# INSTRUCTIONAL COMPONENTS OF A PROPOSED PRE-SERVICE EDUCATIONAL PROGRAM FOR AGRICULTURAL EXTENSION AGENTS AT THE NATIONAL INSTITUTE OF AGRONOMY IN TUNISIA

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1975

Submitted to the Faculty of the Graduate College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
DOCTOR OF EDUCATION
July, 1975

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## ACKNOWLEDGMENTS

The writer wishes to express his gratitude and appreciation to Dr. Robert R. Price, Head of the Agricultural Education Department, who served as major adviser, for his countless hours of efficient advice, assistance, counseling, guidance and continuous encouragement throughout the entire graduate program. Appreciation is also extended to every member of his committee and to all the research and teaching staff members of the Agricultural Education Department and the Cooperative Extension Service at Oklahoma State University for their instruction and assistance in the preparation of this study.

Acknowledgment is given to the State Department of Vocational and Technical Education for the use of their model in developing Units of Instruction in this dissertation.

Acknowledgment would not be complete without giving due credit to the Government of Tunisia and the United States Agency for International Development for their sponsorship which has made the writer's educational program possible at Oklahoma State University.

Special recognition and sincere thanks are given to my wife who has always been a source of encouragement, assistance, and inspiration throughout my graduate education. To her, this work is dedicated.

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# CHAPTER I

## INTRODUCTION

Tunisia is recognized as a developing country where agriculture is the predominant economic sector. A great proportion of the population (50 to 60%) are involved to some extent in agricultural production and related agri-businesses. The Tunisian government has devoted -- and is still doing so -- most of the available resources for improving the agricultural sector in order to serve as a basis for developing the other sectors of the economy. The different actions undertaken by the government of Tunisia in agriculture tend to put more emphasis on the three components of a sound higher education system: Instruction, Research, and Extension.

### Instruction

The National Institute of Agronomy in Tunisia was founded in 1898 by the French colonists who occupied the country in 1881. The main purpose of this institution was exclusively to provide a basic education in agricultural production to the colonists' descendents in order to carry out the "exploitation" of the agricultural resources of Tunisia and export agricultural raw materials to France, the "Nation Mother". At that time the period of formal studies was two years and the institution was known as "Ecole Coloniale d'Agriculture de Tunis" which stands for Colonial School of Agriculture of Tunis.

In 1956, at the independence of the country, the same institution, the name of which was changed to "Ecole Nationale Supericure d'Agriculture de Tunis" which stands for National Superior School of Agriculture of Tunis, served as a training center for Tunisian as well as French students. The main purpose was to prepare mainly highly qualified agriculturists expected to work with the Ministry of Agriculture. Instruction was exclusively assured by French teaching staff and the schooling period was extended to three years.

In 1963, to the existing curriculum were added some basic courses in agricultural economics and the formal school preparation at the undergraduate level was extended once again, to four years. However, at the senior year, the last six months of the school programs (January through June) were reserved to special courses in specific areas of study such as: plant pathology, cereal crops, horticulture, enthomology, fruit production, soil science, and agricultural economics. The purpose of these studies was to initiate the students to applied research and their interpretation in one of the areas mentioned above. But still at that time, the needs of the country for field agronomists were far to be fulfilled and very few, only the top five or six students were allowed to enroll for graduate programs in foreign countries where agriculture is far more prosperous, namely Western European countries and the United States of America. Since that date, the most noticeable progress is the fact that actually about three quarters of the teaching staff members at this institution -- which adopted the name of Institute National d'Agronomie de Tunis, standing for National Institute of Agronomy in Tunisia -- were Tunisian and more precisely former graduates of the same institution holding Ph.D.'s and other equivalent European doctoral diplomas.

## Research

Since the early years of this century, the need for research in agriculture was felt. Experiments were conducted by the French teaching staff. The research station was an integral part of the "Colonial School of Agriculture in Tunisia" which at that particular time was owning about 250 acres in the close Northeastern suburban area of Tunis, the capital of the country. Most experiment trials were on selection of hard and soft wheat varieties in which France was the most interested.

After 1956, the research station became autonomous and took the name of "National Institute of Agronomic Research in Tunisia". Experiments covered more than the cereal crops, namely horticulture, fruit crops, olive production, animal science, forage production and range management. A multitude of experiment stations were created at the local level where experimental research was the predominant mode.

As at the teaching level, gradually the young Tunisian research staff members are replacing the foreign research "experts" usually less acquainted with the local conditions and very "expensive" for the operating budget of the research station.

## Extension

Before the independence of the country, there was no extension service as such. The main activities were gathering data about cultivated lands, the type of crops grown, and the estimated yields expected so that the "Nation Mother" could have enough time to plan for importation and marketing of the Tunisian agricultural products on the world market. Education of farmers and raising their standard of living was the least of its concerns.

Just a few years after the independence, the gouvernorat of Tunisia felt a great need for a more structured and organized extension service. In each district (or Gouvernorat) an agency was created and provided with fairly adequate instructional materials, somewhat experienced personnel, and in most cases, not enough means of transportation. For the first years the colonists' "know how" was the main body of knowledge the extension workers were preaching to the farmers among whom the vast majority was completely illiterate. Innovation was still at a rudimentary stage due to the income inelasticity of the native farmers operating on the marginal lands usually over cultivated without any reinvestment of the chemical or organic nutrients and in most cases exposed to erosion.

As the economy of the country relatively improved through the years the extension service was provided progressively with more funds, however, sometimes from foreign loans known under the title of "technical assistance" or "international cooperation". During the late 60's and the early 70's, the hope of the national economic development was in the agricultural sector. More facilities, transportation, and funds were made available and the extension activities were extended to the county level. Meanwhile, training of the extension personnel in a sense did not follow the same trend. The authorities of the Tunisian government seem to overlook the benefit of a formal preparation of the extension workers. However, in the actual conditions of a perpetual change in knowledge and technology training (pre-service and in-service) of the agents of change is a "must" to keep abreast of the last research findings, if the welfare of the rural population and more broadly the development of the agricultural sector is the ultimate goal.

## Statement of the Problem

Each year around 60 students graduate from the Institute of Agronomy in Tunisia which is an adequate supply of educated manpower for the small country of Tunisia. However, it is almost illogical when one thinks that about 80 percent of them are designated to work in agricultural extension without having had any basic course in extension education during their formal college preparation. Although a B.S. degree is required to be employed as an extension agent, there is something else missing to make out of the young graduate an efficient agent of change. How could this educated graduate communicate with a traditional farmer usually hostile to innovation? How could he sell his "know how" (skills and ideas) if he did not learn the salesman function? This situation of misunderstanding, the lack of effective communication between farmers and extension workers is the actual prevailing mood in the agricultural sector in Tunisia.

If the agricultural sector has to be given the top priority in the economic development process, this priority must be carried out in all its phases. In this critical situation where the country is in the take-off stage of Rostow [16] economic theory, emphasis must be put on the transfer of available new technology to the farmer in order to increase his productivity and consequently improve the whole economy of the country. Rostow identified five stages in economic development:

1. Traditional society.
2. Preconditions for take-off.
3. Take-off.
4. Drive to maturity.
5. High mass consumption.

Each of these stages has a number of characteristics and those related to the take-off stage can be listed as follows:

-Innovation becomes a steady stream.

-Innovation becomes expected.

-Very rapid decrease in investment/net national product.

-Political and social institutions become flexible.

Also because of an education prodigeously provided to a young population (46% of the population under 15 years of age), resources and especially labor have shifted out from agriculture during the last decade and only a small portion of the population live on the farm. How could agriculture attract any more of the young educated labor if not by increasing the actual production in urgent need of a well-informed and trained extension personnel able to communicate with traditional farmers in spite of the generation and education gap?

It is obvious that this "bottleneck" has to be removed by providing adequate in-school and field training programs for potential extension workers in order to avoid future frustration, and failures in many cases, of the young devoted agents of change.

## Purpose and Objectives of the Study

The purpose of this study was to develop instructional components of a proposed pre-service extension training program for potential field extension workers in Tunisia. In order to accomplish this achievement, two major objectives were attempted:

1. To identify basic units of instruction now offered in preliminary extension courses -- senior year or lower division graduate courses -- in twenty six landgrant state universities known for having strong

agricultural extension programs across the United States of America.

2. To develop selected units of instruction in terms of behavioral objectives, in areas identified as most used in the universities covered by the survey. The developed units were intended to constitute a proposed basic instructional component in extension education to be offered at the senior level of a college program in the National Institute of Agronomy in Tunisia.

## Definition of Terms

### Curriculum

This term encompasses a great variety of meanings going from a simple classroom period to the totality of activities in a school to which the learner is exposed.

According to Hass [8]:

> The curriculum is all the experience that individual learners have in a program of education, which is planned in terms of a framework of theory and research or past and present practices used in the program planning (p. xvii).

The definition of curriculum given by the HEW [9] seems to cover the same components, however with more emphasis on meeting the educational objectives:

> The curriculum is considered to encompass the instructional activities planned and provided for pupils by the school or school system. The curriculum therefore, is the planned interaction of pupils with instructional content, instructional resources, and instructional processes for the attainment of educational objectives (p. 3).

A more broad definition of curriculum is likely to be covered by Oliver [12] in his statement:

> Curriculum is all the experiences the child has regardless of when or how they take place; all the experiences the learner has under the guidance of the school; all the courses which the

> school offers; the systematic arrangement of certain courses offered within a certain subject field; the program in a special professional school; those courses taken by an individual (p. 5).

Instruction

Most of the curriculum planners agree upon the fact that instruction has to do essentially with teaching procedures when implementing educational programs. The HEW [9] stated it clearly:

> Instruction includes the activities dealing directly with the teaching of pupils and with improving the quality of teaching (p. 3).

From the definitions above it is clear that an educator who is involved in curricular planning is exclusively concerned with determining objectives of the educational system. There are two basic kinds of decisions [14] that the educator must make. First, he must decide what the objectives (that is, the ends) of the educational system should be, and second, he must decide upon the procedures (that is, the means) for accomplishing those objectives. When the educator is engaged in the selection of objectives for the particular segment of instruction with which he is concerned, whether an academic year or a single class period, he is engaged in curriculum decision-making. When he is concerned with the selection or evaluation of the instructional schemes by which those goals are to be accomplished, he is engaged in instructional decision-making. Thus, the distinction between curriculum and instruction is essentially a distinction between ends and means (p. 82).

In summarizing the meaning of the two terms curriculum and instruction one might consider that the curriculum is what is taught and instruction is how it is taught.

## Design and Methodology

With the assistance of the Department of Agricultural Education and the Cooperative Extension Service at Oklahoma State University, this study was designed to determine the units of instruction usually offered in a preliminary basic course in Extension Education on one hand, and on the other to develop these units in order to be offered at the senior level of undergraduate program in the National Institute of Agronomy in Tunisia as an integral part of a formal pre-service training for potential field extension workers. Following are some guidelines on collection of data to:

1. Identify the units of instruction. The researcher mailed a letter to twenty-six landgrant state universities distributed throughout the United States and known for having strong agricultural extension programs. The selection of these universities was based on the judgment of the Agricultural Education Department Head and the Coordinator of Personnel Development of the Cooperative Extension Service at Oklahoma State University. The letter of request for information was approved conjointly by these two persons named above, for assistance to Department Heads and Professors in Agricultural Education and Extension Education. A copy of this letter appears in Appendix A. A list of the landgrant universities surveyd and a map showing their headquarters are exhibited in Appendix B.

Data was compiled and tabulated in a manner as to fulfill the purpose and objectives of the study.

2. Development of the selected units of instruction. Basically, the units revealed by the survey were developed into similar format adopted in the "Core Curriculum" developed by the Oklahoma State Department of Vocational and Technical Education (11, p. 5-11).

a. Terms and Definitions:

(1) Performance objectives: The statement of performance that instruction is to produce stated in terms of observable or measurable students performance.
(2) Terminal objectives: An objective stating the subject matter to be covered in terms of student performance within a unit of instruction.
(3) Specific objectives: An objective stating the performance required of the student in order to reach the terminal objectives.
(4) Unit of instruction: The material or instruction for one or more class periods.
(5) Lesson plan: A plan of instruction for a single class period.

b. Writing a Unit of Instruction:

The first step in any teaching-learning situation is to decide upon the goals to reach at the end of the course or program. The teacher then has to select the content, the adequate procedures and the methods that are relevant to the objectives, cause the student to interact with the appropriate subject matter in accordance with the principles of learning, and finally, measure of evaluating the degree to which the student has achieved the goals or objectives already selected.

Each instruction unit includes objectives, suggested activities, references, information sheets, job sheets, assignment sheets, transparency masters, quizzes, and answers to the quiz.

(1) Objectives: The measurable objectives must be clearly stated and include three major components: (a) the performer who is always the learner or the student, (b) the observable or measurable performance expected from the student, and (c) the minimum acceptable level of the student performance. Specific objectives are the most important in regard to teaching the unit of instruction. Before attempting to teach a unit, terminal and specific objectives must be explained to the student in order to tell him what is expected from him as a result of the instruction.
(2) Suggested activities: Each unit of instruction has a suggested activities sheet outlining steps to follow in accomplishing the specific objectives. The activities relate the duties of the teacher and the student during the course of the instructional unit. They usually include the following:

Instructor -- provide participants with objective, information and assignment sheets; make transparencies; discuss terminal and specific objectives; discuss information and assignment sheets; direct participants through the different learning paths for each specific objectives;

and give tests.

Participant -- read objectives; study information sheet; complete each assignment sheet; make sure you are able to perform according to the type of performance called for by each specific objective; and take test.

It is important to notice that the teachers are encouraged to use any additional activities and means which may contribute to the achievement of the objectives.

(3) References: Included in the references the various books, bulletins, pamphlets, official and unofficial publications and any other instructional materials which contributed to compile the information provided to the student in the information sheet. These reference materials may be useful for those students who desire to broaden their knowledge in the subject matter covered by the unit of instruction.

(4) Information sheet: The information sheet contains essentially facts and events necessary for the teaching of a unit of instruction. These sheets should be given to the students at the beginning of each unit. They can be reproduced at the local school at a minimum of expense.

(5) Job sheet: Job sheets are included in units when necessary. A job sheet is a guide sheet giving complete references and instructions on how to perform in the proper sequence the operations necessary to successfully complete a production job. It includes the name of the job, materials, tools, and equipment needed; step-by-step procedure for performing the job; and diagram of procedure.

(6) Assignment sheet: An assignemnt sheet is an instrument which directs the study to be done or assignment to be carried out by the student as stated in the objectives. The assignment sheet may include questions to determine how well the lesson has been learned for self-assessment or as a criterion check.

(7) Transparency masters: Transparency masters are charts, pictures, or illustrations printed for use in making overhead transparencies. They are included in units when necessary. A transparency should be made from the transparency master and be shown on an overhead projector, or it should be reproduced and made available to the student as an information sheet.

(8) Quizzes: A quiz is included at the close of each unit of instruction to contribute in the evaluation of the student performance in mastering the specific objectives.

Notice: For the sake of simplicity and to avoid too much repetition in this study, the researcher put more emphasis on developing the (1) terminal objectives; (2) specific objectives; (3) suggested activities

whenever special events ought to be mentioned in addition to those routine classroom activities; (4) references; (5) information sheets; (6) transparency masters; and (7) assignment sheets.

# CHAPTER II

## REVIEW OF LITERATURE

Curriculum development has been a major concern of all educators since the early ages of the public education. A lot of controversy marked the history of curriculum in regard to the definition of the term curriculum, its components, development, implementation, and evaluation. Popham and Baker [14] were the most eloquent in showing the tremendous number of educators involved in curriculum development and the boundary-less amount of literature in this realm:

> Educators at every level, from classroom teachers to school superintendents are concerned with 'the curriculum'. Countless hours are spent discussing curriculum questions. There are probably more school-district curriculum committees in America than schools; and enough curriculum guides exist in school district offices to supply school paper drives for the next several decades. Despite all the curricular planning activity, does the educator know just what the 'curriculum' is? Who are the 'curriculum workers'? What do they do (p. 81-88)?

### Curriculum Design

In this time of rapid change and increasing attention to education, it is important that professional educators and others take a fresh look at the question "Who should plan the curriculum?" Hass [8] suggested that:

> ...In America all interested citizens, parents, learners and scholars from all the disciplines must work with teachers, principals and supervisors in the planning. This planning should go on throughout America on a local, state, and national basis. A democratic society cannot

> permit uniformity and centralization. The outrushing future requires many different autonomous, competing efforts to cope with its problems (p. 248-249).

Planning for curriculum is then a shared task between grass root sources and top level formal school administrators who must keep in mind what French [5] and his associates suggested as characteristic of the curriculum:

1. A wide degree of freedom from student-teacher planning is selection of content and activities for the class.
2. The use of a wide variety of classroom procedures with the classroom as a learning laboratory rather than a recitation room.
3. The use of a variety of classroom materials rather than independence upon a textbook.
4. The integration of group and individual guidance activities in the classroom program.
5. The use of broad evaluation techniques rather than measurement of information gained (p. 80-95).

Although French and his associates described a high school type of curriculum, this description holds true in many of the programs offered in higher education institutions. However, the learning experiences in the latter establishments ought to be planned at a higher level in the Bloom's taxonomy [2]: Cognitive domain (..., application, analysis, and synthesis), psychomotor domain (..., articulation and naturalization) and affective domain (..., value, organization, and characterization).

In planning curriculum, and at any given level, we tend to value what we need. Needs determine values and values determine goals. Wilson [21] stated it clearly:

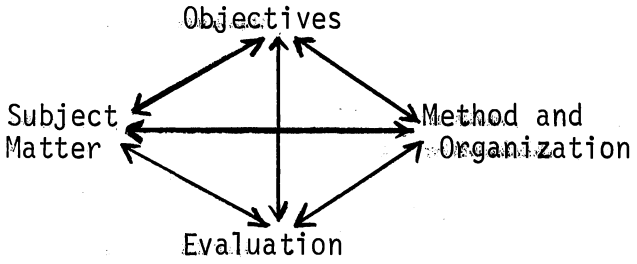
> If we are operating at the level of physiological needs, then we tend to value food and shelter. Attaining them becomes our goal. At the self-actualization level, we will be 'turned on' by opportunities for self-expression, self-development, outreach. It is not, of course, that we need food, shelter or any of the other intermediate needs any the less; but they are assumed or subsumed in the larger goal, rather than valued for themselves (p. 84).

Once the needs are determined, the curriculum must contain certain key elements -- aims and objectives, content and learning experience, and evaluation -- which in many curriculum designs are either missing or not sufficiently interrelated. An effective design makes clear the criteria for selecting aims and content, but also goes beyond that, the problem of curriculum organization. Organization involves moving from a general analysis of aims to a highly specific statement of scope, sequence and integration. Taba [18, p. 345-364] recommended an organization of the curriculum around ideas and skills of the learner, rather than by subjects and content topics. With ideas as the centers of curriculum organization, teachers can be free to select and adopt their own content rather than submit to the tyranny of uniform, fixed and static content. Furthermore, he suggested to curriculum designers seven steps to follow:

1. Diagnosis of needs.
2. Formulation of objectives.
3. Selection of content.
4. Organization of content.
5. Selection of learning experiences.
6. Organization of learning experiences.
7. Determination of what to evaluate and ways and means of doing it.

These steps, although they are listed in a chronological order, are in a very close relationship and influence each other at any time of the implementation of the educational programs. The methods used in selecting the objectives of the curriculum and the learning experiences or the subject matter and their organization are in a constant process of evaluation. After evaluation of the objectives for instance, changes

may affect the subject matter to be taught and consequently its organization and the way to implement the learning experiences are different from any other previous program. On the other hand, if the objectives are changed the evaluation tool or process used before the change in the objectives, might be inadequate to measure the extent to which the needs of population under consideration are satisfied. After eight years of study, Giles and his associates [7] designed a diagram showing the elements of a curriculum and their relationships:




> This design describes four elements: objectives, subject matter, method and organization, and evaluation. In essence, it suggests for the curriculum maker four questions:
>
> What is to be done?
> What subject matter is to be used?
> What methods and organization are to be employed?
> How are the results to be appraised?
>
> The design also indicates that each of these elements is related to the others and that therefore, decisions regarding any of them are dependent on decisions made on others (p. i).

This step-by-step procedure in curriculum development is similar to the "Management Process Cycle" discussed in Pert [13, p. 1-2] which is an extract from a guide to the use of network analysis in the management

of the United States government departments. It identifies five basic steps that must be taken in any successful management process: (1) definition of objectives, (2) development of the plan to reach those objectives, (3) the conversion of the flow into schedules for implementation (4) regular evaluation of progress against scheduled plans, and (5) recycle of process to change plan in the light of evaluation and need for improvement.

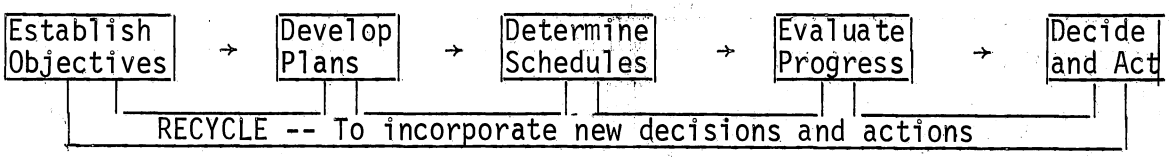



Figure 1. The Management Process Cycle

Evaluation in every diagram discussed thus far seems to be a central component of the educational process. Property handled, it feeds back into the functioning of the system and redirects it. Wilhelm [20, p. 2-16] listed a number of basic criteria which test the value of a school's mechanism for evaluation. Evaluation for him must:

1. Facilitate self-evaluation.
2. Encompass every objective valued by the school.
3. Facilitate learning and teaching.
4. Produce records appropriate for the purposes for which records are essential.
5. Provide continuing feedback into the larger questions of curriculum development and educational policy.

