ill persons. If one is not ill, he is prohibited by the cultural norms from drinking the boiled water. 42

41 Rogers, op. cit., p. 279.
42 Rogers, op. cit., pp. 7-12.
(Norm is defined as the most frequently occurring pattern of overt behavior for the members of a particular social system. The norms of a social system may be traditional and discourage the adoption of new ideas, or they may be modern and encourage the use of innovations. p. 16.)
Factors Influencing Change

Mort found that the average school "...lags 25 years behind the best practice." Why is the diffusion and adoption of educational ideas so much slower than that of farm innovations? Eichholz and Rogers indicate that the following reasons may be valid.

1. The absence of scientific sources of innovations in education. The drug laboratories in the case of medicine and agricultural experimental stations make possible accurate and precise measurement under controlled conditions for a given innovation. Educational institutions feel that their first responsibility is to the student, not to research. Thus, even where experiments are tried results of innovation trials are often ambiguous, incomplete, and confusing.

2. There are a lack of change agents to promote new educational ideas. In agriculture, the extension service personnel form a communication link between scientist and farmer. In education, on the other hand, the school principal is probably in a position similar to the county agent, but his major role is probably to administer the status quo rather than promote change.

3. There is less economic incentive to adopt in

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43 Miles, op. cit., p. 314.
education. First, the results of adopting an educational innovation are not so easily measured as those following the adoption of an innovation in agriculture. Whereas the innovation in agriculture will result in direct economic profit through increased yield only the cost of the innovation might be evident in the educational innovation. Secondly, teachers are generally paid the same whether they adopt or fail to adopt an innovation. They may even face possible risk of failure if they decide to adopt the innovation.44

Participants Influencing Change

Participants are viewed broadly as any individuals or groups capable of a wide variety of actions serving to influence the adoption or rejection of any innovation. MacKenzie classifies these participants as internal and external. These participants use varying methods to bring about change. One who would modify the determiners must be able to do so directly, or to influence others who are able to do so. The methods most commonly used are as follows:

1. Advocacy and communication. Unless a change is conceptualized and advocated in some form, it cannot occur on a planned basis. Studies on this phase showed that

44Miles, op. cit., p. 315.
internal participants often advocated a change and tried to persuade others to accept their way of thinking. External participants tended to make more use of mass communication devices in advocating their beliefs. Often they attacked or criticized existing arrangements as well as proposing changes.

2. **Prestige.** In cases studied prestige of individuals and groups advocating a change was one factor in their effectiveness. In the cases examined, ideas, proposals and detailed recommendations were often attributed to prestige-bearing sources.

3. **Competence.** In many cases competence of an individual was mentioned as a factor of influence. It was assumed that this was linked with outstanding competence in skills of writing, speaking or conferring, unusual knowledge of the problem or an ability to relate to people with unusual effectiveness.

4. **Money or Goods.** This can be used in various ways to influence change. The national government may supply matching funds in selected areas to encourage local action. An agency, like the Ford Foundation, is able to make a major impact in selected areas through grants-in-aid or through outright support of special programs. Most any organization can have similar influence.

5. **Legal Authority.** State and Federal government as well as boards of education have clear prescribed or
mandating powers. They can recommend, evaluate and set standards.

6. **Policy Precedent and Custom.** Much authority is often delegated to the local leader of the organization or other professional staff members. This may be by custom and precedent only or by carefully defined policy.

7. **Cooperation or Collaboration.** Cooperation among individuals and groups with similar or different assets may greatly strengthen their influence. For example, an influential professional organization working in cooperation with a wealthy foundation can exert an influence considerably greater than each party independently.45

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**Process and Tactics of Diffusion**

The main concern in this section is to clarify the way in which the roles of the developer, disseminator, and demonstrator of an innovation are linked together. The ultimate aim is to gain adoption of an innovation. This section deals with the following two areas:

1. Definitions and models of communication.
2. Adoption models and strategies of change.

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45Miles, op. cit., pp. 409-419.
Definitions and Models of Communication

Simply stated, communication is the sharing of ideas and feelings in a mood of mutuality. It is a two way process. Communication at its best is an interaction, a transaction, a situation in which modification of one's ideas is a logical and often necessary part of the process. Communication means getting into the other fellow's shoes, and permitting him to get into ours. It means an empathic relationship, sensing the way a given idea or experience affects other persons. It is the bridge which unites the producer of information with its users.

Various definitions given by communication experts support this central idea of interaction. It is the hope of the writer that the following definitions and models will aid the reader in more clearly understanding communication.

A more comprehensive look at the various definitions given by communication experts would seem helpful at this time:

Communication is: (1) the transference of thought from one person to another through the medium of speech or writing, including the use of mechanical instruments such as the telephone

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and the radio, (2) a term increasingly used, in a general sense, to embrace a wide range of instruments, mediums, and processes - as in technical communications, studies in social and psychological processes of mass communications, and statistic and linguistic processes in communication arts.47

In a broad sense, communication is any art by virtue of which one organism evokes behavior from another --- intentional communication --- means the use of symbol behavior that not only triggers others behavior but does so with the initiator usually able to anticipate the nature of the reaction to his behavior.48

Communication comes from the Latin communis, common. When we communicate we are trying to share information, an idea, or an attitude --- the essence of communication is getting the receiver and sender "tuned" together for a particular message ---- Communication always requires at least three elements - the source, the message, and the destination. A source may be an individual (speaking, writing, drawing, gesturing) or a communication organization (like a newspaper, publishing house, television station or motion picture studio). The message may be in the form of ink on paper, sound waves in the air, impulses in an electric current, a wave of the hand, a flag in the air, or any other signal capable of being interpreted meaningfully. The destination may be an individual listening, watching, or reading; or a member of a group, such as a discussion group, a lecture audience, a football crowd or a mob; or an individual member of the particular group we call the mass audience, such as the readers of a newspaper or a viewer of television.49


sharing lies at the heart of the word communication. When people are in communication, they make common or share their ideas and feelings. The process of sharing ideas and feelings implies a number of elements - a communicator and a receiver of that communication; some kind of purpose and expression on the part of the communicator; some kind of perception, interpretation, and response on the part of the receiver, some kind of bond or channel linking the communicator and the receiver of that communication, and some kind of occasion or living situation in which the communication occurs. --- In taking a first sophisticated view of the what, how, why, when, and where of communication, it is important that we see this subject in full process, for only when we see the process of life are we looking at the whole of communication.

Aristotle defines the study of rhetoric (Communication) as the search for all the available means of persuasion.

Communication is a process of sharing experience till it becomes a common possession. It modifies the disposition of both the parties who partake in it.

Normal communication with others is the realist way of (bringing the natures of an experience to have implications) effecting this development, for it links up the net results of the experience of the group and even the race with the immediate experience of an individual. By normal communication is meant that in which there is a joint interest, a common interest, so that one is eager to give and the other to take. It contrasts with telling or stating things.

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simply for the sake of impressing them upon another, merely in order to test him to see how much he has retained and can literally reproduce.52

Communication is the process of transmitting meaning between individuals, --- mass communication is a special kind of communication involving distinctive operating conditions, primary among which are the nature of the audience, of the communication experience, and of the communicator.53

Communication is the transmission of information, ideas, emotions, skills, etc., by the use of symbols - words, pictures, figures, graphs, etc. It is the act or process of transmission that is usually called communication.54

Communication is a process, and process implies something ongoing, dynamic, and ever changing. We are not only sources or receivers of communication. We are both, and in our daily lives we constantly switch from one role to the other. We send messages and at the same time we receive messages.55

Communication is (1) the transmission of an effect from one place to another without transport of material: e. g., a sound wave transmitted from its origin to the ear drum, (2) the process whereby

physical energy acts upon a sensory receptor: a stimulus is communicated to an organism.56

Effective communication means tailor-made programming specially designed for the situation, time, place, and audience.57

The extension agent fails to communicate when he concentrates only on subject matter and forgets the audience. The goal or end of communication is the widest sharing of the good things and ideas of life. The means are all those ways by which ideas are transferred, but with chief emphasis on the person, not the medium or the material.

The communication process can be thought of as any communication act, whether it be a face-to-face relationship or via mass media, as beginning with an idea, a concept, or proposition in the mind of the communicator. The idea is then encoded into audible and visible communication symbols to be transmitted by light and sound waves or through some form of printed media as its channel. The receiver is an individual reader, listener or observer who decodes the symbols into terms meaningful to him, and the communication reaches his mind through one of the senses


and elicits some kind of response. This response, if overtly expressed, serves as a "feedback" to the communicator.58

For example, the extension agent preparing a lesson for his audience has a purpose to teach certain facts or principles. He takes the information, decodes it and brings these thoughts and this information together encodes it through writing, or speaking. The channel may be a mimeograph, film strip or sound waves. The student receives the message, decodes it by retranslating it into a nervous impulse, and sends it to the central nervous system. This nervous system reacts to the impulse and there results a response to the stimulus.

Robinson (Fig. 1) suggests that the sender in receiving and collecting information (decoding) is making sense out of this information (assigning meaning) and developing and executing a communications program consistent with this gathered and interpreted information (encoding). This process was described as a circular one, out of which one cannot really separate (except for analysis of purpose) the three functions of decoding, assigning meaning, and encoding.59

58Eisenson, op. cit., p. 23.

59Edward J. Robinson, Communication and Public Relations. (Columbus: Charles E. Merrill Books, Inc., p. 77.)
Schramm (Fig. 2) indicates that communication is highly dependent on the field of experience of both the source and the receiver. The more the two have in common in the way of experience the easier and the more effective the communication will be.

The source can encode and the destination can decode, only in terms of the experience that each has had.  

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60 Schramm, op. cit., pp. 6-9.
Yet another way that the process can be diagramed is shown in Fig. 3.

Fig. 3 -- The relationship of feedback to the communicator.

An experienced communicator is attentive to feedback, and constantly modifies his message in light of what he observes in or hears from his audience. 61

Knower suggests a more detailed model that includes many of the concepts to be discussed later. Some of the contributing disciplines concerned with communication are indicated in the margin of the model. Any communication is shaped by the culture in which the behavior occurs. Speech is an example of learned behavior affected by culture. But differences do occur reflecting the change that takes place over time. The principle features of this model are on a pedestal with a base labeled learning implying that all communication behavior has been learned. 62 This model is shown in Fig. 4.

61Ibid.
Fig. 4. -- A communicologist's model of basic dimensions in communication
Berlo indicates that every communication situation differs in some ways from every other one, yet certain concepts can be isolated that are common to all communication situations. There concepts and their interrelationships are considered in constructing a general model of communication. A simple model using a straight line from source to receiver is illustrated in the following sequence:

Source → Encoder → Message → Channel → Decoder → Receiver

All human communication has some source, some person or group of persons with a purpose, a reason for engaging in communication. Given a source, with ideas, needs, intentions, information, and a purpose for communication there is the need for the purpose of the source to be expressed in the form of a message. This message must be translated into a code, a systematic set of symbols to be sent by way of some medium or channel to its intended receiver who will take the message, have it decoded or retranslated into a form that he can use.

Berlo states that the source and the encoder are often the same person. Similarly the decoder and the receiver may be the same person. Since communication is a process it must be viewed as a dynamic, on-going, ever-changing, continuous sequence of events.63

Another model shown in Fig. 5 is interesting in that it suggests that the message may indeed change from the time it leaves the sender until it comes back to the sender again. The game of passing a story by whispering from one to another around a circle illustrates the point. By the time the story reaches the original sender again its content is likely to have changed considerably.

```
Decoder ----> Decoder
    ↓            ↓
  Message 4    Message 3
    ↑            ↑
  Sender       Receiver
    ↓            ↓
  Message 1    Message 2
        ---->        ---->
    Encoder      Decoder
```

Fig. 5 -- The circular dimension in communication.

The Shannon and Weaver model (Fig. 6) begins with an information source prepared to send a message. The message must then be put upon a mechanism capable of encoding and sending it. The signal passes over a channel to a receiver mechanism. Here the message is decoded and forwarded to its destination for possible action. Noise is an outside force that distorts the message.

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Fig. 6 -- Shannon and Weaver model of communication.

Other models have been suggested by Smith who reviews some twenty communication models with different theoretical and subject matter orientation. McLechlan presents his analysis in seven typical communication structures: the cocktail party, the rural community, the military organization, a team for useful scientific research, the network on teaching, the telephonic networks, and information retrieval systems.

He points out the diffusion potential of these different communication structures and their mode of "monitoring" information - monitoring being defined as a system of controls over the types of information sent from the various centers.

Recently more and more research has been centered around the "Two-Step Flow of Information" hypothesis. There seems no doubt that between the media and the

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66 Ronald L. Smith, General Models of Communication, Special Report No. 5 (Lafayette, Indiana: Communication Research Center, Purdue University, 1962).

audiences there are the opinion leaders to bring small
groups in touch with relevant parts of environment through
whatever media are appropriate.  

Rogers and Carpenter suggest a special kind of the
two-step flow of communication, that of the trickle-down
process. Whereas, the concept of the two-step flow of
communication is that "ideas" often flow from radio and
print to the opinion leader and from them to less active
sections of the population, in the trickle-down process
the adoption leaders (for farm innovations) secure their
technical farm information from the county extension agent
and then pass this information along to their neighbors
and friends as personal influence or word-of-mouth
communication.  

Berlo takes into consideration variations in Sources,
Messages, Channels, and Receivers in acts of Communication.

Sources and Receivers are seen as having
specific (i) communication skills, (ii) attitudes,
(iii) knowledge; and as belonging to particular
(iv) social systems and (v) cultures. Communica-
tion Messages are viewed as having different
(i) elements, (ii) structures, (iii) contents,
(iv) treatments and (v) codes; and Channels are

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69 Everett M. Rogers and Harold R. Carpenter, The County Extension Agent and His Constituents," Research Bulletin 858, June 1960, Ohio Agricultural Experimental Station, Wooster, Ohio, p. 27.
seen relating to (i) seeing (ii) hearing, (iii) touching, (iv) smelling, and (v) tasting. 70

Many believe that the mere existence of widely spread and elaborate communication networks and consumption by adopters or adopter systems of information flowing over them leads automatically to the adoption of innovations. However, most communication specialists agree that some generalized interaction mechanism must be brought into existence to influence adopters to accept new concepts, attitudes or tools.

Adoption Models and Strategies of Change

Many models of innovation, diffusion and adoption have been proposed. Most of these models have been developed to show the process by which farm changes take place. The purpose here is to discuss the research in action schema developed by Guba and Clark as shown in Table 1. 71 This schema draws attention to the different functions or processes that must take place before an innovation can become an innovation, and an innovation can become a matter-of-fact classroom procedure or educational practice. They point out that during the last ten years there has been a general expansion of research activity in education.

70Berlo, op. cit., p. 72.

There has also been a feeling that somehow research ought to be translated into improved educational practices.

Guba suggests that an agency similar to that which exists in agriculture is needed in education in order to close the theory practice gap.

According to the research in action schema it is not up to the researcher to apply his new knowledge but rather the relation of research to change is that it may provide a basis for innovation by someone else. Someone must undertake the development of application. Development is considered under the headings of invention and design, the objective being to formulate a solution to an action problem through research, experience or intuition. The second type of developmental activity is design, which must render the formulated solution or intention into an acceptable, adaptable form. It is the developmental activity which is at the heart of change, for while research may make the change possible it is development that actually produces an innovation which may be adopted. It is not, however, the developers task to diffuse the now developed invention.

The diffusion specialists job has two dimensions; dissemination and demonstration. Dissemination is concerned mainly with creating widespread awareness of the existence of the invention. Demonstration on the other hand, is to
TABLE 1
A CLASSIFICATION SCHEMA OF PROCESSES RELATED TO AND NECESSARY FOR CHANGE IN EDUCATION

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>RESEARCH</th>
<th>DEVELOPMENT</th>
<th>DIFFUSION</th>
<th>ADOPTION</th>
<th>INSTITUTIONALIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>To advance knowledge</td>
<td>To formulate a new solution to an operating problem or to a class of operating problems, i.e., to innovate</td>
<td>To order and to systematize the components of the invented solution; to construct an innovation package for institutional use, i.e., to engineer</td>
<td>To create widespread awareness of the invention among practitioners, i.e., to inform</td>
<td>To build familiarity with the invention and provide a basis for assessing the quality, value, fit, and utility of the invention, i.e., to build conviction</td>
<td>To fit the characteristics of the invention to the characteristics of the adopting institution, i.e., to operationalize</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>INVENTION</th>
<th>DESIGN</th>
<th>DISSEMINATION</th>
<th>DEMONSTRATION</th>
<th>TRIAL</th>
<th>INSTALLATION</th>
<th>INSTITUTIONALIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Validity (internal and external)</td>
<td>Face Validity (appropriateness)</td>
<td>Institutional Feasibility</td>
<td>Intelligibility</td>
<td>Credibility</td>
<td>Adaptability</td>
<td>Effectiveness</td>
<td>Continuity</td>
</tr>
<tr>
<td></td>
<td>Estimated Viability</td>
<td>Generalizability</td>
<td>Fidelity</td>
<td>Convenience</td>
<td>Feasibility</td>
<td>Efficiency</td>
<td>Valuation</td>
</tr>
<tr>
<td></td>
<td>Impact (relative contribution)</td>
<td>Performance</td>
<td>Pervasiveness</td>
<td>Evidential Assessment</td>
<td>Action</td>
<td>Support</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RELATION TO CHANGE</th>
<th>PROVIDES BASIS FOR INVENTION</th>
<th>PRODUCES THE INVENTION</th>
<th>ENGINEERS AND PACKAGES THE INVENTION</th>
<th>INFORMS ABOUT THE INVENTION</th>
<th>BUILDS CONVICTION ABOUT THE INVENTION</th>
<th>TRIES OUT THE INVENTION IN THE CONTEXT OF A PARTICULAR SITUATION</th>
<th>OPERATIONALIZES THE INVENTION FOR USE IN A SPECIFIC INSTITUTION</th>
<th>ESTABLISHES THE INVENTION AS A PART OF AN ONGOING PROGRAM; CONVERTS IT TO &quot;NON-INNOVATION&quot;</th>
</tr>
</thead>
</table>

- Validity: Appropriateness, Face Validity, Estimated Viability, Impact
- Feasibility: Institutional Feasibility, Generalizability, Performance
- Intelligibility: Fidelity, Pervasiveness, Impact (extent to which it affects key targets)
- Credibility: Convenience, Evidential Assessment
- Adaptability: Feasibility, Action
- Effectiveness: Efficiency, Valuation
- Continuity: Support
build conviction and provide evidence that can be examined thoroughly and critically.

