1973

Graduate Curriculum Development for Preparing Extension Personnel in Thailand.

Pote Boonruang
Louisiana State University and Agricultural & Mechanical College

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IN THAILAND

A Dissertation
Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirement for the degree of
Doctor of Education
in
The Department of Extension Education

by
Pote Boonruang
B.S. (hons.), Kasetsart University, 1960
M.S., University of Hawaii, 1965
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ABSTRACT

The graduate curriculum for Extension personnel in Thailand proposed in this study was developed using the rationale in curriculum development involving the important dimension of learner educational needs. The latter were obtained by sampling opinions of top-level Extension personnel.

The study started with sources of educational objectives, namely: (1) a consideration of the Thai societal concerns that call for curriculum development through literature review, and (2) an investigation of the job functions and behavioral science concepts thought to be necessary for better job performance. This investigation was made using a mail questionnaire to collect data from 202 selected Extension personnel in the two departments of Agricultural Extension Service and Livestock, Ministry of Agriculture and Cooperatives. The collection of data was done during October through November, 1972. One hundred and fifty-two staff members responded. The data were coded and analyzed on computer for various statistical measures to study differences of opinions among administrators, supervisors, and administrator-supervisors.

The results of the investigation revealed expectations of Thai Extension personnel with regard to job functions and the behavioral science concepts needed by them for better job performance to be as follows in terms of importance:

**Expected Future Job Functions**

1. To provide training.
2. To give advice.
3. To evaluate work.
4. To collect facts.
5. To study facts.
6. To develop programs.
7. To set evaluation standards.
8. To furnish information.
9. To analyze problems.
10. To maintain communication.

**Major Behavioral Science Concepts Needed**

1. Leadership Development.
2. Extension Program Development.
4. Extension Teaching and Learning.
5. Socio-Economic Concepts.

Based on the relevance of the expected job functions for the roles that Extension personnel will perform, and the behavioral science concepts needed to perform these roles, the following educational objectives were established:

1. Increasing understanding of the roles of Extension education in facilitating the social, economic, and technological adjustments required by individuals and groups in society.

2. Developing and further strengthening understanding and proficiency in applying principles of Extension education and socio-economic disciplines in planning, execution, and evaluation of educational programs.

3. Developing a spirit of inquiry related to teaching and learning
for effective changes in people.

4. Developing proficiency in designing and conducting research for effecting behavioral changes in people.

5. Developing personal leadership qualities to cope with problems.

6. Developing an appropriate balance between educational change and technical subject matter competencies.

7. Appreciating the need for continued intellectual development throughout life and commitment to the attainment of this end.

To achieve these objectives, a series of courses in each of the two areas—educational change and technical subject matter—to produce competencies in the learners was suggested:

**Courses in Educational Change Area**
- Leadership Development and Organization
- Extension Program Development
- Extension Evaluation and Research
- Extension Teaching and Learning
- Extension Communication
- Principles of Extension Education
- Advanced Extension Education

**Courses in Technical Subject Matter Area** to include knowledge in Socio-Economic Sciences involving: Resource Development, Agricultural Economics, Home Economics, and Sociology.

This curriculum was suggested to be introduced into graduate programs for Extension Education at the Kasetsart University and other educational institutions in Thailand. Suggestions were also made for training needs of a special nature. The implications of these innovations in the educational system were indicated.
CHAPTER I

INTRODUCTION

PROFESSIONAL JUSTIFICATION

Present and future improvement in Extension work for Thailand's agricultural development is largely dependent upon competencies of the Extension personnel to push problem solving to the grass roots level of the changing society. Extension personnel need to be well equipped with concepts, values, and skills to meet this responsibility and to meet the demand of new life conditions generated by social, economic, political, and technological changes.

The underlying purposes of all education is to bring about effective behavioral changes in the learners. With resources for education available at Kasetsart University, it is practicable to develop pre-employment adult education at the graduate level to prepare qualified Extension personnel for increasing and accelerating Thailand's agricultural development.

STATEMENT OF THE PROBLEM

Thailand's agricultural development could be handicapped due to personnel incompetencies. How might we develop a rational graduate curriculum for preparing Extension personnel to initiate and assist with effective changes in society? This is the major question toward which this research was directed.
OBJECTIVES OF THE STUDY

The general objective of this study was to develop a graduate curriculum based on the opinions of the Thai top-level Extension personnel who were degree holders and had had experiences at least one year in Extension responsibilities.

In attaining this general objective, the study had the following specific objectives:

1. To identify major problems of agriculture and Extension work in Thailand.
2. To determine general personnel and occupational characteristics.
3. To determine the extent to which Thai Extension personnel are satisfied with certain job characteristics.
4. To determine the frequency with which Thai Extension personnel perform certain job functions.
5. To determine the extent to which Thai Extension personnel perceive the usefulness of certain behavioral science concepts in producing competencies for better job performance.
6. To suggest the behavioral content of the curriculum and a series of courses.

For analysis of data relative to certain objectives, the following hypotheses are set:

**Hypothesis I**: There are no significant differences in mean scores made by the respondents within the departments.

**Hypothesis II**: There are no significant differences in mean scores made by the respondents between the departments.
DEFINITION OF TERMS

1. **Extension personnel** are officials who attempt to initiate changes and assist those attempting to accomplish changes primarily in increasing competencies regarding agricultural business.

2. **Extension administrators** are Extension personnel who assume responsibilities in formulating policies, controlling the work, and making decisions in doing work of their respective organization.

3. **Extension supervisors** are Extension personnel who assume responsibilities in giving advice and helping Extension workers in doing work of their respective organization.

4. **Extension administrator-supervisors** are Extension personnel who assume responsibilities in both administration and supervision functions of their respective organization.

5. **District Agricultural Extension Office** is an elemental unit of the local public educational system for agricultural development of the Ministry of Agriculture and Cooperatives. It is established in each district and is responsible for all the villages and hamlets of the district in doing Extension work.

6. **Provincial Agricultural Extension Office** is the larger unit of the local public educational system for agricultural development of the Ministry of Agriculture and Cooperatives. This office is established in each province and is responsible for all the districts of the province in doing Extension work.

7. **Regional Extension Office** serves as the coordinating and supervising unit of the local public educational system for agricultural development of the Ministry of Agriculture and Cooperatives. It is established
in different regions and is responsible for many provinces in functioning Extension work and services depending on geographical settings.

8. **Central Extension Office** is the administrative, supervisory, and coordinating unit of the overall public educational system for agriculture of the Ministry of Agriculture and Cooperatives. It is established in Bangkok and is responsible for the country-wide program covering the regional, provincial, and district offices in functioning Extension work and services.

9. **Department** is an organization for functionally specialized networks of administration within the ministry structure or within faculty of the university structure. This administrative organization of the ministry links with corresponding field structures at the regional, provincial, and district levels of government in functioning and rendering services.

10. **Job Function** refers to work responsibility of the various status-positions in performing tasks of an organization. This is directed toward building and helping in the accomplishment of tasks.

11. **Behavioral Science Concepts** refer to the basic intellectual abstraction of the body of knowledge, developed from the behavioral science disciplines, to be transmitted in the teaching-learning process.

   These can be grouped in two categories for this study: a) **Process Concepts** refer to those notions which are useful to the Extension workers in performing the processes necessary for conducting the educational program. For example, the concept, "social action," is used in Extension program development. b) **Content Concepts** refer
to those notions which the Extension worker must understand in order for him to bring about change in the agricultural practices of the farmers. For example, the Extension worker must have a thorough understanding of the concept "fertilization" if he is to have farmers adopt this practice.

12. Behavior represents any action of an individual or group. This action may be verbally and/or non-verbally expressed.
CHAPTER II
THEORETICAL FRAMEWORK

The Design of Curriculum

The sole purpose of an extension education curriculum is to provide optimum learning opportunities to the learners. The learning of the learners requires desired changes in their concepts, values, and skills which enable them to meet certain requirements of the Extension job.

A well-designed extension education curriculum could be developed based on Tyler's rationale (23). This framework is based on four fundamental questions:

1. What educational purposes should the school seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can these educational experiences be effectively organized?
4. How can we determine whether these purposes are being attained?