A curriculum design is considered by the most eminent authors as a real process of diagnosis and strategy in planning, analyzing, and

implementing the educational programs in public schools. Like any other process there must be on one end some inputs which constitute the available resources and at the other end the outputs representing the desired finished product resulting from a series of transformations arranged in a given sequence and using specific ingredients. This systematic way of analyzing a complex situation was presented by Combs [4] who discussed the analogy between the medical doctor and the curriculum planner, both of them facing a problem of analysis, synthesis, evaluation and decision-making (Figures 2 and 3):

> A 'systems analysis' of education resembles in some respects what a doctor does when he examines the most complicated and awe inspiring 'system' of all - a human being. It is never possible, nor is it necessary, for the doctor to have complete knowledge of every detail of a human being's system and its functional processes. The strategy of the diagnosis is to concentrate upon selected critical indicators and relationships within the system and between the system and its environment.
>
> ...What the doctor does in his analysis of the human body, modern management does with in its 'systems analysis' approach to the operations and plans of everything from department stores to military establishments. The 'indicators' differ from context to context, but the strategy remains much the same. By extension, this is also true of a systems analysis applied to an educational system.
>
> ...An educational systems as a system obviously differs greatly from the human body -- or from a department store -- in what it does, how it does it, and the reasons why. Yet in common with all other productive undertakings, it has a set of inputs, which are subject to a process, designed to attain certain output, which are intended to satisfy the system's objectives. These form a dynamic, organic whole. And if one is to assess the health of an educational system in order to improve its performance and to plan its future intelligently, the relationship between its critical components must be examined in a unified vision (p. 8-13).

## Curriculum Bases

The theory of curriculum development is based on the demands and requirements of culture and society as related to economic factors in the present situation and their projection in the future. Curriculum

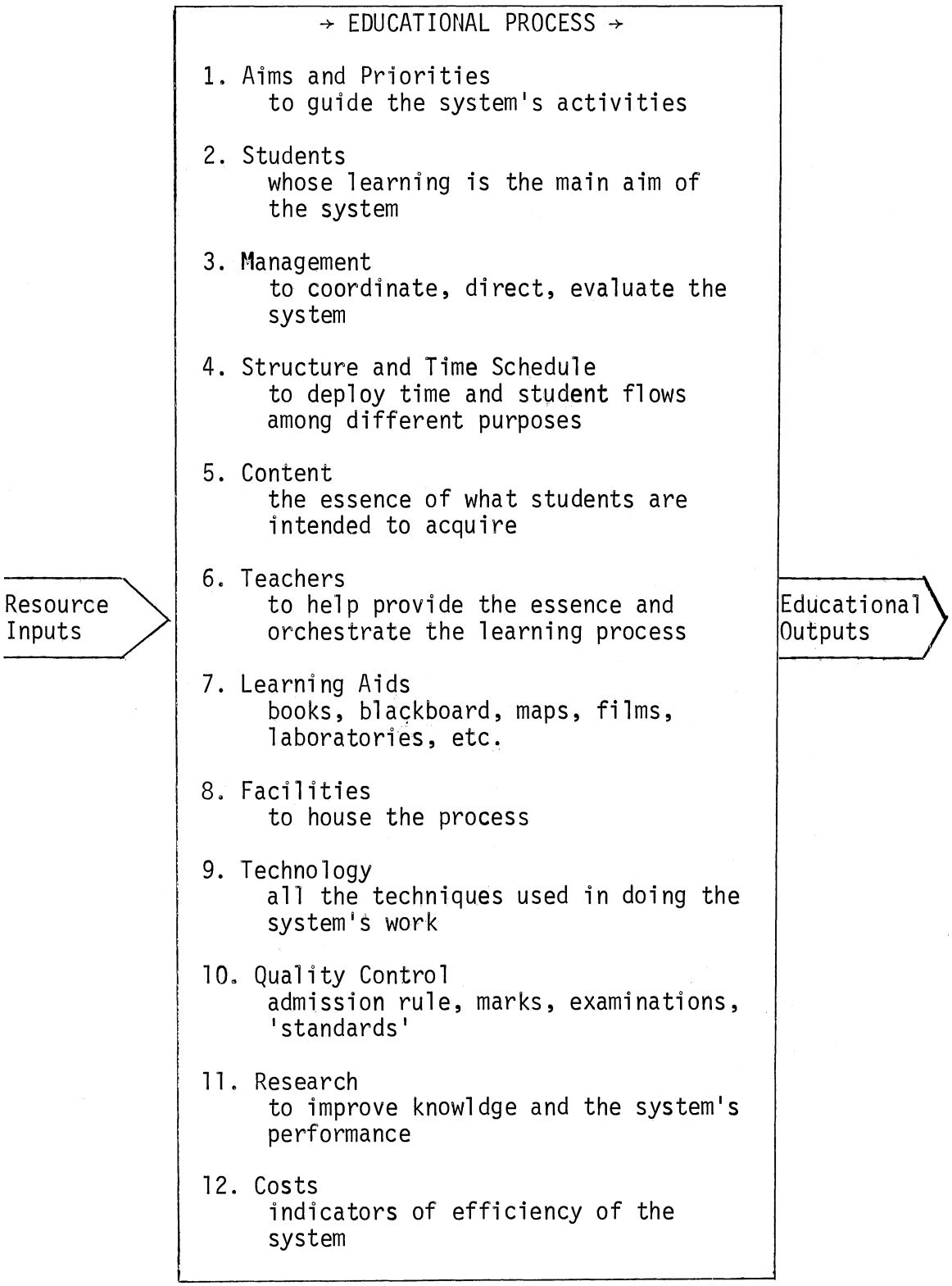



Figure 2. The Major Components of an Educational System

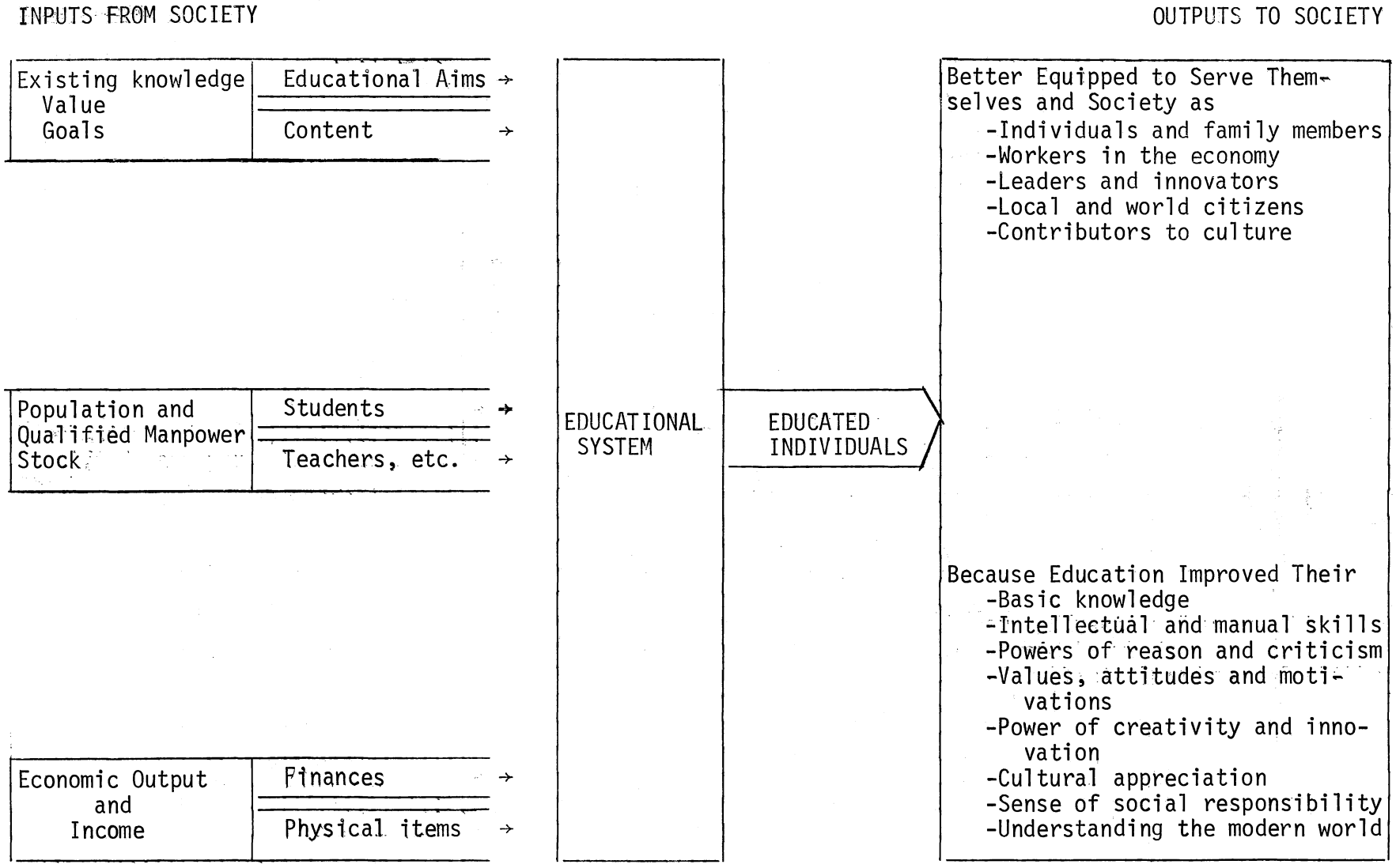



Figure 3. Interactions Between an Educational System and its Environment

is, after all, a way of preparing young generations to participate as productive members in any given nation. Not all cultures require the same kinds of knowledge and skills, either manual or intellectual. By the same token it is of great importance to notice that these skills and knowledge, besides being different, are needed to a variable extent in various cultures depending upon the time, the place, the people involved and the resources they have on hand. A year ago, in his introductory chapter of "Curriculum Planning: A New Approach," Hass [8] enumerated the most valuable ingredients on which curriculum development is based:

> In planning of curricula and instruction, we should use what we know about society, human development, learning, and knowledge... This multi-dimensional approach to planning will distinguish you as a professional in cirriculum and instructional planning, from other professionals in education such as specialists in human development or learning, or social structure, or group sensitivity, or knowledge (all of whom assist the curriculum planner) (p. xix).

At this point of the discussion perhaps it is appropriate to look into more details at the four main bases suggested in the previous quotation, since they constitute the fundamental rationale of any tentative of curriculum planning.

## Social Forces

They are necessary conditions in this respect as it is universally admitted that education is probably the single major characteristic of any structure society. Hass [8] believes that:

> To understand schools and school systems, one must relate to the surrounding cultural, economic, historical, philosophical and political circumstances. Since education is always an expression of a civilization and of a political and economic system, schools must harmonize with the lives and ideas of man in a particular time and place. Since the social environment today is in a state of change, descriptions of society in the nineteenth century or in the fifties or sixties no longer suffice. As a major element in curriculum planning and teaching, present

social forces and future trends must be regularly considered (p. 3).

## Human Development

The curriculum designer is, in essence, a taylor who must always keep in mind the needs and interests of his clientele according to the records he has on their body measurements. This comparison holds true with the difference that the curriculum specialist has to do with tayloring the minds of prospective learners. The human development approach to curriculum and teaching includes a body of knowledge about human growth. It also includes a point of view with reference to learners: they should be studied as individuals, so that the program of instruction can be shaped in part, by the individual's own nature and needs. The human development theory was discussed in more than one literature and it is determined by seven vectors according to Chickering [3, p. 16-35].

1. Competence = intellectual, physical, and social
2. Managing emotions
3. Becoming autonomous
4. Establishing identity
5. Freeing interpersonal relationships
6. Clarifying purposes
7. Developing integrity

The knowledge of these determinants of human development cannot be of any benefit for the curriculum planner unless they are taken into consideration when understanding the mechanics of how learning takes place.

## The Nature of Learning

An understanding of how learning occurs in human beings is obviously

of central importance for planning the curriculum and teaching. Today most authors agree that there are three major families, or groupings of learning theories:

1. Stimulus = response association based on experience
2. Cognitive and perceptional theory based on wholeness
3. Freudian theory based on awareness, identification and imitation

Perhaps the most summarizing statement for these theories is that of Symonds [17]:

> Learning takes place most effectively when pupils are presented with learning opportunities in the form of material and tasks for which they are ready, when they are meeting the expectations of their teachers and their expectations for themselves (p. 101-102).

Learning is then a change in behavior under certain conditions when the learning is given a reason for changing. Specifically children change behaviors for things that bring them pleasure. They usually work for approval from people they love and respect. They also work to satisfy the desires they have been taught to value; they avoid behavior they associate with unpleasantness; they act in ways that have been reinforced whether by chance or by choice. It is true that by "behavior modification" most teachers think first of all of noisy, disruptive children. Change in behavior is useful for such children but not limited to them; change is for all behaviors of all children. It appears to be clear then, as Madsen [10] set the boundaries of this term, that:

> Behavior means anything a person does, says, or even thinks as long as his thinking is manifested in action. It includes <u>all</u> behaviors: emotional responses, attitudes, reading, doing math, looking into a mirror, liking a person, becoming frustrated, staying on a task, getting of a task, disturbing one's neighbors, and so on, to include all children's 'good' and 'bad' behaviors (p. 51).

## The Nature of Knowledge

Perhaps the most asked questions when planning for educational experiences are: (1) What to include in the curriculum and how to teach it? (2) How to plan for the different kinds of knowledge to be taught? (3) How to provide for the individual differences of learners? These questions and certainly others help the curriculum designer, make appropriate decisions. Since knowledge constitutes the message, the educators have to communicate to the learners, it must be selected with special care in order to enhance the desirable and expected behavioral change to which all the educators are striving. Bellack [1] stated it clearly:

> What knowledge from the vast array of intellectual resources shall the school teach? The accumulated and ever growing knowledge in all fields has reached such proportions that comprehensive grasp of the total range of knowledge is out of the question for any one individual. The question raised by Spencer a hundred years ago, "What knowledge is the most worth?" is even more relevant today than it was in his time. Indeed, it is an ever renewed problem, one that apparently every generation has to solve over again for itself. Given the limited time and capacity of the school, what shall the schools teach to secure results that can be generalized beyond the immediate situation in which the learning takes place (p. 42)?

Availability of knowledge is the least of the educator's concern because of the tremendous amount of research findings compiled through the centuries. On the other hand because of the perpetual changing of scientific knowledge and technology the trend in curriculum development is to focus not on content or details but on the postulates, ground rules, frame of reference and promises. Symonds [17] in 1970 already felt the need to put more emphasis on teaching principles of learning:

> Psychotherapy produces changes in a client not because of what the therapist says or does, but because of what the client is encouraged to say, think, and experience with feeling.

> Education produces learning not essentially by what a teacher says, thinks or does, but by what a pupil can be encouraged to say, think, do, and feel (p. 48).

## Curriculum Criteria

Every curriculum plan or teaching plan must have objectives. Without having a set of objectives clearly in view, teachers and curriculum planners cannot make sound professional judgements. They cannot use their knowledge of the curriculum bases to make choices of content, materials or procedures that will further student learning toward intended aims. Every choice involves a rejection. To choose among curriculum alternatives or instructional strategies, the educator must know the goals he is seeking and the curriculum bases on which he may make his choice. Otherwise his selection will be little more than random. Hass [8] suggested that:

> Learners should be clearly aware of the objectives being sought by teachers and by the curriculum they are experiencing. In the process of instruction, learners should share in defining the objectives. While the objectives the teacher uses to guide his planning and those sought by the learners need to be identical there should be much overlapping. The teachers' and the learners' goals for a learning experience certainly must be understood by both the teacher and the learners, and they must be compatible or they are not likely to be planners, and learners can only be achieved by student-teacher planning (p. 207).

In most cases, performance goals refer to learning in which performance competencies are the outcome sought when performance competencies are the goals of learning. Curriculum planning must focus on the development of the knowledge, skills and experiences that are needed by the learner. Performance objectives are specified in advance, and to be successful in learning, the learner must be able to perform the essential tasks and behaviors related to the goals already set. The

curriculum planner when developing an instructional program must keep in mind the diagram designed by Tyler [19] when establishing a number of years ago what is referred to as "Tyler Rationale":

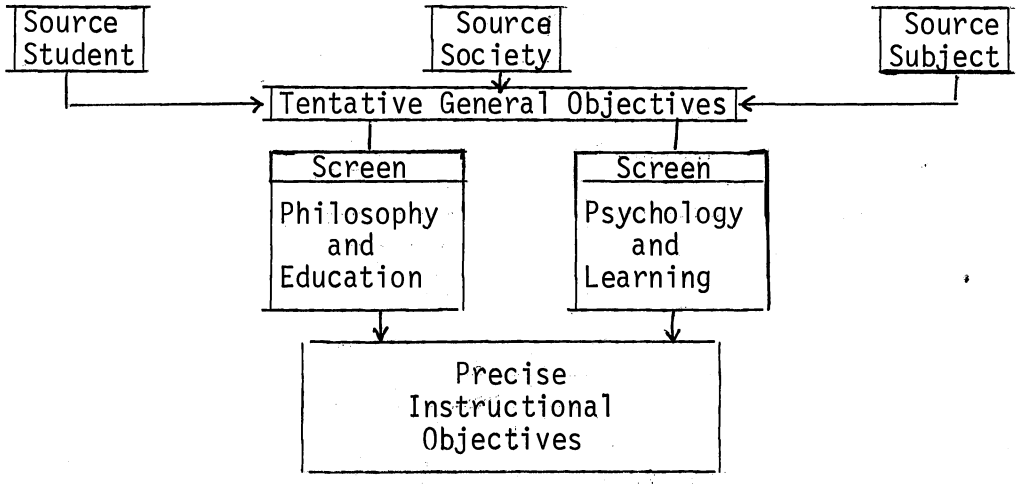



Figure 4. Tyler's Curricular Rationale

The planned objectives are among the most significant criteria for developing and evaluating any curriculum plan. This is true regardless of what the objectives are or how they are stated. However usually the behavioral objectives serve to identify the expected physical or mental performance of the learners after being exposed to a learning process. According to Gagné [6]:

> The statement of a behavioral objective is intended to communicate (to a specific recipient or group of recipients) the outcome of some unit of instruction. One assumes that the general purpose of instruction is learning on the part of the student. It is natural enough, therefore, that one should attempt to identify the outcome of learning as something the student is able to do following instruction which he was unable to do before instruction. When one is able to express the effects of instruction in this way, by describing

> observable performance of the learner, the clarity of objective statements is at a maximum. As a consequence, the reliability of communication of instructional objectives also reaches its highest level. (p. 304).

Evaluation of the outcomes compared to the expected performance is the single indicator of whether or not the objectives were well stated on one hand, and on the other hand, whether or not the instructional process was properly designed to produce the desired outcomes. Revision of either the objectives and/or the instruction is the most effective way to improve the performance of the learner. Popham [15] suggested to the educators the following sequenced and interrelated instructional activities in order to perform their task in the optimum conditions and hence fulfill their role as expected by the society for which they are responsible.

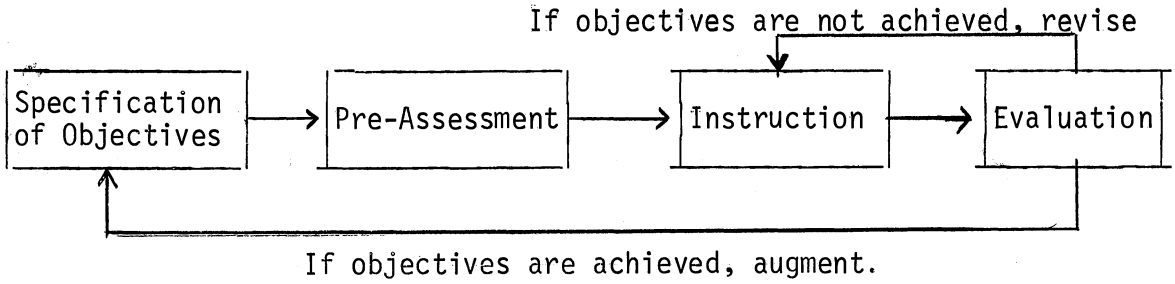



Figure 5. Goal-Referenced Instructional Model

## Conclusion

Without education civilization cannot move forward and because of that, in any nation and any culture, educational programs are given top priority. Resources, although nowadays limited in many countries of the world, are made available to a variable extent to public and private

education. However, the society is not satisfied with the outcomes of today's schools and systems of education. In other terms, educators somewhat failed to achieve the tasks for which they are responsible, or at least it is thought so. As a result of this critical situation "accountability" in public education has become the most discussed topic in education since the early 1970s. For some educators this term is a frightening one because of the challenge of their competency. But when properly managed, accountability is rather a protection of the educators from the public which under the new policy of accountability must be involved in the planning and implementation of the educational programs and hence responsible for the "bad" and "good" of the school outcomes. The trends in education must then be oriented towards innovative curriculum planning and teaching involving new prospective ideas and practices as Planning-Programming-Budgeting-System (PPBS), Behavioral (or Performance) Objectives, Simulation, Interaction Analysis, and Microteaching, in order to make a better use of the community resources and satisfy the needs of the society toward which all the educators' efforts must be directed.

# CHAPTER III

## PRESENTATION AND ANALYSIS OF DATA

One of the objectives of this chapter was to present and analyze the data accruing from the responses to the letter of request for information, provided by the Landgrant State Universities investigated. Data tabulated herein after were gathered in March and April of 1975. The development of the instrument and the methodology of data collection were explained in the previous chapter.

The second objective of this chapter is to develop the basic units most used in an upper division undergraduate or lower division graduate course in extension education, according to the outcome of the data gathered and tabulated.

### Identification of the Units of Instruction

Out of the twenty-six landgrant universities to which the letter of request for information was mailed, only thirteen responded. The documents were filed alphabetically and studied intensively. Universities and units of instruction were matched and summarized in the following table. Only the most used units of instruction in the responding universities were reported in this table. A list of references and course numbers included in the received documents were mentioned in the far right side of the same table.