The final stage at which the invention may actually be incorporated is adoption. Adoption is subdivided into three stages, that of trial, installation, and institutionalization. Trial is used at a time during which a basis can be provided for assessing the quality, value, fit and utility of the invention. Installation is the stage of operationalizing the innovation and institutionalization regularizes the innovation. The following table summarizes the procedures involved in the research in action schema.
CHAPTER III

ANTICIPATED INTELLECTUAL BEHAVIORAL REQUIREMENTS FOR FUTURE COMPETENCE IN SOCIAL CHANGE

Introduction

This chapter presents a summary of the investigation of the literature related to the identification of technical, social and economic trends in society. A list of anticipated intellectual behavioral requirements for future competence in communication has been developed for cooperative extension and vocational agricultural educators. This listing arises out of the trends that must occur in the Cooperative Extension Service and vocational agricultural education to cope with future technical, social and economic trends.

In making a review of this nature it must be pointed out at the outset that certain differences do exist between cooperative extension education and vocational agricultural education. Whereas, vocational agriculture is oriented to a class-room type setting, cooperative extension workers deal with people on a voluntary basis. Both agencies are agricultural and educational and interested in bringing about change in the behavior of their clientele. Because
of these important commonalities the intellectual behavioral requirements for most effective and efficient communication are assumed to be similar for both agencies. The trends needed in vocational agriculture and in Cooperative Extension Service to cope with the technical, social and economic trends are treated at a level of generalization so as to be applicable to both agencies.

Economic, Technical and Social Trends In Society

And so today - as with the rest of our economy - agriculture is in an unprecedented state of flux. In fact, it is in a state of technological and economic revolution. Agriculture is changing from a way of living to a way of making a living. It is changing from a business of arts and crafts to one which is undergirded and deeply rooted in science and technology. Today, we are seeing the greatest agricultural changes of all time - unparalleled and unprecedented changes which are occurring at an ever increasing rate. These changes are in the tools employed on our farms, in the methods used, in the people who manage and operate our farms, and in their relationships with the rest of society.¹

A brief review of the situation in U. S. agriculture gives some indication of the direction in which it is moving. A commercial agriculture has developed in the U. S. that buys more and more inputs from off-farm

industries. The general effect of such purchases has been to increase output and reduce costs of production per unit. Technology is becoming increasingly important in reducing cost per unit in the U. S. and the world.\textsuperscript{2}

From 1950 to 1966, U. S. agricultural output increased 31 percent while population increased 29 percent. This increased output was accomplished with 50 percent less labor and 12 percent (57 million acres) less land but 27 percent more capital inputs. For example, total fertilizer use increased about 200 percent from 1950 to 1965. Nitrogen usage increased at an even faster rate --- 350 percent above 1950.\textsuperscript{3}

More than ever before, the American economy will be responsible to the world wide economy. Pressures change rapidly under the impact of new technologies resulting in and responding to new social problems and new opportunities.\textsuperscript{4}

It may not be possible to predict what will happen in this world, but it is possible to recognize possible

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{2}Wallace Barr, "World and U. S. Food Needs - Where Will it Come From." (Talk given before the Annual Meeting of Agricultural Ammonia Institute, St. Louis, Missouri, January 19, 1966), p. 6.
\item \textsuperscript{3}Ibid., p. 6.
\item \textsuperscript{4}Ibid., p. 1.
\end{itemize}
\end{footnotesize}
developments, and to say that if they materialize their consequences will be profound.\textsuperscript{5}

It is even difficult and possibly even dangerous to generalize on the changing characteristics for the United States, but some attempt must be made. The environment in which vocational agricultural education and cooperative extension conduct their programs is influenced by changing technological and social trends. These changes and developments must be considered in the development of any curriculum and in the operation of the services.

**Economic Trends**

Although it is impossible to separate clearly and distinctly the three broad areas; economy, technology and social, an attempt will be made.

Economic considerations can be broadly grouped under the heading of productivity and consumption. This broad heading is further divided into the following categories: (1) specialization, (2) management, (3) population, (4) income, (5) dependence on other sectors, and (6) foreign development.

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Specialization

Specialization might be thought of as the key that unlocks the door to a successful future. A well established trend in all sectors of the economy, specialization will become more vital to the existence and advancement of industry and agriculture. Businesses and organizations of all types have realized its necessity. Machines are built to handle specific jobs; a salesman sells one specific product; workers are trained to perform one specific task; students become versed in only one subject matter field.

The trend toward specialization in agriculture is evidenced by:

1. The expansion of agriculture in every respect except the number of people required to operate our farms.

2. The commercial family farms have become larger resulting in a decrease in numbers of farms.

3. The increase in the number of businesses supplying materials and services to farmers and in handling, processing and distributing farm products.

4. The increase in vertical and horizontal integration—especially in perishable commodities.

5. The increasing amount of agricultural products that are produced according to specification and sold under contract.
6. The employment opportunities provided by the significant development of organizations and leadership services in agriculture.6

Management

Both agricultural firms and primary producers are becoming increasingly aware of the need for an industry approach to the production and marketing of individual commodities (in contrast to the "each man for himself" philosophy). In addition, the traditional attitudes toward long-run problems of surplus capacity and narrow cost-price margins are changing. That is, a "defensive" attitude toward adverse conditions in agriculture is being replaced by an attitude which views agriculture as a "going" industry in which business decisions are made on a high management plane. These trends have implications to the organization of agriculture and, therefore, to the channels of communication and the general level of clientele with which cooperative extension and vocational agriculture will be involved.7

6Boone, op. cit., p. 11.

1. Prices received by farmers will be a major factor in determining the quantity of any product produced in the period ahead. Greater demand for meats will result in higher prices, increased grain fed beef and improved conversion rates.8

2. The nature of products sold is becoming more complex, thus more information on agricultural products will be desired by increasing numbers of individuals.

3. Operational skills and managerial ability are essential requisites for success in farming.9

4. Farmers are experiencing increased competition from industry-made substitutes for farm products and from foreign countries.

5. Many new machines and appliances are coming on the market. The farmer is seeking more information on how to purchase, use and care for this more complicated and expensive equipment.10

6. There is an increasing need for able and dedicated farm leadership.

8Barr, op. cit., p. 8.


10Boone, op. cit., p. 11.
Population

Population growth is a major factor in domestic market expansion. From 1950 to 1964, the rate of 1.6 percent per year resulted in 192 million people in the U. S. At an estimated rate of 1.4 percent per year the population will reach 245 million by 1980. However, new technological advance in birth control and a change of policy in the catholic church may result in a much slower increase resulting in permanently reducing the growth in demand for food. 11

Population growth and movement has resulted in trends important to our changing economy.

1. Increased urbanization, made possible through rising agricultural productivity, has resulted in many of the traditional agricultural activities being moved off the farm. New agricultural occupations have emerged in the distribution, processing and service areas. 12

2. Farming continues to be the basic occupation of a large number, even though a declining percentage of the population.

11Barr, op. cit., p. 7.

3. Other phases of agriculture continue to require increasing numbers of workers and already employ more people than farming itself.

4. There is a continuing trend of larger communities, often with no distinct geographic boundaries, as a result of merging rural and urban communities.

5. Schools continue to increase in size with urban and nonfarm youth comprising, in most cases, the larger percentage of school enrollments. 13

6. The image of agriculture is increasingly more favorable. People are realizing that the culture of the city is not as important a factor now as it once was. The aesthetic value of the rural area has risen in importance. This peace and freedom from fear as opposed to the cities rising crimes and increased pollution has resulted in a urban to rural movement.

Income

With rising output per man hour and a more rapid growth in the labor force, a 75 percent increase over 1965 gross national income is expected, amounting to 1,150 billion dollars by 1980.

Food intake per person does not change in response to rising income but quality of food does change, i.e., about 1,420 pounds of food, including water, is consumed by each person per year. However, people with rising incomes do upgrade their diets by substituting higher priced, more nutritious foods such as meats, fruits and vegetables for lower cost carbohydrates.\textsuperscript{14}

Trends related to changes in income which are significant include:

1. The change in eating habits noted by a decline in per capita use of wheat, potatoes, butter, fluid and condensed milk, and the greater use of meat, oils and poultry. These long run changes have occurred as a result of rising incomes, relative prices, changing tastes, introduction of convenience foods, change in type of work and migration of the farm population to the city.

2. Individual farm incomes and standards of living have continued to rise. However, there continues to be a disparity in incomes and standards of living among population groups.

3. The average value of productive cropland continues to increase.

\textsuperscript{14}Barr, op. cit., p. 7.
4. The farmer handles more and more money, but at the same time he finds it more difficult to meet the expanding needs and desires of farm and family.

5. With the increasing growth of the national income farming is receiving a smaller and smaller share.15

Dependence on Other Sectors

Satisfactory opportunities which will provide a good level of living will be available to only about 10 to 15 percent of rural farm boys. Thus, it will be necessary for most farm boys and girls to make adjustments from farm to non-farm living.16 The following trends illustrate the importance of this statement.

1. There is a trend for farms growing larger or dropping out of production, either through combination with other farms or changing to part-time or retirement farming. Off-farm work and sources of income are becoming relatively more important, particularly adjacent to urban areas. There are proportionately more older farm operators in almost all areas, due largely to the increase in part-time and retirement farms.17


16Ibid.

17Fishel, op. cit., pp. 15-17.
2. The farm segment is becoming increasingly dependent on other segments of the economy. Thus, farm people will need a much broader understanding of public affairs than they have in the past.\textsuperscript{18}

3. More off-farm products are being used on farms to increase production.

4. Government has become deeply involved in agriculture.

**Foreign Development**

The U. S. has become a part of the international community. World events are playing an increasingly important role in agriculture. The share the U. S. will have in the export market will depend on export programs, world commodity agreements, domestic policies, technological developments at home and abroad and growth in world income.\textsuperscript{19}

Some of the trends presently significant on the world front would appear to be:

1. Greater importance is being placed on using technical and social innovations borrowed from other nations.

2. There is a greater tendency to stress the importance of education as a road to development.

\textsuperscript{18}Boone, op. cit., p. 11.

\textsuperscript{19}Barr, op. cit., p. 9.
Hand-in-hand with this stress on education there is a definite trend toward long period plans and goals on the part of national and foreign governments.

3. There is continuing to be a steady increase in the speed of communication and implementation of ideas developed in one country and adopted by another.

4. There is an ever increasing intracontinental and intercontinental movement of people due to the speed of economic modernization and industrialization, transportation and interest.

5. International trade and the flow of international funds has increased tremendously. 20

6. There is a general trend on the part of government organizations to improve the training programs for agricultural technicians. More attention is being given to the recruitment of better qualified personnel.

Technological Trends

Agriculture is a broad category, of which farming or "production agriculture" is only one phase. Agriculture is a group of occupations, with each occupation requiring specific skills and abilities, some similar and some

different. Farming is the basic root from which all other phases of agriculture grow including distribution, processing and service occupations. Technology made possible through an ever increasing program in research is changing agriculture at an accelerating pace.

Efficiency of output and the productivity of farm units continue to improve because of the application of science and mechanization. This trend is expected to continue thus replacing muscles of horses, oxen, mules and men with new and improved sources of power.

New knowledge and its application will be the most important commodity in tomorrow's agricultural world. More capital, more science and technology, more managerial ability and more purchased production inputs will be required. The right combination of each of these will be the critical decision.

The following categories deserve our attention: (1) Cybernation, (2) Biology, (3) Communications, and (4) Resources.

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22 Boone, op. cit., p. 11.
The application of automation and computers (cybernation) will increase rapidly to a greater variety of tasks.

1. Centralized computer facilities simultaneously serving many small organizations (via telephone and teletype) will provide many advantages for the many operators who will benefit from such programing but not be able to underwrite the complete cost of ownership.

2. The Dairy Herd Improvement Association and farm analysis programs have already begun to use the computer in their analysis. More programing for cropping practices will be available as a result of research presently being done to develop expert program designs. A farmer with a certain problem may merely fill out a questionnaire and the machine will use his answers to compile its own optimum program to solve the particular problem.

3. Computers will function as language translators making information around the world available to solve certain problems.

4. Process control with the attending automation, while delegated to simpler computers, will have reached a very high degree of development decreasing the necessity of a large number of factory and farm employees. 23

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5. Teaching machines will have back up master computers of large capacity compiling data from smaller "slave-teaching machines" and altering teaching methods on the basis of past performance. They will up-date the material and its ideological slant as dictated by scientific advances and changing mores of society.\(^\text{24}\)

**Biology**

The most exciting and dramatic breakthrough may well occur in this area. Future research in understanding biological processes will not only produce new ideas applicable to the design of machines but will accelerate the growth of understanding by which men think, discriminate, seek goals and generally select from and guide themselves through the world of things and symbols.\(^\text{25}\)

1. Telemetering and computer techniques for monitoring, diagnosing and treating biological malfunctions are already in use. As these become refined many people will live with sensors permanently embedded in their bodies that will transmit information through them to the outside.

2. Oral contraceptives for both sexes will become cheap, effective and physiologically safe.

3. Synthetic photosynthesis is likely to be developed.

\(^\text{24}\)Ibid.

4. Improvement of crops and livestock will be accomplished by deliberate manipulation of the genetic "code".26

**Communications**

Trends in communication appear to be more telephone lines, television and radio channels.

More and more the world will become one community. There will be an increasing communications net of high speed data transmitters, cybernated libraries and data displays. Multiple nation owned satellites will play a major role.

1. Opportunities for augmenting educational facilities in the underdeveloped areas will be especially great.27

2. More elaborate communication systems will be used in the home. Telecommunication for conferences and conversations will lessen the need for personal contact.28

3. Cybernation of libraries will result in increased study at home with less and less emphasis on compulsory formal class attendance.

26Ibid.
27Ibid., pp. 23-24.
28Calder, op. cit., p. 155.
4. The telephone will be used as a command and control device.\(^\text{29}\)

**Resources**

1. Greater accuracy can be expected in short and long range weather forecast due to weather satellites and high-speed data processing. Accurate seasonal forecasts may eventually influence crops being planted.

2. Water purifying and repurifying must expand greatly. Conversion of sea water to fresh water will expand greatly. Transportation improvements although dramatic will not be sufficient to economically transport fresh water from surplus areas such as the Amazon River to water deficient areas.

3. Cybernation and shorter working hours will result in an ever expanding desire for recreational facilities. This whole area is open to engineering imagination.\(^\text{30}\)

4. New discoveries of essential raw materials and discoveries of raw materials yet unknown to man may in the future bring about even more dramatic breakthrough.

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\(^{29}\)Michael, *op. cit.*, p. 29.

\(^{30}\)Ibid., pp. 30-31.
Many of the social trends included herein are a direct outgrowth of economic and technological trends. That is, as greater efforts are put into applying the methods of science and engineering to set all sorts of goals, and to organize men, work methods and administration so that those work goals can be attained by the most efficient means, then social change would appear to be imminent. It has been suggested that there are certain tendencies that pervade social change. These include: increased complexity, centralization, specialization, interdependence, formality and impersonality.\(^{31}\)

These trends can be accounted for under the broad categories of (1) urban-rural trends, and (2) organizational trends.

**Urban-Rural Trends**

The increasing trend in rural-urban migration, mobility and common communications and problems has had tremendous effects upon society. The whole pattern of life has changed except for a few pockets of isolated rural inhabitants. With the increase in interaction between rural and urban societies there is an ever narrowing of

\(^{31}\)Fishel, op. cit., pp. 18-19.
differences in values and, particularly, styles of living.

1. There is a diminishing of primary relationships (decrease intraditional kinship ties beyond the immediate family) and an expanding of secondary relationships (shifting of certain former "family" functions) to other specialized parts of the social structure.

2. There is a continuing intrusion of outside forces into local "ways of life" which is fostering a more cosmopolitan attitude on the part of rural residents.

3. The differences in population characteristics are decreasing - consumption patterns and styles of living, occupational status symbols, and to some extent in basic values, among societal "classes", occupational groups, rural and urban populations and regions. It would appear that there is a movement toward a more homogeneous "middle class" society.

3. There is greater specialization, with higher levels of education and attendant ability to communicate, which has fostered group relationships based on common interests rather than locality and has caused a change in orientation from local trade centers (as sources of social, family, and farm business needs) to larger urban concentrations.
Organizational Trends

In general, there is a less autonomous character of locally defined or oriented groups of individuals with an accompanying lesser dependence on particular individuals and more on society in general.