Tyler's view suggests many kinds of decisions to be made on curriculum development. For example, decisions are to be made on the general objective and specific objectives stating the behavioral changes desired in the learners. Major areas with the content to be covered are to be selected. Choices about the type of educational experiences with which to implement need to be made. Decisions on how to evaluate what the learners are learning, and on the effectiveness of the curriculum in attaining the goals are to be made. All of these are interrelated elements of the curriculum that need to be carefully considered on the basis of validity.
Educational Objectives in Curriculum Development

Tyler defines educational objectives as the kinds of changes in behavior of people that an educational institution tries to bring about through a process of education. In his rationale, a clear conception of goals of the educational program being aimed at is of prime importance in curriculum development. As Mager (17) amplifies, "We cannot concern ourselves with the problem of selecting the most efficient route to our destination until we know what our destination is." In deciding on what to teach, the instructor must first make decisions on the goals intended to reach at the end of the course or program. Then he must select procedures, content, and methods relevant to the objectives. He must provide situations for the student to interact with appropriate subject matter. He finally must evaluate the student's performance according to the objectives or goals stipulated.

Sources of Educational Objectives. To establish educational objectives, Tyler suggests that three sources be studied. These sources are the learners, contemporary life, and subject specialists.

Since education is the process of changing desired behaviors in the student, it is logical to study the learners as a starting point in order to identify their needed changes in behavioral patterns that the educational institution should seek to produce. In identifying the needs of learners certain characteristics need to be studied. Information about the present status of the learners needs to be compared with some desirable or expected status. The gap between these two statuses in the learners signifies their need. Based on this need, the behavioral change desired can be developed.
Studies of contemporary life, or society, in which the learners will live and work enable us to make sound decisions on the educational objectives. The information that reflects the overall contemporary or societal life needs to be collected. The information about the job environment in which the learners are prepared to work is necessary for the delineation of concepts, values, and skills which are required by the learners for the job functions. This type of information can reveal the present and future job characteristics that provide ideas for the design of learning objectives for the learners.

Suggestions from subject specialists and related disciplines help the curriculum maker develop major area and content concepts. These concepts can provide a framework for behavioral patterns that can be learned and produce competencies to cope with new and changing situations for better job performance of the learners.

**Selection of Educational Objectives.** This stage of analysis is based on the value of the objectives in bringing about behavioral changes in regard to the broad human, social, economic, political, technological, and institutional concerns of the people. This level of judgement is done through philosophical screening. It means that the selected objectives must not be in contrast with what the people of the society think, feel, and act. The potential objectives are to be consistent with or in the scope of the government policies and the aim or objectives of the organization in which the learner is prepared to work. Another level of analysis is judged on the basis of the desired changes to be brought about in full or in part through educational endeavor, resources available, and time. This means that the selection of educational
objectives is based on the screen derived from the psychology of learning. A knowledge of the psychology of learning enables us to determine whether or not potential objectives meet certain conditions for learning. For example, learning requires time and effort of an individual learner. We cannot assume that what the teacher teaches is what the student learns. Learning is not compartmentalized. This suggests that the various objectives be examined to see whether or not they are mutually consistent with some degree of integration and coherent unification in the mind and action of the learner.

Statements of Educational Objectives. The statement of educational objectives may be done in many ways. One common type of statement suggested by Tyler is to express the objectives in terms which identify both the behavior to be developed in the student and the content or area of life in which this behavior is to be employed. The three elements to be specified in the statement of educational objectives are: the learner intended; the behavior change desired in the learner; and the content with which the behavior is to be employed. Stating objectives in this form can provide direction for the selection and organization of learning experiences, and guidance in the development of instructional programs. Tyler suggests the construction of a table to indicate the objectives that are being sought and how each objective is clearly defined in terms of both the behavioral aspect and the content aspect. The relationship of these two aspects is in the form of a behavior-content dimension. Each behavior is defined along one axis and the content areas are on the other axis. Each set of specifications indicates the kinds of behavior to be
developed in the particular areas of content or experience to which the behavior is to take place. This becomes a concise set of specifications to guide the further development of the course. The attainment of the objectives can be evaluated at the end of the course.

**The Behavior Dimension.** For the purpose of formulation and classification of educational objectives, Bloom (3) and Krathwohl, Bloom and Masia (15) identify three behavioral aspects being placed in an hierarchical framework. These aspects are the cognitive, affective, and psychomotor domains. The cognitive behaviors, those which deal with the recall or recognition of knowledge and the development of intellectual abilities and skills. These qualities are central for curriculum development. The affective behaviors include the changes in interests, attitudes, values, and the development of appreciations and adequate adjustment. The psychomotor behaviors deal with the act which requires a neuromuscular coordination. It emphasizes the muscular or motor skills.

In Bloom's classification, the cognitive objectives, stated for college courses, are identified into the following hierarchy: knowledge, comprehension, application, analysis, synthesis, and evaluation. Each of the categories is assumed to include more complex, abstract or internalized behavior than the previous category.

**Knowledge** involves primarily the psychological process of remembering. It is the behaviors and test situations which require remembering, either by recognition or recall, of ideas, materials, information, or phenomena. It also includes the more complex process of relating and judging, which needs some analysis or understanding of situations.
The more complex understanding requires organized modes of operations which refer to intellectual abilities and skills. The objectives in these abilities and skills emphasize the mental process of organizing and reorganizing material or information to achieve a particular purpose.

**Comprehensive** represents the lowest level of understanding that the individual knows what is being communicated and can make use of the material or idea being communicated. It implies the ability to translate, interpret and extrapolate, to think with understanding from message received as input and indicates a step beyond the verbalization of knowledge.

**Application** refers to the use of particular abstraction in concrete situations. It is the ability to apply concepts to a new situation where the answer is not known. The abstractions may be in terms of general ideas, rules of procedures, or generalized methods. They may also be principles, ideas, and theories to be remembered and applied.

**Analysis** refers to the breakdown of a communication into its constituent elements such that the relative hierarchy of ideas is made clear and/or the relations between the ideas expressed are made explicit. It is the ability to take a new problem area and subdivide it into its components. There are three types of abilities related to analysis, namely, the analysis of elements, analysis of relationships, and analysis of organizational principles.

**Synthesis** is the process of putting together the elements and parts to form a whole. It is the ability to use complex ideas and put them
into a unified workable whole. The ability in this process may be recognized as the production of a unique communication, the production of a plan or set of operations, and the derivation of a set of abstract relations.

**Evaluation** is the judgements of the value of the idea, plan, material, and method—quantitative and qualitative judgements about the extent to which the idea, plan, material, and method satisfy certain standards or criteria. These standards or criteria may be those determined by the individual or those which are given to the individual. The standards or criteria need to be set as a basis for making judgements.

Similarly, the classification of the affective objectives by Krathwohl, Bloom and Masia formulated for college courses, is in the following hierarchy: receiving; responding; valuing; organization and characterization by a value or value complex. These behaviors range from receiving as the least complex to characterization as the most complex.

**Receiving** or attending refers to the willingness to attend to particular situations or phenomena—learning tasks, textbooks, etc. Learning outcomes in this area range from the simple awareness that a thing exists to selective attention on the part of the learner. It is the lowest level of learning outcomes in the affective objectives.

**Responding** represents an active participation on the part of the learner. The learner not only attends to a particular phenomena but also reacts to it. He is committing himself in some way to the phenomena. Learning outcomes in this area range from acquiescence in responding, to willingness to respond and to satisfaction in responding. In this regard, the higher levels of objectives include the behaviors
that focus on voluntary exploring and enjoyment of particular learning activities.

Valuing is concerned with the value or worth in the mind of the learner in a particular thing or phenomenon. It ranges in degree from the simpler acceptance of a value to the more complex level of commitment. Valuing being based on the internalized or accepted values is seen as an individual having value expressed in certain manner such as appreciation.

Organization deals with the assembling of different values into a value system, determining the relationship among them, and establishing them in terms of dominant and pervasive values. It is built gradually and subject to change as new values are incorporated. This emphasizes on comparing, relating, and synthesizing values. Learning outcomes for this system may extend from the conceptualization of a value to the organization of a value system of an individual.

Characterization By a Value Complex is the level that an individual has a value system. This value system has controlled his behavior for a sufficient time to have him develop a characteristic life style. This behavior is thus pervasive, consistent, and predictable. Educational objectives at this level emphasize on the behavior that is a typical characteristic of the learner such as age, sex, personal adjustment, and background of experiences. These personal characteristics of an individual influence his learning capacity.