TABLE I

IDENTIFICATION OF THE UNITS OF INSTRUCTION TAUGHT AT SELECTED U. S. INSTITUTIONS

| Landgrant State Universities | General Concepts | Adoption Process | Communication Process | Extension Teaching Methods | Extension Program Development | References or Course Numbers |
|---|---|---|---|---|---|---|
| Arizona | ✓ | ✓ | ✓ | ✓ | ✓ | Directed field experience in Coop Extension Work |
| Colorado | ✓ | ✓ | ✓ | ✓ | ✓ | Ad. 525, 624, 629 |
| Georgia | ✓ | ✓ | ✓ | ✓ | ✓ | AGR 200, AG EXT 313, AET 314 |
| Kansas | ✓ | ✓ | ✓ | ✓ | ✓ | EXT ED 410-752 |
| Louisiana | ✓ | ✓ | ✓ | ✓ | ✓ | EXT ED 4010, 4011, 4025, 7030 |
| Missouri | ✓ | | ✓ | ✓ | ✓ | EXT ED 406, 210, 401, 403 |
| New York | ✓ | | ✓ | ✓ | ✓ | State development com. A. 301-302 |
| Ohio | ✓ | ✓ | ✓ | | ✓ | AG ED 795, 823 |
| Oklahoma | ✓ | ✓ | ✓ | ✓ | ✓ | TEC ED 4112, AGED 4713, 5122, 5820, 5822 |
| Oregon | ✓ | ✓ | ✓ | ✓ | ✓ | EXT M 411, 412 |
| Pennsylvania | ✓ | ✓ | ✓ | ✓ | ✓ | In Service Training Proposal |
| Tennessee | ✓ | ✓ | ✓ | ✓ | ✓ | AEE 3110, 4110.20, 5210 |
| Wisconsin | ✓ | ✓ | ✓ | ✓ | ✓ | CVE 281-579 |

## Developed Units of Instruction

A thorough review of literature dealing with curriculum construction was made. The library at Oklahoma State University was used intensively in making a compilation of the various writing related to the subject. A concentrated study of the preparation of behavioral objectives was made. The units of instruction presented in this section of the study were based on information selected from textbooks, mimeographs, and publications of the Federal Extension Service, integral part of the United States Department of Agriculture. These units, developed in terms of behavioral or performance objectives were then submitted to five college professors in the Agricultural Education Department, the Cooperative Extension Service, and the Department of Technical and Adult Education at Oklahoma State University for their examination and criticism.

A course outline along with a tentative time schedule for implimentation of this proposed extension course are included as follows:

### Topical Course Outline

Unit I. General Concepts of:

-Leadership and Group Actions

-Adult Learning

-Extension Education

A. Terms and Definitions

B. Styles of Leadership

1. "High Trust" Leadership

2. "Tight Control" Leadership

C. Different Types of Groups

1. Laissez faire

2. Autocratic

3. Democratic

D. Why Groups Fail?

E. Why People Join Groups?

1. Security

2. New Experience

3. Recognition

4. Response

F. Explanation of Why People Join Groups

G. How Adults Learn Best?

1. Principles of Adult Learning

2. Comparison of Child and Adult Learners

H. Extension Education

1. Definition

2. Role of the Extension Worker

Unit II. The Adoption Process

A. Terms and Definitions

B. The Decision to Adopt Usually Takes Time

1. Stages of the Adoption Process

2. Adoption Period

C. Classification of Adopters

D. Adopter's Categories as Ideal Types

1. Innovators

2. Early Adopters

3. Early Majority

4. Late Majority

5. Laggards

E. Information Sources

1. Four sources of information in Extension activities

2. Rank order of the information sources during the various stages of the adoption process

Unit III. The Communication Process

A. Introduction

B. Component of the Communication Process

1. Source

2. Message

3. Channel

4. Receiver

C. Barriers to Effective Communication

D. Using Motivations in Communication

E. Four Levels of Communication

1. Intrapersonal

2. Interpersonal

3. Organizational

4. Technological

Unit IV. Extension Teaching Methods

A. Introduction

B. Classification of the Extension Teaching Methods

1. Individual Methods

a. Farm Visits
b. Office Calls
c. Telephone Calls
d. Personal Letters
e. Result Demonstration

2. Group Methods

a. Meetings

b. Exhibits and Displays
c. Newspapers
d. Folders, Leaflets, and Pamphlets
e. Fact Sheets
f. Radio
g. Television

C. Methods Classified According to their Forms

Unit V. Extension Program Development

A. Terms and Definitions

B. Components of an Extension Program Development Process

1. Recognize Social, Economic, Political and Educational Forces

2. Understand the Extension Organization

3. Identify and Involve Relevant People

4. Determine the Needs and Goals

5. Plan a Long Range Program

6. Prepare Annual Plan of Work

7. Implement the Plan

8. Evaluate and Report

C. Principles for Program Planning

D. The Process of Translating Needs into Objectives

E. The Decision Making Process

F. The Problem Solving Process

TABLE II

TENTATIVE TIME SCHEDULE

| Unit | Title | Class Periods | |
|---|---|---|---|
| | | Theory | Lab |
| I | General Concepts<br>-Leadership and Group Actions<br>-Adult Learning<br>-Extension Education | 3 | - |
| II | The Adoption Process | 2 | 2 |
| III | The Communication Process | 3 | 2 |
| IV | Extension Teaching Methods | 7 | 8* |
| V | Extension Program Development | 3 | 2 |
| | Sub Total | 18 | 14 |
| | Total | 32 | |

*Including a field trip.

NOTICE: This course is intended to be offered for 9 months (school year = October 1st through June 30th) at the rate of one class period per week. The number of weeks available can be determined as follows:

| | |
|---|---|
| Number of weeks in 9 months | +39 |
| Christmas and Spring Breaks | - 4 |
| National and Religious Holidays | - 3 |
| Available number of class periods = | 32 |

## Unit #1 - General Concepts of Leadership and Group Actions, Adult Learning, Extension Education - 3 hrs.

### Terminal Objectives

After completion of this unit of instruction, the student should be able to identify terms, discuss the different types of groups and leaders, the principles of the adult learning, the meaning of extension education and the major roles of the extension worker.

### Specific Objectives

The student should be able to:

1. Match terms with their corresponding definitions
2. Identify the two styles of leadership
3. Identify the three types of groups
4. Discuss the reasons of group failure
5. Discuss why people join groups
6. Identify and discuss the "Four Wishes"
7. List four incentives of each of the four groups of "human wants"
8. Discuss the principles of adult learning
9. Compare child and adult learners
10. Discuss the role of the extension worker

### References for Unit #1

A. Beal, George M. et al. Leadership and Dynamic Group Action. Ames, Iowa: The Iowa State University Press, 1962.

B. Lewin, Kurt and Ronald Lippett. "An Experimental Approach to the Study of Autocracy and Democracy." Sociometry 1:292, 1938.

C. Lorge, Irving. Effective Methods in Adult Education. Report of Southern Regional Workshop for Agricultural Extension Specialists, North Carolina State College, 1947.

D. Price, Robert R. Adult Education: Organization and Management. Stillwater: O.S.U. Department of Agricultural Education, 1974.

E. Saville, A. H. Extension in Rural Communities. London, New York, Toronto: Oxford University Press, 1965.

F. Wilson, M. C. and G. Gallup. Extension Teaching Methods. Federal Extension Service Circular No. 495, U.S. Department of Agriculture, 1955.

Information Sheet

A. Terms and Definitions:

1. Leader - A leader is an individual who influences, by his ideas (thoughts) or actions (behavior), the other members of a group.
2. Group - A group is an organized system of two or more individuals having a set of norms that regulates the function of the group and each of its members. Members of the same group usually have the same goals, work in a close interaction and influence mutually each other.
3. Organization - An organization is a group having a structured relationship. Written constitution is to be considered most of the time.
4. Communication - It is the exchange of ideas or feelings between members of a group by written or oral symbols.

B. Style of Leadership:

1. "High Trust" Leadership - The leader tends to be open and frank,

permissive in goal setting and non controlling in leadership policy.

2. "Tight Control" Leadership - Every decision coming from the leader is accepted without any discussion. The communication process is modified to one-way: from the leader to the followers. Fair, distrust and hostility are in both ways.
3. Characteristics - No productivity, no creativity, agression, and seed of its own distinction.

C. Different Types of Groups:

1. Laissez-faire - In which the leader is passive and every member of the group is free to do as he pleases.
2. Autocratic - In which the leader determines all policies and details. Directions are given piece-meal, rewards and punishments are bestowed arbitrarily, without reason or explanation, and future activities are never made known beforehand.
3. Democratic - In which all policies and details are discussed, criticisms were invited and the group makes the decisions. The leader gives alternative procedures and suggests the consequences which might be expected. When rewards are granted they are objectively given.

D. Why Groups Fail?

Most failures are due to one or more of the following reasons:

1. The atmosphere inhibits the group action: prevailing mood, tone, and feeling that permeates the group, the room (lightness, ventilation...), seating (circular or elliptical: every member could see the others and be seen), prefered name use, and "we feeling."
2. The group is not composed of the right combination of persons.
3. The members lack skill in playing their respective group roles.

4. The organization is not suitable for accomplishing the desired purposes.

E. Why People Join Groups?

In his quest to satisfy his needs and wants, man has found that many of them are best satisfied through group affiliation and action. The main reasons can be classified in the following categories: security, new experience, recognition, and response. They are real strong motivations and usually called the "four wishes".

1. Security - economic, social, psychological, and spiritual security.
2. New Experience - adventure, new interests, new ideas, new friends, and new ways of doing things.
3. Recognition - status, prestige, achievement, and being looked up to.
4. Response - acceptance by friends and peers as a total person and the feeling of belonging and being wanted.

F. Explanation of Why People Join Groups

These obviously constitute an oversimplification and are not specific wishes but rather a broad social-psychological classification of various types of social desires of individuals. It should also be remembered that none exist in a pure form but the combinations in various degrees always exist. In extension education it is the job of the extension worker to understand the basic wants or incentives of the people with whom he is working. He should show the learner how to satisfy these basic wants by learning new things. The extension worker should find the personal goals of the learner and tie in his teaching with these goals.

A more specific classification of the incentives for adult learning has been given by Dr. Irving Lorge.

1. People Want to Gain
    a. Health
    b. Time
    c. Money
    d. Popularity
    e. Improved Appearance
    f. Security for Old Age
    g. Praise from Others
    h. Comfort
    i. Leisure
    j. Pride of Accomplishments
    k. Advancement - Business, Social
    l. Increased Enjoyment
    m. Self Confidence
    n. Personal Prestige
2. People Want to Be
    a. Good Parents
    b. Sociable and Hospitable
    c. Up to Date
    d. Creative
    e. Proud of Their Possessions
    f. Influencial Over Others
    g. Gregarious
    h. Efficient
    i. "First" in Things

j. Recognized as Authorities

3. People Want to Do

a. Express Their Personalities

b. Resist Domination by Others

c. Satisfy Their Curiosity

d. Emulate the Admirable

e. Appreciate Beauty

f. Acquire or Collect Things

g. Win Others' Affection

h. Improve Themselves Generally

4. People Want to Save

a. Time

b. Money

c. Work

d. Discomfort

e. Worry

f. Doubts

g. Risks

h. Personal Embarrassment

G. How Adults Learn Best?

1. Principles of Adult Learning - Of the many requirements in adult learning, four have important application to extension. All four factors in the learning process are interrelated and together make a true learning situation.

a. Adults learn best and most rapidly when they have a strong desire to learn.

b. Adults learn best when they have clear goals. In the absence of a goal or objective one response is no more significant than another and no evaluation of progress can be made.

c. Adults learn best when they put forth an effort to learn. Learning is a personal matter, no one can learn for another person. Continued practice is necessary for the retention of learning and for the development of habits.

d. Adults learn best when they receive satisfaction from what they have learned. Satisfaction from one learning stimulates interest in other improvements.

2. Comparison of Child and Adult Learners - Several differences have been noted and they are presented as follows:

| | Child | Adult |
|---|---|---|
| a. | Dependent upon others for needs. | Sees self as self-directing |
| b. | Normal role is that of a full-time learner. | Normal role is that of a full-time worker and producer. |
| c. | See experience as something that has happened to him. | See experiences as something that he has done. Varies in amount and kind from that of a child. |
| d. | Developmental tasks are the | Developmental tasks are the |

| | |
|---|---|
| result of physiological and mental maturation. | product of evaluation of social roles. |
| e. Sees education as something to be accumulated and used later. | Wants education to serve his immediate needs. |

H. Extension Education:

1. Definition - Extension education is an informal out-of-school education service for adult and young farmers. Its aim is to: (1) train and influence rural people to adopt new ideas and improved practices to meet their own needs; (2) to teach them how to solve their own problems; (3) and to change their outlook on the point where they will be seeking means of improving their farming and raising their standard of living.

2. Roles of the Extension Worker - The extension worker is a leader in the rural area where he is working, in the way of planning and carrying out the extension programs. He should create a strong and favorable attitude in the farmers, attitudes that would lead to decisions and actions. A sense of creativeness and initiative are vital for the success of an extension worker. A good character helps him to inspire faith and confidence, which once developed in the mind of rural people, will make him the best idea-salesman.

The extension worker is also a teacher but a special teacher who must always keep in mind the basic principles of adult learning. This informal teaching requires also patience, wisdom, tact, understanding and willingness to work on the part of the extension worker. He should first of all know his job. He can-

not afford to make mistakes. Like a good farmer, he should always be able to do his job better than those he is working with. An extension worker without a sound practical knowledge of farming and farmlife is a danger both to the farmers and to his department.

## Unit #2 - The Adoption Process - 2 hrs.

### Terminal Objectives

After completion of this unit of instruction, the student should be able to describe the process for adoption of new ideas and practices. The student also should be able to identify terms, discuss the different categories of adoptors and sources of information used in extension activities.

### Specific Objectives

The student should be able to:

1. Match terms associated with the adoption process of new ideas and practices to the correct definition.
2. Discuss and give an example of the five stages utilized in reaching a final decision to use an idea or a practice.
3. Reproduce the frequency distribution and the cumulative curve showing the percent of the five adopter categories.
4. Describe the five adoptor categories of individuals within a social system on the basis of innovativeness.
5. Discuss the rank order of the sources of information as used during the various stages of the adoption process.

### References for Unit #2

A. Lionberger, Herbert F. Adoption of New Ideas and Practices. Ames, Iowa: The Iowa State University Press, 1960.

B. Price, Robert R. "The Adoption Process." Agricultural Education Department, Stillwater, Oklahoma State University (Mimeo).

C. Rogers, Everett M. Diffusion of Innovation. New York: The Free Press of Glencoe, 1962.

D. Rogers, Everett M. and F. Floyd Shoemaker. Communication of Innovations. New York: The Free Press, 1971.

Information Sheet

A. Terms and Definitions:

1. Adoption Process - A mental process through which an individual passes from hearing about an innovation to final adoption.
2. Innovation - The acceptance, over time, of some specific item, idea or practice, by individuals, groups, or other adopting units, linked by specific channels of communication to a social structure, and to a given system of values or culture.

B. The Decision to Adopt Usually Takes Time (Figure 6):

1. Stages of the adoption process
   a. Awareness - first knowledge about a new idea, product, or practice but lack of complete information about it (Figure 7).
   b. Interest - active seeking of information about the idea to determine usefulness and applicability (Figure 8).
   c. Evaluation - weighing and sifting information and evidence in light of existing conditions into which the practice would have to fit (Figure 9).
   d. Trial - tentative trying out of the idea or practice in order to determine its utility in his own situation (Figure 10).
   e. Adoption - full scale integration of the practice into the on-going operation (Figure 11).

2. Adoption period - The length of time required for an individual to pass through the adoption process from awareness to adoption. It is a gestation period in which a new idea is fermenting in the individual's mind. Many change agents wish to speed up the process by which innovation is adopted. One method is to more adequately communicate information about new ideas so awareness is created at earlier dates. Another method is to shorten the amount of time required for adoption after an individual is once aware of a new idea. There is little evidence that lack of knowledge about innovation actually delays their adoption. Now adopters are often aware of an innovation but are not motivated to try and adopt it. The first individuals to adopt innovations require a shorter adoption period than do relatively later adopters.

C. Classification of Adopters:

In a number of empirical cases, adopter distributions were either normal or closely approached normality. The frequency curve is a bell-shaped one. Five adopter categories result from drawing vertical lines to mark off the standard deviations on either side of the mean with standarized percentage of adopters in each category (Figure 7). The cumulative curve is s-shaped:distribution rises slowly, then accumulates to a maximum when half of the individuals in the system have adopted, and then gradually slows as the few remaining individuals adopt (Figure 7).

D. Adopters' Categories as Ideal Types:

1. Innovators - Venturesome. They are eager to try new ideas and practices. This interest leads them out of a local circle of

peers and into more cosmopolite social relationships. Communication patterns and friendships among a clique of innovators are common, even though the geographical distance between the innovators may be great. Being an innovator has several prerequisites. They include control of substantial financial resources to absorb the loss of an unprofitable innovation, and the ability to understand and apply complex technical knowledge. The innovator also must be willing to accept an occasional debacle when one of the new ideas he adopts proves unsuccessful.

2. Early adopters - Respect. Early adopters are a more integrated part of the local social system than are innovators. While innovators are cosmopolite, early adopters are localites. This adopter category, more than any other, has the greatest degree of opinion leadership in most social systems. Potential adopters look to them for advice and information about the innovation. The early adopter is considered by many as "the man to check with" before using a new idea or practice. This adopter category is generally sought by change agents as a local missionary for speeding the diffusion process. Because early adoptors are not "too far" ahead of the average individual in innovativeness, they serve as a role-model for many other members of a social system. The early adopter is respected by his peers. He is the embodiment of successful and discrete use of new ideas. And the early adopter knows that he must continue to earn the esteem of his colleagues if his position in the social structure is to be maintained.
3. Early majority - Deliberate. The early majority adopt new ideas

and practices just before the average member of a social system. Participation by the early majority in activities with their peers is high, but leadership positions are rarely held. The early majority's unique position between the very early and the relatively late to adopt, makes them an important link in the process of legitimizing innovations. The early majority may be deliberate for some time before completely adopting a new idea. Their adoption period is relatively longer than the innovator's and early adopter's. They follow with deliberate willingness in adopting innovations, but seldom lead.

4. Late majority - Skeptical. The late majority adopt new ideas just after the average member of a social system. Adoption may be both an economic necessity and the answer to increasing social pressures. Innovations are approached with a cautious air, and the late majority do not adopt until a majority of others in their system have done so. They can be convinced of the utility of new ideas or practices, but the pressure of peers is necessary to motivate adoption.
5. Laggards - Tradition. Laggards are the last to adopt an innovation. They possess almost no opinion leadership. Laggards are the most localite of all adopter categories, and many are near-isolates. The point of reference for the laggard is the past. Decisions are usually made in terms of what has been done in previous generations. The individual interacts primarily with others who have traditional values. When laggards finally adopt an innovation, it may already be superseded by another more recent idea which the innovators are using. While most

individuals in a social system are looking to the road of change ahead, the laggard has his attention fixed on the rearview mirror. Laggards tend to be frankly suspicious of innovations, innovators, and change agents. A more composite picture of the different adopters is shown on Figure 8.

E. Information Sources:

1. Four sources of information in extension activities
   - -mass media - newspapers, radio, television...
   - -change agents
   - -friends and neighbors
   - -dealers and salesmen
2. Rank order of the information sources during the various stages of the adoption process.

| Awareness | Interest | Evaluation | Trial | Adoption |
|---|---|---|---|---|
| M.M | M.M | F.N. | F.N. | SELF |
| F.N. | F.N. | C.A. | C.A. | F.N. |
| C.A. | C.A. | D.S. | D.S. | C.A. |
| D.S. | D.S. | M.M. | M.M. | M.M. |
| | | | | D.S. |

M.M. - Mass media

F.N. - Friends and neighbors

C.A. - Change agents

D.S. - Dealers and salesmen

Lab Session - 2 Hours - Assignment Sheet

In an area of interest related to agricultural production, give an example illustrating the five stages of the adoption process.

**5. A D O P T I O N**

OK! All the Way!

**4. T R I A L**

OK! A Little Bit Maybe

**3. E V A L U A T I O N**

" Try It, You'll Like It "

**2. I N T E R E S T**

How About That ?!?

**1. A W A R E N E S S**

Lookee! Lookee!

Figure 6. The Five Stages of the Adoption Process

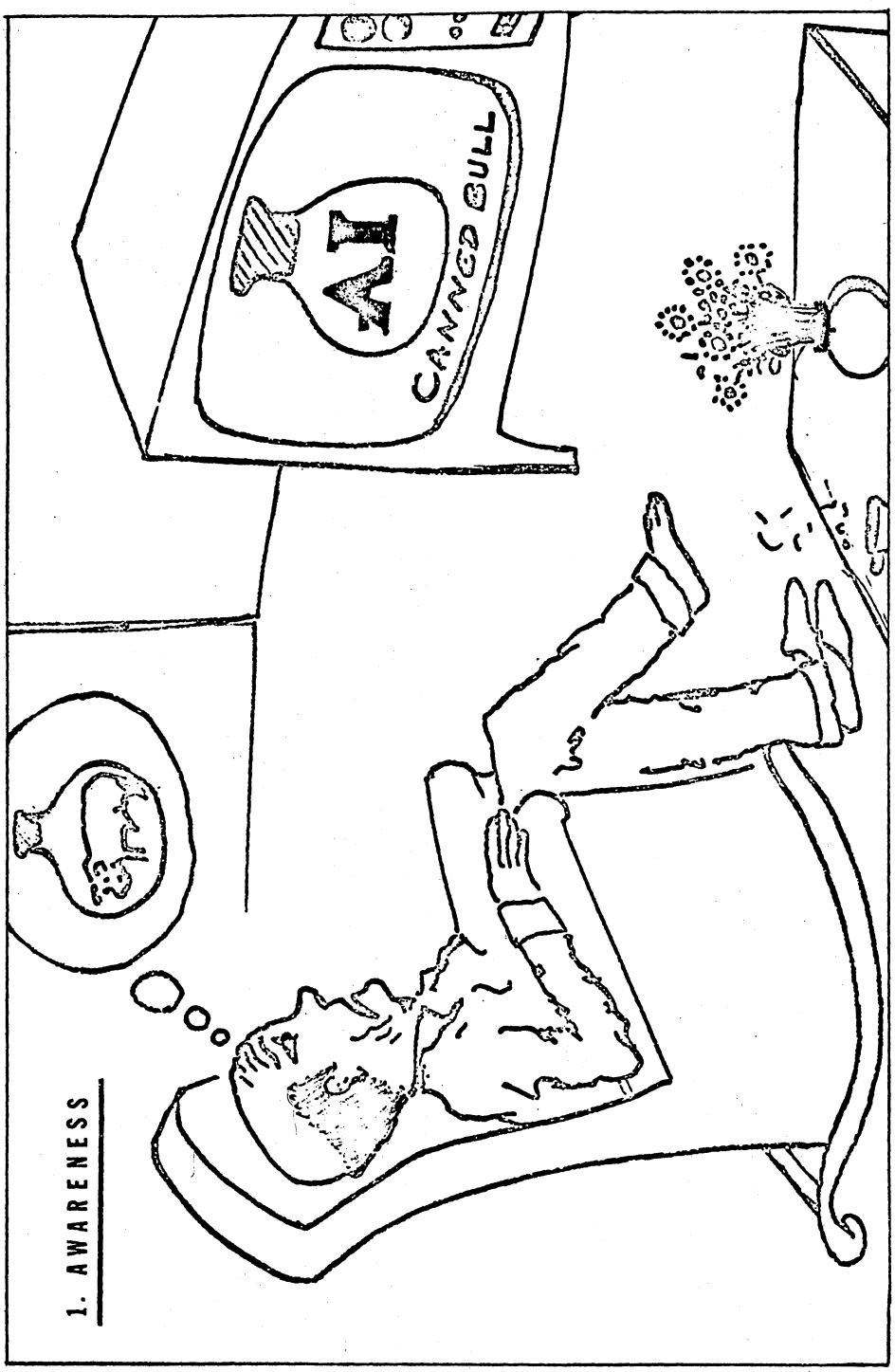



Figure 7. First Stage = Awareness.