1. There are changes in many local social organizations; shifting of political influences from township to county, to regional and to state; and frequent dissipation of local church bodies.\(^{32}\)

More and more, major social problems and opportunities will have to be met by Federal Government social control programs if they are to be met adequately. Long range planning will require detailed knowledge about local parts of the socioeconomic system and the power to effect those local parts in order to affect the national system, and vice versa.\(^{33}\)

2. There is a shift from a "traditional" rural society to a more "modern" society in which can be found greater levels of technology and specialization, education, cosmopolitan attitudes, economic rationality and empathy toward new concepts and situations. In such a society, receptivity to further change is large.

3. There is an increased emphasis on special interests, and a greater importance attached to crowd or mass behavior and communication, with the corollary growth

\(^{32}\)Ibid.

\(^{33}\)Michael, op. cit., p. 43.
in both numbers and importance of large, formal organizations with centralized control and communication. The individual in such organizations tend to take on more impersonal characteristics. This trend is more dominant in economic and political structures and perhaps the most obvious trend in social structure today. There has also been a marked tendency for formal, centralized agencies of control and communication to penetrate local communities or localities. Governmental and educational organizations are examples of such agencies.34

Mass education, large research and development laboratories, mass transportation, mass religion, mass recreation facilities, big business, even small businesses will be increasingly operated in ways intended to maximize command and control both predictability and stability. Clearly this trend and the conflicts between it and less organized approaches to life will greatly influence the experiences, opportunities and viewpoints of youth and the adults guiding them.35

The future is where we will be living, working and investing. The forces which will influence and shape agriculture include; population and income growth, consumer preferences, foreign market developments and technological

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34 Fishel, op. cit.
35 Michael, op. cit., p. 36.
development. No one can exactly anticipate the changes that will be necessary to cope with future trends but farmers, legislators, businessmen, administrators and educators are forced to make decisions that have impacts extending well into the future.  

Changes Needed in Cooperative Extension and Vocational Agricultural Education

Cooperative extension and vocational agricultural education have had an important role in the past and can play a very dynamic role in the future. However, if they are to continue to play a significant role in the future they must be prepared to be in the presence of important controversy, but not necessarily taking sides.  

How well these services are able to capitalize on their opportunities and marshall their resources to make the necessary adjustments to meet the growing and changing needs of their expanding clientele will undoubtedly determine in large measure whether they will be lost in the passing parade or continue as a dynamic, vital and effective educational force in the life and culture of rural America. 

The new clientele grows out of social and economic changes, the decline in the number of farms and of farm

36 Barr, op. cit., p. 6.
37 Boone, op. cit., p. 47.
people, the growing complexity of modern farming and homemaking, the increasing number of urban, suburban, and open country non-farm residents who are requesting services, and the demand for services in marketing and consumer information.  

The emphasis must be on education in changing cooperative extension and vocational agricultural services in order to effect the needed trends in agriculture of the future. Rather than the "shot gun" approach the agricultural educator will have to take the "rifle approach" well levelled at different clientele with different communication procedures. The approach will differ for the deprived, the commercial farmer and the part time farmer.

It is impossible to compare the quality of the job we are doing today with what we did in an earlier time because our job has changed. . . . Some persons still fail to grasp the fact that our great task is still to reach those who are not themselves actively seeking education. By far the easiest part of the teaching task is to teach the student who comes to school eager to learn.

Thus the challenge of education from a social standpoint involves providing the individual with adequate exposure to the total environment and the opportunity for him to choose and pursue in depth whatever interests him most.

\[38\] Ibid., p. 14.


\[40\] S. L. Kong, "Education in the Cybernatic Age: A Model," Phi Delta Kappan, October 1967, p. 73.
Education will involve: (1) changing perspectives, (2) changes in organization, and (3) changes in teaching.

Changing Perspectives

The educational requirements for productive and meaningful lives will require profound changes in the procedure, substance and spirit of educative processes.

The trend of specialization in agriculture as evidenced by fewer but larger, more specialized farms and greater control of product specification, has resulted in increased information and services being provided by supply companies. A recent survey of farm chemical suppliers revealed almost a unanimous agreement that more services of all types would be offered to farm customers, including such services as soil testing, chemicals, application and general agronomic help. Another study indicated a similar trend among farm buildings and materials suppliers.41

1. Although information and services being provided by supply companies will increase there may be a bias or ulterior motive in the presentation of much of this information. Hence, individuals will continue to need an objective presentation of facts, but more importantly, an ability to appraise information presented through mass communication media and public meetings.42

42Ibid., p. 64.
2. In general, it may be assumed that with increasing integration of the various sectors of the economy, there will be more contacts between general businesses and cooperative extension and vocational agricultural agencies. There will be an increasing need for special training conferences and workshops for industrial representatives such as feed salesmen, fertilizer dealers and other material suppliers who in turn can provide some of the technical guidance to farmers.\footnote{Boone, op. cit., pp. 83-84.}

3. Vocational agriculture and cooperative extension can substantially reduce its efforts toward expanding farm output. By reorganizing and reallocating its funds greater emphasis can be put on examination of unfolding problems of agriculture and gearing up to do something about them.

4. Management skills will become increasingly important. Some of our clientele will seek further education to improve this skill, while others will require considerably greater motivation before they will accept the teaching of such skills. The latter groups do and will require a high degree of teaching ability on the part of those who attempt to improve their living standards and practices.

5. Our goals must be kept up-to-date and responsive to the needs brought about by social change. Goals are
like moving targets. It is impossible in a dynamic society to set specific goals and expect them to remain good forever. 44

6. With the apparent shift of many urban dwellers there will result relatively more part-time residential and retirement farms. They will nevertheless require both technical information and management guidelines in selecting enterprises and productive factors. It is unlikely that such information will be provided by field-men of commercial supply companies. 45

7. Agricultural educators must become more aware of the process of social change. An understanding of the social system, (values, belief, sentiments, norms, positions, roles, goals, sanctions, powers, ranks and facilities) will greatly aid the change agent in introducing effective change more efficiently.

Some of the more dynamic principles of social change as put forth by Berelson and Steiner include:

(a) Social changes, however large, that are desired by the people involved can and will be assimilated with little social disruption.


45 Fishel, op. cit., p. 64.
(b) Within a society, social change is likely to occur more frequently or more readily in the less basic, less emotionally charged, less sacred, more instrumental or technical aspects.

(c) There is always a tendency to achieve stability in a society after a period of sharp social change.

(d) Social changes of some scope in one part of a society affect other parts not directly involved in the change itself.

(e) The leaders of major social change in a society are unlikely to come from the group traditionally in control; they are more likely to come from deviant, marginal, disaffected groups.46

Changes In Organization

The status of individuals and families as user-groups can be aptly summarized by the expression "the same... except more of them". With increasing economic, social, and political complexity, the problems of individuals adapting to their situations will persist, certainly with no less intensity than now exists. With the current rates of population growth, there will be no lack of clientele.47


47Fishel, op. cit., p. 64.
With increased efficiency in communication and other technological advances more high level organizations with specialized differentiated groups will be in evidence.

In an evaluation study of The Ohio Cooperative Extension Service conducted by Fishel and others of the Battelle Memorial Institute, several important recommendations for organizational change were suggested. Although the following recommendations pertain to The Ohio Cooperative Extension Service their applicability to other extension programs deserve consideration.

1. There should be one person assigned to the responsibility of maintaining the desired public image regarding The Cooperative Extension Service and its functions. The position would involve initiating and conducting projects to publicize the services offered. Educational or other services are useless if potential clientele are not aware of their existence.

2. There is a need to restructure the organization to provide individual clientele with a greater depth of specialized service on a more timely basis. This restructuring already has begun in The Cooperative Extension Service with area centers being set up. Eventually there should be provided more area specialists in the field, assigned to but not restricted to individual districts, with sufficient staff left at the county and
high school level to maintain local communications and organizational functions.

3. In general, more authority must be vested in supervisors to control program composition at all levels. The result would be better coordination of the efficient use of available resources.

4. Cooperative Extension workers must be provided with more specific and clear-cut policy guidelines regarding all recurring situations.

5. Consideration should be given to initiating experimental projects that could lead to more efficient operations or open up yet untapped potentials in these fields. One such project might be the use of coded loose-leaf notebooks for different commodities or interest areas.

6. The Cooperative Extension Service should become more closely associated with the university in practice as well as in fact. Maintenance of the increased depth of specialization needed by these workers requires a greater attachment in fact to the source of this specialization.

7. Experimentation should determine the feasibility of utilizing the existing structure in making available the total resources of the university to local communities. Such an arrangement could serve as the embryo of a future general education extension system. The primary strength of the resultant "Continuing Education Extension Division"
would be in allowing specialization on the one hand but ready coordination of interdisciplinary subjects on the other.

8. The creation of a temporary planning commission to identify and establish a relative priority of needs, assess gaps in current programs, and propose methods for closing the gaps seems adviceable.

9. Benefits could be derived with the involvement of other land-grant universities in sharing new methods for meeting the developmental needs of the nation and world community. Greater consideration will have to be given to the ever widening gap between the developed and underdeveloped nations in order for profitable trade to continue among nations.

The age of cybernation will involve government in providing large subsidized public works programs. But it should be noted that such programs, in the absence of any long-term and extensive efforts to eliminate the sources of low capability, will simply prolong the existence of a group even less capable of taking a productive place in an ever more complex and sophisticated world.

\[4^8\] Ibid., pp. 76-78.
Changes In Teaching

Cooperative extension and vocational agricultural services have been noted for their wide variety of teaching procedures, relating learning experiences to life situations including demonstration and practice, directing the educational emphasis to "felt" needs, and presenting subject matter with an adequate research base. More recently new emphasis has been given to the development of long time programs, multi-county programs, increased emphasis on teaching principles rather than technical subject matter, increased use of social science information and increased interest in community and resource development programs.

1. The county agent may well act as coordinator to put individuals with special problems in contact with a specialist in the respective area. An individual wishing to become acquainted with business management may be encouraged to enroll in the class on business management taught by a vocational agricultural teacher in the county.

2. These same county agents may be specialists in one discipline directly related to agriculture while the multi-county specialists may be involved in broad socio-economic programs.

3. Agriculture is no longer a job for the man with less than average intelligence. The farmer, teacher, agri-businessman need their fair share of intelligence.
The educator must understand that the successful agriculturalist and homemaker of today and tomorrow must have more extensive preparation than that which is available through FFA, 4-H or even four years of high school. It requires a life-long process of learning.

4. Teachers and extension workers must assume responsibility for their own continuous growth. This means that university staff members will of necessity have to keep in closer touch with shifts in the agricultural sector so as to strengthen the quality of professional training of staff members through both pre-service and in-service training.

5. Some "re-training" will be needed to give certain educators new skills or knowledge to handle specific changes in their jobs. Regular training at the post-graduate level will be necessary and expected of virtually all teachers and extension workers.

6. One goal of every training program must be to get the individual educator to re-examine and re-define frequently his own job, the scope of his responsibilities, and his relationship with others.49

7. In the future greater use must be made of extensive learning resources available through the county office. Books, bulletins, films, filmstrips, tapes, discs, exhibits, self-instructional materials need to be developed and made available to the youth and adult clientele adult educators in agriculture hope to serve.

8. New approaches to learning must be considered as well as relating all experiences of our youth program so as to bring the student up through high school, post-high school into the world of work. This means individual consideration and developing programs for individuals at all levels. Students must be allowed to take one or several units of agriculture depending upon his interests and needs. There will not be a place for a "Vocational Agricultural Student" in the near future.

9. Adult education programs must be revitalized on the basis of individual instruction and consultation. Computer analysis of dairy herd improvement records can be used as a beginning point in providing instruction in budget analysis and farm management.

10. More management decisions of greater impact will be required. Thus specialists in various agricultural sectors will have to be trained to secure accurate data to be fed to computers. The interpretation of computer analysis will be just as important. The ultimate outcome must be satisfaction resulting from profitable decisions.
ll. As farming becomes more like big business enterprises, decision making will also follow similar patterns. Specialists in agricultural management will play an integral part in implementing and seeing that such programs are carried through to a satisfying completion.

The modern farm uses the latest technology, as does the automated factory. Our kitchens have the latest equipment. Most homes have television sets, and color television will be increasingly common. But the schools are inadequately equipped with the tools of modern communication. They are trying to get children ready for the Twenty-first Century with Nineteenth Century tools. We cannot yet put a highly qualified teacher in every classroom, but the richest nation in the world can see that every child is now taught with the best tools that instructional technology can provide.

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Intellectual Behavioral Requirements

The specification of the anticipated intellectual behavioral requirements for future competence in social change were determined by reviewing the relevant technical, social and economic trends in society and the trends needed in cooperative extension and vocational agricultural education. The effective vocational agricultural teacher and the cooperative extension agent:

1. Possesses an educational and social philosophy that is consistent with the expectations of

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contemporary society, the Cooperative Extension Service or Vocational Agricultural Education and other authorities in Adult and Continuing Education.

2. Understands the social organization within which the county extension agent and vocational agricultural teacher functions and the influence of technological, economic and social forces on its evolution.

3. Understands the role of the Cooperative Extension Service or Vocational Agricultural Education and related educational institutions in facilitating social, economic and cultural adjustments required by individuals and groups to effectively cope with the consequences of rapid technological developments.

4. Understands his role as a professional educator and the relationship of his role to others in his profession and related organizations.

5. Acquires and utilizes a unified formulation of a theory of learning.

6. Understands the processes of social change.

7. Understands the processes of curriculum development. Is prepared to work with technicians and with teaching aids.

8. Understands technical subject matter appropriate to his job and is knowledgeable about reliable sources of information.

9. Values and actively pursues continuing study as an essential factor to his continued professional growth.

10. Knows the sources of pertinent economic and social data needed to effect an educational program, and is proficient in the collection, analysis and interpretation of these data.

11. Effectively identifies, organizes and develops the human and technical resources needed to plan, execute and evaluate area, county, or community programs.
12. Interprets with leaders and other appropriate persons the influence of technological, economic and social factors in relation to forces operating within society and their impact on the individual, family, group and community in society.

13. Helps people (groups and individuals) invoke the decision-making process in determining problems, needs and opportunities; establish objectives, and select a course of action and provides learning experiences to meet their specialized needs.

14. Prepares a long-term program (plan, curriculum, etc.) based upon decisions arrived at jointly by both professionals and lay leaders.

15. Diagnoses problems contained in the program statement in order to identify specific problems encompassed within major problem areas; determine casual factors contributing or associated with each of the specific problems; and sequentially orders the specific problems based upon the stage of the clientele group in the learning process.

16. Identifies and characterizes audiences to be reached as reflected in the identified problems.

17. Formulates objectives for each of the specific problems in terms of the learners (audiences) and behavioral change to be achieved.

18. Identifies and organizes learning experiences appropriate to the objectives for the identified audiences and uses the problems identified.

19. Selects channels of communication needed to provide stimulation for learning to occur, including new media such as computers, closed circuit television and programmed system of instruction.

20. Determines the human and material resources needed to provide learning experiences for the several groups of learners including units of instruction for (a) non-agricultural occupations and for (b) non-vocational oriented clientele.
21. Identifies and obtains the cooperation of appropriate resource persons to assist in providing the needed learning experiences. Works effectively and in a meaningful way in team work and in flexible programs.

22. Plans and conducts educational experiences for resource persons and leaders in order to assist them to acquire needed competence.

23. Maintains effective vertical and horizontal communication channels with various leaders, resource persons and relevant professionals in the actual planning, execution and evaluation of the program. Uses "lay" advisory committees and agricultural industry personnel.

24. Develops plans for evaluating program accomplishments in relation to defined educational objectives and the several developmental processes.

25. Identifies, collects and interprets evidence with respect to program objectives and learning experiences.

26. Informs professional colleagues, leaders, public officials, and his several publics of program accomplishments.

27. Utilizes findings of evaluative studies as a basis for strengthening and/or redirecting program efforts. Has an eye to future needs, and is teaching to meet these future needs.

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51Note: The following papers were used extensively in formulating this list of intellectual behavioral requirements.


CHAPTER IV

CONCEPT IDENTIFICATION

The concept approach for studying communication from the concept standpoint was chosen because:

1. It insured that the most relevant information in communication was identified for the extension and vocational agricultural educators.
2. It enhanced the use of information from actual problem situations that were meaningful to a majority of the change agents.
3. It provided a way to approach the solving of problems in communication that have always been central to the activities of educators whether one wished to retain the status quo or encourage dynamic on-going change.

The procedure for this chapter followed the ideas suggested by Tyler\(^1\) and Dale\(^2\) in respect to identification.


\(^2\)Interview with Dr. Edgar Dale, Professor, College of Education, Ohio State University, October 31, 1967.
and explanation of the communication concepts. The procedure includes three steps which are described in the following outline:

Step 1. The Identification Process.

A list of communication concepts was developed based on an extensive review of the literature in the field of communication.

Tyler suggests that no single source of information is adequate to provide a basis for wise and comprehensive decisions about the objectives of the school. However, each source should be given some consideration in planning any comprehensive curriculum program. Although Tyler's description is related specifically to objectives it would appear that it also holds relevance to the identification of concepts. The main sources of educational objectives according to Tyler include: (1) Studies of the learners themselves, (2) studies of contemporary life outside the school, and (3) suggestions about objectives from subject specialists.

Although subject specialists were the only source used in the identification of communication concepts there is a striking similarity between the sources mentioned by

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Tyler for selecting educational objectives and the steps used in screening the communication concepts identified by the author.

Step 2. The Screening Process.

The communication concepts identified were subjected to a screening process which included: (1) Authorities, in the field of vocational agriculture and cooperative extension, cooperated by identifying those concepts they considered most important to their respective field. (2) Twenty-seven intellectual behavioral requirements developed in the study were summarized to expedite their use in the screening of the communication concepts. The twelve intellectual behavioral requirements used in this phase of the screening process follow.\(^4\)

The vocational agriculture teacher or the cooperative extension agent:

1. Possesses an educational and social philosophy consistent with expectations of society and authorities in adult education.