The psychomotor domain of behavior has not yet been perfectly classified. The study of the psychomotor abilities and skills essential for the student is still underway. Klausmeier and Ripple (14) conclude
five phases of psychomotor skills as: voluntary to involuntary control of movements; differentiation of cues; feedback and correction; rapid and accurate movements; and coordination of movements and responses. The change of the skills from a lower to a higher level is accompanied by these five phases. The highly skilled performance is accomplished in less time, with less energy, greater accuracy, higher consistency, and more flexibility.

The Content Dimension. Developments in behavioral sciences and the progress in interdisciplinary matching concepts help Extension educators develop effective changes in human behaviors. By using the available concepts from subject specialists, books, and research findings, the content concepts of the curriculum can be developed. These concepts can then be presented to selected learners in an effort to get feedback which can be useful in making decisions on the suggested courses of the curriculum. Certain concepts which are likely to be useful for Thai Extension personnel can be classified into six major areas. They are: Extension Program Development (52); Extension Teaching and Learning (49); Extension Communication (39); Leadership Development (7); Evaluation (27); and Socio-economic Concepts (53).

Each area consists of content concepts that need to be learned to produce competencies for the required job functions (48).

The classification referred to above is based on knowledge of the functions of the Thai Extension Service and findings from studies of Extension work in the United States. The concepts and required job functions in the Extension Service of the two countries are assumed
Learning Experiences

Learning, being a process of change, is the product of an active effort of each individual learner in changing his own behaviors. As Cohen (5) defines it, it is changed capability for, or tendency toward, acting in certain ways with a retainable quality. Change ascribable to temporary states of mind caused by drugs or fatigue, or change that occurs as a result of normal growth or maturation is not learning. Verner (26) defines learning as "the acquisition of information and the mastery of that intellectual behavior through which facts, ideas, or concepts are manipulated, related, and made available for use."

Learning according to Morgan, Holmes and Bundy (19) is emotional and intellectual concerns. Lindgren (16) indicates, a person who is actively engaged in the process of learning is the person who is moving toward attaining intellectual, social, and emotional maturity. The person who is achieving the ever-increasing measure of emotional and intellectual maturity is thereby responding to a strong need for self-actualization and growth toward more effective patterns of behavior. He organizes and reorganizes his experiences to bring about the growth. Learning, according to Gagne' and Fleishman (9), occurs whenever certain environmental feedback effects are present at the time responses take place. Mosher (50) has pointed out, learning needs to be a life-long activity.

Learning may occur in two general types of settings (25). These include: the natural societal setting; and the formal instructional setting. In the natural societal setting learning may result from the
day-to-day experience of participating in societal activities. This type of learning is an unforeseen and accidental by-product of living. In the formal instructional setting learning occurs under a certain arrangement of situations comprising a series of tasks designated for an ordered developmental sequence of the intellectual behaviors of the learners. This arrangement of situations that permit, stimulate, and facilitate learning accounts for the process of education. The interaction of the learner with the environments with which he can react signifies the learning experience. Arrangement of situations to provide learning opportunities for the learners is thus one of the fundamental stages in curriculum development.

Selection of Learning Experiences. For optimum learning opportunities, Tyler's five basic principles in selecting appropriate learning experiences are to be applied. These principles are characterized as:

1. A learner must be provided experiences that give him an opportunity to practice the behavior stipulated in the objective.
2. Learning experiences should be appropriate to the level of education, interests, and facilities or within the range of possibility for the learners involved.
3. Learning experiences should be such that the learner obtains satisfactions from carrying on the kind of behavior desired.
4. There are many particular experiences that can be used to attain the same educational objectives. This means that the Extension educator has a wide range of possibilities in selecting learning experiences to yield the same outcome.
5. The same learning experience will usually bring about several
outcomes. The manner in which the experiences is purposefully structured can have a significant impact on several behaviors of the learners.

**Organization of Learning Experiences.** Changes in the behavioral patterns, ways of thinking, habits, concepts, attitudes, interests and the like, require time and efforts. In order for educational experiences to produce a cumulative product, learning experiences must be so organized as to reinforce each other. Tyler identifies three major criteria that can be utilized for effective learning experiences. These are: continuity, sequence, and integration.

**Continuity** refers to the vertical reiteration of major curriculum elements. It emphasizes that learners have recurring and continuing opportunity to practice the behavior stipulated in the objectives.

**Sequence** emphasizes the importance of having each successive experience built upon the preceding one but to go more broadly and deeply into the matters involved. Sequence does not emphasize duplication, but rather emphasizes higher levels of treatment with each successive learning experience.

**Integration** refers to the horizontal relationship of learning experiences in the curriculum. The organization of the learning experiences should be such that they help the learner increasingly to get a unified view and to unify his behaviors in relation to the elements dealt with. The desired behaviors are to be developed increasingly as parts to form the whole capacities of the learner to be used in the various situations of his life.
Evaluation

Miller (18) defines evaluation as "a process of assessing the extent to which some activity has succeeded in what we intended it to do." Frutchey (32) indicates that all of us engage in the process of evaluation which involves the following elements, namely, making some observations or collecting some information; applying some standards or criteria to the observations; and forming some judgements, drawing some conclusions, or making decisions. It ranges in degrees of intensity, from casual everyday evaluations to scientific research. Gorman (10) identifies five purposes of evaluation of learning. These include:

1. To get evidence that objectives are being achieved.
2. To help students improve self-assessment skills.
3. To obtain data for analysis.
4. To feed analyzed data back into the social system of the classroom.
5. To improve the quality of classroom interaction and, therefore, of learning.

Evaluation becomes a vital element in curriculum development. Tyler indicates that evaluation is a process of finding out to what extent the learning experiences as developed and organized are actually producing desired results. This process involves identifying the strengths and weaknesses of the plans. It helps to check the validity of the basic hypothesis on which the instructions, that is, the teachers and learning conditions that are being used to carry forward the instructional program.

Roles of evaluation, as classified by Bloom, Hastings and Madaus
(2) are of the formative and summative ones. The purpose of the formative evaluation is to determine the degree of mastery of a given learning task and to pinpoint the part of the task not mastered. Summative evaluation is directed toward a general assessment of the degree to which the larger outcomes have been attained over the entire course or some part of it. Educational projects, as pointed out by Sriven (24), must attempt to make best use of evaluation in both these roles.

Plans for evaluation and actual evaluation ought to begin with the formative stages of developing the curriculum and continue throughout the developmental and implementation phases of the curriculum. For this decisions about objectives are to be identified and formulated through evaluative judgements. Selection and organization of learning experiences are based on certain criteria, or standards derived from sound judgements on learning. Tyler refers to these stages as intermediate or preliminary stages of evaluation. Furthermore, the learning experiences must be checked to see that they are related to the objectives. This, however, is not an adequate appraisal of the learning experiences planned for the curriculum. The principles used to check the learning experiences are general principles applying to generalized characteristics of the learning experiences. They are not highly precise statements of the exact conditions to be met in providing for the learning desired. In addition, any set of learning experiences involves a number of criteria, each of which can only be approximated so that we can only predict in general or with a certain degree of accuracy the likelihood that these experiences will actually produce the desired outcomes.
Moreover, the actual teaching procedures involve a considerable number of variables including variations in learners, the environmental conditions in which the learning occurs, the skill of the teacher in setting the conditions as they are planned, the personality of the teacher and the like. These variables make it impossible to guarantee that the actual learning experiences provided are precisely those that are outlined. It is important to make a careful check as to whether the plans for learning experiences actually function to guide the teacher in producing the desired outcomes. This highlights the importance of developing and implementing evaluative plans and procedures throughout the curriculum development process.

The process of evaluation is essentially the process of determining to what extent the educational objectives are being attained. There are two aspects of evaluation with respect to educational objectives. First, evaluation must appraise the behavior of the learners since it is change in their behaviors which is sought in education. Second, evaluation must involve more than a single appraisal at any one time since to determine whether change has occurred, it is necessary to make an appraisal in the initial stage and other appraisals at later stages to identify changes that may be occurring. One is not able to evaluate a program by testing learners at the end of the program. Without knowing where the learners were at the beginning, it is impossible to determine how far changes have occurred. To have some estimate of the performance of the learning, it is necessary to have another point of evaluation made sometime after the instruction has been completed. There is need for follow-up studies of the graduates in order to obtain further
Evidence as to the permanence or impermanence of the learnings which may have been acquired during the time these people were in school.