Figure 8. Second Stage = Interest.

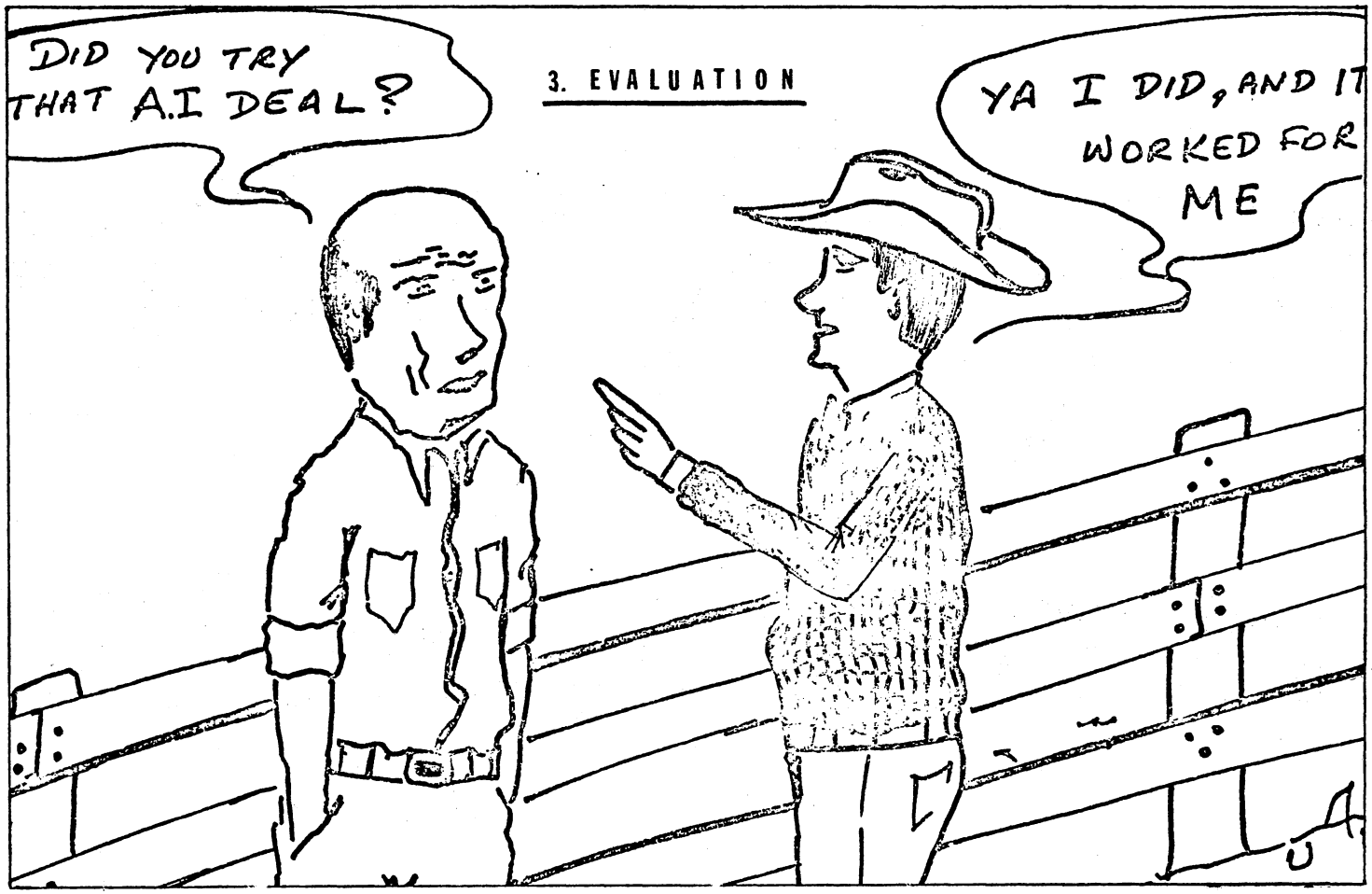



Figure 9. Third Stage = Evaluation.

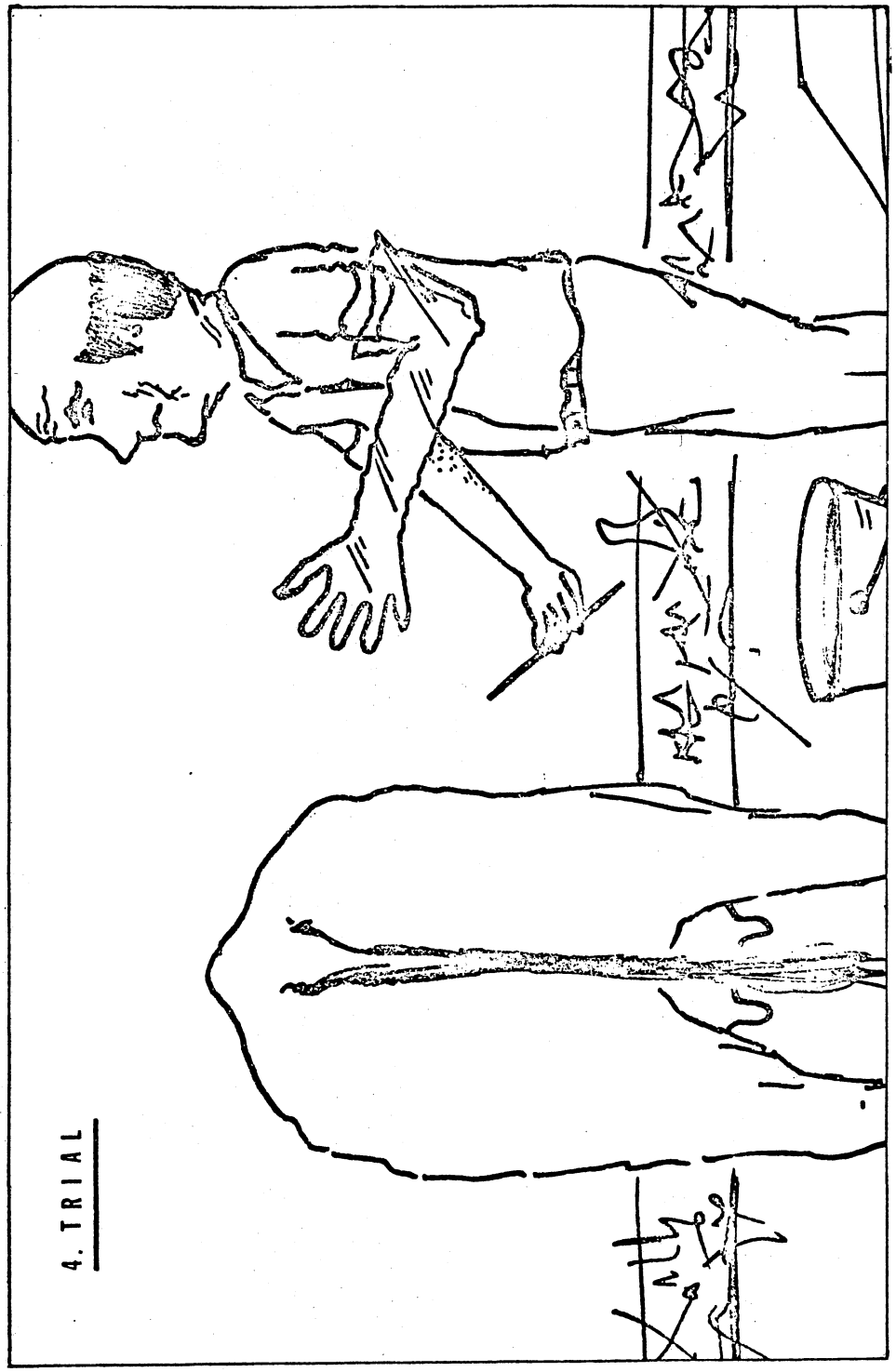



Figure 10. Forth Stage = Trial.

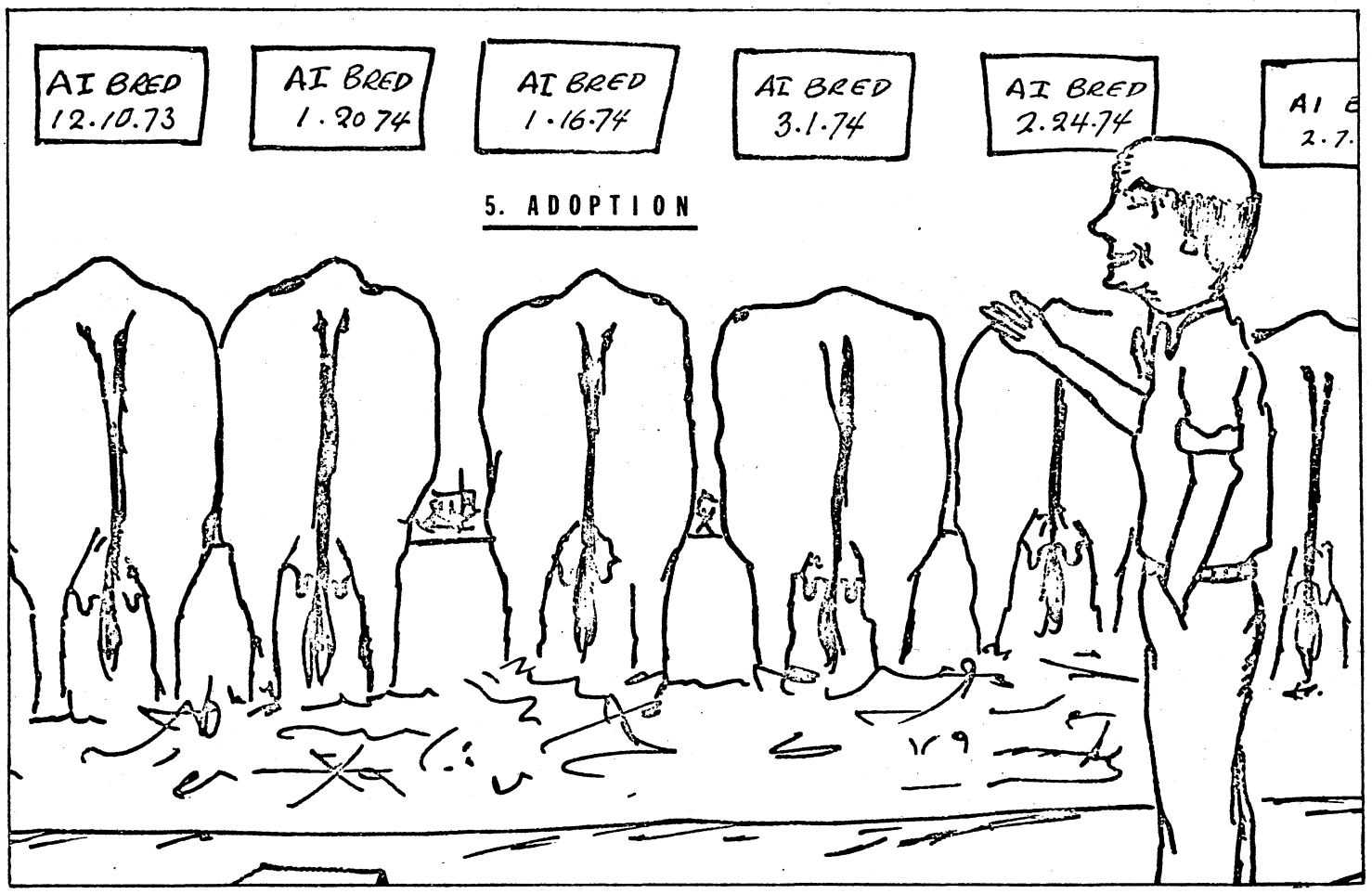



Figure 11. Fifth Stage = Adoption.

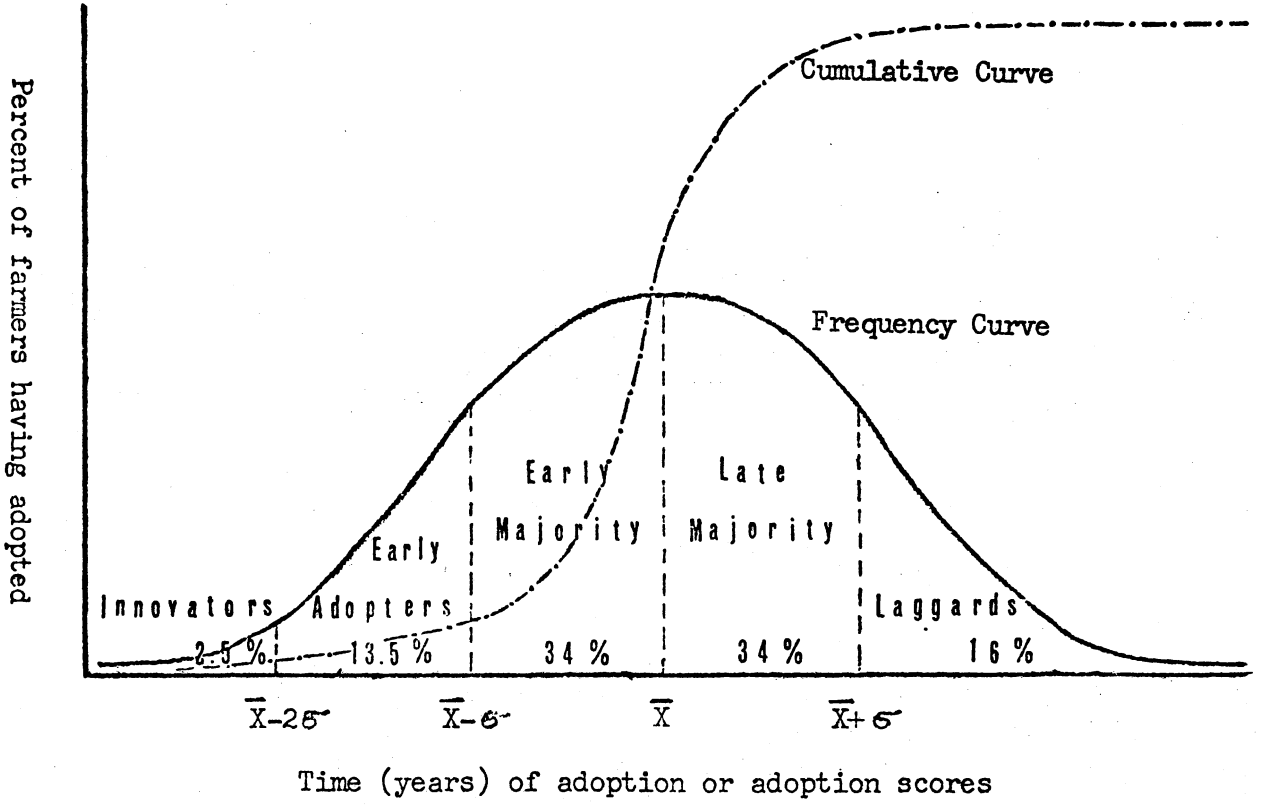



Figure 12. Adopter Categorization on the Basis of Related Time of Adoption of Innovations.

| *Adopter Category* | *Salient Values* | *Personal Characteristics* | *Communication Behavior* | *Social Relationships* |
|---|---|---|---|---|
| Innovators | "Venturesome"; willing to accept risks | Youngest age; highest social status; largest and most specialized operations; wealthy | Closest contact with scientific information sources; interaction with other innovators; relatively greatest use of impersonal sources | Some opinion leadership; very cosmopolite |
| Early adopters | "Respect"; regarded by many others in the social system as a role-model | High social status; large and specialized operations | Greatest contact with local change agents | Greatest opinion leadership of any category in most social systems; very localite |
| Early majority | "Deliberate"; willing to consider innovations only after peers have adopted | Above average social status; average-sized operation | Considerable contact with change agents and early adopters | Some opinion leadership |
| Late majority | "Skeptical"; overwhelming pressure from peers needed before adoption occurs | Below average social status; small operation; little specialization; small income | Secure ideas from peers who are mainly late majority or early majority; less use of mass media | Little opinion leadership |
| Laggards | "Tradition"; oriented to the past | Little specialization; lowest social status; smallest operation; lowest income; oldest | Neighbors, friends, and relatives with similar values are main information source | Very little opinion leadership; semi-isolates |

Source : Rogers ( Diffusion of Innovations ).

Figure 13. A Composite Picture of Adopter Categories.

## Unit #3 - The Communication Process - 3 Hrs.

### Terminal Objectives

After completion of this unit of instruction, the student should be able to discuss and make application of the communication process to real life situations when conducting extension activities.

### Specific Objectives

The student should be able to:

1. Discuss thoroughly the four components of the communication process.
2. Reproduce a diagram of the communication components as related to the adoption process.
3. List four barriers to effective communication.
4. Identify four categories of motivational factors in communication and discuss three components in each category.
5. Distinguish between the four levels of the communication analysis.

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Information Sheet

A. Introduction:

Extension education is essentially a process of communication of ideas and skills between and among people. It includes the transfer of technical information from its source to the farmer, but it is more than that. Technical knowledge is of no use unless it is accepted and adapted to the needs of the farmer and put to use. Furthermore, the farmer may not understand the information and needs to ask questions. He may have special problems for which the extension worker must find answers. He may require more information. Therefore, an exchange of ideas back and forth between teacher (extension worker) and learner (farmer) is essential. Ability to communicate determine to a very large degree the success or failure of an extension worker. He has the technical information from research and other sources. It is his responsibility to establish effective communication with the people he serves so they use this information to continually improve their agriculture and rural life.

B. Components of the Communication Process - The communication process consists of four essential elements (Figure 14).

1. Source or sender or communicator of ideas or information.
2. Message to be transmitted.
3. Channel or means of communication.
4. Receiver of information or audience.

When an extension worker talks with one farmer, the extension worker may start the conversation; therefore, he is the sender, what he says is the message, the spoken word is the channel and the farmer is the receiver. When the farmer replies the roles are temporarily reversed. The farmer is the sender and the extension worker becomes the receiver. Farmer's response is called feedback.

| Sender | → | Message | → | Channel | → | Receiver |
|---|---|---|---|---|---|---|
| (Extension Worker) | | (Technical information) | | (Spoken Word) | | (Farmer) |

Feedback

| Receiver | ← | Channel | ← | Message | ← | Sender |
|---|---|---|---|---|---|---|
| (Farmer Sender: Extension Worker) | | (Spoken Word) | | (reply of the farmer) | | (Farmer receiver = farmer) |

1. Sender - Can be anyone, any group or even any institution that can initiate a message. Several things determine how a source will operate in the communication process. They include:
   a. The sender's communication skills, his ability to think, to write, to draw, to speak.
   b. The sender's attitudes toward his audience, toward the subject on which he is communicating, toward himself, or toward any other factor pertinent to the situation.
   c. The sender's knowledge of the subject, the audience, the situation, and the other background. So will his social background, his education, his friends, his salary, his culture -- all sometimes called the socio-cultural context in which the sender lives.
2. Message - Has to do with the package to be sent by the source. The sender should consider several subfactors:

a. Purpose or objective - the purpose of a message should be clear in the mind of the sender. What change in behavior the communicator wants to bring about? It can be a change in knowledge, attitude, skills, thinking, or practice.

b. Content - the content of the message should be relevant to the receiver. That is, it should be something of interest to him. It must be related to something he understands, feels, or thinks; something he can accept.

c. Treatment - the treatment of the message does much to make it acceptable and understandable to the receiver. It should be logically organized and in terms he or she understands. It should be also conforming to accepted social standards. Treatment can make a message interesting or cull and boring.

d. Code - the code of a message is the language in which the message is to be sent. Generally, we think of code in terms of natural languages -- English, French, Spanish, German, Chinese and so on. Sometimes though we must use other languages -- music, art, gestures, and so on. In all cases, we need to look on the code in terms of ease of difficulty for audience understanding (Figure 15).

3. Channel - Extension teaching methods are channels of communication with the people served. These methods may be classified as visual, spoken or written, some are combined methods, like movies. "Seeing is believing" is an axiom of extension education. Pictures, charts, diagrams, exhibits, and posters perform vital communication functions in the most advanced societies. Visual and oral methods are about the only methods for extension workers

to serve illiterate peoples. Spoken methods include individual contacts such as farm and home visits, office calls, meetings of all kinds, radio and television and telephone calls. Not only words but gestures and expressions of both speaker and listener contribute to clear communication. Written communication has greater status and carries more authority than oral communications. Letters, bulletins, circulars, new stories, announcements of events and magazine articles contribute to extension education in literate societies. They provide a low-cost method to disseminate information to large numbers of people. But again this is mostly one-way communication. Few people will change their methods of farming or homemaking only because they read about it. However, when interestingly prepared, such information will attract the reader's attention and may stimulate him to seek more information. Among illiterate people written information is of value to the extent that the few who can read pass on information to others. The effective extension worker will adapt his teaching methods to the subject, to the communication skills of his audience and to the facilities avilable. Usually he will use two or more channels of communication (involving two or more senses) in the same presentation (Figure 15).