2. Understands social organization and the role of adult education agencies and is able to effectively cope with changing technological, economic and social forces.

3. Understands his role as a professional educator and his relationship to others.

4. Possesses an understanding of a theory of learning, processes of social change, and curriculum development and uses them to assist solving their problem through the decision-making process.

\(^4\)For the complete list of twenty-seven intellectual behavioral requirements refer to pages 101-101\(^4\) of this dissertation.
5. Understands technical subject matter appropriate to his job and is knowledgeable about reliable sources of information and actively pursues continuing study for professional growth.

6. Knows the sources of pertinent economic and social data needed to develop an educational program and is proficient in working with "lay" leaders in examining the influences of technical, economic and social forces on society.

7. Diagnoses problems arising out of such an examination of the situation and can identify specific problem areas, target audiences, formulate meaningful objectives and learning experiences to achieve the desired behavioral change.

8. Effectively organizes and develops the human and technical resources needed to plan, implement and carry out the program.

9. Identifies and obtains the cooperation of appropriate resources by selecting channels of communication to provide stimulation for learning to occur and by obtaining the services of authoritative persons skilled in using the channels to assist in providing the needed learning experiences.

10. Maintains effective working relationships with "lay" and professional personnel providing needed educational experiences for resource persons and leaders in increasing their competencies.

11. Identifies, collects and interprets evidence as a way of evaluating accomplishments and as a basis for strengthening and redirecting program efforts.

12. Informs professional colleges, leaders, public officials and his several publics of program accomplishments.
The twelve intellectual behavioral requirements listed above were grouped as follows:

a. 1, 2, 3  
g. 1, 4, 7  
b. 4, 5, 6  
h. 12, 9, 8  
c. 7, 8, 9  
i. 1, 6, 5  
d. 10, 11, 12  
j. 10, 3, 2  
e. 3, 6, 9  
k. 8, 4, 10  
f. 2, 5, 1  
l. 7, 11, 12

Each intellectual behavioral requirement was first compared with the other intellectual behavioral requirements in the same group to determine the important communication concepts involved and second, two intellectual behavioral requirements in each group were compared and contrasted with the third to determine the important concepts. Using group "k" as an example, numbers 8, 4, and 10 of the behavioral requirements were first compared then contrasted.

8. Effectively organizes and develops the human and technical resources needed to plan, implement and carry out the program.

4. Possesses an understanding of a theory of learning, processes of social change, and curriculum development and uses them to assist solving their problem through the decision-making process.

10. Maintains effective working relationships with "lay" and professional personnel providing needed educational experiences for resource persons and leaders in increasing their competencies.

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The communication concepts that arise when the three intellectual behavioral requirements are compared include: organization, planning, capability, skills, competencies, purpose, and participation. Those concepts most evident when contrasting the behavioral requirements include: authority attitudes, experience, thinking, social cultural system, informal, formal, content, treatment, and perception.

(3) Situation analysis was used to identify those concepts that were most evident. The situations used for the purpose of screening the concepts were those collected in a pretest of critical incidents under the direction of Alexander.  

(4) Concepts used in definitions of communications were considered, and (5) Indexes of books, written by specialists in communication, were consulted to determine the important concepts.

Those concepts that were checked in four or five of the above screening tests were rated as most important, those checked in three cases as being of much importance, those checked in two cases as being of some importance and those with one or no checks as interesting possibilities that may deserve greater attention in future studies.

Further consideration was given to the concepts which were rated most important by starting with a problem situation, finding out which concepts were operating and indicating what needed to be known about the concept to effectively use it in solving a problem.

Two major questions have guided the writer in explaining the concepts listed:

1. What is the actual problem faced by the extension agent or the vocational agricultural teacher?
2. How is this problem related to communication?


The communication concepts included in this study are organized according to the following pattern:

1. An alphabetical listing of all the communication concepts considered in the study are presented.
2. (a) The communication concepts are listed according to groups. Group one represents those concepts considered most important for use by agricultural adult educators. Concepts listed in group two are considered as being of much importance, group three as being of some importance, and group four as interesting possibilities that may deserve greater attention at a later date.
(b) Groups one, two and three have code numbers on the right side as a cross reference to the listing of the concepts in units with similar meanings. For example: "Purpose (24)," indicates that purpose found in group one can also be found in unit 24 in the listing of the concepts with similar meanings.

3. (a) In the listing of the concepts with similar meanings an attempt was made to group the concepts into meaningful units. Words located in each of the units either represent one concept or they help support the idea intended. For example:

1. AFFECTIVE BEHAVIOR   RATIONAL BEHAVIOR
   Emotion                   Rational
   Feeling                   Insensitive

2. ATTITUDES
   Opinions

The left column was arranged in alphabetical order according to the capitalized or first word in each numbered unit.

(b) The right column represents the opposite of most of the concepts listed in the left column. In some cases, neither side represents the extreme end of the continuum but the concepts are listed as such
because they represent different points on the same continuum. In still other cases meaningful differences did not exist or did not appear to add to the explanation of the concept. In these cases the right column is blank.

An Alphabetical Listing of the Communication Concepts

The following alphabetical list includes all the communication concepts that were identified. This list is a result of an extensive review of the literature in the field of communication.

Ability  Barriers
Abstract  Beliefs
Acceptability  Bit
Accuracy  Bond
Action  Breakdown
Adequacy  Capability
Adoption  Capacity
Affective behavior  Chance
Affect  Channel
Aimlessness  Clarity
Alternative  Closed
Analysis  Code
Analogy  Collecting
Anecdotes  Commitment
Answer  Communicator
Apathy  Compatibility
Applicability  Competency
Argument  Complexity
Attention  Compliance
Attitudes  Concept
Attractiveness  Concrete
Audible  Conditioning
Audience  Conflict
Authority  Conformity
Availability  Connotative
Consistency  Familiarity
Consumption  Fatigue
Contact  Fear
Content  Feedback
Context  Feelings
Continuity  Fidelity
Contradictory  Flexible
Control  Focus
Conviction  Form
Cooperative  Formal
Correctness  Frequency
Covert behavior  Friction
Credibility  Generalization
Decision making  Gesture
Decode  Goal
Deduction  Group
Delivery  Habit
Denotative  Hinder
Density  Honest
Desires  Ideas
Destination  Illiteracy
Development  Illustrations
Diffusion  Image
Direct  Imagination
Dissemination  Impartial
Disssuasion  Impede
Distribution  Inaccuracy
Divisible  Inadequacy
Dynamic  Independence
Effects  Indirect
Efficiency  Individual difference
Elements  Indivisible
Emotion  Induction
Empathy  Inefficiency
Emphasis  Inference
Encode  Influence
Entertainment  Informal
Error  Information
Evaluation  Insensitive
Exact  Instruction
Examples  Intangible
Expectation  Intelligence
Experience  Intent
Expertness  Interaction
Exposure  Interdependence
Expression  Interest
Facilitate  Interpersonal network
Facts  Interpretation
Fallacies  Judgment
False  Known
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Symbols
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Target audience
Taxonomy
Techniques
Thinking
Timing
Transmission
Treatment
True
Two-step-flow
Unknown

Validity
Values
Variation
Viewing
Visualizing
Vocabulary
Voice
Wants
Watching
With it
Words
Writing

Grouping Communication Concepts
According to their Importance

The four groups that are identified on the following pages have resulted from subjecting all the communication concepts listed to a screening process determined by:

1. Asking authorities in the field of vocational agriculture and cooperative extension to identify those concepts which are most important to their field.

2. Comparing and contrasting the intellectual behavioral requirements to determine the important concepts involved.

3. Examining situations to determine those communication concepts by their presence contributed to the success of, or by their absence contributed to the failure of the incident.

4. Considering those concepts used in the definitions of communication.
5. Examining the indexes of books, written by specialists in communication, to determine the important concepts.

Those concepts that were checked in four or five of the above tests were placed in group one and designated as most important; those concepts checked in three cases were placed in group two - of much importance; those concepts checked in two cases were placed in group three - of some importance; and those concepts checked in one or no cases were placed in group four - interesting possibilities.

Each of the words in the first three groups have a code number designating the unit to which that concept has been assigned in the listing of the concepts with similar meanings.

**GROUP I - MOST IMPORTANT**

Affective behavior (1)  Persuasion (20)  
Attitudes (2)  Process (23)  
Channel (5)  Purpose (24)  
Content (17)  Reading (28)  
Credibility (7)  Receiver (28)  
Experience (9)  Response (27)  
Feedback (27)  Sender (28)  
Information (13)  Social Cultural System (29)  
Interest (14)  Source (28)  
Listening (28)  Speaking (28)  
Medium (5)  Stimulus (20)  
Message (17)  Target audience (28)  
Motivation (20)  Timing (30)  
Perception (19)  

GROUP II - OF MUCH IMPORTANCE

Acceptability (18)
Attention (14)
Authority (3)
Clarity (10)
Divisibility (8)
Expression (27)
Frequency (11)
Ideas (14)
Image (19)
Informal (12)
Interaction (12)
Interpretation (15)
Learning (26)
Noise (10)
Observing (28)
Occasion (29)
Participation (14)
Planning (21)
Propaganda (13)
Reinforcement (26)
Reward (20)
Role (3)
Symbols (16)
Transmission (5)
Writing (28)

GROUP III - OF SOME IMPORTANCE

Action (6)
Apathy (6)
Audience (28)
Barriers (10)
Breakdown (8)
Capability (4)
Code (16)
Commitment (6)
Communicator (28)
Competency (4)
Connotative (17)
Cooperative (21)
Decision-making (6)
Decode (28)
Desires (18)
Destination (28)
Dissemination (5)
Dynamic (3)
Effects (20)
Emotion (1)
Empathy (14)
Emphasis (24)
Encode (27)
Evaluation (27)
Expectation (19)
Expertness (7)
Exposure (9)
Facts (25)
Feelings (1)
Fidelity (10)
Focus (24)
Gesture (16)
Indirect (12)
Influence (3)
Intelligence (7)
Known (7)
Language (16)
Latency (22)
Linkage (23)
Mass (12)
Meaning (17)
Needs (18)
Objective (24)
Opinion (2)
Organization (21)
Overt behavior (27)
Person-to-person (12)
Personality (3)
Preparation (17)
Presentation (17)
Prestige (3)
Primacy (22)
Problem-solving (16)
Publics (27)
Reality (25)
Reason (14)
Recency (22)
Redundant (11)
Repetition (11)
Representation (15)
Resistance (18)
Retention (26)
Senses (5)
Signal (18)
Situation (29)
Skills (4)

GROUP IV - INTERESTING POSSIBILITIES

Ability
Abstract
Accuracy
Adequacy
Adoption
Affect
Aimlessness
Alternative
Analysis
Analogy
Anecdotes
Answer
Applicability
Argument
Attractiveness
Audible
Availability
Beliefs
Bit
Bond
Capacity
Chance
Closed
Collecting
Compatibility
Complexity
Compliance
Concept
Concrete
Conditioning
Conflict
Conformity
Consistency
Consumption
Contact
Context
Continuity
Contradictory
Control
Conviction

Correctness
Covert behavior
Deduction
Delivery
Denotative
Density
Development
Diffusion
Direct
Dissuasion
Distribution
Efficiency
Elements
Entertainment
Error
Exact
Examples
Facilitate
Fallacies
False
Familiarity
Fatigue
Fear
Flexible
Form
Formal
Friction
Generalization
Goal
Group
Habit
Hinder
Honest
Illiteracy
Illustrations
Imagination
Impartial
Impede
Inaccuracy
Inadequacy

Techniques (5)
Thinking (6)
Treatment (17)
Visualizing (28)
Vocabulary (16)
Words (16)
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<td>Watching</td>
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<tr>
<td>Reliability</td>
<td>With it</td>
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</table>

**Communication Concepts in Units with Similar Meanings**

Those concepts found to be most important, of much importance and of some importance, that is groups one, two and three, have been regrouped into meaningful units. The capitalized words in the left column are arranged in alphabetical order. The right column represents the
opposite to most of the concepts listed in the left column. In some cases, neither side represents the extreme end of the continuum but the concepts are listed as such because they represent different points on the same continuum. In cases where meaningful differences were not apparent the right column was left blank.

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| 3. AUTHORITY           | LAXITY*            |
| Dynamic (force)        |                    |
| Influence              |                    |
| Personality            |                    |
| Role                   |                    |
| Prestige               |                    |

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<td>Techniques</td>
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| 6. COMMITMENT          | APATHY              |
| Action                 | Inactivity*         |
| Decision-making        | Indifference*       |
| Problem-solving        |                    |
| Thinking               |                    |

| 7. CREDIBILITY         | UNTRUSTWORTHY*      |
| Expertness             | Inexpertness*       |
| Intelligence           | Inability*          |
| Known                  | Unknown*            |

<p>| 8. DIVISIBILITY        | INDIVISIBILITY*     |
| Breakdown              |                    |</p>
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</table>
20. PERSUASION
   Effects
   Motivation
   Reward
   Stimulation

21. PLANNING
   Cooperation
   Organization

22. PRIMACY
   Recency

23. PROCESS
   Linkage

24. PURPOSE
   Emphasis
   Focus
   Objectives

25. REALITY
   Facts

26. REINFORCEMENT
   Learning
   Retention

27. RESPONSE
   Evaluation
   Expression
   Feedback
   Overt Behavior
   Covert Behavior

28. SENDER
   Speaking
   Visualizing
   Writing
   Encoder
   Source
   Communicator

29. SOCIAL AND CULTURAL SYSTEM
   Occasion
   Situation

30. TIMING

*Concepts from group four, included here for the purpose of clarification.
Explanation of the Major Concepts

Each of the concepts designated by the capitalized words in the listing of units with similar meanings was explained further according to a set procedure as follows:

1. A situation was chosen where the major concept was known to be operating.

2. An application of this concept to the situation was explained further and the relationship to other communication concepts was shown. Those concepts considered to be important to the situation were underlined to facilitate identification.

3. Finally an explanation or definition of the concept was given to further clarify its meaning.

Affective Behavior

Situation

Reuben Fritz, county agent in a midwestern state, desired to inform land owners about resources available to them for the purpose of developing wild life habitat on their properties.

Fritz planned a very successful meeting for those persons interested in this aspect of conservation. Four specialists were present. The auditorium was literally packed and interest was very high. The meeting had to be adjourned before all the questions could be answered.
Telephone calls and letters asking for further information increased markedly. Orders received by the Agricultural Conservation Service increased dramatically. Outdoor writers used the material handed out at the meeting in follow up articles and the university published a bulletin which included much of the material used by Mr. Fritz.

Relevance of the Concept

The agent's problem was to find ways to improving wild life habitat in his county. The communication problem was to increase the awareness of resources available to help the farmer.

The word conservation in agricultural circles has emotional overtones. It is an excellent example to show the effect of affective behavior. An active response is almost assured. In conservation either the person is strongly against or strongly for a program whether it is on soil erosion, in wild life protection, or in some other aspect.

Since the subject of the above situation had to do with conservation, affective behavior was a factor which contributed largely to its success. People became emotionally involved. The source of information indicated authoritativeness and credibility. The channels of communication were used to a great extent as follow up to the meeting itself. This repetition encouraged continued
interest and involvement of personal feelings which brought about overt behavior.

Definition of Affective Behavior

Affective behavior is similar to emotion and indicates an excited state of mind that accompanies goal directed efforts - fear, anger, joy, disgust.  

Emotional reactions occur only as responses to situations and cannot be separated from the situation or experience which evoke them. Emotion, therefore, refers to a component of a complex reaction that an individual undergoes in a given situation and is characterized by: (1) a marked change in the internal state of the organism, (2) awareness of the change, and (3) behavior indicative of an attempt to adjust to the given situation.

Attitudes

Situation

A dairy plant in a southern state persuaded the county agent to hold a meeting of dairy farmers for the purpose of increasing production.

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In spite of the advanced publicity only twenty-three of the 550 dairymen attended and they showed very little interest in changing their farming practices. These dairymen were of the opinion that they were already doing a good job and maintained the attitude that the dairy plant management was looking out for its own interest rather than for the interest of the farmer.

In another county in the same general area a county agent called a meeting of dairy plant representatives to discuss mastitis control. Dairy plant representatives suggested that each plant send a letter to its patrons urging attendance at the meeting. They also planned on some dairy products for door prizes. The county agent prepared a general letter for them to send. Three hundred dairymen attended the meeting eager to have some very relevant questions answered concerning mastitis control.

Relevance of the Concept

In the first case the attitude of the farmers was one of disinterest because they mistrusted the intentions of the source. The proposed content of the meeting was too broad in scope. Farmers were of the opinion that they knew more about their situation then the dairy plant management.

In the second example, the farmers attitude was entirely different because a specific phase of improved production was chosen. The interests of the farmer came
first and the idea originated from a trusted, credible source.

Definition of Attitudes

The attitude of a communication source affects the ways in which communication takes place, including the attitude toward self, subject matter and the source or receiver. In the simplest sense prestige is the attitude one person has toward another. Speakers have prestige when listeners like them, accept them as authorities, respect their judgment and attach importance to what they say. Any speaker having prestige significantly influences listeners more than those who do not.

Attitude can be defined as a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's responses to all stimuli to which he is exposed. An attitude toward any person, object or situation is thus a tendency to respond, either favorably or unfavorably.

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10 Eisenson, op. cit., p. 284.

11 Ibid., p. 232.
Authority

Situation

A vocational agricultural teacher reportedly came across an article that seemed to be the answer to a problem a farmer had expressed only a few days before. Immediately he picked up the phone and told the farmer about the article. Having had such an article brought to his attention the farmer examined it with greater interest and considered how it might apply to his situation.