Evaluation involves getting evidence about behavior changes in the learners. Any valid evidence about behavioral change in learners provides an appropriate basis for evaluation. There are a variety of techniques that can be used to get the evidence, namely, observation, collection of the actual products made by the learners, questionnaires, personal interview, and tests.

**Evaluation Procedures.** The evaluation process begins with the educational objectives. Since the purpose is to see how far these educational objectives are actually being realized, it is necessary to have evaluation procedures that will give evidence about each of the objectives. It becomes imperative that the educational objectives be clearly defined in terms of: the learner, the behavioral changes desired, and the content in which the behavioral change is to be developed. The way to determine whether learners have made certain changes in their behaviors is to observe the behaviors. The educator must find some situations that permit the expression of the behavior, and encourage or evoke the behaviors.

To formulate criteria or standards by which to assess learning experiences and other teaching-learning variables is necessary. This is to provide some indication of the effectiveness of the variables in facilitating the desired changes in the behavioral patterns of the learners.

It is only after the objectives have been formulated and the situations which give opportunity for the expression for the desired
behavior have been provided that it is possible to determine appropriate evaluation instruments. After these have been taken, one can then examine particular tests and see how far they sample the types of objectives that are to be appraised.

**Using the Results of Evaluation.** Curriculum development needs to be a continuous process. As materials and procedures are developed, they are tried out, their results appraised, their inadequacies identified, and suggested improvements indicated. There is replanning, redevelopment, and reappraisal. It is possible for the curriculum then to be continuously developed over the years.

Evaluation procedures are used in identifying the strengths and weaknesses of the curriculum development process. Evaluation also has a powerful influence upon learning. Learners are influenced in their study by the kind of evaluation to be made and even teachers are influenced in their emphasis by the sort of evaluation which they expect to be made. This means that unless the evaluation procedure parallels the educational objectives of the curriculum the evaluation procedure may become the focus of the learner's attention and even of the teacher's attention, rather than the curriculum objectives. Evaluation and curriculum must be a part and parcel of the same package.

Evaluation procedures also have great importance in the individual guidance of the learners. It is not only valuable to know the learners' background but also their achievement of various kinds of objectives in order to better understand their needs and their capacities.

Evaluation can also be used continuously during the year as a basis for identifying particular points needing further attention with particular
groups of learners and as a basis for giving individual help or planning individual programs.

Finally, evaluation becomes one of the important ways of providing information about the success of the curriculum to the public. The public has the right to know what kind of changes are being brought about in the curriculum.

CURRICULUM AND LEARNING THEORY APPLIED TO THE STUDY

A modification of the basic framework for curriculum development presented above can be made to suit the particular needs of Thai society. Starting with the three fundamental sources of educational objectives, logical steps of research can be developed as follows:

1. A consideration of the Thai societal need in terms of social, economic, political, and technological concerns, and relevant institutional situations both in the present and future aspects necessary for curriculum development can be made.

2. A study of the job and the environment in which the learner will work and live can be done. The job characteristics can be studied both in terms of present and future job functions. Identification of the job requirements can be made through the analysis of the existing and expected job characteristics of the Thai Extension system.

3. A study of the disciplines can reveal content concepts that are likely to be useful in producing competencies for the job functions. This is a process of seeking content concepts from the behavioral sciences, which if understood by the learners, would produce the required competencies for
performing the Extension job functions.

4. A study of the characteristics of the Thai Extension personnel and their judgements about job requirements and the behavioral science concepts useful in producing the competencies needed for better job performance can be made.

Based on the opinions of the Thai Extension personnel related to the job and content dimensions, the educational objectives or the blueprints of the curriculum can be developed. These blueprints describe the desired state in the learners for the effective performance of the Extension job. Based on this blueprint other stages in the educational process such as selecting and organizing learning experiences and evaluation can be effectively performed.
CHAPTER III

RESEARCH PROCEDURES

General Approach

The focus of the investigation was upon two major stages. They were: an analysis of Thai society including the institutional situation in which the Extension personnel will work and live; and a study of the job characteristics.

The analysis of Thai society involved social, economic, political, and technological concerns, the organizational structure, philosophy and policy of the institution, policy toward professional development and other relevant factors that call for curriculum development in Extension education. These were studied in terms of the past, present, and future aspects. The information used for the study was books, documents, and records mainly from Thailand.

The study of job characteristics was undertaken through direct investigation of the Thai Extension personnel in the two departments of Agricultural Extension Service and Livestock of the Ministry of Agriculture and Cooperatives. The selected Extension personnel of these two departments were degree holders and their tenure of Extension Service was at least one year. The information was secured from responses of the personnel to a mail questionnaire.

The primary purpose of the investigation of the job characteristics was to secure information on cognitive dimensions of the Thai Extension personnel related to: 1) their judgements on job satisfaction;
2) their judgements on actual and expected Extension job functions; and 3) their judgements on certain behavioral science concepts to be useful in producing the competencies needed for better job performance.

Research Design

The questionnaire for the investigation was developed into three sections. The first section dealt with personal occupational data, and job satisfaction. The second section included the present and desired job functions. The final section was concerned with certain behavioral science concepts thought to be useful for Extension job performance. All of these sections were developed from a review of literature and personal experience of the researcher. All sections of the questionnaire were the same for all the respondents of the two groups.

a. Personal Occupational Data. This was to study the characteristics of the respondents in terms of age, position, background of training, Extension tenure, and major function.

b. Job Satisfaction. This section of the questionnaire contained items organized into a scale to measure the degree of satisfaction. Response categories in each item were:
1) completely satisfied, 2) very satisfied, 3) some satisfaction, 4) undecided, and 5) almost no satisfaction. The categories were scored 5-4-3-2-1 in the order presented. Questions comprising the scale were: 1) how satisfied respondents are in terms of opportunities to work according to their ability, 2) how satisfied respondents are regarding opportunities to work as
expected before entering the job, 3) how satisfied respondents are due to time to be devoted to the job, 4) how satisfied respondents are with regard to relationships with boss, 5) how satisfied respondents are in relationships with colleagues, and 6) how satisfied respondents are in relationships with various agencies concerned.

c. **Actual Job Function.** This section contained certain job requirements in Extension Services developed through studies on Thai Extension duties and research findings. Response categories for the actual job requirements were: 1) always, 2) occasionally, 3) undecided, 4) almost never, and 5) never. These categories were scored 5-4-3-2-1 in the order presented.

d. **Expected Job Function.** Following the actual job requirements, the respondents were asked to indicate each job requirement they should perform. From this, the expected job requirements were measured. Response categories for the expected job requirements were: 1) should do more, 2) should do same, and 3) should do less. These were scored 3-2-1 in the order presented.

e. **Certain Behavioral Science Concepts.** This section of the questionnaire contained certain behavioral science concepts developed from studies of textbooks, scientific publications, and personal direct experience of the researcher. Response categories for these concepts were: 1) completely important, 2) very important, 3) some importance, 4) almost no importance, and 5) not important. The categories were scored
Weighting. The procedure for weighting involved placing the items within each scale into groups of varying degrees of strength. The largest weight assigned was the highest score—5, and the smallest or none was the lowest score—1 indicated in the categories to be studied.

Scaling. A modified Likert-type scale technique (22) was applied. The respondents were asked to respond to each item in terms of several degrees of judgements or opinions.

The Pretest of the Questionnaire. After the questionnaire was developed, it was pretested with six individuals who represented the Thai Extension personnel of the Department of Agricultural Extension Service. This was to determine the amount of time necessary for completion as well as corrections of statements and questions which were ambiguous or misleading. The pretest accounted for changes in the content of certain items and questions and helped to develop a more highly standardized questionnaire form that was easy to complete.

Research Execution

This section dealt with the determination of samples and how the data were collected.

Determination of the Samples. The Thai top Extension personnel who have had experiences in Extension duties and who are degree holders were selected. These personnel assume responsibility for the effectiveness of the Extension system in Thailand. They have worked in lines of both crop and livestock production, the leading business of agriculture in the country. The mail questionnaires were distributed to
the entire population of the selected Extension personnel comprising
112 in the Department of Agricultural Extension Service and 90 in
the Department of Livestock.