4. Receiver - The audience is the final link in the communication process. The audience are those whom the communicator wishes to receive, understand, and use the idea. If the audience is to make progress, the extension teacher somehow helps them to change -- change their knowledge, attitude, and behavior. If no change takes place, there has been no communication -- no progress.

All of the factors that determine how a sender will operate apply to the receiver. Communication skills might be thought of as how well a receiver can hear, read or use his other senses. Attitudes relate to how a receiver thinks of the source, of himself, of the message, and so on. Knowledge may be greater or less than the source's knowledge. Socio-cultural context could be different in many ways from that of the source, but will be made up of the same factors. Each will affect the receiver's understanding of the message. Good extension teaching, therefore, requires a thorough study of the audience. This means their ability, background, interests, and previous experiences. The more the extension worker knows about the audience, the better job of teaching he can do (Figure 15).

C. Barriers to Effective Communication:

They include anything that prevents a message from getting through to the intended audience -- fear, prejudices, inability to grasp the idea or any of many possible obstacles. The point is that good communicators anticipate and try to prevent these barriers if they can. And they are ready with means of overcoming obstacles in case they arise. Communication failure also may occur when the idea being communicated seems contrary to accepted local customs and beliefs. Recognizing this danger beforehand and planning alternative approaches to the problem is an essential part of successful communication. The attitude the sender conveys to his audience often effects the transmission of the idea. If the communicator seems to his audience well informed, sincere and respectful of those to whom he is speaking, he is more likely to succeed in

transmitting his idea than is the person who seems poorly informed disinterested, insincere or disrespectful of his audience.

D. Using Motivation in Communication:

The communicator has the task of determining which of the motivating forces are strongest among the people of his audience. He must think of them as "appeals" to use when writing a new story, preparing a radio or a television program, or holding a meeting. It is not enough just to present information. He has to put it in terms of one or more of the basic needs or desires of the individuals in the audience and his chances of success will be better. These needs are exhibited in what is called "Maslow's Hierarchy of Human Needs" (Figure 16).

1. Physiological or survival needs
    a. Food to satisfy hunger.
    b. Drink to satisfy thirst.
    c. Sex objects to satisfy sex craving, etc.
2. Safety needs - the escape from outer dangers.
3. Love, affecting and belongingness needs - acceptance by friends, peers, society...
4. Esteem needs - self esteem, self respect, and self satisfaction
5. Need for Self Actualization - actualizing one's potential, becoming everything one is capable of becoming. It is a healthy man's prime motivation.

On the whole an individual cannot satisfy any level unless needs below are satisfied.

E. Four Levels of Communication (Figure 17):

1. Intrapersonal - focus on inputing and processing communication

2. Interpersonal - focus on inter-communication systems
3. Organizational - focus on data network systems
4. Technological - focus on formalized information generating and consumption systems

Lab Session - 2 Hours - Assignment Sheet

Apply the four basic components of communication to a situation in an area of your interest and point out to the obstacles to communication as well as some motivational factors you could involve in that particular situation in order for an effective communication to take place.

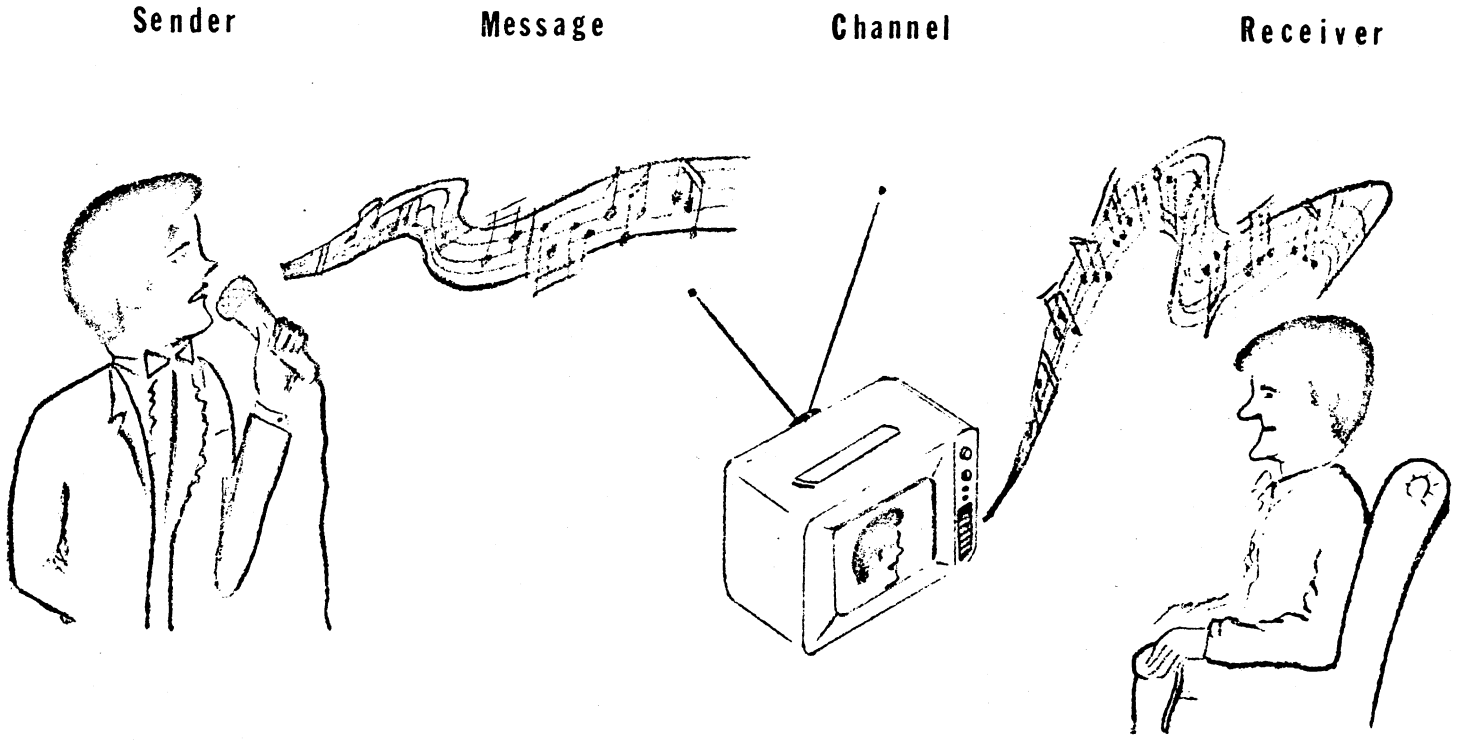



Figure 14. The Communication Process and its Components.

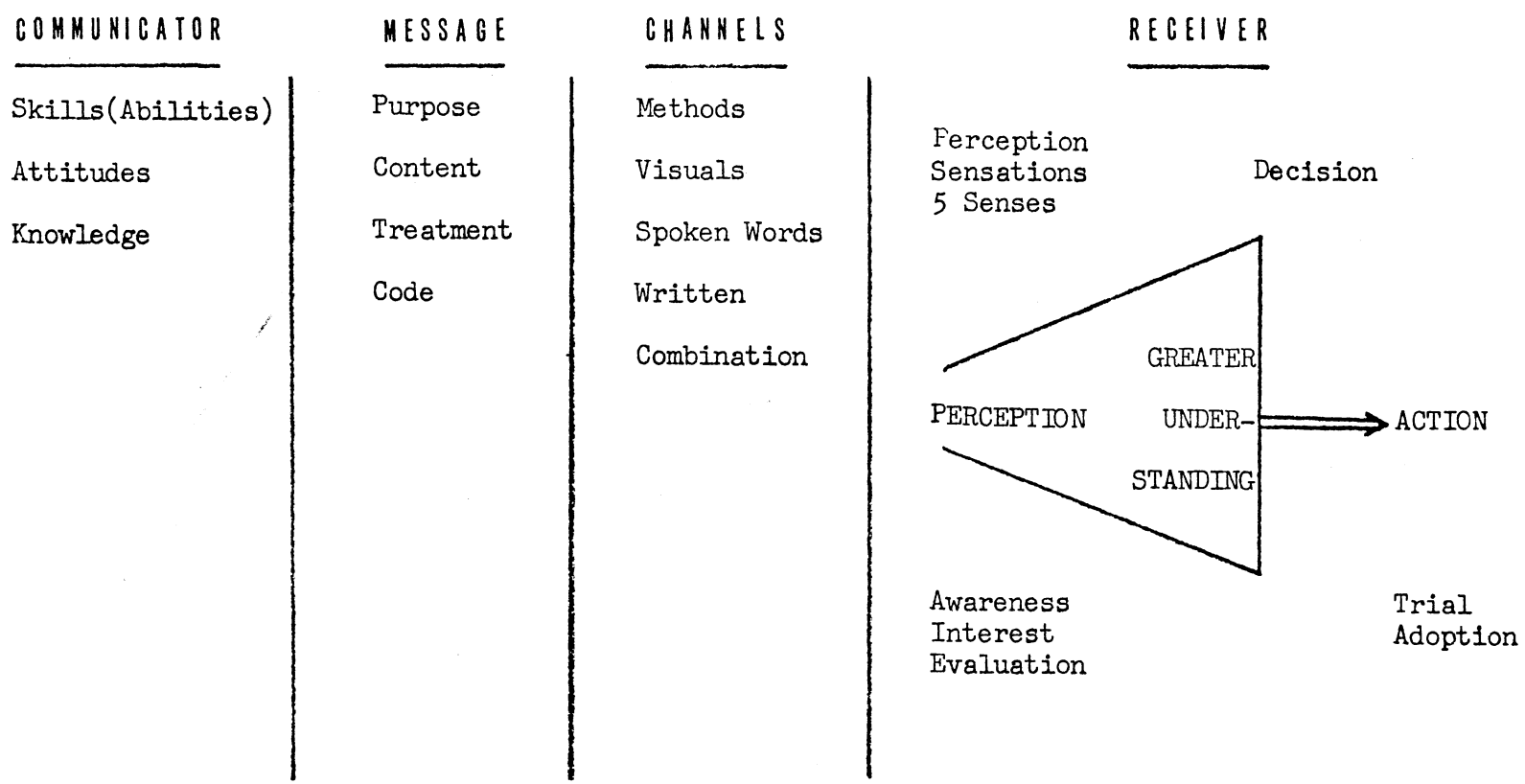



Figure 15. The Communication and Adoption Processes.

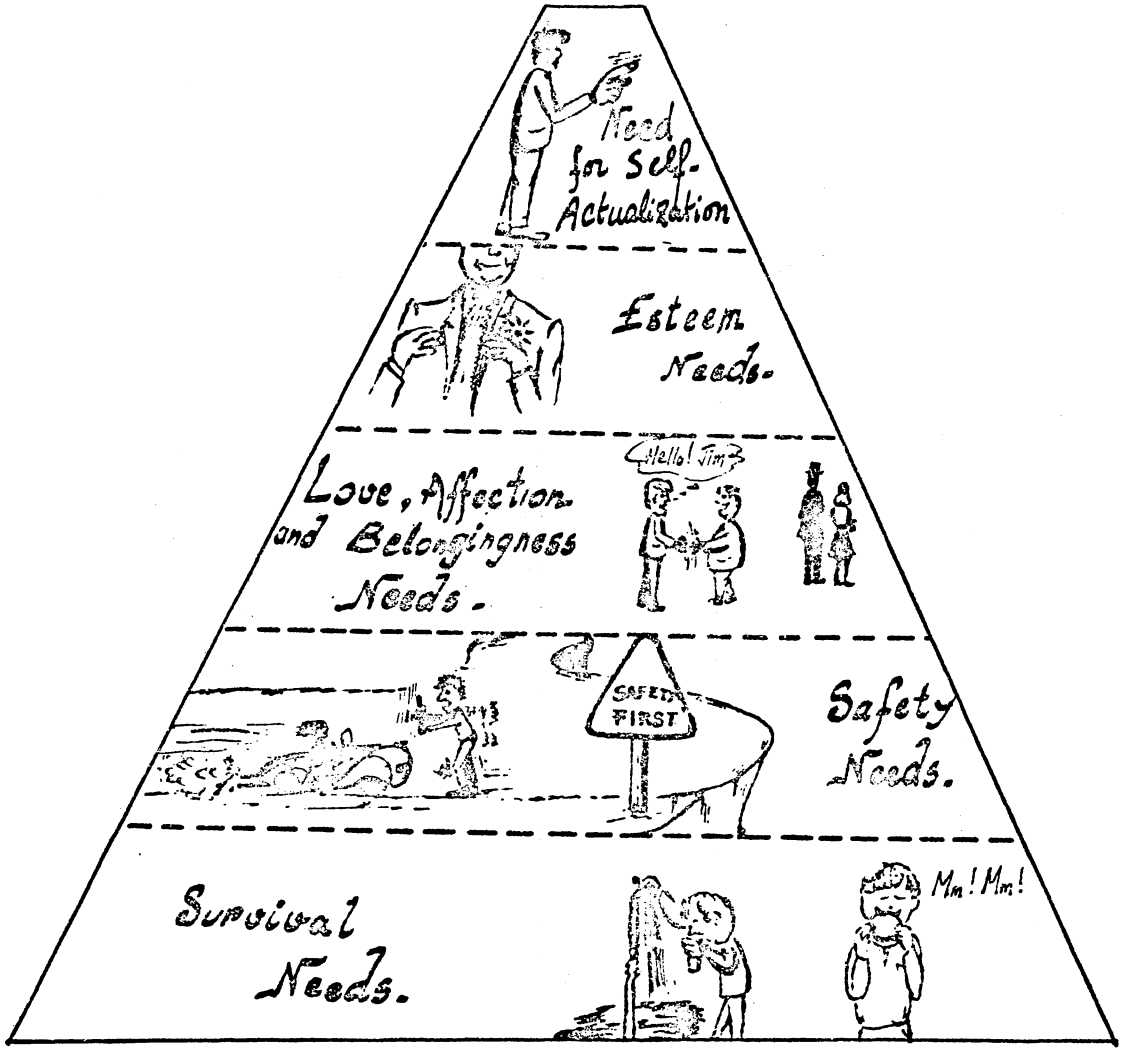
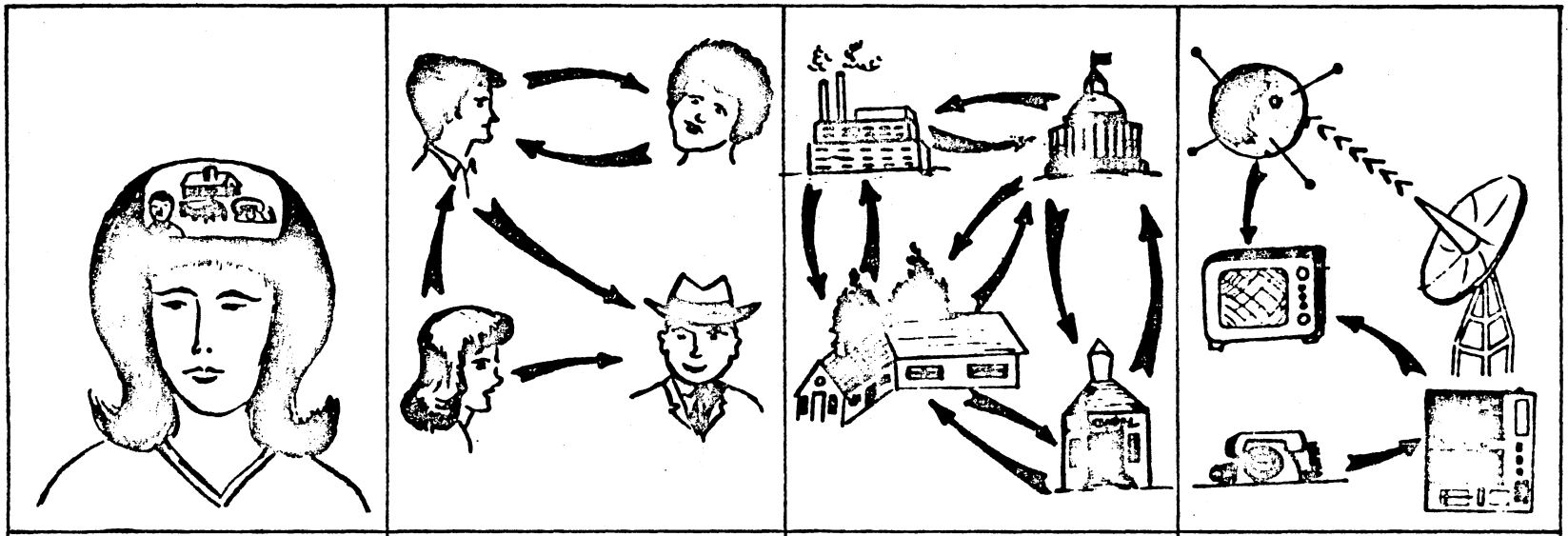



Figure 16. Maslow's Hierarchy for Human Needs.



| INTRAPERSONAL | INTERPERSONAL | ORGANIZATIONAL | TECHNOLOGICAL |
|---|---|---|---|
| Focus on inputing and processing communication. | Focus on inter-communication systems. | Focus on data network systems. | Focus on formalized information generating & consumption systems. |

Figure 17. Four Levels of Communication Analysis.

## Unit #4 - Extension Teaching Methods - 7 Hrs.

### Terminal Objectives

After completion of this unit of instruction, the student should be able to describe and discuss the advantages and disadvantages of the most used teaching methods in extension education.

### Specific Objectives

The student should be able to:

1. Differentiate the teaching methods into three broad categories according to their use and list at least four methods in each category.
2. Discuss thoroughly each method indicating the conditions of use, the preparation techniques, the advantages and limitations. This is true for all the methods covered in this unit of instruction.
3. Classify and discuss in a short paragraph the teaching methods as grouped according to their form.

### Suggested Activities

In coordination with the administration of the college and the Extension service, a one day fieldtrip could be organized at the completion of the unit of instruction.

1. The student will have an oppotunity to vist one (or two) field extension agent(s) in his (or their) office(s).
2. The students will participate in a demonstration meeting prepared by a local extension worker.

3. In the same community or in one of the neighboring communities, the students will participate in a discussion meeting between farmers and local leaders; the meeting being scheduled by the local extension service.
4. After the demonstration and the meeting, students ill participate in a short (one hour) session to interact with the local extension workers about preparation, use, advantages, limitations and the like related to these two extension teaching methods.
5. By participating in the fieldtrip, the students will have an opportunity to be exposed to some tips related to the organization of instructional fieldtrips.

References for Units #4

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Information Sheet

A. Introduction:

The teaching methods employed by the extension worker directly influence the effectiveness of his efforts. This is true whether the extension teacher is a county extension agent or a state subject matter specialist or whether the learner is a farmer, farm woman, farm youth, or non farm person. An understanding of the capabilities and limitations of the available teaching tool is essential to their intelligent selection and efficient use.

B. Classification of the Extension Teaching Methods:

In planning the learning situations and arranging the teaching activities, the extension worker draws upon a variety of teaching approaches. The judgment exercised in selecting the most appropriate method for the particular teaching situation and the skill with which this working tool is used have a direct bearing upon the amount and quality of the learning resulting from the teaching effort. The methods employed in extension teaching may be classified in several different ways. Regardless of the classification, it is well to keep in mind that in practice the teacher-learner situation frequently involves the associated use of two or more kinds of teaching methods. The most used classification of the extension teaching methods is based on the number and nature of contacts inherent in their use (Figure 8).

1. Individual methods - The personal influence of the extension worker is a vital force in securing cooperating and participation in extension activities and adoption of improved practices on the farm and in the home. People will listen to the advice and

suggestions of an extension worker whom they feel they know, like, and whose knowledge they respect. Integrity on the part of the extension worker is indispensable. If you don't know the answer to a question, don't bluff but tell the farmer you will find out and let him know. Then be sure to do it.

a. Farm and Home visits - they provide a means of personal communication between the farm family and the extension worker in an environment where they can discuss matters of common interest in privacy and without distractions and interruptions commonly experienced in group extension activities. Farm and home visits serve the following useful purposes:

   -to acquaint extension worker with the farmer and farm family
   -to answer specific requests for help
   -to gain first hand knowledge of problems faced by the farmer
   -to explain a recommended practice
   -to follow-up and observe the results of recommended practices
   -to plan an activity such as demonstration, or a meeting
   -to invite the farmer to participate in a planned activity
   -to discuss policies and programs
   -to recruit, train and encourage a local volunteer leader

   Careful and adequate preparation is the key to a successful visit. Visits are expensive in terms of time and

transportation. Preparation for a visit will include:

- -a review of all the known facts about the farm, the farmers and his family
- -specific information concerning the problem
- -purpose or activity involved and materials (such as leaflet and samples) that may be left with the farmer.