In a second case a District 4-H Council was having problems with both attendance and productivity in planning at their meetings. In a meeting of the district county agents it was decided that one agent should be encouraged to attend each District 4-H Council meeting but not necessarily to give guidance or advice. A dinner meeting was decided upon. Increased interest was immediately evident and greater effectiveness resulted.

Relevance of the Concept

In the first case the vocational agricultural teacher acted as an authoritative source to point out the implications that the information in a certain article might have to a farmer. The farmer, knowing the vocational agricultural teacher personally put more faith in the article.
because of the prestige he held for the vocational agricultural teacher.

The second case indicates the importance of having a person with authority present at planning meetings. His presence gave the impression of importance to the meeting.

**Definition of Authority**

The person who - by virtue of his status, role, or recognized superiority in knowledge, strength, et cetera - exerts influence through authority. Authority is a pronouncement by an expert; the credibility claimed for a pronouncement because of the expertness and reliability of its author.\(^\text{12}\)

**Capability**

**Situation**

A 4-H camp experience brought about the close friendship of a boy and the 4-H agent in his county. The boy's father was an excellent farmer but not a supporter of extension efforts.

The agent's plans to work closely with the boy had the ulterior motive of winning the boy's father to support extension activities. Through the process of close planning and helpful supervision the boy's peanut project out

\(^{12}\)English and English, *op. cit.*, p. 54.
yielded his father's and also won district and state awards. The father is now an avid supporter of the extension program.

Relevance of the Concept

The agent's problem was to reach a farmer that had not been interested in the extension service. The method used to reach this person took an indirect approach. Observation of the demonstration conducted by the farmer's son persuaded the farmer that there was reason to believe in the extension program and the capabilities of its staff.

We vary in our skills of communication; we do not have the same ability to listen, to hear, to understand, to write, to read, to speak, to observe, to visualize and to think. For example, if we are thinking in terms of changes we want to have occur to other people, then we must know our audience, who they are, where they are, what they know, what they expect from us, with whom do they associate, and what their reference groups stand for and mean to them. It is also important that the audience know us, who we are, who we are associated with, who is our boss, what social system we come from and is it different from theirs.
Definition of Capability

Capability is the maximum effectiveness a person can attain with optimum training. Ability implies that the task can be performed now.\textsuperscript{13} Competency is the ability for a particular job or vocation.\textsuperscript{14} Skill is the ability to perform complex motor acts with ease, precision, and adaptability to changing conditions. Skill is evaluated in terms of end results.\textsuperscript{15}

Channel

Situation

An increase in inquiries concerning profit making projects for small property owners prompted a midwestern county agent to investigate, with county extension staff and selected individuals in specialized phases of agriculture, the possibility of arranging a special session for this clientele.

A school to run two nights was planned. Meeting notices were sent to vocational agricultural teachers, bankers, city farmers and all other known owners of small

\textsuperscript{13}Ibid., p. 1.
\textsuperscript{14}Ibid., p. 102.
\textsuperscript{15}Ibid., p. 15.
farms. Publicity was given via radio, television and newspaper. Instructors including successful horse trainers and kennel operators and growers of vegetables, berries and sod prepared written texts for presentation. These texts were mimeographed, bound and distributed. The question and answer periods following each presentation revealed enthusiastic participation. Many problems and possibilities were singled out by these specialists as being important when considering roadside marketing, renting pasture land, boarding horses and dogs, recreation farming, campsites, et cetera. The two meetings attracted 379 persons.

Relevance of the Concept

The agent recognized a need to help provide several alternatives to small or to part time farmers. His immediate communication problem was one of making this audience aware of a meeting geared to their needs.

In advertising most of the common channels for transmitting messages were used including radio and television. The follow up material served as a handy reference to persons wishing to check certain points related to the content and to those desiring further information. Frequency of exposure through channels used to transmit specific information most likely to reach the target audience influenced many to attend the informative sessions.
Definition of Channel

The channel is a complete system for transmitting a signal from an input location to an output location including the code or language used. It can be newspaper or news service or any combination of physical, organic and social transmitting media.\(^\text{16}\)

The choice of the channel is often an important factor in conducting the message. It can be thought of as the medium, a carrier of messages. Psychologically the communication channel is defined as the senses through which a decoder-receiver can perceive a message which has been encoded and transmitted by a source-encoder.\(^\text{17}\)

Commitment

Situation

In a central state a certain community had failed to become interested in 4-H club activities. Finally after several years of efforts that ended in failure a community leader contacted the 4-H agent with the idea of forming a 4-H club. On the night of the first meeting nine leaders and sixty-five potential members were present full of enthusiasm and ideas. The 4-H agent worked as many of the

\(^{16}\text{Ibid.}, \text{ p. 83.}\)

\(^{17}\text{Berlo, op. cit.}, \text{ p. 66.}\)
ideas as possible into a proposed 4-H club program that would meet local needs.

In another community in the same state 4-H had also failed to become established. The 4-H agent contacted several leaders but received negative replies. However, the agent tried to establish a club in spite of negative advice given by the school principal. The agent managed to recruit fifteen members but no leaders.

Relevance of the Concept

In both communities commitment was the key to what happened. In the first case action came first from local sources, from people who had thought through the situation and had made a decision. The 4-H agent cooperated to solve problems.

In the second case there was apathy or inactivity on the part of those living in the community. The best efforts on the part of the agent were doomed to failure because of the lack of support.

When commitment is involved in communication we must consider the following questions. Who am I? What am I trying to achieve? Who else is involved? What are they trying to achieve? What are the consequences to the audience if they do what I want them to do?
Definition of Commitment

Commitment is the decision of a communicator to follow through with a message. Usually there is a high degree of motivation involved. On the part of the receiver it is a decision to accept and practice the desired behavioral action.

Credibility

Situation

In 1908—six years before the Smith-Lever Act was passed to create the Extension Service—there lived near Papillion, Nebraska, a dairy farmer named Adam Gramlich. The butter and cream produced by his 13 Jersey cows provided Adam and his family with the bulk of their income.

When school started that fall, Howard Bramlich, Adam's nephew, enrolled at the Nebraska College of Agriculture. In one of his classes Howard learned about tuberculosis in cattle...the health and economic hazards of the disease, how difficult it was to detect diseased animals; and the value of a new thermal test which identified infected animals before they could give the disease to other cattle.

Howard told his uncle what he had learned about tuberculosis and the new thermal test when he was home on vacation. The Gramlichs discussed the advisability of testing their Jerseys and talked it over with the neighbors.
Most of the neighbors thought the test was "plumb foolish", but Adam and Howard weren't so sure. A veterinarian with the U. S. Bureau of Animal Industry, Dr. H. E. Smith, said he would do the work without charge, so Adam told him to go ahead.

There was mingled curiosity, excitement, and mistrust in the neighborhood as Dr. Smith took the temperatures of those 13 cows to establish their normal level. Then he injected a small amount of tuberculin into each cow, waited 16 hours, and again took their temperatures.

Smith's report dismayed Adam Gramlich and aroused indignation in the community. He reported that eight of the cows "reacted" to the test and should be sold for slaughter.

"Bet those cows were all right until that vet shot the poison into 'em," said one neighbor. "This whole thing's a fake," said another, "anybody can see those cows aren't sick."

But Adam had more faith in the veterinarian. During Smith's visits to the farm, he and Adam had long talks. Adam learned that Smith had been a farm boy and that he knew cows and the problems of cowmen. Smith had offered ideas and suggestions that would help Adam in his dairy operation. Adam felt he was sincere and a man to be trusted.

So Adam decided to see it through. He picked three
of his eight reactors at random and he and the veterinarian hauled them to a slaughterhouse in nearby South Omaha to be dressed under the eyes and knife of a federal meat inspector. Sixteen of Adam's neighbors agreed to go along.

The delegation from Paillion watched intently as the inspector opened the animals. His knife cut through gritty tubercular head glands. In one cow the tubercules were "sanded" all over the insides.

Adam was permitted to display the infected lungs and liver of his cow in a drugstore window on Paillion's main street. The weekly paper carried a statement signed by Adam and his neighbors certifying what they had seen when those three reacting cows were opened in the slaughterhouse.

This incident has a happy ending. The veterinarian was busy for quite some time testing cattle in the Papillion area. Testing had not come in time to keep infection from spreading to eight of Adam Gramlich's cows, but it was early enough to root out sources of disease in other herds. The neighbors were now glad Adam tried the test. And they now appreciated Dr. Smith's help. Once all the facts were known, the people considered them and were convinced. Testing for tuberculosis had earned public approval.
Relevance of the Concept

The problem, when realized, was an economic and health problem to Adam Gramlich. To Smith it was a problem of being able to persuade Adam that the test was reliable and the necessity for disposing of reactor cows. Effective communication was essential to solve the problem. This incident points out the importance of credibility in communication such as the necessity of expert sources (people who were intelligent, who knew what was taking place) such as the university and Dr. Smith to bring about a change in the behavior of Adam. Person-to-person consultations were also necessary to establish this credibility and confidence. Reinforcement was established through disseminating the message through several channels. Interaction with the target audience was provided. Timing became an essential factor in the acceptability of the idea. Attitudes of neighboring farmers were changed when they observed for themselves the diseased lungs and liver. Feedback came in the form of action on the part of the farmers to get their cows tested.

With extension personnel in the various counties there is no reason why farmers need wait for chance to inform them of existing problems. The extension personnel have a direct line to the source of research and can make the
latest information available to the farmer through various communication channels.

**Definition of Credibility**

Credibility is the compatibility of a statement with accepted facts; compatibility of one's perception of a situation with what is generally accepted as true or possible.\textsuperscript{18}

Credibility can be earned by a speaker's manner. It has been found that effectiveness of delivery is significantly correlated with credibility and thus with persuasiveness. High status speakers are consistently rated as most credible. Credibility is greater for straightforward argumentative speeches using sound evidence to support a proposition.

Two special facets of credibility are fairness and trustworthiness. Opposing arguments may or may not influence the audience as to the credibility of the speech. It depends on the audience and the position of the speaker.\textsuperscript{19}

\textsuperscript{18}English and English, *op. cit.*, p. 129.

\textsuperscript{19}Eisenson, *op. cit.*, p. 290.
Divisibility

Situation

Bill Jones is a hard worker but his farming practices could be much improved. He is a poultry farmer but has not accepted the practice of raising poultry on a large basis.

John Jones, county agent, found out about his problem but realized that not all the necessary improved practices could be expected to be accepted at one time. He listed the type of improvements needed including: improved rations, increased numbers of layers, improved buildings and labor saving devices, culling practices, record keeping and premium marketing possibilities for quality eggs.

John decided first to investigate with Bill the premium marketing possibilities, then ration improvement and third culling. If Bill accepted these practices he would also consider increasing his flock and change some of the methods of handling the birds, feed and eggs.

Relevance of the Concept

Divisibility of message content is important. John chose to start with those factors that would result in a motivation to continue to remodel the poultry enterprise. Needs and desires were considered and continual person-to-person guidance provided.
Definition of Divisibility

Divisibility is the degree to which an innovation may be tried on a limited basis.\(^\text{20}\) It may also apply to the way material is presented— as in a sequence.

Experience

Situation

The administrators of a vegetable processing concern announced the selection of a community in a western state for locating a branch food processing plant. This was an area with sandy soil but was not considered a vegetable growing area. An aggressive educational program was essential.

The anticipated market for vegetables provided an income potential to the county but there was only one small farmer with any experience in growing vegetables on sandy soil with irrigation. A grant was made available by the agricultural committee for demonstration plots with emphasis placed on potatoes. Plans were proposed for classes in the growing of vegetable crops under irrigation for the following fall and winter.

The project was climaxed with a field day held at the site of the experimental plots. The potatoes were harvested and the yield recorded. The 600 bushel yield exceeded the original objective.

Relevance of the Concept

This successful project resulted from the fine cooperation between agencies, mass media personnel, the farmer, and the professional staff. The project was well planned, timing was right, authoritative personnel were consulted, and a concentrated program with an experienced farmer was launched. The practice was divided into meaningful steps of first encouraging production and second, holding classes to encourage the use of the best practices. Once exposed to vegetable farming the possibility of financial rewards acted as a stimulus to later adopters.

Definition of Experience

Actual living through an event or events. Experience is not static; it connotes activity, process, happening, doing.  

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Fidelity

Situation

In a church service a baby cries; in giving a demonstration someone in the back row tells a joke; an accident occurs outside the classroom window; someone speaks to you while you are in deep thought; a new set of symbols hit your ears while traveling in a foreign country; you are unfamiliar with the customs, norms, and experiences of those around you; you cannot express what you are thinking in the words you have at your command; the media being used is not appropriate for the desired message.

Relevance of the Concept

All these incidents constitute barriers in communication. They are commonly referred to as noise. Fidelity is the opposite of noise. Barriers distract from the intended message much as a scratched record distracts from the quality of music which was recorded.

The more these barriers can be eliminated the greater the fidelity in communication.

Fidelity in communication can be increased by keeping the attention of the audience, making the message interesting, using different media, allowing for audience participation and preventing too much redundancy or repetition.
Definition of Fidelity

Noise can be thought of as sound that distracts—messages that interfere with other messages or we might broaden the definition to include factors in each of the ingredients of communication that can reduce effectiveness. It is the difference between input and output.

Frequency

Situation

Walter Smith, county agent in a southern state, planned to work with as many people as possible in an effort to teach the latest methods of weed control. Machinery dealers planned farm machinery displays, especially spray equipment. Several leading farmers were asked to talk to their neighbors to encourage attendance at previously planned meeting. Four minute programs and radio spots were used to encourage participation, newspaper articles and circulated form letters added to the publicity of the program.

State extension personnel from agronomy and agricultural engineering were the main figures at the meeting. They used charts, slides and demonstrations in their

22Berlo, op. cit., p. 40-41.
presentation. The number attending, one hundred and eighty-six persons, was considered good.

Relevance of the Concept

Frequency will not solve all the problems. Some repetition or redundancy is important but too much may work in a direction opposite to that which is desired in which case the message being transmitted becomes noise to the receiver. Variation in repetition is essential. Not only will the message reach more people by using several channels but if a message is seen and heard through several channels people begin to feel it to be important.

Definition of Frequency

The number of times a given phenomenon occurs.

Informal

Situation

Don Stark, a dairy farmer, had a problem keeping the bacteria count down in his milk. Don's son discussed the matter with his vocational agricultural teacher. The vocational agricultural teacher had to decide how much of his busy schedule could be devoted to helping solve the problem.
Relevance of the Concept

What was the situation in this informal contact? How much education did Don have? Did he take seriously the information his son brought home? What channel should be used? Would a personal visit be required or would a bulletin on the subject be sufficient?

A combination of several techniques may prove to be most effective. A discussion and decision-making effort in class, a bulletin sent home with the son and a follow up visit to the farm, two or three weeks later may have been sufficient to solve the problem.

Definition of Informal

Any person-to-person contact is generally considered to be informal. The use of mass media and meetings on a large group basis with little chance for feedback can be thought of as being more formal.

Information

Situation

Ray Wetstone, a county agent in a midwestern state, was consulted to help set up farm records for a partnership. The partnership was initiated by the father with little consultation with his three sons and an attorney.
Ray pointed out some specific problems in regard to the partnership. He supplied the members of the partnership with helpful information but the father did not see the need for a more complete explanation of the relationship until one of the partners was killed in a car accident. Now both the widow and the father have lawyers to try and resolve the problems.

Another case in the same state shows a successful application of information received through the Cooperative Extension Service to initiate a father-son partnership. The farmer consulted the county agent who in turn gave information and helped in the detailed planning. The final draft was prepared by an attorney on the recommendation of the agent. Later years brought with it some changes in the set up to the satisfaction of all concerned.

Relevance of the Concept

The problem facing the county agent was to supply information to the farmer for setting up a working partnership with his sons. The communication problem was one of creating the feeling of need for information in the minds of those concerned.

These illustrations show how different people will use the same information in different ways. The first father felt he was an authority in his particular situation
and that the information provided by the agent was just so much propaganda with little or no value. The agent's hands were tied because the father of the partnership was not ready to change.

In the second case the attitude of the father was different. The father in this case desired the best possible relationship with all participating partners. He used the information.

Definition of Information

Information is the knowledge of facts gained through investigation, observation, study or instruction.\textsuperscript{23}

Information can be thought of in several different ways. Some people use information to support their own biases, to gain desired ends, or they ignore it as either being irrelevant or out of date. Others will take the same information and apply it to their situation to the betterment and satisfaction of all concerned.

Interest

Situation

The Department of Agriculture in the State of Goiás, Brazil was interested in increasing the protein content in

\textsuperscript{23}English and English, \textit{op. cit.}, p. 261.
the diet of rural residents by encouraging them to replace their low protein bean with soybeans.

One change agent consulted with the 4-S (similar to 4-H) executive concerning the possibility of serving a meal of rice and soybeans to the parents of the 4-S members at the annual achievement day. The 4-S leaders helped prepare the meal. All 4-S parents were invited to the meal and the general public was invited to the evening program.

The meal was served; parents were enthusiastic about the soybeans substitute. Some parents indicated that the taste was superior to the ordinary beans. The general public was told about the meal during the evening program. In the weeks that followed requests for soybean seed were received daily.

Relevance of the Concept

The problem to the change agent was to interest rural Brazilian residents in growing and using soybeans. The communication problem was one of creating interest in a new crop. Since this was a new food crop attitudes of resistance had to be changed. Apathy to active participation was also important. Interest was created through the sense of taste. The response was immediate. The target audience chosen for the experiment, parents of 4-S members, was empathetic to new ideas. Participation was an important ingredient. Verbal evidence that followed was
encouraging but the **concrete action** demonstrated the success of the communication effort.