Collection of Data. The data were collected beginning October 1,
1972 and ending November 20, 1972. The data from the Department of
Agricultural Extension Service were collected by the Dean of the
Faculty of Agriculture, Kasetsart University in cooperation with the
Department of Agricultural Extension Service and the Bank of Agri-
culture and Agricultural Cooperatives. The data from the Department
of Livestock were collected by the Head of Extension Service Division
of the Department of Livestock.

Research Analysis. This section involved data processing, organ-
ization and analysis. All of this work was guided and directed by
Dr. David Smith, Assistant Professor in the Department of Experimental
Statistics, Louisiana State University.

1. Processing the Data. A master code was developed and each
question was coded. Coding was not begun until all questionnaires
were returned. All major phases of the questionnaire were assigned
numbers beginning in a series with 1.1 and continuing through 3.66.
This provided a check for each item.

Each questionnaire was coded as to the following: 1) card number,
2) sex, 3) age, 4) position, 5) department, 6) region, 7) degree of
major field, 8) tenure of service, 9) major function, 10) job satis-
faction, 11) job functions, and 12) behavioral science concepts.

Coding was accomplished by this researcher and one other person.
The time required to code each questionnaire was a minimum of twenty
minutes.

**Computer Work.** Personnel of the Louisiana State University Computer Center key-punched cards and assisted with computer programming. This work included key-punching, sorting, and reproducing.

2. **Organization of the Data.** Organization of data involved: 1) computation of frequency distribution for raw data, 2) scale analysis, and 3) item analysis.

A number of statistical measures were used to analyze differences within and between sample groups.

**Formulae Used in Statistical Computation.** Basic formulae in statistics (4) used in this research include:

1. **Measure of the Central Value**

   \[ \bar{y} = \frac{1}{n} \sum_{i=1}^{n} y_i \]

   Where, \( y_i \) represents the variable being measured.

   \( \bar{y} \) is an unbiased estimate of the population mean, \( \bar{Y} \).

   \( \sum_{i=1}^{n} y_i \) is the sum total of the sample

   \( n \) is the number of the sample.

2. **Measure of Variability**

   a. Variance, \( s^2 = \frac{\sum_{i=1}^{n} (y_i - \bar{y})^2}{n-1} \)

   Where \( s^2 \) is the variance of the sample.

   b. Variance of the sample mean

   \[ s^2_y = \frac{(N-n)}{N} \cdot \frac{s^2}{n} \]
Where, $s^2_y$ is the variance of the sample mean being an unbiased estimate of the variance of the population, $\sigma^2$.

$N$ is the number of the population from which the random samples were drawn. The total number of the population in this research is 202, while the total number of the sample is 152.

c. Analysis of variance was employed to measure the variations, both within the departments and between the two departments, of the variables under study.

3. Statistical Table Used.

The distribution of the $F$ value at .05, and .01 was applied to test the significant difference.

3. Analysis of Data. A number of variables explored in the investigation included the following major categories: 1) personal and occupational characteristics, 2) job satisfaction, 3) job function emphasis including the actual job and expected job functions, and 4) behavioral science concepts needed for the expected job function.

General abbreviations used in order to interpret the data are listed below:

1. Sample Groups.
   a) EXTS represents Agricultural Extension Service Department.
   b) LIVS represents Livestock Department.

2. Statistical Terms
   a) OM stands for the overall mean.
   b) VM stands for variance of the overall mean.
c) \( F \) stands for the F value.

d) \( P \) stands for the probability.

e) n.s. stands for non statistical significant difference.
Natural Conditions and Agriculture

Thailand, situated between 5 to 21 degrees north latitude and 97 to 206 east longitude, is entirely within the Tropics and in the area of monsoon Asia. The climate is mostly wet and dry seasons. The total average annual rainfall which ranges from 1,000 to 2,000 millimeters is subject to wide variations from year to year and from place to place throughout the country (43). This type of climate is well adapted to agriculture.

The country has a combined land area of about 128 million acres or 514,000 square kilometers (38). Geographically, it can be divided into four regions, the Northern (33 per cent of total land area), the Northeastern (36 per cent), the Central Plain (17 per cent), and the Southern (14 per cent).

Much of the Northern region is mountain highlands and creates a watershed which drains into the flat Central Plain. Agriculture in this region is limited to the fertile valleys of the Chao Phraya River tributaries. The cultivated area is small and the average size of holdings is about 3 acres (31). One of the most economic significant resources of the country comes from this region, namely forest products, especially teak.

The Northeastern region has a flat rolling terrain, the Khorat
Plateau. Much of the land is unsuitable for cultivation due to the scarcity of water and low soil fertility. Large areas are flooded during the rainy season (from May to October), and dry during the dry season (November to April). This region is served by the Mekong River and its tributaries where the multi-purpose irrigation, hydro-electric power, and flood control works are being developed. A large number of unoccupied areas in the region is in the process of being developed for agriculture and settlement.

The Central Plain consists of river valleys. There are four main rivers, namely, the Ping, the Wang, the Yom, and the Nan which enter this part from the northern mountains. They join to form the main Chao Phraya River system carrying a great volume of water plus heavy silt load. These have built up large alluvial fans and deltas and are steadily filling this region with fertile land. This fertile land is suitable for agriculture, especially rice, so that the Central Plain is regarded as the "rice bowl" of Thailand.

The Southern region has several sizeable coastal plains and a mountain chain running along its northeastern coast. The region has much sandy loam soil suitable for rubber production. This area is also noted for its rich deposit of minerals.

Because of these favorable natural conditions, Thailand has a predominantly agricultural economy. Farm products account for about 90 per cent of the total value of all the country's exports, and for one-third of the national income (47). The primary export products are agricultural crops, livestock, fisheries, and forestry. Economic crops are rice, rubber, corn, kenaf, jute, cassava, beans, peanuts,
cotton, tobacco, sugarcane, coconuts, kapok, sorghum, fruits, vegetables and oilseeds (41).

The working population of Thailand appears to have been almost wholly engaged in agriculture (11). The rate of population growth is at the relatively high figure of about 3 per cent per annum. The population of the country, increased from 8 million in 1910 to 26 million in 1960 and to 36 million in 1970, is expected to be 52 million in 1985. Agriculture provided employment to about 78 per cent of the total population in 1970. The number of persons engaged in farming of the country is expected to increase about 6 million between 1970 to 1985. During the 1970-1975 period the farm labor force is projected to increase about 1.6 million persons. Full-time farm families estimated at 4.3 million in 1970, were estimated to be 6.7 million in 1985. The number of farm families is expected to increase at a still more rapid rate (8).

Under the present subsistence farming, there are indications that a seasonal underemployment is widespread in Thai agriculture. The average Thai farm family is composed of 6 persons. Of these family members it is estimated that 3 persons are available for work on the farm (46). The laborers work only 100 days per year on Thai farms (36).

Of the total land area of the country farm land accounts for approximately 22 per cent, 51 per cent is forest and grazing land, and the rest, 27 per cent is urban areas, lakes, swamps, rivers, highways, railroads, and other use (28). The growth in Thailand's agriculture is recognized by bringing new land into use. Shifting cultivations are practiced widely throughout all parts of the country
It is becoming more and more difficult to bring new land into cultivation because the fast increasing agricultural labor force despite the limited land resources of the country. The future growth of agricultural production and employment will depend on intensive use of land available.

The average farm size of the country becomes smaller. Arable land per farm family, is estimated at 15.8 rai (one rai is equivalent to 0.16 hectare, or 0.395 acre) in 1970, is estimated to be 14.7 rai in 1975. By 1985, only 11.6 rai is estimated to be available per farm family in the country (8).

The country's agriculture is primarily composed of small-scale and technologically backward peasant operations with a single crop system for rice predominately. Sixty-seven per cent of the cultivated area is devoted to rice growing, 18 per cent to field crops, 8 per cent to fruit trees and vegetables, and 7 per cent to rubber (40).

Small size of farm associated with the shortage of investment capital, has bound the Thai farmer to a traditional method. Capital inputs in forms of improved seeds, fertilizers, and machinery are still limited. Multiple cropping is not frequently practiced. As Ellsworth (6) has pointed out, methods of rice cultivation are simple, reflecting centuries of experience in the growing of this staple diet of the people, small farms preclude the use of mechanical equipment and yield an income insufficient to provide for its purchase. The cultivation is generally done with water buffaloes, wooden plows, large hoes, and much hard labor. The harvesting, winnowing, and sacking are carried out by equally simple methods. For the most part, other crops are cultivated
by using similarly crude techniques. Fuhs and Vingerhoets (8) indicate in regard to the shortage of capital that capital is a scarce and valuable asset in Thailand. Large amounts of capital are needed to develop the industry and infrastructure of the country.