The approach you use often determines the success of your visit. The attitude of the farmer affects the length of the visit:

- -if he is very busy - come quickly to the point and end the interview as soon as the main purpose is accomplished
- -if he wants to take more time and show you his field or livestock - fit in with his desires to the extent your time permits

In making the visit:

- -be conscious of your role as an extension worker - you are expected to provide sound technical information and relate it directly to the farm and the farmer through informal discussion of his crops, livestock, or living situation
- -allow the farmer to do much of the talking but guide the conversation into constructive channels
- -in addition to the planned purpose of the visit, it may provide an opportunity to arouse the interest of the family in other features of the extension program
- -follow local customs in accepting hospitality

-end the visit tactfully when your mission is accomplished by inviting the farmer to visit your office or suggesting that you will return at a later date with more information or to check progress

-finally make a good record of the visit as a background for future contacts and as a reminder of necessary follow-up. Be sure to send him the information or materials you promised during the visit

b. Office calls - they are an expression of interest on the part of the visitor in something he thinks you have to offer. They are less expensive and time consuming for the extension worker, and offer some, but not all, the advantages of a home and farm visit. The number of office calls is related to:

-the degree of public interest in the program of the extension service

-the relationship existing between the local extension worker and the farmer

-the accessibility of his office to rural people

Have your office so arranged that visitors feel they are welcome. A few chairs, a bulletin rack with up-to-date information materials, and neat display related to current extension activities will contribute to this purpose. A clean neat office is attractive and encourages both extension staff and visitors to keep it clean. The caller is less at ease than when at home and may be sensitive to your attitude. Try to put him at ease with friendly conversation

and ask questions to help him clarify his problem or request. Satisfy his purpose to the best of your ability. If you cannot satisfy his needs, terminate the interview tactfully by asking if there are any other matters with which you can help. A careful record of office calls provides a basis for follow-up activity and may serve as one measure of public participation in extension activities.

c. Telephone calls - serve a purpose similar to office calls, although face-to-face contact is missing. They are useful in soliciting and giving specific information. They provide a means of follow-up and evaluation of the effectiveness of radio or television broadcasts. Unfortunately, many countries do not have efficient telephone service in rural areas and this method of extension teaching is of limited application.

d. Personal letters - they are useful in answering requests for information, as follow-up after visits or office calls and in contacting local volunteer leaders. The use of letters as a teaching method is quite limited in countries lacking in efficient postal service and where many rural residents are illiterate. Remember when writing a letter to give a single information, understandable and complete without being wordy or including unnecessary information. Put yourself in the shoes of the person to whom you are writing. The words you put on paper are all he has to go by in determining your meaning.

e. Result demonstration - comparison is the essential ingredi-

ent in the result demonstration. Whether it is a comparison between fertilizer and no fertilizer, spraying for insects and no spraying, the results are there for all to see and judge. For a successful result demonstration, you, as an extension worker must:

- -decide exactly what you want to accomplish
- -gather all the information you can find about the practice
- -develop a complete plan of work, showing each required step and indicating who will do what
- -select demonstration sites that are centrally located and near a road so people can get there easily
- -visit the demonstrator and make sure he is thoroughly familiar with the details of the plan
- -visit the demonstration plots often
- -keep records and compare the results with local practices
- -plan follow-up demonstrations if necessary

Advantages of the result demonstration:

- -furnishes local proof of the desirability of adopting as a recommended practice
- -is an effective method for introducing a new subject
- -appeals to the eye and reaches the 'show me' individual
- -provides a good source of information for meetings, new items, pictures, radio talks
- -aids in developing local leadership
- -establishes confidence in the extension worker and in extension work

2. Group methods - Group methods include general meetings, method demonstration, meetings at result demonstrations, farm tours, short courses of instruction, farm training centers, farmers, rural youth and homemakers clubs, and group projects. Group methods are especially effective in moving people from the interest stage to the trial stage of learning. When the reaction of the group is favorable, the majority of the members may proceed to the adoption stage.

   a. Meetings - meetings are one of the oldest and most important methods of extension teaching. Properly arranged and conducted they rank high in ratio of practices adopted in relation to cost as compared with other methods. The success of meetings as a teaching device depends largely upon how they are viewed by the audience. Many meetings are planned by the extension worker to get across a particular idea or practice. Sometimes what seems like a good meeting results in little change in action or attitude by people who attend. This may be because the extension worker is trying to get people to adopt a practice before they are ready. Perhaps they are hardly aware that the new practice exists, or have not had enough time to evaluate it in terms of their own situations. Effective meetings are oriented to the current thinking and recognized needs of the people. In extension work, five general types of meetings were identified:

      (1) Organization meetings - They include board of directors meetings, youth clubs, homemakers clubs, execu-

tive committees and many others. Organizations usually meet periodically and follow an agenda. Their major purpose is to take action and get business done.

(2) Planning meetings - They require preparation of a large amount of situation material. Much of this must be done by professional extension workers who should resist a natural tendency to dominate the meeting. Giving leaders a part in preparing situational material helps to counteract this tendency.

(3) Training meetings - They are an essential element in developing and using rural leaders in extension. They are limited to selected individuals who have accepted responsibilities as leaders and need help in doing the job. The program content is usually narrow in scope and specific with direct application to the job.

(4) Special interest meetings - They are arranged to serve the educational needs of groups with common interests. They may be held singly or in series over a period of time.

(5) Community meetings - As the name suggests, they are for all the people in the community with all the varied interests. Some people come out of curiosity or for entertainment, others have more serious interests. To make meetings more useful and effective the extension worker must plan the meeting with representatives of the people for whom it is held; when the type of meeting has been approved, get agreement on

purposes and means of achieving each purpose; publicize general meeting in advance; and finally consider the following factors:

(a) Size of the audience - Large audiences can receive information but participation is reduced and they have difficulties in making decisions.

(b) Character of the audience - Some audience are incapable of participation through lack of experience, education, or for other reasons.

(c) Facilities available - If rooms are available, large audiences may be broken down into small committees or discussion groups for decisions or to increase participation. Otherwise participation may be limited to those on the platform.

(d) Make audience as comfortable as possible - This involves such matters as seating arrangements, heating or cooling of the room, lighting and ventilation.

(e) Time - Do not fill the program too full. Active people can seldom sit still for more than one hour at a time. Provide for intermission in longer meetings.

(f) Do not allow unrelated announcements and unscheduled speakers to prolong the program and distract the audience.

b. Demonstrations - when you teach by demonstration, you show someone how to do a new job, or show him how to do an old

job better. Two main types of demonstrations are: method demonstration and result demonstration.

(1) Method demonstration - In the method demonstration the extension worker shows how to do a job step-by-step. The demonstration will be more successful if the demonstration takes into consideration the following steps:

-decide exactly what you want to accomplish

-gather all the information you can find about the practice

-talk over the problem with a few local leaders

-gather all the materials you will need

-plan your presentation step-by-step

-practice the demonstration until you are familiar with the different steps

-explain what you are going to do and why is it important to learn the new method before you start the demonstration

-go through the demonstration - explain it step-by-step. Pause to answer questions from the audience. Repeat difficult steps.

-check the effectiveness of your instruction by having members of the audience do one or more of the steps

-summarize the importance of the practice, the steps, the supplies and equipment needed. Distribute literature showing the step-by-step procedure.

(2) Result demonstration - As it was mentioned previously, the result demonstration is based on comparison of results. For further information refer to 1-e of this chapter. Often the method demonstration paves the way for the result demonstration and in such cases both should be considered as parts separated by time only.

c. Tours and Fieldtrips - they are methods of extension teaching which appeal to man's desire to "go places and see things." The "things" to be seen may range from results on small demonstration or test plots to extensive application of new methods on actual forms. Careful planning of tours and fieldtrips must include:

-decide what you wish to accomplish based on the audience interests, levels of understanding and your evaluation of their needs

-work out a detailed plan for the tour well in advance. This should include: sequence of stops, sites to be visited, time schedule if needed and other details.

-go through a rehearsal of the entire program well in advance to try the feasibility of the fieldtrip

-contact all hostesses and guides to get agreement on the details of the program you have already scheduled and make changes where needed

-on the day of the tour keep the party together and keep them moving briskly from point to point. Make the participants as comfortable as possible. Plan for drinks and/or food during the fieldtrip.

In general smaller groups are preferred to larger groups. This is true because smaller groups permit more thorough discussion and are not as difficult to control and move about.

d. Farmer Training Center - farmer training centers have been used effectively in a number of developing countries to train farmers and their wives in concepts and practices of modern agriculture and home making. Leadership training appears to be the most effective role of farmer training centers. To fulfill this role, training center programs must be integrated with extension programs to the extent that:

   -subjects of training contribute to the educational objectives included in the extension program

   -participants are selected on the basis of their leadership potential

   -returned participants are utilized in planning and executing extension programs

e. Extension Schools - schools are designed to give the participants knowledge and skills in some line of subject matter. School involves intensive training over a specific period of time, such as one to four days. They may require preenrollment and an obligation to attend all sessions. Schools offer an opportunity for presentation of much information in a short time to select groups of people with special interest in the subject. They must be well organized with special teaching objectives and employ teaching methods

which will hold the interest of participants. Demonstrations, discussions and the use of visuals add reality and provide guidance in conducting future schools.

3. Mass Methods - Mass methods such as radio, television, newspapers, magazines, posters, exhibits and printed materials are used to reach large numbers of people. While the amount of detailed information that can be transmitted through mass media is limited, they will serve an important and valuable functions in simulating farmers' interest in new ideas. Once made aware or simulated through mass media, farmers will seek additional information from neighbors, friends, extension workers and progressive farmers in the area.

   a. Posters - a poster is a sheet of paper or cardboard with an illustration and usually a few simple words. It is designed to catch the attention of the passerby, impress on him a fact or an idea, and stimulate him to support an idea, get more information and take some kind of action. Since a single glance may be all your poster will get, the message must be simple and clear. Here are a few suggestions to design effective posters:

      -decide exactly who your audience is. Decide exactly what you want to tell them. Decide what you want them to do

      -put down on a sheet of paper words and rough pictures that express your message simply and clearly

      -try to put your message into few words. Visualize or put into picture form the most important central idea in

the message

-use color to attract attention and for contrast, however too many colors add confusion. Allow plenty of space and do not crowd letters, words or illustrations.

Posters should supplement -- not replace -- other communication methods. In general the greater the number of posters used in an area the greater the impact -- up to a certain point. However over use of posters defeats their purpose and may actually turn people against the idea you want them to accept (Figure 19).

b. Exhibits and Displays - exhibits and displays have some of the same characteristics as posters (purpose, preparation, etc.). The main differences are that exhibits and displays usually are larger and more detailed. Because of their larger size and because they usually are placed in the market place or other areas where people move slowly, exhibits and displays attract and hold attention for a longer period of time than posters -- from one to ten minutes -- but on the average, one should aim at telling the story in about three minutes. A combination of real objects, models or illustrative material plus a bold sign usually will get the point across. Include appeal that will identify the subject matter with the viewer's own interests, experience and needs. Make your exhibit say: "Here is something for YOU; here is an answer to YOUR problem; here is how YOU can make more money with YOUR..." Once you have attracted the viewer's attention, interest him in the central idea

and convince him that the ideas are important to him, you still have the job of presenting the supporting information -- usually the "why" or the "how" by using models, drawings, actual demonstration, projected visuals, specimens, etc.

c. Newspapers - they provide a valuable channel for transmission of educational information where they exist and where rural people receive and read them. Among illiterate people, there are usually a few who can read and pass on interesting bits of information to their friends. Newspaper space is valuable and limited. Your news item must compete for attention with other items as well as advertising and the editor is the sole judge of its news value. The ingredients of a news story are: why? what? where? when? and sometimes why? The ingredients should be covered in the first sentence or two and elaborated in later paragraphs. Write simply, using short sentences and paragraphs that are easy to read. Remember that you must catch the reader's attention in the first sentence or he is unlikely to read further. The succeeding facts should be put down in the order of their importance. The ABC's of good writing are: Accuracy, Brevity and Clarity (Figure 20).

d. Folders, Leaflets and Pamphlets - they can be used in many ways in extension programs:

   -singly -- for example, to explain the advantages of testing soil

   -in series of broader subjects -- like cattle raising with separate leaflets on feeding, management, repro-

duction...

-reminders of when to plant crops or what chemicals to use to control different insects

Besides the advantage of low cost and short preparation time, folders, leaflets and pamphlets take less time to get their message across. When preparing these materials keep your audience constantly in mind. Write with words people understand. Write about things that interest people. Even where literacy is not a problem, include illustrations because they reduce the risk of misunderstanding, help make your message clear and more attractive, colorful and impelling. The audience should feel an urge to look inside.

e. Fact sheets - they usually cover a single topic and often they are limited to a single page. Most of the fact sheets are illustrated with drawings or photographs or both. One of the important uses for fact sheets is to provide current subject matter to field extension workers. Field workers frequently complain that needed technical information is slow to reach them. Much agricultural information is put up in technical bulletins and other lengthy publications which take considerable time to process and distribute.

f. Radio - radio is one of the fastest and most powerful ways of communication with rural masses. Radio is most effective at the awareness and interest stages of the adoption process. It reaches people of all cultural levels who understand the language of transmission. An advantage of radio programs is that they can be done almost anywhere

through the use of a tape recorder. Doing them in the home or on the farm gives them greater authenticity. Radio is useful in reporting spot news, for warning about insect outbreaks and especially as a part of campaigns. Longer programs should be either presented in person or taped for use on scheduled programs. Start the program with a statement that arouses the listeners attention. The first few seconds are the most important. Then follow through with a well organized, smooth following presentation, repeating the key points again at the end.

g. Television - television is the newest method available to the extension worker who can demonstrate as well as talk or present result demonstrations through pictures thus emphasizing difference over time. All types of visual aids such as charts, graphs, life subjects, chalkboards can be used to increase teaching effectiveness. Organization is an essential ingredient of a television program which must be meticulously prepared. The basic rules are simple:

-move deliberately to allow the camera to follow

-operate within a small area

-hold materials steady on target for camera viewing

-avoid the use of complicated demonstration materials

-time your presentation before going to the studio to make sure the program fits into the alloted time

-have some extra points to present in case the materials run short

In spite of the relatively high cost of receiving sets,

television occupies an increasingly important role in developing countries. Extension administrators have only to convince authorities of the value of educational broadcast to open up this useful channel of communication and education to the masses of people.

C. Methods Classified According to Their Form:

The extension teaching methods can also be classified into four main categories: written, spoken, visual and combined (Figure 21). Bulletins, leaflets, news articles, personal and circular letters, all depend largely upon the written word, though illustrations are often used as visual aids to the reading of the printed message. The use of the spoken word characterizes the variety of special and general meetings held or participated in by extension workers. Motion pictures, slides, charts or other visual aids are frequently employed to build attendance, maintain interests, or increase the teaching effectiveness of meetings. Farm and home visits, office and telephone calls also involve oral communication. The radio is, of course, limited to the oral method of presentation. Objective or visual methods of teaching that depend almost entirely upon the eye-appeal include result demonstrations, exhibits, posters, motion pictures, slides, charts, and similar visual aids. Visual aids are frequently used to supplement the spoken and written word. Method demonstrations, meetings at result demonstrations, and television programs are usually combinations of visual materials and oral presentation (Figure 22).

Lab Session - 8 Hours*- Assignment Sheet

1. In one area of your interest imagine a scene of conversation between you and a farmer who came to your office asking for your help to solve a problem in his farm operation.

NOTICE: Two students may work together:

-one representing the extension worker

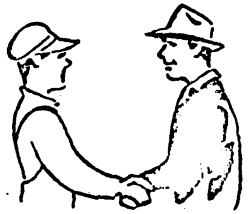
-the other student playing the role of the farmer

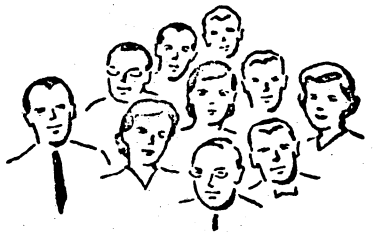
2. In one area of your interest present a demonstration before the class on a particular practice you want the farmers of your local community to adopt.

3. Following the suggestions presented in the unit, design a poster in an area of your choice.

4. Write a brief article (not more than a page) to be published in the local newspaper about a particular subject of interest to your own local community.

*Four hours are scheduled for an educational fieldtrip to one or two local extension agencies.



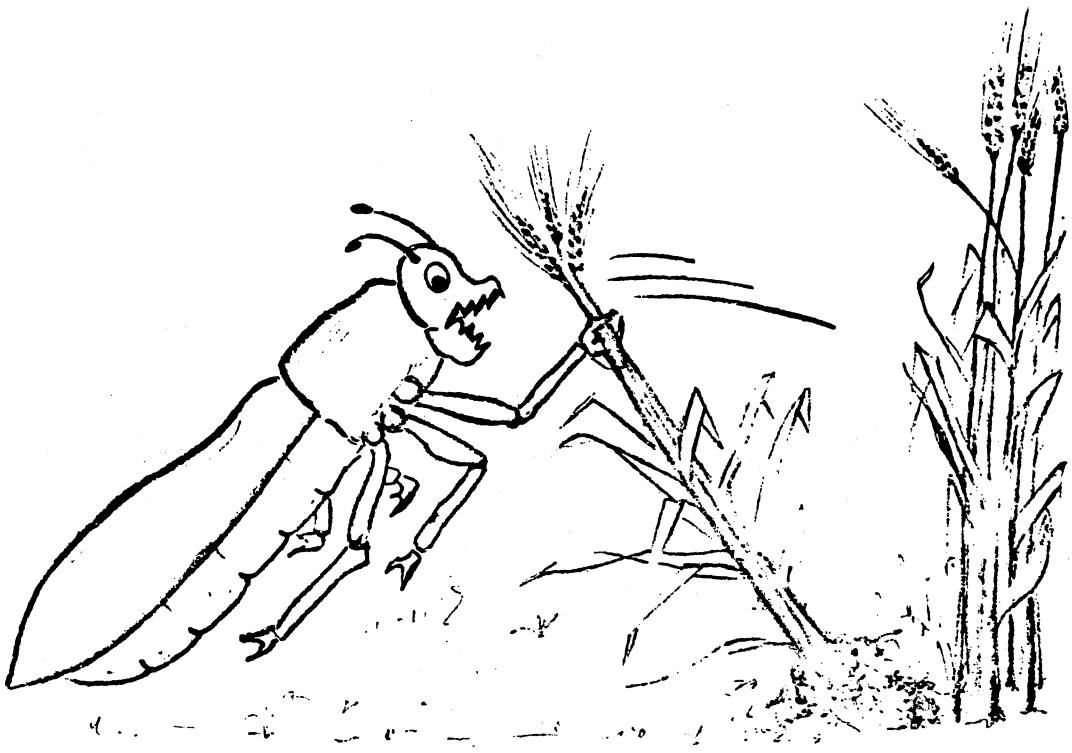


| INDIVIDUAL CONTACTS | GROUP CONTACTS | MASS CONTACTS |
|---|---|---|
| Farm and home visits. | Method demonstration meetings. | Bulletins. |
| Office calls. | Leader training meetings. | Leaflets. |
| Telephone calls. | Lecture meetings. | News stories. |
| Personal letters. | Conferences and discussion meetings. | Circular letters. |
| Result demonstrations. | Meetings at result demonstrations. | Radio. |
| | Tours. | Television. |
| | Schools. | Exhibits. |
| | Miscellaneous meetings. | Posters. |

*Indirect influence*

Source : Federal Extension Service Circular # 495 , U.S.D.A.

Figure 18. Extension Teaching Methods Classified According to Use.



**YOU WANT TO KNOW ABOUT**

**YOUR WHEAT EATERS ??**

**JOIN US NEXT FRIDAY MAY,17 AT 7 MAIN STREET**
**7.00 PM**

Figure 19. Example of a Poster.

**A NEWS STORY TELLS: WHO, WHAT, WHERE, WHEN & WHY**

## *OSU Researchers Shed Light On Stocker Syndrome Losses*

STILLWATER, Okla. — There's no reason to suspect that anything could be wrong. The cattle have all been inoculated against winter diseases, they are eating well in the wheat and grass pasture and they have not been weakened by unduly harsh winter weather.

But one morning they turn up dead anyway. And for no apparent reason. Sometimes losses run as high as 12 per cent in some herds, and throughout pastures in Texas, Oklahoma and Kansas, losses average from two to three per cent at an estimated cost of $25 million.

Researchers at Oklahoma State University here are finally throwing some light onto the dark mystery of stocker syndrome. The researchers have illuminated one common trait in their field studies on the mysteriously dead cattle. Many stockers were bloated before death and had froth foam rumen contents with little sign of free gas.

One of the best preventatives for frothy bloat is a detergent compound called poloxalene. OSU scientists this winter will conduct widespread tests with it. They will use a liquid mixture of cane molasses, poloxalene (.5 g.-lb.) and Vitamin D (1,500 IU-lb.).

The mixture will be fed from self-feeders equipped with rollers to help limit intake to about two pounds per day. Four to seven, four-roll feeders should handle about 100 animals.

Scientists can only sit back and hope for the best from the mixture. Factors that contribute to foaming of ruminal contents remain a mystery.

But research has turned up some theories. It has revealed that plant proteins may be significant. And small grains are high crude protein (20 to 35 per cent of the dry matter), of which one-sixth is protein nitrogen.

Another culprit may be nitrogen. Blood ammonia values from dead stockers reflect high nitrogen content.

"Perhaps it is possible that subclinical ruminal tympany (bloat) enhances absorption of ammonia into the blood and the two conditions contribute to an abrupt conclusion of vital processes," says Dr. Billy Clay, OSU veterinarian. "But we need more research to verify this assumption."

OSU field research has so far included analysis of forage and soil samples, and blood samples from dead stockers and other animals in affected herds.

Observations from this research so far indicate animals grazing winter wheat need additional readily fermentable carbohydrates. This can be supplied by molasses or grain.

The animals also need supplemental calcium and magnesium. OSU suggests a mineral mixture be offered free choice.

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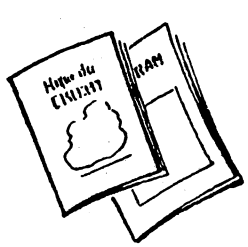
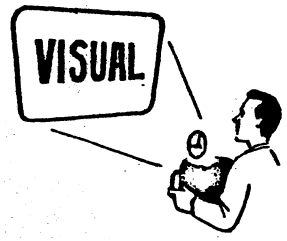
Figure 20. Example of a Newsletter.






| WRITTEN | SPOKEN | OBJECTIVE or VISUAL |
|---|---|---|
| Bulletins.<br>Leaflets.<br>News articles.<br>Personal letters.<br>Circular letters. | General and special meetings of all kinds.<br>Farm and home visits.<br>Office calls.<br>Telephone calls.<br>Radio. | Result demonstrations.<br>Exhibits.<br>Posters.<br>Motion pictures, charts, slides, and other visual aids. |
| | Method demonstration meetings.<br>Meetings at result demonstrations.<br>Meetings involving motion pictures, charts, and other visual aids.<br>Television. | |

*Indirect influence*

Source : Federal Extension Service Circular # 495 , U.S.D.A.

Figure 21. Extension Teaching Methods Classified According to Form.