Interest can be enhanced by using common **experiences** as **focal points**. One specialist thought of the **idea** of using the characters from the newspaper script "Peanuts" to gain **attention** and increase **interest** in the message being transmitted.

**Definition of Interest**

The very act of listening depends upon the listener's interest in what is being said. Experience with a subject creates interest in it. Natural factors of interest include: animation, vitalness, familiarity, novelty, conflict, suspense, concretness and humor.\(^{24}\)

Interests are of concern in education both as ends and means; that is, as objectives and as motivating forces in communication with experiences to attain objectives.\(^{25}\)

Interest is an attitude or feeling that an object or event makes a difference or is of concern to oneself. The basic requirement of learning experiences designed to develop interests is that they enable the student to derive


\(^{25}\)Tyler, *op. cit.*, p. 51.
satisfaction from the area of experience in which the interest is to be developed.\textsuperscript{26}

\textbf{Interpretation}

\textbf{Situation}

An adult farmers' group was meeting weekly for the purpose of increasing efficiency in farm management and record keeping. A farm situation was presented. Each member in the group was to examine it, make decisions as to what he would do and make the necessary entries in the farm account book.

Also during the early stages of the course all farmers were required to begin their own farm records, following similar procedure. Problems were discussed in class each week along with decision-making problems.

\textbf{Relevance of the Concept}

Much of the material received by farmers in the form of publications - newspaper articles, magazine articles, bulletins and radio programs - does not hit upon a responsive cord because the farmer is insensitive to the application in his particular situation. A representation is a first step but it might need further explanation or interpretation.

\footnotesize{\textsuperscript{26}English and English, \textit{op. cit.}, p. 50.}
The county agent and vocational agricultural teacher alike serve as interpreters of research information to their clientele. Further interpretation of this information may be necessary for the target audience.

Definition of Interpretation

Describing, formulating or reformulating something in familiar terms - finding or explaining the meaning or significance of raw data.27

Language

Situation

One evening a group of Americans were having a meal just before bedtime. One Brazilian was in the group. The subject of conversation was the importance of learning the language of the host country in order to effectively communicate. Wesley Archibald, who had lived in Brazil for forty-six years said he would demonstrate. He motioned to the Brazilian, Sr. Paulo, and stated, "It's time to go to bed." No response. "It's time to go to bed," still no response. A little louder this time, "It's time to go to bed," a very puzzled look came over Sr. Paulo's face while the rest of the group grinned. This time real loud, "It's

27Ibid., p. 273.
time to go to bed," still no reaction to indicate that Sr.
Paulo understood. Finally, Wesley put his two hands to­
gether, placed them near his face, titled his head and
shut his eyes without speaking a word. A sudden glitter
appeared in Paulo's eyes - he understood.

Relevance of the Concept

**Language** is more than **words** and certainly far more
than English **words**. **Gestures** have **meaning** but to converse
freely other **signals** are needed to support **gestures**.

Among the problems of language is the "clear only if
known" fallacy. Pick up any dictionary and look up almost
any word and see what is given as a definition. You will
know what the word is and know what it means provided you
know what the words in the definition mean. Dictionary
definitions are the substitution of one set of symbols for
another, and if you don't know what the second set means,
you don't know what the first set means.

Definition of Language

**Language** is the ability of a man to communicate by a
semantic communication symbol system. Our facility in
handling the language code affects our ability to encode
thoughts as well as affect the thoughts we have. More
specifically the words we command and the way that we put
them together affect (a) what we think about, (b) how we think and (c) whether we are thinking at all.

Language is a type of coding which is defined as putting ideas into a meaningful group of symbols which express the source's purpose in the form of a message.

**Message**

**Situation**

Did you ever try to tell a foreigner what vocational agriculture or extension is all about, or that the comic strip "Peanuts" is funny, or that all Americans are not rich?

What do your clientele know about your organization? Does it really matter whether you tell them you represent the University, or Cooperative Extension, or County Extension Service?

The meaning is not really a part of the message. Meaning is a property of people, not words and things. What difference does it make what words you use to explain your point, so long as you get the point across? When speaking about poor countries; underdeveloped, have not nations, developing, underprivileged, poor, deprived nations are approximately synonymous terms but some persons from these countries may be offended if certain of these terms are used.
Relevance of the Concept

The above example serves to illustrate that in sending a message it is not good enough to assume "I know, why shouldn't they." All the affecting variables are important considerations such as experience, social cultural system, level of education, needs, perceptions, interests, motivations, attitudes, positions and goals.

Definition of Message

We define a message as the actual physical product of the source-encoder. When speaking, the speech is the message. When writing, the writing is the message. When painting the picture is the message. When gesturing, the movements and expressions are the message.28

Message is that part of a person's behavior which is perceived by another as having implications or meaning for him.29

"In human communication, a message is behavior available in physical forms - the translation of ideas, purposes, and intentions into a code, a systematic set of symbols."30

28Ibid., p. 54.
29Ibid., p. 319.
30Berlo, op. cit., p. 30.
Needs

Situation

A young farmer came to the county extension office to inquire about information concerning the building of a new dairy barn, the agent suggested that he visit several relatively new barns during chore time to get some idea of what was available and what might be expected. The agent held conferences with the farmer and his wife. Finally a complete set of plans were drawn that included the farmer's ideas and the latest recommendations in barn design. These plans were taken to a competent contractor who gave his additional advice and built the barn.

Relevance of the Concept

In this example the farmer had a basic need that resulted in action to find out information. The problem to the county agent was to help this farmer find the best plan for his enterprise. The communication problem was one of continuing action. The agent on a person-to-person basis helped follow through with the plan. It was necessary to consult a credible source to secure the best information and first hand experience. Observation of other barn designs was important in the communication effort.
Definition of Needs

A need is the lack of something which if present would further the welfare of an individual. Anything that is requisite to the maintenance of a state of affairs is a need. Hence, needs represent an imbalance or lack of adjustment between the present situation or status quo and a new or changed set of conditions assumed to be more desirable.31

When we need to understand - when we are curious, when we seek information touching on a problem that vitally concerns us, when we crave social enjoyment, when a subject is related to our particular hobbies or interest we are stimulated to attention.32

Perception

Situation

The agricultural committee of the Chamber of Commerce in a southern state asked farmers, county agents and vocational agricultural teachers for suggestions to strengthen its agricultural program. Of the suggestions received the

31Fred Frutchey, "A Concept of Need," (mimeograph).

weigh-a-day-a-month dairy production record keeping program took priority. The Agricultural Committee sponsored the program with the cooperation and financial support of other interested agencies. An intense publicity program commenced, to interest farmers. The program was an overwhelming success.

Another agent in a neighboring county believed the weigh-a-day-a-month program was a logical way to gradually have more dairymen cooperate with the Dairy Herd Improvement Association. When the plan was presented to the County Dairyman's Committee there was little enthusiastic response. The agent went ahead with the mass media publicity but the results were disappointing.

Relevance of the Concept

In the first case the farmers perceived a need to become more efficient milk producers. The change agent perceived a need to disseminate the proper information and encourage farmers to participate. Because of previous contact and information regarding the program, farmers cooperated in the program to improve culling and feeding procedures. Expectations were high because previous experience of programs conducted by the Chamber of Commerce helped build a image of success.

In the second case farmers did not perceive such a program as being necessary for their particular needs.
One specialist based his perception of his audiences background experience and knowledge concerning dairying by asking three questions:

1. How many farmers in the audience are producing grade "A" milk?

2. How many grade "B"?

3. How many grade "C"?

Based on the reply to these questions this specialist adjusted his presentation to fit the needs of the particular audience.

Definition of Perception

The signal of a communicator is meaningless to another if it cannot be perceived. In every communicative act, the communicator and receiver share a common background of knowledge which they have acquired over the years through perception. When you speak to another person you depend upon his having a general knowledge of life.

1. We perceive best what we are prepared to perceive.

2. We can improve our efficiency as perceivers by giving attention to conditions which surround the act of perception and by acquiring good habits of perception.

3. The more we involve our sensory equipment in the act of perceiving, the deeper will be the impression we gain through perception.
4. All perceiving requires structuring by the mind to make that perception meaningful; hence, the more assistance you can give your mind to this task of structuring the more efficiently your mind can perceive.

5. Our senses sometimes mislead us; hence, we must guard ourselves constantly against sensory distortion.  

**Persuasion**

**Situation**

J. L. Clark, an agronomist and county agent in Ohio, could see the need for increased emphasis on fertility as a means of increasing income. Very little had been done before Clark came to the county. He began an intensive program with a large number of commercial farms, fertilizer dealers, farm suppliers, vocational agricultural teachers, bankers, the Production Credit Association and various committees throughout the county.

The first phase of this program included a drive for soil samples over a two week period. Tools for taking samples, soil sample boxes and information on sampling
were made available at key locations in the county. The number of samples received increased from 250 to 1000 in one year.

A similar increase occurred in a Mississippi county where the county agent began the program with a survey of the effects of using soil test recommendations on crop yields. Publicity for a soil testing drive was subsequently based on this survey information and used in news articles, on radio and television, and given to farm supply and fertilizer dealers for use in their publicity programs.

Relevance of the Concept

The problem of the extension agent was to show how soil sampling could lead to increased profits. The communication problem was one of persuasion. That is, farmers already knew of the existence of soil testing, however, their indifference to its importance had to be replaced with a desire to meet an existing need.

The program was well planned with persons of authority acting as reinforcing agents. The objective was clear. Several different channels were used to disseminate the information. Increased profit acted as a stimulus to motivate the audience. Information and equipment were readily available.
Definition of Persuasion

Persuasion is the process of obtaining another person's adoption of a course of action, or his assent to a proposition, by an appeal to both feeling and intellect.34

The long-run effectiveness of a persuasive communication, however, depends on the willingness of the receiver to show the desired response and continue to maintain this new behavior in spite of pressures to pull or push him into making undesirable responses.35

In the case of persuasion communication, motivation to accept or to reject becomes a major consideration, and may sometimes even influence the degree of attention and of comprehension.36

Planning

Situation

A community in a southern state did not have a service for grinding and mixing feed along with marketing corn. The agent perceived this as a need but decided to consult business men and key farmers regarding the proposal. This

34English and English, op. cit., p. 385.
36Ibid., p. 290.
was done and information on corn production, number of farmers to be served, volume of business that could be expected, and cost of the needed facility were studied by the agent.

Two separate meetings were called. The first involved extension personnel explaining their proposal to the Board of Directors of the County Cooperative. The second meeting was held for farmers, business and professional people to inform them about the proposal.

Relevance of the Concept

The problem for the extension agent was one of supplying a service to farmers that would satisfy a need that he perceived. The communication problem was to plan the communication so that through the cooperation of all involved the new innovation would have acceptability.

Consulting farmers regarding their desires and needs was important. Increased importance of the idea was gained by gaining the approval of the county cooperative. Organization for action and cooperation was accomplished by giving honest interpretation of information, and timing the innovation to meet a newly felt need.
Definition of Planning

A scheme of action: a way, proposed to oneself or other, of carrying out some intention.

Primacy

Situation

On a demonstration farm near an interior village in Goias, Brazil, many crops were being grown, some for the first time. Invariably when a crop showed up good after the first trial year requests for seed were high. If the crops yielded poorly the first year, regardless of their success in subsequent years, they were adopted much more slowly.

Relevance of the Concept

Primacy is important in the communication process. The above situation serves to illustrate that first impressions are often lasting and difficult to alter. It would seem that first contact in communication should be such as to guarantee approval and success with the audience.

Recency is also important when we wish some kind of action. How close to the time of the intended behavioral change have the instructions been given?

37Ibid., p. 393.
The bulk milk cooler might be thought of as an innovation where latency is an important factor. Because of the need for full adoption, cost and commitment to the dairy industry for years to come, a decision of this nature will only be made after an incubation period of thinking and evaluation.

Definition of Primacy

First acts in a series tend to be better learned and to show special resistance to forgetting.\textsuperscript{38}

Process

Situation

A vocational agricultural teacher in a midwestern state saw the need for disseminating horticultural information. He discussed the possibilities of an informal men's garden club with several interested persons engaged in some aspect of horticulture. The club grew to a membership of fifty-seven in just over a year. Each meeting was designed to give these men greater knowledge on some phase of horticulture.

\textsuperscript{38}\textit{Ibid.}, p. 406.
Relevance of the Concept

In communication we are concerned about process as it relates to who says what through what channel to whom for what purpose and with what effect. The source, encoder, message, channel, decoder and receiver are the most important elements in the process.

In this informal situation the vocational agricultural teacher and the experienced horticulturists acted as the sources of information. They had previously planned what their topic was to be about. The message was on some phase of horticulture. The channel involved sound waves and other forms of media. Printed material, spoken words, visuals and demonstration were effective. The target audience included those persons interested in horticulture. The purpose of the club was to improve knowledge, skills and abilities in the field of horticulture.

The influences on the element making up the process will greatly affect the intended outcome. For example, we might think of a situation where the vocational agricultural teacher approved of planting dwarf apple trees, the audience also considered it a sound practice and the audience considered the vocational agricultural teacher an authority in the field. This illustrates closely the case cited above and we naturally expect good results. However, if the vocational agricultural teacher was against planting
dwarf trees, the audience was neutral about the practice but they considered the agent an authority then the outcome might be quite different. Also, take the case where the vocational agricultural teacher approved of dwarf tree planting, the audience did not consider it a good practice and they also did not consider the teacher an authority. Again the result would be different. **Process** and the effects upon it are important.

**Definition of Process**

Process has been defined as any phenomenon which shows a continuous change in time, or any continuous operation or treatment.\(^{39}\) By examining the various parts of the process we are faced with the problem of stopping the action much like a photograph shows only a split second of what actually took place.

**Purpose**

**Situation**

A professor in soils at a major Land Grant University asked a county agent if he would be interested in working intensively with four young farm couples. The agent accepted the challenge enthusiastically.

\(^{39}\)Berlo, *op. cit.*, p. 23.
The program was explained to the agricultural committee and four couples were selected in four separate areas of the county. The agent visited the four families to explain the program and later they came to the county office for further briefing by a supervisor of the Tennessee Valley Authority. These families chose to take part in the five year program and each family took soil samples, worked out fertilizer recommendations, tested their dairy herds, kept farm records, and developed proposed building and expansion plans. As a result of this program these farmers have become leaders in their communities and supporters of the Extension Service. One farmer reportedly said, "TVA and the use of these farm records made a business of my farming operation and a business man out of me."

Relevance of the Concept

The purpose of the communication was well clarified. The objective of the agent was to work with four young farm couples on a TVA program to be used as a demonstration to the community.

The agent himself was stimulated to try this work. The four farmers were also motivated by realizing the benefits that might accrue. The emphasis on close interaction, person-to-person technique, resulted in the acceptability of the message by the target audience. The TVA supervisor was an authority on the subject and both the University and
the agent were credible sources of information. The focus on four farmers and their cooperation and participation served to produce the best possible program for all those involved.

**Definition of Purpose**

Purpose is defined as the goal of a creator or receiver of a message, rather than as the property of the message itself. Communication purpose must be consistent with itself, expressed in terms of human behavior, specific enough to relate it to human behavior, and consistent with the ways in which people do communicate.\(^{40}\)

It is the aim, end, goal—that which a person sets before himself as the end to be attained by action.\(^{41}\)

**Reality**

**Situation**

A county agent was interested in making farmers aware of the importance of weed control. He received the cooperation of three farmers. The farmers helped to stake out three areas in their crops and had them sprayed with a recommended chemical. The results were dramatic and the plots served as excellent demonstration resulting in opportunities to inform others concerning the practice.

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\(^{40}\)Berlo, *op. cit.*, p. 10.

\(^{41}\)English and English, *op. cit.*, p. 432.
Relevance of the Concept

The problem to the agent was to create an awareness of the importance of weed control. The communication problem was one of finding the best way. A demonstration was set up so the results could be observed. Here was something real including facts and tangible evidence of what could be done. Little more was needed to get the message across.

Definition of Reality

Reality is the quality of being true to life, fidelity to nature — existing or happening, actually true, objectively so; not merely seeming, pretended.\textsuperscript{42}

Reinforcement

Situation

One evening a group of farmers who had contracts to plant rice on the agricultural demonstration farm in the state of Goias, Brazil, met to discuss any questions they might have and receive information regarding the best practices to use. All of the land was to be prepared at the same time. These farmers were asked when they wanted the land ready for planting. All were silent for a moment

\textsuperscript{42}Ibid., pp. 442-443.
while each person thought over his work schedule. One farmer finally indicated that we should wait for almost a week since at that time the moon would be right for planting. This statement immediately began a discussion that brought out many strong opinions with evidence to support their particular belief. Each person went away with his attitude reinforced. If he believed in planting by the moon he was more convinced than ever, if not it became even less important. Those that did not have an opinion may have changed their attitude somewhat according to whom they perceived as being an authority on the subject.

Relevance of the Concept

In this particular instance only a few days were at stake and it mattered little if they planted immediately or waited. The overlying belief however was one that could very well slow down progress. How could one convince the people that the moon theory was nothing but a myth?

Discussing the matter served to reinforce both camps. A more realistic approach had to be decided upon. Several farmers were asked to plant before the moon phase would indicate its desirability while others waited. The results were not significantly different. The experiment served to reinforce the opinions of those who didn't believe anyway; it had some effect on those who were neutral but did
not persuade the old die hards who needed more concrete evidence.