Thailand has long been one of the world's largest rice exporters, but rice production per unit area is relatively low when compared to some other Asian countries. This is clearly seen from statistics of the United Nation's Food and Agriculture Organization (30), as shown in Table I.

**TABLE I**

**RICE (PADDY) YIELDS IN SELECTED NATIONS OF ASIA 1961-1965 TO 1971**

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>50.2</td>
<td>57.5</td>
<td>57.2</td>
<td>55.5</td>
<td>56.4</td>
<td>52.5</td>
</tr>
<tr>
<td>Korea</td>
<td>41.1</td>
<td>40.6</td>
<td>38.6</td>
<td>46.6</td>
<td>45.5</td>
<td>45.8</td>
</tr>
<tr>
<td>Taiwan</td>
<td>36.7</td>
<td>40.2</td>
<td>41.8</td>
<td>38.7</td>
<td>41.6</td>
<td>34.2</td>
</tr>
<tr>
<td>Malaysia</td>
<td>21.5</td>
<td>19.2</td>
<td>21.9</td>
<td>19.6</td>
<td>21.8</td>
<td>21.8</td>
</tr>
<tr>
<td>Indonesia</td>
<td>17.6</td>
<td>17.6</td>
<td>18.5</td>
<td>19.4</td>
<td>21.4</td>
<td>22.0</td>
</tr>
<tr>
<td>Thailand</td>
<td>17.6</td>
<td>18.4</td>
<td>19.1</td>
<td>19.3</td>
<td>19.7</td>
<td>19.7</td>
</tr>
<tr>
<td>Burma</td>
<td>16.4</td>
<td>16.5</td>
<td>16.8</td>
<td>17.1</td>
<td>17.0</td>
<td>16.9</td>
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<tr>
<td>Philippines</td>
<td>12.6</td>
<td>14.4</td>
<td>13.3</td>
<td>16.8</td>
<td>17.2</td>
<td>17.2</td>
</tr>
</tbody>
</table>

This low productivity is the major cause of low farm income. The 1972 Statistics of the Ministry of Agriculture and Cooperatives
indicates that the average farm net cash income of the Thai farm family in 1953 and 1970 accounted for 1,485 and 1,438 baht respectively (20.8 baht is equivalent to one U.S. dollar) (40).

The Thai farm home reflects low income and lack of opportunity for improvements in standards of living. Living conditions on the farm are poor, and the conditions of health, community sanitation, and educational opportunity need to be changed.

Low yields can be attributed to the use of traditional methods of farming. The prevailing one-crop system of farming and under-employment of labor resources available do not provide sufficient income for improving family living unless every farm family owns more cultivated land, uses improved farm techniques, or has access to more credit.

Low production in Thai agriculture being the result of the organization of production into a small scale, technologically backward units is, in addition, the result of: the drag of culture and tradition; the condition of land tenure; the lack of farm credit; and the effect of off-farm employment.

The Drag of Culture and Tradition. The cultivation of rice is the only ancient agricultural occupation of the Thai people. They have preferred it to all others. The reasons for this are many. In the first place, the climate and topography of the country favor rice growing, and rice has been the main staple food of the Thai people. Secondly, the Thai people have preferred communal village life. It is not easy to break the ties of culture and tradition which have induced them to become rice farmers. By the time the people are old enough to strike out on their own, they are already experienced in the traditional art of rice cultivation. This characteristic has probably been one of
the most important determinants for the pattern of social and economic
development in Thailand. Rice growing in most of the rural communities
not only forms the main occupation of the majority of the people, but
also has a large influence on their life. It may be said that rice
is Thailand's only product, because, although many crops are produced,
rice production preponderates. In addition, economic, social, and
political conditions of Thailand are influenced by rice.

The cultivation of rice on the same field without the application
of improved technical knowledge results in a decrease in yields per
unit area. The decrease in rice yield, correlated with the increase
in cultivated areas, indicates that poorer land was brought into use.
If the condition of lower productivity of land persists, the de­
creased production of rice will be a serious problem. This becomes
even more serious because of the increasing rate of population growth
of the country. The rising trend in the population growth threatens
to generalize the conditions of Thailand's agricultural problem.
This threat alone needs an intelligent and well-designed program of
social and economic development.

The Condition of Land Tenure. The 1950 Agricultural Census shows
that 83 per cent of all the farmers of the country are owner operators.
It is significant that in the Central Plain, where the farmers are
most concentrated and where the farm-household income is favorable,
34 per cent of the farms are operated by tenants. The 1968 National
Statistical Office survey indicates that 41 per cent of the farmers
in the Central Plain rented part or all of the land they farm.
Eighteen per cent of the farmers in the Northern region are tenants.
The percentage of tenants in the other regions is relatively low (29).

Generally the Thai tenant has to pay in kind or paddy. Rents paid in paddy usually amount to more than half of the crop. The 1965 survey conducted by the Land Development Department of the Ministry of National Development shows that the rent paid in paddy for the tenant in the Central Plain is averaged at 90 baht per rai, while in cash at 75 per cent per rai. The paddy rent in proportion to the yield is highest in the Central Plain, Northeast, and North and considerably low in the South. The landlord normally pays the land tax, while the tenant supplies the work animals, laborers, and implements. There is a growing number of absentee landlords who claim rentals in cash and not in produce proportionate to the yield. This makes the tenants become heavily indebted and, consequently, there is a considerable amount of social tension in many areas. Most of the tenure contracts are for one year only, and the tenant, therefore, does not make improvements on the farm, since he is almost certain not to get either benefits or compensation from such at the end of the contract period. By constantly changing farms he is apt to lose contact with his own village and has little opportunity to settle down in another community (13). This condition contributes to low production on the tenant farms.

The Lack of Farm Credit. Muscat (20) states that it has been estimated that institutional sources of farm credit supply about 10 per cent of the credit obtained by the farmers, the rest, 90 per cent deriving from the unorganized market which comprises relatives, private money lenders, merchants, landlords and others. Of the
institutional 10 per cent, 2 per cent derives from commercial banks and 8 per cent from government agencies and cooperatives. The 1958 survey conducted by Kasetsart University in cooperation with the Ministry of Agriculture (37) shows that about 50 per cent of the farmers in the Central Plain are in debt. Sources of the credit are primarily from private money lenders including relatives, landlords, merchants, dealers, and millers. The average interest rate paid in cash is 25 per cent per annum, while paid in paddy 55 kilogram per 100 baht or about 50 per cent when converted to cash. The main purpose of borrowing is to support family living and to pay for current farm expenses. Almost none of the borrowed money is used for farm capital investment. As Fuhs and Vingerhoets (8) indicate, loans to increase future production and income are the exception rather than the rule. They are limited to the commercialized farms.

The Effect of Off-Farm Employment. One weak point in Thailand's economic structure is that the farmers have not engaged in the active trading and marketing of their produce. These sectors of the national economy have been dominated by Chinese. Chinese merchants control the greater part of the nation's economic life. They are the middlemen for literally all economic transactions on the part of the Thai farmers and function as money-lender, brokers, and export-import merchants. Their powerful position is the result of institutional shortcomings, such as insufficient institutional credit, poor educational facilities, and inadequate tenure conditions, in the main centers of rice production. The farmer has been at the mercy of the middlemen. The most serious aspect of this middleman's activity is the combination
of credit and advance purchase of the crop. This gives the middleman the power to dictate the final selling price irrespective of the actual market quotations. The marketing problem is thus intimately related to the structural conditions of agriculture. As long as the agricultural industry of the country does not encourage the farmer to organize efficient marketing organizations and credit facilities, the middleman will remain an economic necessity.

**Important Developmental Changes**

The coup d'etat of 1932 changed the government in several respects. The country was transformed from an absolute to a constitutional monarchy. The king is Head of the State, but all powers are exercised in his name by the Prime Minister. The Thai government consists of a Cabinet for policy making and a Supervisory Agency. The Ministers are chosen by the Prime Minister who is himself chosen by the President of the Assembly. However, the traditional officialdom and bureaucracy were retained and were forced by the new government to become more increasingly concerned with ways and means to extend representative democracy to local government. This development has continued to the present day.