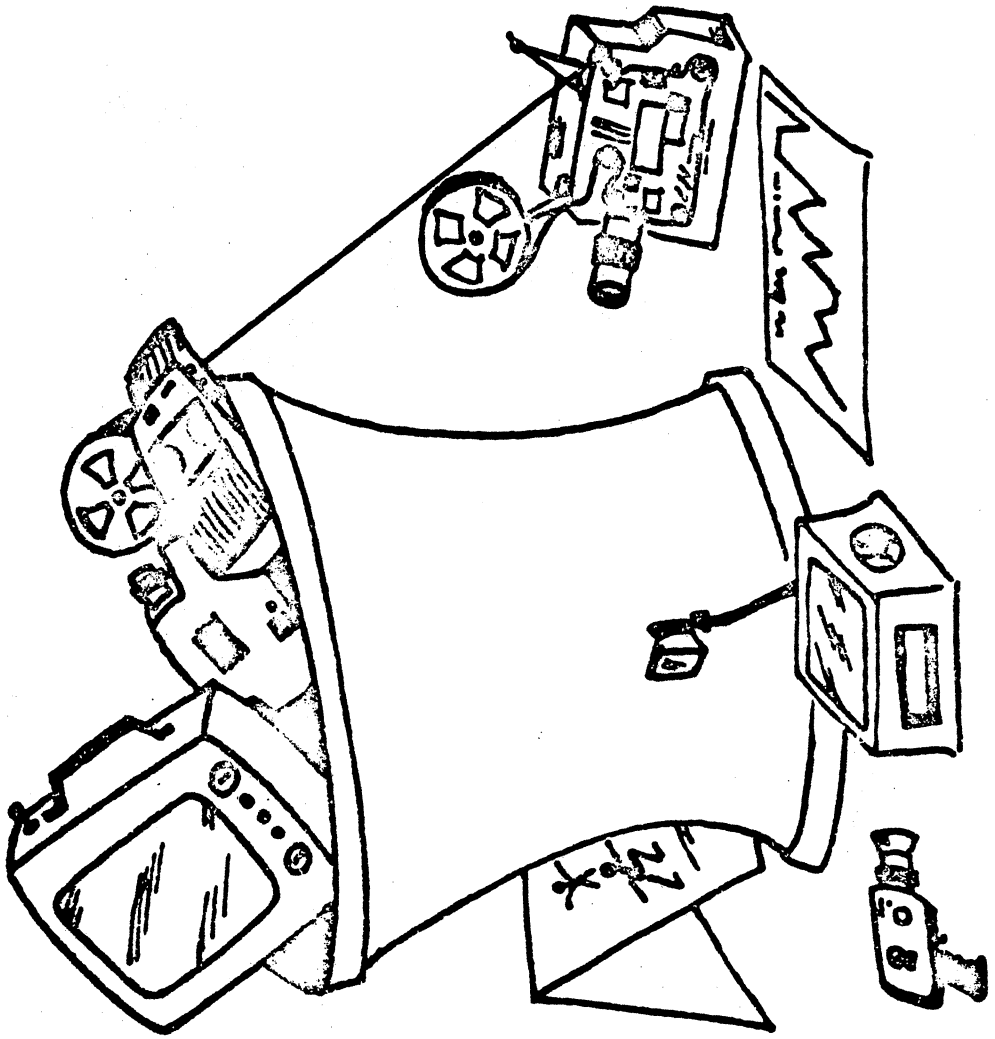


Figure 22. Audio-Visual Aids.

## Unit #5 - Extension Program Development - 3 Hrs.

### Terminal Objectives

After completion of this unit of instruction, the student should be able to discuss the different steps of an extension program development and describe the decision-making and problem-solving processes.

### Specific Objectives

The student should be able to:

1. Match terms with the definition as discussed in the unit of instruction.
2. Discuss orally or in writing the eight elements which constitute the extension program development process.
3. Discuss at least six principles for program planning.
4. Discuss the process of translating needs into objectives.
5. Describe the decision-making process.
6. Describe the problem-solving process.

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Information Sheet

A. Terms and Definitions:

1. Extension program development - A continuous series of processes which include planning a program, preparing a plan of work and teaching plan, taking action to carry out the plans and determining and reporting accomplishments.
2. Program planning - A conscious interactional process combining investigation, discussion, agreement, and action in order to achieve those conditions, relationships and values regarded as desirable.
3. Organizational goals - Broad statements of intent which are not quantifiable. They define the conditions to be achieved year after year if the organization is to be successful.
4. Organizational objectives - Short statements of intent which relate back to the achievement of an organizational goal and are quantifiable. They should indicate what is to be accomplished and by when.
5. Norms - The rules which prescribe what is acceptable or unacceptable.

6. Values - The objectives that are considered desirable and that are sought in action. They are abstractions such as social welfare, power, prestige, understanding, way of life...

B. Components of an Extension Program Development Process:

Eight elements should be present in any extension program. They do not necessarily occur in a specific time sequence; however knowledgeable extension workers must recognize when each process occurs and how to use the elements individually and collectively (Figure 23).

1. Recognize social, economic, political and educational forces.

   a. Social forces - human interaction of family, the group, the community and its nation. All groups base their activities and decisions on goals as well as norms and values.

   b. Economic forces - associated with power within the geographical area or based on economic measures such as return on investment.

   c. Political forces - programs must be developed within a political setting.

   d. Educational forces - extension is based on informal and out-of-school activities which are different from the traditional educational institutions.

2. Understanding the extension organization:

   a. Knowing the system is the key to effective programming

   b. Extension history and philosophy

   c. Organizational structure

   d. Extension purpose and objectives

   e. Extension policies and procedures

   f. Management

3. Identify and involve relevant people - Extension workers must involve people in the process for the following two reasons:
   a. More accurate decisions regarding the relevant needs and opportunities upon which extension programs should focus will be arrived at when lay people are involved in making those decisions
   b. The involvement of citizen representatives will speed up the process of change among people
4. Determine their needs and goals:
   a. Helping people determine their needs is one of the most challenging tasks an extension worker faces.
   b. When data about the present situation are related to data about the desired situation, discrepancies, gaps or needs are noted. The ability to take data and translate it into usable information about the situation is of extreme importance in program planning.
   c. Goals should be stated after needs are identified and priorities are assigned to the problems.
   d. Goals are not instructional objectives, they should only point a direction.
5. Plan a long range program - A long range program is usually a schedule for a three to five year period. It should be written and contain:
   -the present and recent past social, economic, political and educational situations
   -the needs, wants, and problems of clientele uncovered during the planning process

-long term program objective derived from the situation and clientele needs and merged with extension service objective

-the coordination needed between appropriate extension workers and other groups in reaching the long term program objective

6. Prepare annual plan of work - An annual plan is an attempt to design educational activities for one year. It must focus on the needs and objective of the learners. Each program component or area of program emphasis included in the plan of work should have:

-a situation statement derived from the long range plan

-educational objectives identifying the potential learners, subject matter, content, and knowledge, skills or attitudes to be changed

-an organizational objective must be defined as to what the organization will do with facilities, groups or efforts to assist in achieving educational objectives

-a calendar of learning activities, events, experiences, which relate to each educational or organizational objective

-the extension worker's specific responsibility identified and the role other extension workers have in executing the plan

-the schedule, timing and coordination of human resources to reach the objectives

-a statement of method of evaluation and how the extension worker will determine if educational objectives were attained

7. Implement the plan - Program action is the "Heart" of the extension education process. It is here that people learn improved

skills, gain knowledge and are led to change their attitude. The first requirement for successful program action is sound technical knowledge on the part of the extension worker. The second is the use of extension teaching methods suited to the subject matter and to people involved. Tasks to perform include preparation of:

- -instruction objective from talking about many people to the individual and what he must do to change his knowledge, skills or attitude
- -operational objective is a teaching plan
- -the correct combination of subject matter, material, and other resources
- -a procedure for modification of the learning process
- -a procedure to reinforce the learner
- -a process of evaluation to determine if the instructional objectives were achieved
- -a method of relating the process back to the plan of work

It is the extension professional's job to understand the process and the kinds of implementation that will most effectively and efficiently help the learner learn.

8. Evaluate and Report - Periodic evaluation in terms of objectives of the program provides a basis for continuous improvement. Plans for evaluation need to be included in the plan of work. This may involve an accurate description of the situation existing at a given time, a record of changes proposed and accomplished, and periodic description of the situation as it changes with time. Educational methods may also be evaluated to determine

their individual and collective influence in inducing change. The results of such evaluations are useful only as they are used in planning future programs.

C. Principles for Program Planning:

A number of basic principles of extension program planning have been established in workshops on this subject.

1. Base program planning upon careful analysis of factual situations. All of the relevant and available facts bearing upon the land, the people, the customs, the community, the organization, the institutions and the agencies operating in the area should be taken into consideration.
2. Select problems for action which concern recognized needs. Not all problems can be attacked at once. It is important that those of most urgent concern and widespread interest be given first consideration.
3. Make the program comprehensive including problems of interest to all members of the rural family and to different socio-economic groups.
4. Keep the program flexible to meet long term situations, short-term changes and special emergencies.
5. Make the program educational and direct it toward bringing about improvement in the ability of people to solve their own problems individually and collectively. The program planning is itself educational.
6. Use democratic methods in developing the extension program, by arranging participation of lay people, the extension staff and others who can contribute.

7. Orient programs to the existing technical, economic, and social level of the people of the area.
8. Clear defined objectives at all levels in terms that people will understand. The objectives of the extension service might be clearly determined and periodically reviewed in the light of progress and changed conditions.
9. Extension programs should be carried on by well trained personnel effectively supervised. The training level of the extension personnel should be such that the worker will command the respect of the most advanced farmers, and enable him to deal intelligently with all ordinary problems which he encounters in the area.
10. Use organizations as a tool to accomplish objectives. Working alone an extension worker can influence a relatively small number of people to adopt improved practices by enlisting the cooperation of existing groups, the results of his efforts are multiplied.
11. Good program building provides for evaluation of results. Any attempt at evaluation is dependent upon careful definition of objectives. It is therefore important when planning a program, to state objectives clearly and in terms of these objectives.
12. Make maximum use of voluntary leadership in the planning as well as in the execution of extension programs. People in general have greater interest in those programs which they themselves had a part in planning.
13. Make sure that the program is achievable considering such factors as personnel, finance, time, and facilities. A common weakness

of extension programs is that they include attempts to solve too many problems at once without making a significant contribution to any of them. Goals set for accomplishment in a given period of time should be practical and achievable to avoid discouragement of those who participate in the program.

D. The Process of Translating Needs into Objectives:

There are three main phases in this process (Figure 24):

1. Collection of needs felt by the individuals (farmers), organization (extension service), and the community (nation).
2. These needs ought to be screened through the filters of the:
   a. Institutional purposes
   b. Feasibility
   c. Interests of the clientele
3. The final result is the production of two kinds of objectives:
   a. Operational objectives
   b. Educational objectives

E. The Decision Making Process:

It is the process of choosing between various ways of getting a job done. This involves first the development of a standard of comparison, which is the list of objectives to be achieved by the action considered. Against this standard each alternative is measured, and one is chosen according to the decision-maker's best judgment. Before acting on this choice, he looks for possible adverse consequences, balancing advantages against disadvantages. A systematic decision is the product of a great many small judgments, organized and summarized (Figure 25). Extension workers must understand the different steps in decision making which they apply consciously or

unconsciously in program planning, and in their daily activities when implementing the extension programs.

F. The Problem Solving Process:

A problem is a deviation between what should be happening and what actually is happening that is important enough to make someone think the deviation ought to be corrected. An anticipated change produces this unwanted effect in place of the desired and expected effect. Before this unknown change occurred, things were going as expected. Afterwards, they are off plan and out of control. Decision making will choose the action necessary to bring things back into line (Figure 26). Several steps ought to be considered in a problem solving process (Figure 27):

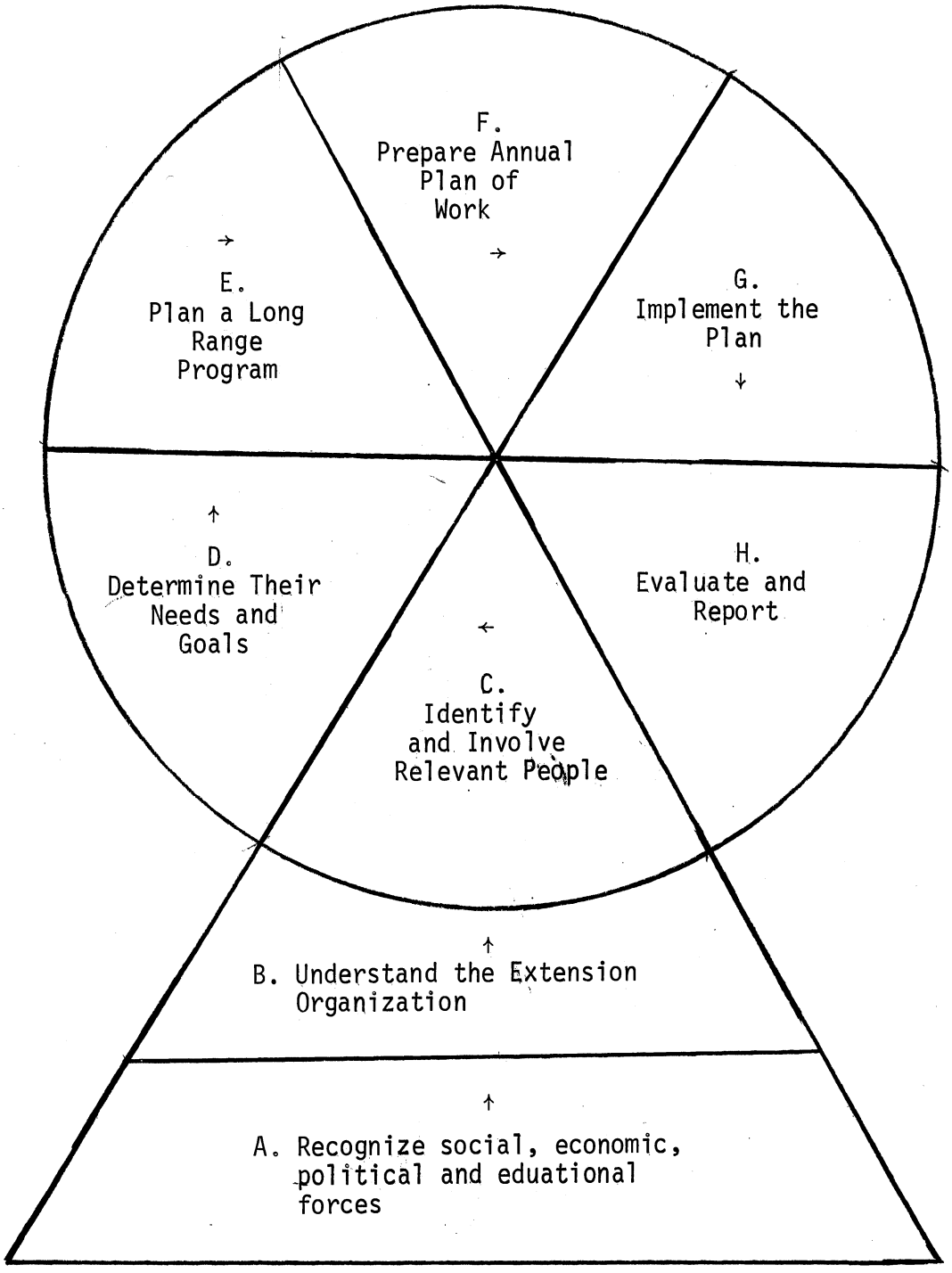
1. Recognize the problem
2. Define the problem
3. Present the possible solution
4. Explore and discuss the solution
5. Test solutions through action or imagination
6. Select the best solution to the problem

Lab Session - 2 Hours - Assignment Sheet

Study thoroughly the following long range extension program* order to:

1. Present and discuss its advantages and limitations.
2. Make suggestion for the improvement of suggested program under the same conditions.

*The student is provided with a copy of a long range extension program developed in a functional district extension agency.




Source: Netherton (Mimeo)

Figure 23. Program Development Process Elements

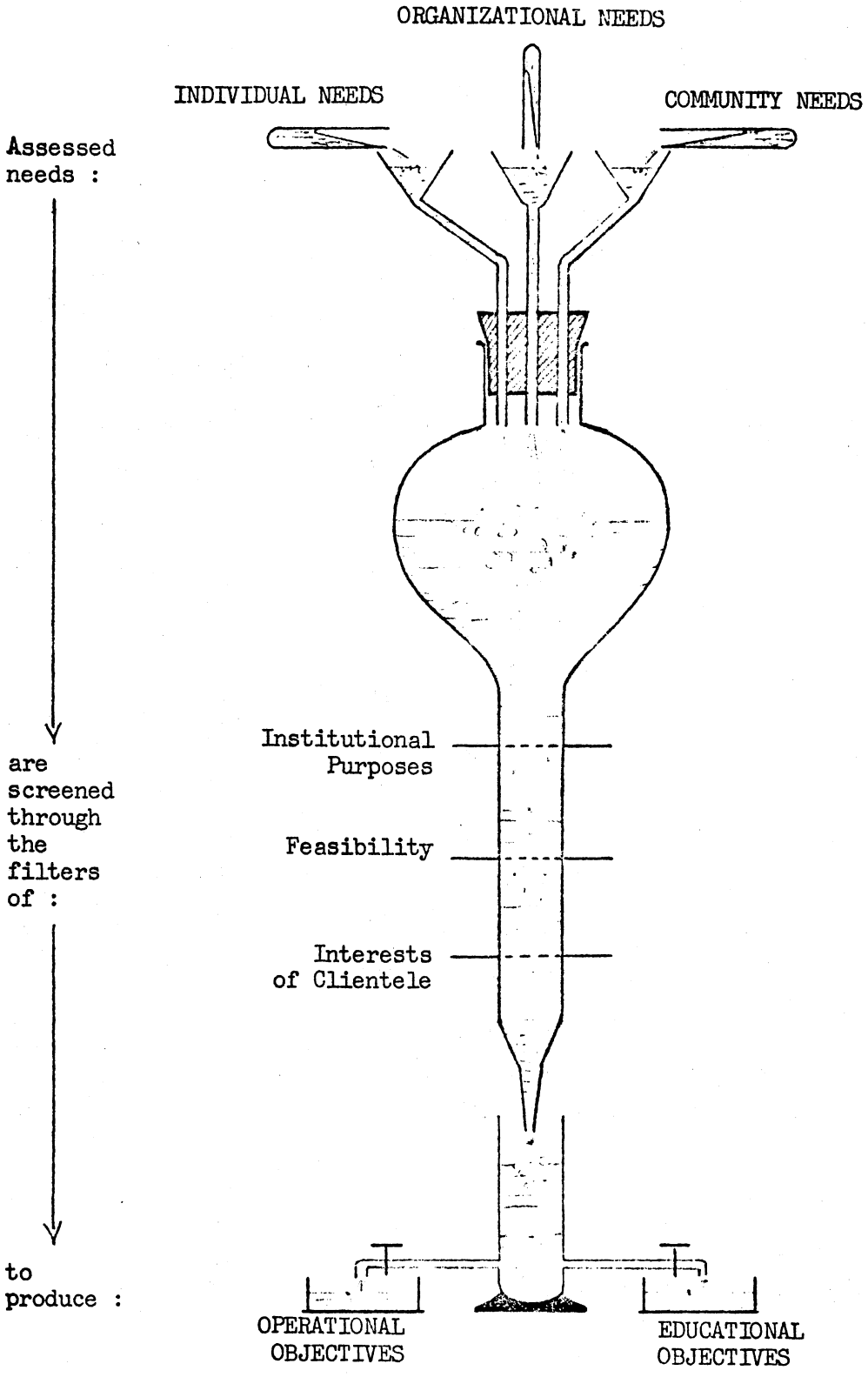



Figure 24. The Process of Translating Needs into Objectives.

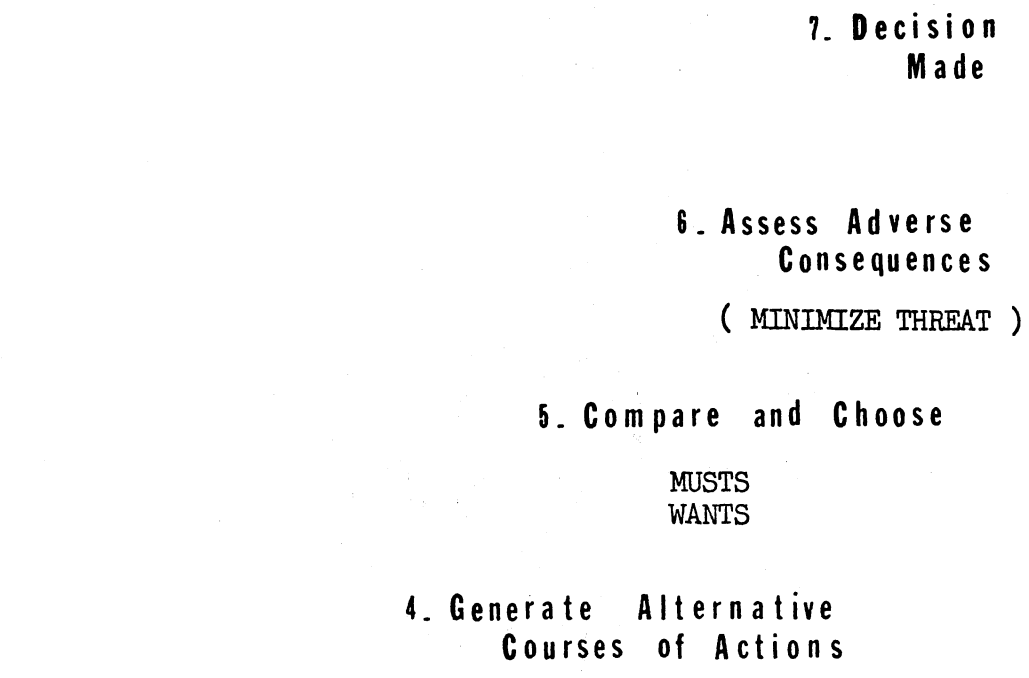



Figure 25. The Decision Making Process.