We might conclude by this example, also supported by studies conducted by Joe Klapper, that you can probably selectively reinforce existing attitudes, but on the receiver's basis of selection and not yours - they will pay attention to things they want to pay attention to and won't to things they don't want to. You can sometimes develop new attitudes when attitudes toward things don't exist. You can rarely change attitudes.  

**Definition of Reinforcement**

The strengthening of something by adding to it; or that which strengthens when added. Any stimulus is a reinforcer, positive if it strengthens the behavior when present or negative if it strengthens the behavior when withdrawn.

**Response**

**Situation**

The demonstration farm in Goias, Brazil, used fertilizer on a rice crop. This land was formerly pasture land

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44English and English, p. 453.
capable of supporting one animal unit per ten acres. By using the recommended amount of fertilizer the rice yielded an excellent 40 bushel per acre.

Just seven years after the first trial several people stated that everyone in the community either was using or would like to use fertilizer on all their crops. Some could not secure enough money to buy the fertilizer.

Relevance of the Concept

The purpose of the demonstration was to prove the value of fertilizer in crop production. Based on the results an educational program to encourage its use was started. The response, over a period of seven years was good. After being exposed to the new practice people began to evaluate its utility after which feedback demonstrated their desire to adopt it to their situation.

Definition of Response

Response is anything that the individual does as a result of perceiving the stimulus. An overt response is an observable, detectable, public response while a covert response is private, one that occurs within the organism. One principle that affects the amount of response indicates that the individuals respond most readily when they are

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45Berlo, op. cit., pp. 75-76.
highly involved in the purpose of the communication.

Feedback is a type of circular interaction to describe the effect on the speaker of the responses of his hearers, the consequent reinforcement or motivation of his own communicative behavior and its subsequent effect upon the hearers.

Feedback, therefore represents that flow of communication by overt physical response back to the speaker. As the listeners respond to a speaker they may frown their disapproval, smile or nod their moderate approval or vigorously applaud or shout their enthusiastic approval. 46

Sender

Situation

Radio, television, newspapers, still pictures, movie pictures, demonstrations; all are channels through which communicators send messages to the public. From the flashing neon lights to the printed newspaper, all of these media attempt to gain the attention of an audience for widely different purposes. It may be to buy, to inform, or to entertain.

46Eisenson, op. cit., p. 265.
Relevance of the Concept

The sender uses different methods to convey the message from the source to its destination. He encodes his thoughts and sends the message by speaking, visualizing, and writing.

Whereas producing messages involves writing, speaking (including media) visualizing (including plastic art); consuming messages involves reading, listening and observing.

No matter how important the speaker's message, or how strongly he feels about it, it is the complex beliefs and attitudes of his listener with which he must deal. Communication does not have to be verbal. The invention of the camera represented a great leap forward in the technology of communication because of the illusion of reality which the photograph conveys. Actually the photograph is simply another symbol, as the printed word is a symbol. However, the viewer believes that he is not being told about something as someone else saw it, but is experiencing it himself.

Over ninety percent of the communication we do with words. Our day is filled with chats, discussions, inquiries, replies to inquiries, explanations, telephone calls and interviews.

In speech the symbol that is you - your appearance,
your background, your voice, your personality, - stands open for fullest scrutiny.\(^47\)

Observation is an alert, continuing and creative kind of perception that comes noticeably to all of us. All men and women observe as all men and women think. Like thinking some men and women observe with greater intensity and better control and develop keen powers of control.\(^48\)

**Definition of Sender**

All human communication must have some source or sender, some person or group of persons with a purpose, a reason for engaging in communication.\(^49\)

Encoding is important and can be thought of as the process of translating everything that lies behind a particular communication effort into written, spoken and visual codes in such a way that the audience can understand.\(^50\)

\(^{47}\)Brennan, op. cit., p. 428.

\(^{48}\)Ibid., p. 79.

\(^{49}\)Berlo, op. cit., p. 30.

John Riddle, a very skilled operator of a large beef producing enterprise desired to increase the feed efficiency of the steers he was raising. He was already doing an excellent job of feeding and because of his specialized education (B. Sc. in Animal Science) and managerial ability the county agent and vocational agricultural teacher could not offer much constructive help except to provide him with the latest bulletins and references in the field.

In an enterprise where John Riddle was trying to find out how to save a pound of feed to a hundred pounds gain more specialized sources had to be consulted. This particular farmer spent much of his time searching out information at the State University and consulted specialists in the fields of Nutrition and Animal Science.

In this case the county agent could not adequately meet the need of John Riddle as the only source of information but he was able to encourage John to study the books which the experts were studying and dig out his own information. More authoritative sources were needed. The county agent could act only on the basis of an intermediary
to give direction to more **credible** and **authoritative** sources. This farmer, as a **receiver** of **information**, was **interested** in reading the best books, **listening** to top specialists and **observing** the top beef feeder operations in the country.

**Definition of Receiver**

All human communication must have some source, some person or group of persons with a purpose, a reason for engaging in communication. The person or persons at the opposite end of the communication, the target of communication, are the receivers.51

**Social Cultural System**

**Situation**

The story of the Los Molinos water boiling project illustrates the importance of social and cultural systems. Water traditionally carried from one of three sources: a seasonal irrigation ditch, a spring and a public well. All showed contamination when tested.

It was not feasible to install a sanitary water system but the incidence of typhoid and other water-born diseases could have been lowered by boiling water before consumption.

Nelida, a change agent, was stationed in Los Molinos for two years during which time she devoted almost full time to this project. After two years of efforts only eleven families boiled water regularly. Of those persuaded many were associated with a different culture.

The reason for the failure of the water-boiling campaign can be traced largely to the cultural beliefs of the Los Molinos people, particularly their custom dealing with hot and cold foods and illness. Boiling water made it less "cold" and, hence, appropriate only for ill persons. But if one was not ill, he was prohibited by the cultural norms from drinking boiled water.\(^52\)

In a Spanish-American farm community in New Mexico hybrid seed corn was introduced. All of the care was taken to insure its success. In test plots the first year the hybrid seed yielded three times the normal harvest expected from the old varieties. The next year, half of the farmers adopted the hybrid seed. But two years later nearly all had returned to planting their original varieties.

Why did the village farmer discontinue the new idea? Because their wives did not like the hybrid because it had a strong flavor when made into tortillas.

\(^{52}\text{Rogers, op. cit., p. 7-12.}\)
Relevance of the Concept

In the situation above two improved innovations failed because social and cultural norms were not adequately considered.

We have learned the pleasing truth, that society talks back. Even the small-scale, technologically inferior people of the world have tremendous powers to resist changes they do not want, and to adhere, often at great cost, to their valued and distinct way of life. At the same time, we have learned that changes which people desire, radical or not, can be made swiftly, without great cost, and that a society may nearly redo itself in a generation - if it wants to.53

All the essentials for effective communication can be present; source, message, channel, receiver with the highest possible efficiency of all except for harmony in social cultural systems, the innovation is doomed to failure. Change must begin in this instance at changing the barrier as set up by norms of society.

Definition of Social Cultural System

The pattern of relationship found in society; especially the pattern between subdivisions based on differences in age, sex, kinship, occupation, privilege and authority.54


54 English and English, op. cit., p. 509.
Situation

James Powell, county agent in a western state, wrote a general news article on trends in dairy cattle housing. As a result of this article at least one dairy farmer contacted the agent to secure further assistance in converting a loose housing unit to a free-stall housing unit.

The farmer, Paul Kemp, made plans with James Powell to visit several farmers with free-stall housing. Building suppliers were contacted regarding costs, specifications and alternatives. James Powell made a farm call and the alternatives were discussed. Paul Kemp selected a plan that would be satisfactory and used his own labor and materials. Besides an economically feasible solution this turned out to be a teaching-learning situation for the agent and the farmer and a demonstration project for the community.

Relevance of the Concept

The problem to the county agent was to help a farmer secure and put into use a satisfactory dairy housing set up. The situation indicated a specific audience. The focus was on one person. The original article was intended to reach most dairy farmers; the follow up was meant for those that wanted further information. The article may have been responsible for motivating this individual. His
reading the article resulted in a desire for more information.

The source must keep the receiver in mind at all times. He chooses codes that the receiver can understand. He selects elements from the code that will appeal to the receiver and that are easy for him to decode. The source must structure the elements to minimize the effort required to decode and interpret the message. He chooses content that will convince the receiver; that will be pertinent to his interest and needs. Finally, the message is treated in order to achieve the maximum effect to accomplish the purpose.55

Eisenson points out some of the more important variants that must be kept in mind in thinking about the audience. What is the significance of the subject for the audience? What does the audience know about the subject? What beliefs or prejudices does the audience have about the subject? What is the attitude of the audience toward the subject? What is the speakers specific purpose in discussing the subject? What time is available for discussing the subject?56

55Berlo, op. cit., p. 62.
Definition of Target Audience

Target audience can be thought of as a specific audience that transforms a specific signal into a message.

Timing

Situation

A county agent in a midwestern state was consulted by a farmer regarding a disease problem in his tobacco crop. A pathologist at the State University identified the disease as black root rot.

The agent used this situation to organize a program in cooperation with the state supervisor and a recognized plant pathologist. Several varieties of tobacco were grown on the same farm where the diseased crop had been grown. This demonstration impressed many people. The directors of the Farm Bureau cooperated by including the demonstration as part of their field day. Pictures were taken and published in newspapers and magazines. In two years the county tobacco growers had completely changed to recommended varieties resulting in an estimated $600,000 a year increased income to the county tobacco farmers.

In another case a county agent in a southern state felt increased profit could be realized by farmers if they went into tomato production. Several farmers showed interest
but a bad stand and cold weather resulted in a poor crop. There was no further interest on the part of the farmers in succeeding years.

Relevance of the Concept

In the first example, diseased tobacco caused tremendous loss to tobacco farmers. Recognizing the need the county agent had to choose the best channels and techniques to disseminate information that would be beneficial in correcting the situation. The time for accepting change was optimal. The target audience was clearly defined. The pathologist served as an authority on the particular problem. Demonstrations showing how different varieties performed served to reinforce the need for change. A continuous well planned program resulted in the effective dissemination of the information. Several channels including, photos, field days, and news articles were used.

In contrast the second example illustrates inadequate planning, poor timing, lack of a truly authoritative source and a failure to persuade growers to stick with the practice more than one year.

The story is told of one change agent who frequently visited an old and wise gentleman in his community. Often he explained his plans and strategy and they discussed the proposals together. The old gentleman would finally offer his opinion, "Now is the time or wait a while the time is
not yet right. Timing in communication is an essential consideration for accomplishing the purpose of the communication effort.

**Definition of Timing**

Timing in this context can be thought of as that time in a presentation or the development of a program that is the most opportune time for maximum benefit and efficiency in presenting information, and for reaping the maximum desired response from the audience.
CHAPTER V

EDUCATIONAL OBJECTIVES FOR TRAINING PROGRAMS

This chapter deals with the selection of educational objectives for training programs involving agricultural educators. Three primary sources have been used in reviewing alternatives in selecting the suggested educational objectives: (1) the nature and role of the job, (2) the identification of communication concepts and (3) suggestions from subject-matter specialists.

The objectives included herein are suggested as guidelines in considering general areas of intensive study in communication. Each individual instructor should decide on the most important areas for consideration and formulate the specific teaching objectives and learning experiences for the particular training program in which he may be involved.

Contemporary life, and future expectations for it, influence heavily the nature and role of the job of the adult educator in Agricultural Education. The study of the learner also is important, particularly at the stage of selecting or organizing learning experiences. His needs,
interests, and levels of experience with material to be dealt with must be considered if optimum behavioral change is to be realized.

**Educational Objectives**

1. To understand communication as a dynamic process involving a number of concepts in action.
   a. Be able to construct a meaningful communication model that explains the various concepts of communication; source, message, channel and receiver.
   b. To explain those influences that affect the above mentioned elements within the model.

2. To understand the importance of the concepts of communication in introducing educational change in agriculture.
   a. Be able to identify the relevant situational information needed for communication.
   b. Be able to identify educational problems through a situational analysis of the communication process.
   c. To be able to design educational experiences using the concepts of communication.
   d. To increase the ability to evaluate the effectiveness of the communication or the use of communication procedures.

3. To understand the concepts and principles of communication and their relationship to Agricultural Education.
a. Be able to describe the educational role of Agricultural Education and its contribution to the total field of adult education.

b. Be able to describe the role of the agricultural education communicator.

4. To understand the importance of the communicator in presenting valid information.
   a. Be able to state the purpose of the intended message.
   b. Be able to identify the needs and desires of the audience.
   c. Be able to identify the needed skills and competencies of the communicator.
   d. Be able to collect, organize and present content that is meaningful and will give lasting satisfaction to the audience.
   e. Be able to identify and use the relevant concepts of communication in the development and delivery of a presentation for a specific interest area.
   f. Be able to evaluate the results of the communication.

5. To understand the sources of communication difficulties.
   a. To be aware of the dangers of misunderstood perceptions, mismatched experience, lack of credibility, misuse of communication channels, too strict control over the communication effort, role
conflict, norm conflict, lack of attention to feedback and informal network.

6. To understand the sender-receiver relationship in the communication process.
   a. Be able to state a philosophy of involvement of people in communication which is consistent with the principles of adult learning and the objectives of the organization.
   b. To become better listeners by hunting for the useful and practical in every situation.
   c. To realize the importance of motivation as a factor in attaining interest and meeting needs of the audience.
   d. To recognize the importance of perception in communication.

7. To understand qualities desirable for communicators to improve the dissemination of information.
   a. To develop ability as a small group discussion leader.
   b. To develop ability to instruct and inspire persons on a person-to-person or mass basis.
   c. Be able to understand the value system of the group to be influenced by the communication.
   d. Be able to analyse the power structure in a group or institution.
Suggested Material for Explaining
the Educational Objectives

The material related to the various objectives previously mentioned is not intended to be inclusive. At best, it will suggest some of the major areas to be considered under each of the general objectives.

Objective I. To understand communication as a dynamic process involving a number of concepts in action.

The model given in Figure 7 is an example of one of the many models that could be illustrated.

Communication Process*

S  Encode  M  __________________  C Decode  R

SOURCE sends a MESSAGE through a CHANNEL to a RECEIVER

Source may be a person
organization government

Message may seek to --report --interpret --persuade
may be may be may be

Channel may be --speaking --writing --visualizing

Receiver may be --one person --small group --mass audience

WHO says WHAT through what CHANNEL to WHOM?

FEEDBACK the other half of S-M-C-R --for what purpose?
--with what effect?
--in what situation?

Fig. 7. -- The Communication process

*This model was prepared by the Federal Extension Service of the U.S. Department of Agriculture.
Objective II. To understand the importance of the concepts of communication in introducing educational change in agriculture.

Communication involves planning. Effective communication like effective planning can be accomplished best by keeping in mind the important steps to be considered. Two examples of organizing for communication effectiveness follow:

A. We begin by analyzing the problem, and then follow with gathering facts, organizing the facts, forming an outline, determining what is needed to convey our meaning, throwing it into interesting form, and adding human interest so as to motivate action. Then we may speak or write with assurance.1

B. 1. Situation analysis
2. Problem identification
3. Identify worthwhile educational objectives and changes in practice that should be made.
4. Plan for communication:
   a. Create a feeling of need in the clientele.
   b. State the problem.
   c. Identify probable possibilities.
   d. List factors to consider.
   e. Secure facts.
   f. Arrive at a decision to the problem.

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5. Decide on the most effective channel or channels for disseminating the information.

6. Collect relevant information to support the facts and the decision arrived at.

7. Communicate the information to the target audience.

8. Follow through with person-to-person consultation and press for some action of an overt behavioral nature.


10. Evaluate the communication effort.

11. Make some general conclusion.

Objective III. To understand the concepts and principles of communication and their relationship to Agricultural Education.

Communication is closely associated with teaching and learning. Principles of communication resemble those of teaching and learning.

1. Communication is an essential part of Agricultural Education.

2. Planning is fundamental to communication.

3. Communication skills may be learned and improved upon.

4. The clearer, the more realistic and relevant the message the more effective the learning.
5. We communicate best what we practice.
6. We communicate to report, to interpret and to persuade.
7. There is a motivation factor in all communication.
8. We communicate best what is meaningful to us.
9. Most people never reach their potential in communicative effectiveness.
10. Guidance in how best to communicate is essential.
11. The communicator must have access to adequate, credible sources of material for effective communication to take place.
12. Appropriate standards of performance must be clear to the communicator.
13. Satisfaction must be derived from the act of communication.
14. The message being communicated should be appropriate to the level of education, interests and experience of the learner.
15. The communication method used should be carefully considered from among the possible ways of transmitting the message.
16. Communication effects are a result of a number of forces, of which the communicator can control only one - the message: Others are (1) situation in which the communication is received, (2) the
personality state of the receiver, (3) his group relationship and standards.

Objective IV. To understand the importance of the communicator in presenting valid information.

The communicator, source or sender of a message is essential for communication to take place.

Fortunately, there are some things a communicator can do to improve his credibility to an audience. A good communicator is characterized by the following:

1. He knows:
   - His objectives - has them specifically defined.
   - His audience - needs, interests, abilities, predispositions.
   - His message - content, validity, usefulness, importance.
   - Channels that will reach the audience.
   - How to organize and treat his message.
   - His professional abilities and limitations.

2. He is interested in:
   - His audience and its welfare.
   - His message and how it can help people.
   - Results of communication and their evaluation.
   - Communication process.
   - Communication channels - their proper use and limitations.
   - How to improve his communication skill.
3. He prepares:
   A plan for communication - teaching plan.
   Communication materials and equipment.
   A plan for evaluation of results.