Since 1947 the country has been divided into seventy-one provinces or "changwads," 16 in the North, 16 in the Northeast, 25 in the Central Plain, and 14 in the South. The provinces are subdivided into districts or "umphurs." There are about 500 districts, with two to 18 districts per province. The districts are divided into villages or "tambols," and hamlets or "mubans" respectively. Each district is administered by a district officer who is also appointed and paid by
the central government and is under the authority of the provincial
governor. The village usually includes a group of up to twenty hamlets.
The village is administered by an elected headman who is responsible
to the governor and who exercises both civil and criminal control under
the supervision of the district officer. The hamlet is the smallest
unit in the local government structure. There are about 50,000 hamlets
in the country. Each hamlet must have at least five households.
Ideally, it consists of about 200 inhabitants. Hamlet administration
is by a popularly elected headman who performs general duties in main­
taining law and order, record keeping and leadership in public emergen­
cies. He is responsible to the village headman. Just as with the
hamlet headman, the village headman, once elected, holds the office
for intermediate term so long as he maintains good behavior. He is
charged with heavier duties than the hamlet headman, he therefore is
entitled to two assistants who act as inspectors. Most of his activities
are subject to the direction, supervision and control by the central
government, although the government pays him honorariums (1).

Being a centralized structure, the Thai government is organized
into ministries and agencies. There are presently twelve ministries.
Each ministry having one minister as the head assisted by one or two
deputy-ministers, is composed of: the Office of the Secretary to the
Minister; the Office of the Under-Secretary which has powers of
administration and supervision; and a number of specialized departments.
Each of the departments has a Director-General nominated by the Prime
Minister for royal appointment as the head. The Director-General is
in a position to know his subordinates well and to call upon their
loyalty. He makes up a kind of "elite" within the Thai bureaucracy. The Minister is a cabinet member of the government. The government controls all important agencies of power and policy. The local administrative units at the provinces, districts, villages, and hamlets function mainly as "the eyes and ears" of the central government. They are field offices of the central or national government and implement its decisions.

**National Development Plan**

Thailand initiated its National Socio-Economic Development Plan in 1961. The first plan was ended in 1967. Then started the second, 1967 to 1971 Plan. At present the country is in the process of implementing the third, 1971 to 1975 Plan. The goal for this has been to increase per capita real income and encourage economic growth in the private sector. Measures to promote increased agricultural production of high quality are assigned top priority. They include the building of the agricultural infrastructure, the improvement and expansion of agricultural research and Extension Services and promotion of agricultural activities. In like manner measures to promote industrial expansion include the provision of industrial infrastructure, an ample supply of loans on favorable terms, the establishment of industrial estates, and others. It also provides for the expansion of social services. Special efforts have been made to improve health and sanitation including the expansion of hospitals and health services. It emphasizes the expansion and development in education, especially, the improvement of vocational education and technical training. Public administration is also being developed. These plans cover many areas
to meet the particular needs of the people in various regions of the country.

Included in the plan, the Ministry of Agriculture and Cooperatives has the following policies (40) for accelerating development in order to improve and expand diversity of agricultural production and to improve the social condition in rural areas:

1. To accelerate production and marketing of certain agricultural products focusing on the diversified agriculture including the improvement of quantity and quality of the products.

2. To determine the appropriate Extension area for various agricultural products both within and without irrigation projects. Services including credit for both short-term and long-term investment capital necessary for production in the area will be increasingly provided.

3. To promote the farmers to organize efficient cooperative, credit, and marketing organizations, so that these can represent the farmers and express their interest in helping among themselves especially in price setting and to increase income more effectively.

4. To plan for regional agricultural development to suit the needs and resources of each region. For example, the focus of development is on cotton, soybeans, and tobacco in the Northern region; livestock and kenaf in the Northeastern region; rice, corn, and crop rotations after rice production in the Central Plain; rubber, coffee, coconuts, and livestock
in the Southern region. Together with these developments, Extension Service center will be established in each region to conduct Extension research and perform appropriate services.

5. To conserve national agricultural resources for effective future use. These include such resources as forests, land, watershed, and water resources.

6. To improve and strengthen agricultural research and Extension as to modernize farming techniques in terms of farm mechanization and farm management to help the small farm operators.

7. To improve the marketing system of agricultural products and efficiency in agricultural production (using land, labor, capital, and managerial abilities in the best possible combinations) to get a marketable and profitable product with the least expenditure. It is to strengthen the bargaining position of the farmers so that they will receive an equitable share of the final retail price of the commodities they produce.

8. To find and allocate resources both financial and human resources for agricultural development. This includes planning for technical and financial assistance.

9. To initiate and coordinate with various ministries and agencies, that is, Irrigation and Cooperatives, Communications and Transportation, and Commerce and Industry in joint planning for a better work coordination as to increase agricultural productivity to get marketable products, and to increase employment in the rural areas.
10. To recommend to the government a reorganization of the structural scheme of agricultural administration and development in order to create more efficiency.

With the above policies there are two goals set for agricultural development in the third National Development Plan. These goals are: the overall objective in agriculture, and the production objective for agricultural products. The overall objective in agriculture is to increase the gross-sale of agricultural products at the rate of 5 per cent per annum. This rate could be up to 5.6 per cent by increasing investment capital and accelerating production. For this, irrigation systems for efficient production both in and off season are needed. The production objective for agricultural products is stipulated into two lines, namely, accelerating production and normal production. The accelerating production is designed for corn, soybeans, silk, coconuts, shrimps, cows and buffaloes. Certain amounts for each of the products to be produced in 1971 and 1976 have been set as to meet with the demand of foreign markets. In addition, there are some products such as cotton, tobacco, coffee, and high-sea fisheries to be included in the accelerating production plan in the future. The normal production includes the economic significant crops. They are rice, rubber, cassava, and kenaf. This is also to set their production for the anticipated foreign markets. The production in this regard is in the direction of attaining the increased productivity with the minimum expenditure.

Furthermore, for the joint effort in planning and operation with the relevant government agencies to bring about agricultural development,
the Ministry of Agriculture and Cooperatives has developed the following programs in cooperation with other agencies. They are:

1. Program for accelerating production and marketing. This program is to be undertaken with the Ministry of Commerce, and Board of Investment, Office of the Prime Minister.

2. Program for agricultural irrigation. This will have to work with the Department of Irrigation.

3. Program for agricultural Extension Services at local levels. This is to coordinate with the Ministry of Interior, the Accelerating Rural Development Committee, and the National Security Committee.

4. Program for agricultural institutional development such as Farmers' Associations, Cooperative Associations, and Youth Development. This is to be coordinated with different organizations.

5. Program for farm machinery including agricultural aviation units, artificial rain, and plant protection works. This is to coordinate with the Ministry of Interior.

6. Program for transportation of agricultural products. This work will be done in cooperation with the Ministry of Communications and the Accelerating Rural Development Committee.

7. Program for agricultural credit is to be done through the cooperation with the Bank for Agriculture and Agricultural Cooperatives.
Ministry of Agriculture and Cooperatives

Agriculture has long been one of the principal responsibilities of the government. It appears in the period of Sukhothai as the early capital of the country that the agricultural policy of King Ramkamhang (A.D.1275-1315) was to encourage the people to cultivate the land, and to give them rights of possession and inheritance over the farms they cleared. He also encouraged the construction of irrigation works (21). During the 400 years of the existence of Ayuthaya as the capital (1350-1767), the administrative organization was operated through four main departments or "kroms": the Waing (Interior), the Wang (Royal household), the Klang (Finance), and the Na (Agriculture). After Bangkok, the present capital, was founded in 1782, these four main departments were still maintained. Several other ministries were eventually established. Nevertheless, the Ministry of Agriculture has remained one of the more important ministries.

After World War II, the Ministry of Agriculture underwent certain changes as a result of its cooperation with the United Nation's Food and Agriculture Organization (FAO) and with the United States Operations Mission (USOM). For example, in 1951, the Division of Agricultural Extension Service was organized in the Department of Agriculture. In 1953, the Department of Agriculture in cooperation with USOM, initiated a unified program which established eight Extension offices: one in the North, two in the Northeast, three in the Central Plain, and two in the South. This was to channel the agricultural Extension work of various departments of the Ministry of Agriculture into one organization. By 1968 this division had achieved the status of a department, the
Department of Agricultural Extension Service. This Department was established by the merger of three divisions of the Ministry: the Agricultural Division of the Office of the Under-Secretary, the Agricultural Extension Service of the Department of Agriculture, and the Extension Service Division of the Department of Rice (42). It is hoped to merge the Extension work of other departments of the Ministry in the future.