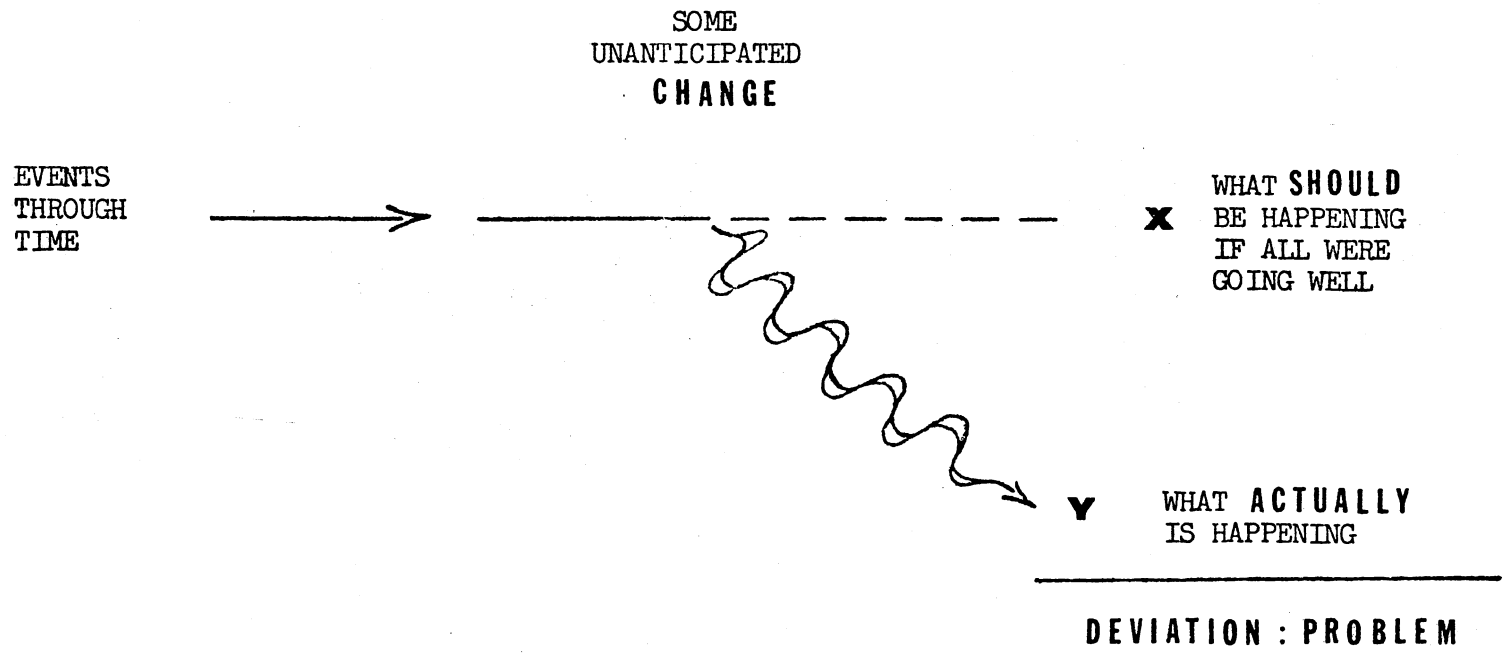



Figure 26. What is a Problem?

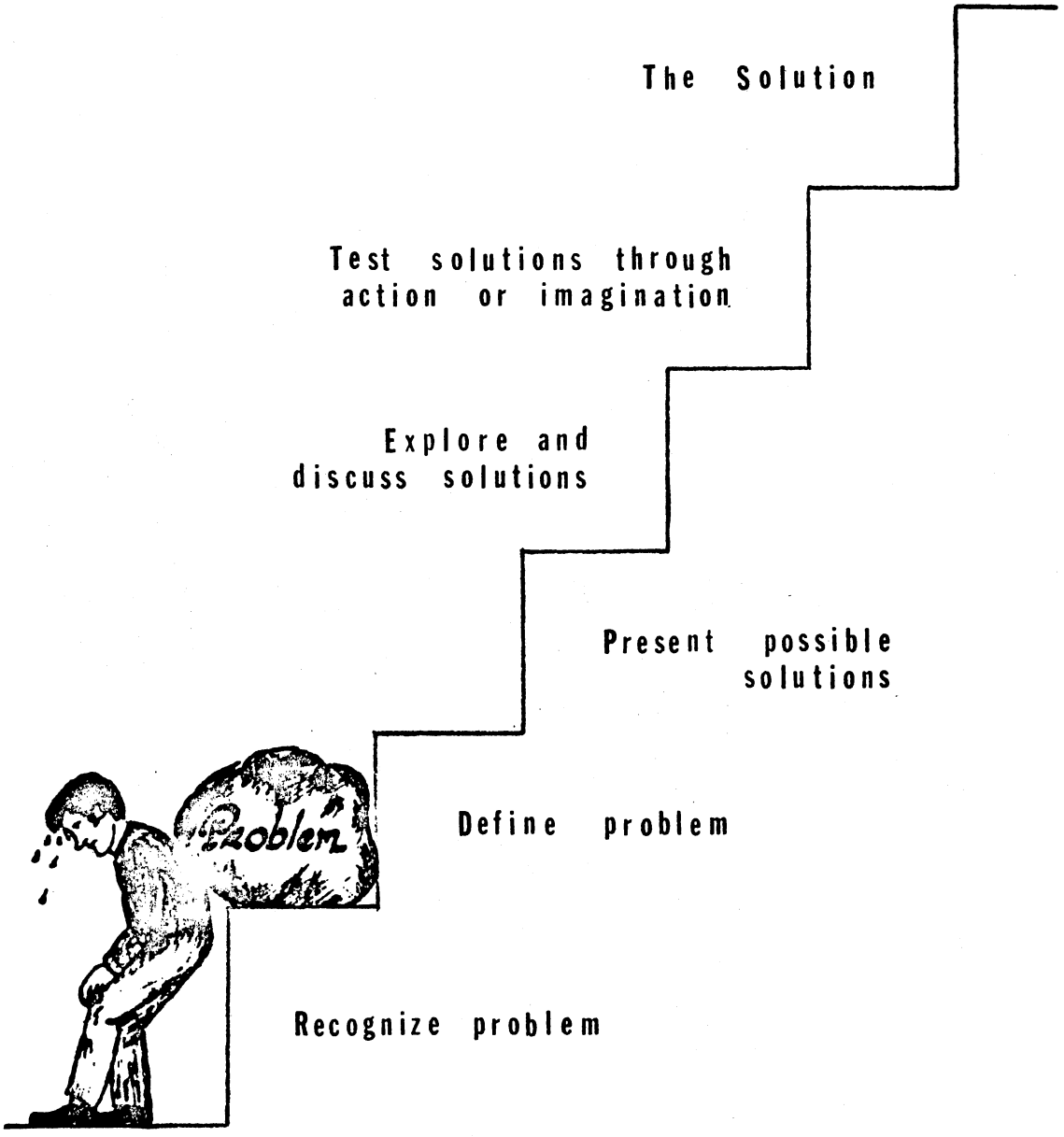



Figure 27. The Problem Solving Process.

# CHAPTER IV

# SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

## Summary

The purpose of this study was to develop a pre-service extension training program for potential field extension workers in Tunisia. The two main objectives aimed were:

1. Identification of the basic units of instruction offered in a preliminary extension course as taught in twenty-six landgrant state universities in the United States of America.

2. Development of those units revealed by the survey and presentation of the developed units as a proposed basic course in extension education to be offered at the senior level of a college program in the National Institute of Agronomy in Tunisia.

The first objective was reached by the tabulation of data collected through a mailed letter of request for information about the most used units of instruction in extension education in twenty-six U.S. universities. To attain the second objective, a thorough review of literature dealing with curriculum and instruction development was necessary. Information included in the developmental process of the units of instruction was compiled through the intensive use of the Oklahoma State University Library, official papers, booklets, and mimeographed materials.

## Conclusions

Extension is often defined as a "bridge" between research and production in agriculture. This bridge ought to have enough solid foundation in order to carry out effectively its function. Likewise extension education must be based on sound teaching-learning situations in order to serve the role of transmission of ideas and improved practice to the farmer, agent of production. Agricultural production cannot be increased therefore, the farmer's standard of living cannot be raised, unless they are assisted by a well trained extension personnel, able to motivate rural population and help them reach the goals and objectives for which they are striving. Understanding of adult learning requirements, use of effective instructional materials and clientele need-oriented programs are key factors to successful extension activities. Coping with the agriculture requirements, the farmers' needs, and the every day changing technology is not an easy task but rather a complex mission requiring on the part of the field extension worker a sound technical knowledge of agricultural production and, not of less value, skills in communicating with the rural population. Skills are not inherited, although some individuals are more predisposed than others to a variable extent, but rather acquired through education and training based on past experiences, available resources, and innovative ideas about human behavior in various educational settings.

## Recommendations

The writer feels that, in order to improve the agricultural extension training program in Tunisia, the following recommendations should be made:

1. The ligitimizing authorities recognize the necessity of a basic course in agricultural extension if sound extension pre-serving training is the paramount objective of the National Institute of Agronomy in Tunisia.

2. The five developed units of instruction should be translated into French, the official teaching language in formal higher education, and be a part of the curriculum of senior students majoring in agronomy.

3. After the first year of implementation, the suggested units for the course must be evaluated and subject to suggestions and adaptation to local conditions for further improvement in conception and administration.

4. Additional units of instruction and/or more recent and complementary information should be considered as the implementation of the course continues through the years.

## Implications of the Study for Implementation

From the Summary and Conclusions made it would appear that the implication is strong that implementation will require careful and well thought out approaches. The researcher feels that this requirement would almost mandate the following steps or at least ones very similar to them:

1. This piece of research must be carefully translated into French, the official education language at the National Institute of Agronomy and most of the other institutions of higher education.

2. Make enough copies of the translated document available to officials in the Ministry of Agriculture and the Administration of the National Institute of Agronomy in Tunisia.

3. Submit some copies to the present officials of the extension service and the District Extension Directors during their periodical seminars to obtain their appraisal.

4. Request the Director of the National Institute of Agronomy to select and appoint a committee to review the document and assess the need for the program.

5. To teach the approved course on a trial basis the first year and evaluate it from the standpoint of both conception and implementation.

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# APPENDIX A

## COPY OF THE LETTER MAILED TO THE LANDGRANT UNIVERSITIES IN THE UNITED STATES OF AMERICA

Abdallah Gaaya
Agricultural Education Dept.
Ag. Hall Room 235
O.S.U. Stillwater, Okla.74074

March 27,1975

Dear Sir,

I am a former livestock extension specialist from Tunisia and actually a graduate student in the Agricultural Education Department at Oklahoma State University. Presently I am in the process of developing a curriculum for an extension training program for college students ( Senior year ) in the Institute of Agronomy in Tunis, as a theme for my doctoral dissertation. It will be of a great help for me, if you send me a copy of your plan for training extension workers and also course outlines if possible. I would also appreciate receiving any other information relative to the preparation and training of extension personnel.

Thank you so much for devoting your time and for your valuable help.

Sincerely Yours,

Gaaya Abdallah

APPROVAL

We are attempting to provide assistance and encouragement to Mr. Gaaya in his conducting of this study. It has our approval and we will appreciate your assistance to him.

Robert R. Price
Head,Agricultural Education Dept.

James D. Netherton
Coordinator,Personnel Development.

# APPENDIX B

## LIST OF THE UNIVERSITIES SURVEYED AND MAP OF THE U.S. SHOWING THE STATES COVERED BY THE STUDY

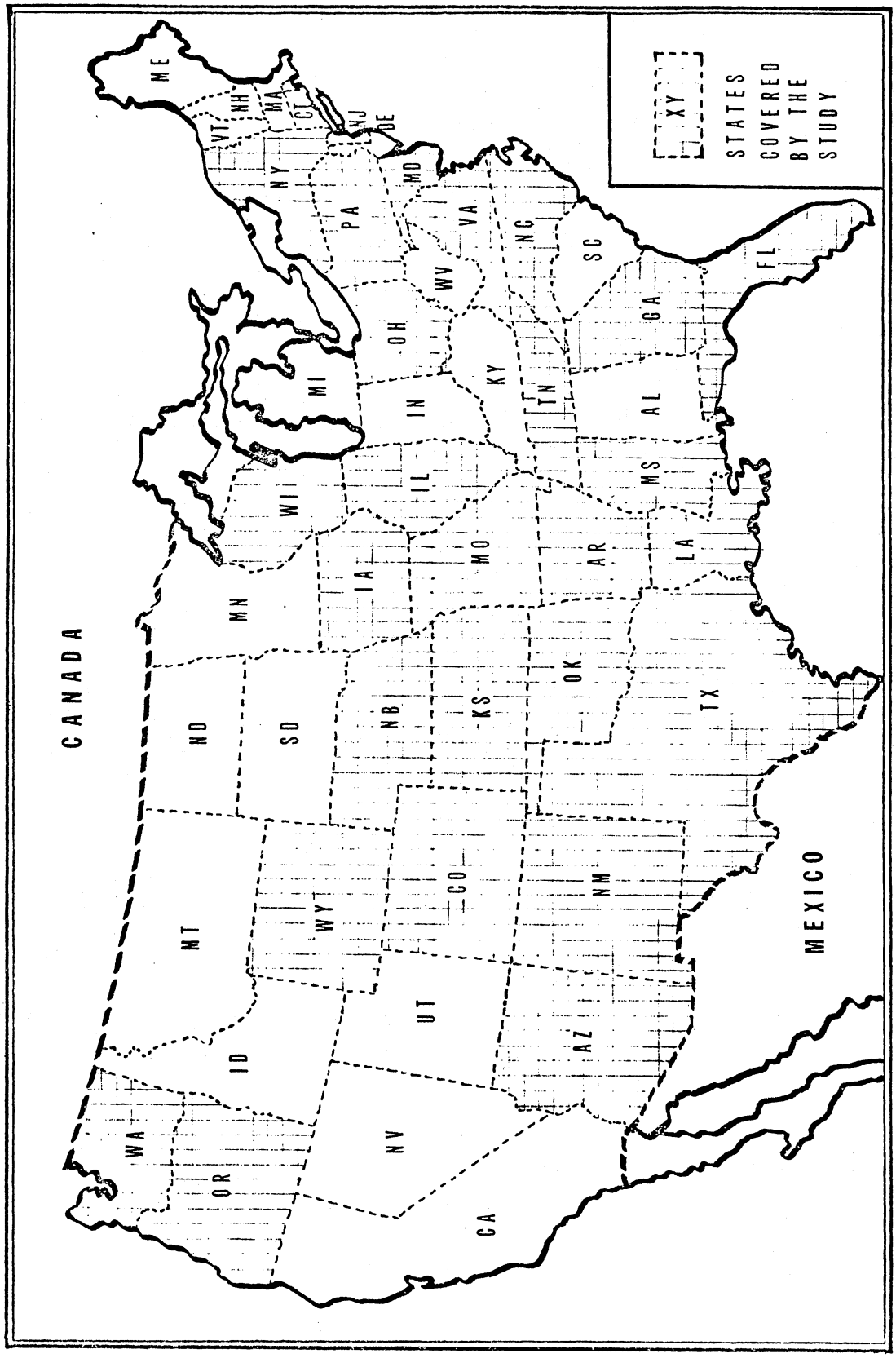
LIST OF THE UNIVERSITIES SURVEYED

| State | Name and Title | Address |
|---|---|---|
| Arizona* | Dr. Floyd C. McCormick<br>Professor and Head<br>Dept. of Ag. and Ext. Educ. | University of Arizona<br>Tucson, AZ 85721 |
| Arkansas | Dr. U. G. Word, Jr.<br>Personnel Training<br>Specialist | Cooperative Ext. Service<br>P. O. Box 391<br>University of Arkansas<br>Little Rock, AR 72203 |
| Colorado* | Dr. James M. Kincaid<br>Director, National Ext.<br>Summer School | Cooperative Ext. Service<br>Colorado State University<br>Fort Collins, CO 80521 |
| Florida | Dr. W.T. Loften<br>Head, Ag. and Ext. Educ. | 160 Building E<br>University of Florida<br>Gainesville, FL 32611 |
| Georgia* | Dr. J. J. Lancaster<br>Head, Ext. Educ. Dept. | Cooperative Ext. Service<br>University of Georgia<br>Athens, GA 30602 |
| Illinois | Dr. Gertrude E. Kaiser<br>Leader, Ext. Educ. | Cooperative Ext. Service<br>329 Mumford Hall<br>University of Illinois<br>Urbana, IL 61801 |
| Iowa | Dr. Harold R. Crawford<br>Professor and Head<br>Ag. Educ. Dept. | 223 Curtiss Hall<br>Iowa State University<br>Ames, IA 50010 |
| Kansas* | Dr. Robert L. Johnson<br>State Leader, Ext. Staff<br>and Program Development | Cooperative Ext. Service<br>311 Umberger Hall<br>Kansas State University<br>Manhattan, KS 66506 |
| Louisiana* | Dr. Edward W. Gassie<br>Specialist (Ext. Educ.)<br>Professor and Acting Head<br>Dept. of Ext. and Interntl.<br>Educ. | Cooperative Ext. Service<br>Knapp Hall<br>Louisiana State University<br>Baton Rouge, LA 70803 |

| State | Name and Title | Address |
|---|---|---|
| Maryland | Dr. Clifford L. Nelson<br>Associate Professor and Chairman, Dept. of Ag. and Ext. Educ. | University of Maryland<br>College Park, MD 20742 |
| Mississippi | Dr. John Oren<br>Head of Ag. and Ext. Educ. and Ext. Training Officer | Cooperative Ext. Service<br>P. O. Box 5446<br>Mississippi State Univ.<br>Mississippi State, MS 39762 |
| Missouri* | Dr. John G. Gross<br>Associate Professor and Dept.Chairman<br>Ext. Educ. | Cooperative Ext. Service<br>530 Clark Hall<br>University of Missouri<br>Columbia, MO 65201 |
| Nebraska | Dr. Robert T. Florell<br>State Leader,<br>Studies and Training | Cooperative Ext. Service<br>East Campus, Ag. Hall 109<br>University of Nebraska<br>Lincoln, NE 68503 |
| New Mexico | Dr. Leon A. Wagley<br>Professor and Head<br>Dept. of Ag. and Ext. Educ. | Box 3501<br>New Mexico State University<br>Las Cruces, NM 88003 |
| New York* | Dr. Robert L. Bruce<br>Professor, Education | Cooperative Ext. Service<br>212 Roberts Hall<br>Cornell University<br>Ithaca, NY 14953 |
| North Carolina | Dr. Curtis Trent<br>State Leader of Training | Cooperative Ext. Service<br>117 Ricks Hall<br>North Carolina State Univ.<br>Raleigh, NC 27607 |
| Ohio* | Dr. Clarence J. Cunningham<br>Assistant Director<br>Staff Development and Program Analysis | Cooperative Ext. Service<br>2120 Fyffe Road<br>College of Ag. & Home Econ.<br>The Ohio State University<br>Columbus, OH 43210 |
| Oklahoma* | Dr. Robert R. Price<br>Professorand Head<br>Dept. of Ag. Educ. | 235 Ag. Hall<br>Oklahoma State University<br>Stillwater, OK 74074 |
| | Dr. James D. Netherton<br>Coordinator of Personnel Development | Cooperative Ext. Service<br>459 Ag. Hall<br>Oklahoma State University<br>Stillwater, OK 74074 |

| State | Name and Title | Address |
|---|---|---|
| Oregon* | Dr. Louis M. Oester<br>Staff Development Leader | Cooperative Ext. Service<br>125 Ext. Hall<br>Oregon State University<br>Corvallis, OR 97731 |
| Pennsylvania* | Dr. C. S. Oliver<br>Assistant Director | Cooperative Ext. Service<br>323 Ag. Administration Bdg.<br>Pennsylvania State Univ.<br>University Park, PA 16802 |
| Tennessee* | Dr. Robert S. Dotson<br>Professor and Head<br>Ag. Ext. Service | P. O. Box 1071<br>University of Tennessee<br>Knoxville, TN 37901 |
| Texas | Dr. Earl Knebel<br>Professor and Head<br>Dept. of Ag. and Ext. Educ. | Texas A & M University<br>College Station, TX 77843 |
| Virginia | Dr.A. R. Slayton<br>Director, Training and<br>Staff Development and<br>Professor | Cooperative Ext. Service<br>Virginia Polytechnic and<br>State University<br>Blacksburg, VA 24061 |
| Washington | Dr. Thomas F. Trail<br>Staff Development<br>Specialist | Cooperative Ext. Service<br>Ag. Phase II - 323 D<br>College of Agriculture<br>Washington State Univ.<br>Pullman, WA 99613 |
| Wisconsin | Dr. Patrick G. Boyle<br>Director, Program and<br>Staff Development | Cooperative Ext. Service<br>432 North Lake Street<br>601 Ext. Bldg.<br>University of Wisconsin<br>Madison, WC 53706 |
| | Dr. Walter Bjoraker<br>Professor, Dept. of Ag.<br>and Ext. Educ. | 208 Ag. Hall<br>University of Wisconsin<br>Madison, WC 53706 |
| Wyoming | Dr. Edwin H. Amend<br>Program Coordinator and<br>Assistant Director | Ag. Ext. Service<br>University Station<br>Box 3354 - College of Ag.<br>University of Wyoming<br>Laramie, WY 82071 |
| | Dr. James R. Durkee<br>Associate Professor and<br>Head, Dept. of Voc. Educ. | University of Wyoming<br>Laramie, WY 82071 |

*Only the universities marked with an asterisk responded to the mailed letter of request for information.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STATES COVERED BY THE STUDY
CANADA
MEXICO
ME
VT
NH
MA
CT
RI
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DE
NY
PA
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WV
VA
NC
SC
GA
FL
OH
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LA
MN
IA
OK
TX
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UT
AZ
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NV
WA
OR
CA

# VITA

Abdallah Gaaya

Candidate for the Degree of

Doctor of Education

Thesis: INSTRUCTIONAL COMPONENETS OF A PROPOSED PRE-SERVICE EDUCATIONAL PROGRAM FOR AGRICULTURAL EXTENSION AGENTS AT THE NATIONAL INSTITUTE OF AGRONOMY IN TUNISIA

Major Field: Agricultural Education

Biographical:

Personal Data: Born in Akouda, Tunisia, May 17, 1942, the son of Mr. and Mrs. Sadok Gaaya.

Education: Attended grade school in Akouda and high school in Sousse; graduated from Sousse high school in 1963; received the Ingenieur Agricole in June, 1967 from the Institut National Agronomique de Tunis, received the Master of Science degree in Agricultural Education at Oklahoma State University in May, 1975; completed the requirements for the Doctor of Education degree at Oklahoma State University in July, 1975.

Professional Experience: District Extension Director of the Nebhana Project, Ministry of Agriculture, from August, 1967 to November, 1971. Livestock Extension Specialist in the "Accelerated Livestock Project", Ministry of Agriculture from November, 1971 to present. Participated in several pre-service, up-dating conferences and in-service training programs in Sweden (1966), Italy (1970), and Canada (1971).