4. He has skill in:
   Selecting messages.
   Treating messages.
   Expressing messages - verbal and written.
   Selecting and using channels.
   Understanding his audience.
   Collecting evidence of results.²

Objective V. To understand the sources of communication difficulties.

There are three levels of communication problems commonly referred to as technical problems, semantic problems and effectiveness problems.

1. How accurately can the symbols of communication be transmitted? (The technical problem)

2. How precisely do the transmitted symbols convey the desired meaning? (The semantic problem)

3. How effectively does the received meaning affect conduct in the desired way? (The effectiveness problem.)

Since most of the communication problems involve the channel an understanding of the obstructions that can enter into the process at this point should be considered.

1. Failure of a channel to reach the intended audience.
2. Failure of a communicator to handle channels skillfully.
3. Failure to select channels appropriate to the objective.
4. Failure to use channels in accordance with the abilities of the audience.
5. Failure to avoid physical distraction.
6. Failure to use a combination of channels.
7. Failure to use a series of channels.

Objective VI. To understand the sender-receiver relationship in the communication process.

As in the case of the communicator, no communication can take place without a receiver. Good listening habits can be a great aid to learning. Good observing and reading habits are also essential to the receiver.


1. Good listening habits build the shortest line possible between you and what is new in the world.

2. Good listening habits provide us with the most comprehensive grasp possible of the information-charged world around us.

3. Good listening habits provide us with a means of supplementing and revising quickly, constantly and efficiently our working fund of information and skill.

4. Good listening habits integrate our various traits and skills as we apply our talents to the problem of living.

5. Good listening habits provide us with natural and valuable depth to what we see.5

Perception is important both to the communicator and the receiver. The following principles help to explain the role of perception in communication.

1. We perceive best what we are prepared to perceive.

2. We can improve our efficiency as perceivers by giving attention to conditions which surround the act of perception and by acquiring good habits of perception.

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3. The more we involve our sensory equipment in the act of perceiving, the deeper will be the impression we gain through perception.

4. All perceiving requires structuring by the mind to make that perception meaningful; hence, the more assistance you can give your mind to this task of structuring the more efficiently your mind can perceive.

5. Our senses sometimes mislead us; hence, we must guard ourselves constantly against sensory distortion. 6

Objective VII. To understand qualities desirable for communicators to improve the dissemination of information.

The communicator is generally in control of the situation. He can be most effective by being attentive to the whole process.

1. The sender must have clear information.

2. The message must be encoded fully, accurately, effectively and in a transmittable sign.

3. The message must be transmitted rapidly enough and accurately enough to prevent other competitive factors from interfering.

4. The message must be decoded in a pattern corresponding to the encoding.

6Ibid., pp. 77-79.
5. The receiver must be able to handle the decoded message.\(^7\)

The communicator must have something to say. The principles related to the message should be helpful in preparing and presenting a message.

1. The message must be so designed and delivered as to gain the attention of the receiver.

2. The message must employ signs which refer to experience common to both sender and receiver, so as to "get the meaning across."

3. The message must arouse personality needs in the receiver and suggest some ways to meet those needs.

4. The message must suggest a way to meet those needs which is appropriate to the group situation in which the receiver finds himself at the time when he is moved to make the desired response.\(^8\)

5. A message is much more likely to succeed if it fits the patterns of understandings, attitudes, values, and goals that a receiver has; or at least, if it starts with this pattern and tries to reshape it slightly.

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\(^7\)Shannon and Weaver, op. cit., pp. 124-126.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This study was designed to review materials related to communication and identify the major concepts. The concepts would be useful in developing a graduate level course in communication geared toward improving the competencies and effectiveness of adult agricultural educators in introducing educational change.

The general purpose of this study was to identify, define and operationalize the communication concepts required by adult educators in agriculture to fulfill their role as an educational change agent.

The Study

The general design for the study was based fundamentally on the idea that in the initial step in the development of a comprehensive training program for professional workers, regardless of appropriate and valid objectives, two dimensions were paramount. First, the intellectual behavioral requirements of the job were identified. Second, communication concepts required to develop the
intellectual behavior were identified and described as the basis for the development of the training program.

Four stages were envisioned with each stage related to the objectives of the study. These stages were: (1) the determination of the anticipated behavioral requirements for future competence in communication; (2) the identification of relevant concepts from behavioral science disciplines; (3) the definition and description of the concepts; and (4) the development of suggested educational objectives. Under each stage the proposed procedure was described, although these stages were not viewed as discreet stages, since there was a degree of interrelationship among each of them. The stages, therefore, were suggested to help achieve clarity in the procedural aspects of the study.

**Specific Objectives**

The following objectives were identified to facilitate the pursuit of this study:

1. To determine the anticipated intellectual behavioral requirements for future competence in communication.

2. To identify relevant communication concepts from the behavioral sciences.

3. To define and describe the concepts.

4. To develop suggested educational objectives for use in staff development programs.
Assumptions

It was assumed in this study that: (1) in general, present extension and vocational agricultural educators need increased levels of understanding of fundamental concepts related to communication as the basis for leading more effective programs, (2) communication is more effective if those involved understand the basic concepts, (3) subjective judgment made by authorities in the field of communication are valid evidence in determining priorities of relevant concepts, (4) the most important communication concepts do not remain static. Changing times and situations will dictate those concepts most useful, and (5) there are some commonalities to all communication behavior.

Limitations

Limitations of the study recognized by the writer were: (1) the procedure used to formulate grouping of the communication concepts was largely subjective in nature, (2) the study was conducted over the relatively short period of one year, and (3) the audience for the study was identified as cooperative extension and vocational agricultural educators in graduate and in-service training programs.
Sources of Information

A review of research reports and projections by experts in field relevant to agricultural education was conducted and those relevant technical, social and economic trends were reviewed to construct a list of changes which need to be effected in agricultural education to cope with these trends.

Based on this review, a list of anticipated intellectual behavioral requirements for future competence in communication were developed for educators in agricultural education.

An extensive review of literature written by authorities in the field on communication served to identify relevant communication concepts. These concepts were ranked in four groups according to their importance using the following screening process: (1) Authorities in the field of agricultural education were contacted and asked to check those communication concepts most important to their respective field, (2) the list of intellectual behavioral requirements were alternatively contrasted and compared to find out which communication concepts were most important as a part of the intellectual behavioral requirement, (3) situational analysis were used to identify communication concepts that were operating most strongly in the solution to the problem, (4) concepts used in
definitions of communication were considered, and (5) indexes of books on communication were consulted to determine important concepts.

As a result of this examination four groupings of communication concepts were derived. The first three of these groups were given further consideration. Thirty smaller groups, each of which represented a central idea, were constructed. The major concept or idea from each of these thirty groups was further explained by considering a situation in which the concept was known to be operating, showing the relationship of this concept to other communication concepts, defining the concept, and finally giving references that would prove helpful in further investigation.

Based on the definitions and explanations of the communication concepts a list of educational objectives for training programs was suggested.

Finally, three consultants in the field of communication, cooperative extension, and vocational agriculture respectively reviewed all aspects of the study and offered their suggestions for its improvement. These suggestions have been included in the final draft of the study.
Findings

An extensive review of the literature, related research and the opinions of specialists in the field of communication, cooperative extension, and vocational agriculture constitutes the basis for the following summary of the findings of this study.

Technical, Social and Economic Trends in Society

It is impossible to predict specifically the consequences of possible developments. However, to refuse to consider possible developments, overwhelming technological, social and economic changes will engulf our programs and force change without proper foresight and preparation or crush the remaining flicker of light they have to offer.

Specialization might be thought of as the key that unlocks the doors to a successful future. Specialized production, marketing, packaging, distribution, management, organization, leadership and administration aided by new and more specialized machines will bring with it fewer but highly specialized jobs in applied fields and more jobs in service areas especially areas related to solving social problems. Higher incomes for all but especially for those highly trained, efficient individuals will be in order.

The American economy will be responsible to worldwide economy and also dependent on it as travel, communi-
cation and exchange of personnel, goods and services become more abundant. The farm segment will continue to become increasingly dependent on other segments of the economy as cash substitutes labor.

Mass education, large research and development laboratories, mass transportation, mass religion, mass recreation facilities, big business, even small business will bring new problems and solutions but will increasingly operate in ways intended to maximize command and control of predictability and stability on a world wide basis.

Changes Needed in Agricultural Education

Extension education irrespective of the agency sponsoring it, will need to place its emphasis on education using a "rifle approach" well levelled at different clientele, using different approaches.

An objective presentation of facts from a credible source will become increasingly important as more companies provide services with their products. Specialized training for specialized audiences including personnel concerned with extension education will be essential in greater depth at more frequent intervals.

Organization will need to change with the increase in population which will result in increased numbers of clientele to be served. Greater experimentation will be needed to solve new and unfamiliar problems with greater
cooperation among agencies, each relying on the others specialty to effectively solve yet unrecognized problems.

**Intellectual Behavioral Requirements**

The effective vocational agricultural teacher and the cooperative extension agent:

1. **Possesses an educational and social philosophy that is consistent with the expectations of contemporary society, the Cooperative Extension Service or Vocational Agricultural Education and other authorities in Adult and Continuing Education.**

2. **Understands the social organization within which the county extension agent and vocational agricultural teacher functions and the influence of technological, economic and social forces on its evolution.**

3. **Understands the role of the Cooperative Extension Service or Vocational Agricultural Education and related educational institutions in facilitating social, economic and cultural adjustments required by individuals and groups to effectively cope with the consequences of rapid technological developments.**

4. **Understands his role as a professional educator and the relationship of his role to others in his profession and related organizations.**

5. **Acquires and utilizes a unified formulation of a theory of learning.**

6. **Understands the processes of social change.**

7. **Understands the processes of curriculum development. Is prepared to work with technicians and with teaching aids.**

8. **Understands technical subject matter appropriate to his job and is knowledgeable about reliable sources of information.**
9. Values and actively pursues continuing study as an essential factor to his continued professional growth.

10. Knows the sources of pertinent economic and social data needed to effect an educational program, and is proficient in the collection, analysis and interpretation of these data.

11. Effectively identifies, organizes and develops the human and technical resources needed to plan, execute and evaluate area, county, or community programs.

12. Interprets with leaders and other appropriate persons the influence of technological, economic and social factors in relation to forces operating within society and their impact on the individual, family, group and community in society.

13. Helps people (groups and individuals) invoke the decision-making process in determining problems, needs and opportunities; establish objectives, and select a course of action and provides learning experiences to meet their specialized needs.

14. Prepares a long-term program (plan, curriculum, etc.) based upon decisions arrived at jointly by both professionals and lay leaders.

15. Diagnoses problems contained in the program statement in order to identify specific problems encompassed within major problem areas; determine casual factors contributing or associated with each of the specific problems; and sequentially orders the specific problems based upon the stage of the clientele group in the learning process.

16. Identifies and characterizes audiences to be reached as reflected in the identified problems.

17. Formulates objectives for each of the specific problems in terms of the learners (audiences) and behavioral change to be achieved.

18. Identifies and organizes learning experiences appropriate to the objectives for the identified audiences and uses the problems identified.
19. Selects channels of communication needed to provide stimulation for learning to occur, including new media such as computers, closed circuit television and programmed system of instruction.

20. Determines the human and material resources needed to provide learning experiences for the several groups of learners including units of instruction for (a) non-agricultural occupations and for (b) non-vocational oriented clientele.

21. Identifies and obtains the cooperation of appropriate resource persons to assist in providing the needed learning experiences. Works effectively and in a meaningful way in team work and in flexible programs.

22. Plans and conducts educational experiences for resource persons and leaders in order to assist them to acquire needed competence.

23. Maintains effective vertical and horizontal communication channels with various leaders, resource persons and relevant professionals in the actual planning, execution and evaluation of the program. Uses "lay" advisory committees and agricultural industry personnel.

24. Develops plans for evaluating program accomplishments in relation to defined educational objectives and the several developmental processes.

25. Identifies, collects and interprets evidence with respect to program objectives and learning experiences.

26. Informs professional colleagues, leaders, public officials, and his several publics of program accomplishments.

27. Utilizes findings of evaluative studies as a basis for strengthening and/or redirecting program efforts. Has an eye to future needs and is teaching to meet those future needs.
Concept Identification

Of approximately one hundred and seventy five concepts identified in the literature, twenty seven passed four tests in the screening process and were classified as being most important.

Twenty five concepts were classified as being of much importance and seventy two as being important. The remaining communication concepts identified were classified as being interesting possibilities for future study.

Within the first three groups many of the words referred to the same concept, i.e., receiver, audience, publics, target audience. As a result of this duplication a further regrouping resulted in thirty more distinctive groups with each group representing one broad idea or concept. Most of the key words denoting concept groups have been included in group one, groups two and three generally served to support those concepts in group one.

The explanation of the thirty major concept groups showed the use of many of the communication concepts in the majority of situations in combination with the major concept being explained. Those concepts in group four - lesser importance - were also found fewer times in the situations explaining the major concepts.

The communication concepts rated most important include: Affective behavior, attitudes, channel, content,
credibility, experience, feedback, information, interest, listening, medium, message, motivation, perception, persuasion, process, purpose, reading, receiver, response, sender, social cultural system, source, speaking, stimulus, target audience, and timing.

The major concepts in each of the thirty groups can be designated by the following words: Affective behavior, attitudes, authority, capability, channel, commitment, credibility, divisibility, experience, fidelity, frequency, informal, information, interest, interpretation, language, message, needs, perception, planning, persuasion, primacy, process, purpose, reality, reinforcement, response, sender, social cultural system and timing.

**Educational Objectives for Training in Communication**

The following general objectives were considered important for the development of communication skills:

1. To understand communication as a dynamic process involving a number of concepts in action.
   a. Be able to construct a meaningful communication model that explains the various concepts of communication; source, message, channel and receiver.
   b. To explain those influences that affect the above mentioned elements within the model.
2. To understand the importance of the concepts of communication in introducing educational change in agriculture.
   a. Be able to identify the relevant situational information needed for communication.
   b. Be able to identify educational problems through a situational analysis of the communication process.
   c. To be able to design educational experiences using the concepts of communication.
   d. To increase the ability to evaluate the effectiveness of the communication or the use of communication procedures.

3. To understand the concepts and principles of communication and their relationship to agricultural education.
   a. Be able to describe the educational role of agricultural education and its contribution to the total field of adult education.
   b. Be able to describe the role of the agricultural education communicator.

4. To understand the importance of the communicator in presenting valid information.
   a. Be able to state the purpose of the intended message.
b. Be able to identify the needs and desires of the audience.

c. Be able to identify the needed skills and competencies of the communicator.

d. Be able to collect, organize and present content that is meaningful and will give lasting satisfaction to the audience.

e. Be able to identify and use the relevant concepts of communication in the development and delivery of a presentation for a specific interest area.

f. Be able to evaluate the results of the communication.

5. To understand the sources of communication difficulties.

a. To be aware of the dangers of misunderstood perceptions, mismatched experience, lack of credibility, misuse of communication channels, too strict control over the communication effort, role conflict, norm conflict, lack of attention to feedback and informal network.

6. To understand the sender - receiver relationship in the communication process.

a. Be able to state a philosophy of involvement of people in communication which is consistent
with the principles of adult learning and the objectives of the organization.

b. To become better listeners by hunting for the useful and practical in every situation.

c. To realize the importance of motivation as a factor in attaining interest and meeting needs of the audience.

d. To recognize the importance of perception in communication.

7. To understand qualities desirable for communicators to improve the dissemination of information.

a. To develop ability as a small group discussion leader.

b. To develop ability to instruct and inspire persons on a person-to-person or mass basis.

c. Be able to understand the value system of the group to be influenced by the communication.

d. Be able to analyse the power structure in a group or institution.

Conclusions

The following conclusions are based upon evidence from the study.

1. The study of technical, social and economic trends and the connected changes needed in adult agricultural education was an effective way of determining those anticipated intellectual
behavioral requirements needed for future competence in communication.

2. The identification of concepts from communication literature was an effective way of organizing a wealth of material in the field of communication. The relevance of these concepts to the intellectual behavioral requirements hold tremendous possibilities for determining the usefulness of any subject matter field to a particular job.

3. The process of defining and describing the communication concepts proved successful in determining a small number of concepts as being most important to the adult educator in agriculture.

4. The identification of suggested educational objectives for training programs served as a guide to teaching the concepts for the efficient development of programs and communication efforts on behalf of the adult educator in agriculture.

Recommendations

1. The intellectual behavioral requirements identified should be used as guidelines to provide purpose, meaning and direction in developing materials for teaching for personnel in these categories.
2. Graduate level courses in communication for adult educators in agriculture should include the most important concepts identified in this study.

3. In-service programs for adult educators in agriculture should be developed using the most important concepts as one basis for program development.

4. The educational objectives and the materials presented provide a beginning point for an instructor as a course to focus on what appear to be the most critical areas. As the instructor develops a course he may well modify these objectives further.

Suggestions for Further Study

1. A continuation of this study would be rewarding. The concepts identified should be tested to determine their relative importance. This study was concerned with the first phases of a continuing plan; i.e., situation analyses, concept identification and possible objectives. The next stage would be concerned with a trial; i.e., development of a plan or curriculum, teaching, determining the progress and reconsideration of the whole approach.
2. Other fields concerned with adult education such as psychology, sociology, and philosophy, should examine this procedure as a possible way of synthesizing a wealth of material to focus on one or more specific problems or areas included in their field.

3. Some synthesis of all these materials from the various fields should be attempted to form a block of concepts in the social and behavioral sciences that would be considered essential for the adult educator in agriculture to improve his efficiency as an educator and change agent.


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