In 1972, the government reorganized various ministries and other agencies in a more unified manner. By this reorganization, the Ministry of Agriculture was combined with the Ministry of National Development and renamed the Ministry of Agriculture and Cooperatives. Two former departments, Agriculture and Rice were merged to be the Department of Agricultural Technology. The four other departments, Livestock, Fisheries, Forestry, and Agricultural Extension Service of the Ministry of Agriculture remain unchanged. These five departments plus four additional departments: Irrigation, Land Development, Cooperative Account Inspection and Cooperative Extension of the Ministry of National Development together with two main agencies, Office of the Secretary to the Minister, and Office of the Under-Secretary are present organizations under the Ministry of Agriculture and Cooperatives. This new Ministry assumes responsibilities in agriculture, irrigation, fisheries, livestock, forestry, land, and cooperatives development.

As with other ministries, all departments of the Ministry of Agriculture and Cooperatives are housed in Bangkok, the center of the government. Each department is divided into divisions. Each division
is divided into sections. Each department has its own basic responsibility in research and experimentation. Research projects, experiment stations, and offices of each department are located in various parts of the country depending on the natural resource potentials that may be substantively developed in such particular areas. Moreover, each of the departments controls its own activities in promoting agricultural productivity and business with the people.

The Department of Agricultural Technology deals with plantation and farm production. It conducts experimental research in rice and other crops, fiber crops, fruit orchards, silk, rubber, and gardening. This research work is concerned with soils, water, seeds, fertilizers, pest and disease controls, farm mechanization, farm supplies, plant quarantine, and other aspects of the production process.

The Department of Livestock deals with animal diseases and their controls, animal husbandry, animal feed, and artificial breeding. The Extension Service Division of the Department is responsible for various activities to promote the livestock industry. There are, at present, approximately 90 officials of the Department who are classified as top-level Extension personnel holding at least bachelor's degrees, doing Extension work for livestock development throughout the country.

The Department of Fisheries is responsible for fish breeding, controlling fishing in natural resource and regulating the fishing industry. The Extension Service Section of the Department works in promoting fish culture and improving the fishing industry.

The Department of Forestry deals with forest conservation and development through control measures and through research in silviculture
and forest products. It establishes and operates national parks, botanical gardens and arboreta. This Department does not have an official Extension division although it undertakes some Extension activities, such as encouraging the people to understand about forest and natural resource conservation.

The four departments, Irrigation, Land Development, Cooperative Account Inspection, and Cooperative Extension each of which is concerned with its specific area to facilitate agricultural development.

The Department of Agricultural Extension Service is responsible for the development of the people. It deals with the encouragement of the people to develop themselves in order to attain and enjoy comfortable living. Its main objective is to bring to the farmer, the homemaker, and the rural youth the information, the modernized agricultural techniques, and help that enables them to improve their efficiency on the farm and in the home. The prime target of rural Extension work is to increase production efficiency and the improvement of income, living standards and general economic well-being of the people. This qualitative and quantitative effort of the Department for the development of the people is undertaken along the master socio-economic development plans of the country (44).

The present Extension work of the Department of Agricultural Extension Service emphasizes the use of land, labor, capital, and managerial abilities in the most suitable combinations to get a marketable product at a minimum cost. The Department trains and encourages people to gain experiences in modern agricultural techniques. It fosters the organization of farmers' and youth clubs. It informs
the Ministry of Agriculture and Cooperatives and the research and experiment stations about farmers' problems in agricultural production and marketing. It serves as a link between agricultural officers and the farmers. It also coordinates and cooperates with other relevant agricultural development agencies in doing Extension activities (44).

The organizational structure of the Ministry of Agriculture and Cooperatives is shown in Figure 1 on page 54. The organizational structure of the Department of Agricultural Extension Service is shown in Figure 2 on page 55.

At present, the Department of Agricultural Extension Service employs approximately 2,184 persons. Of this total 266 are employed in the central offices, and 1,918 in local offices (45). Among these there are 112 persons classified as top Extension personnel who hold at least a bachelor's degree. Most of them in acquiring their degrees, experience a background of training in agricultural sciences. They are trained to work in commodity lines. There is, however, a small number of the personnel who are trained in general agriculture and social sciences for an effective general purpose Extension Service. These degreed Extension personnel having at least one year in Extension tenure work at the central, regional, and provincial levels. Extension Activities at Local Levels

Generally, there are offices of the various departments stationed at both provincial and district levels. Not all provinces, however, have all the departments represented. The criterion for the establishment of a provincial office depends on the existence of pertinent natural resources. The same set up may be true at the district level.
ORGANIZATION OF THE MINISTRY OF AGRICULTURE AND COOPERATIVES
DEPARTMENT OF AGRICULTURAL EXTENSION SERVICE

![Diagram of the organization structure of the Agricultural Extension Service Department.]

**FIGURE II**

ORGANIZATION OF THE AGRICULTURAL EXTENSION SERVICE DEPARTMENT

55
These offices are considered to be part of the provincial administration. The officers of these offices generally communicate with their respective departments through the media of the Provincial Governors. The officers act as field agents of the various divisions of their respective departments.

The Department of Agricultural Extension Service has its offices in various regions, provinces, and districts. The regional offices serve as a coordinating unit for the provincial and district offices. Each office has one chief Extension administrator with his assistants and supervisors to guide and supervise the Extension work of the agricultural officers. At the provincial level, there is a Provincial Agricultural Officer as the head of the Extension Service of the province. He is assisted by the regional Extension administrators and supervisors in the supervision of Extension work. In each province, there are a number of Agricultural Assistants who are the front line supervisors in the Extension work throughout the province. At the district level, the District Agricultural Officer is the head of the office and has one assistant. The District Officer is responsible to the Provincial Agricultural Officer. He is also a member of the district administrative system and generally reports to his respective department in the Provincial Agricultural Office through the District Chief. Each District Agricultural Officer performs his assigned Extension activities over a wide geographical area. He is assisted, however, by the Provincial Agricultural Assistants in the Extension Service.
At the national level, the Director-General is the head of the Extension Service system. His basic responsibilities include determining and carrying out policies; developing programs and making plans to carry out the purposes and objectives of the program; evaluating the effectiveness of the organization and of the benefit to the public; allocating funds to finance the work; and establishing and maintaining satisfactory relationships of the various units with respect to the overall development of the Extension system. The main function of this office is thus directly concerned with policy-making, administrative, and supervisory responsibilities in the operation of Extension programs for adult farmers, homemakers, and rural youth. It also provides in-service training, Extension information and materials and necessary coordination to the various regional Extension offices, provincial and district Extension offices, and other government and non-government agricultural development organizations.

**Development in Extension Education**

According to Smitananda (51), the Thai government realized the importance of securing information about prices of local agricultural products and relaying this to the people through the Government Gazette since 1893. In that same year, Thailand participated in the Trade Exposition in Chicago. This resulted in an interest in a national agricultural improvement plan for Thailand. Eight years later the government hired a silk specialist from Japan to experiment with hope of promoting silk production and improving the silk industry of Thailand. In 1902, the first silk station was established in Bangkok.
The following two years found the School of Silk Culture of the Ministry of Agriculture. By 1910, ten similar stations of the government had been established in the eastern provinces. There have also been a number of private silk enterprises in the country.

Rice has been the most important product for foreign trade of Thailand. The country realized this during the first decade of the twentieth century, when it sponsored a contest in 1907 at Rangsit, north of Bangkok, in order to encourage rice improvement. This led to the collection of rice varieties grown locally. In 1916, the government's rice research station was started at Rangsit with the dual purposes of ensuring uniform high quality for export trade and for raising yields. In 1932, Thailand participated in the World Rice Contest held in Canada. Thai rice captured the first three prizes and won eight others out of the twenty prizes offered at the contest.

Another step in agricultural promotion was the establishment of a fruit experiment station in 1921 at Bangkoknoi, Thonburi, the twin city of Bangkok.

The organization of the Ministry of Agriculture was changed after the 1932 coup d'état. The first Extension Division being a part of the newly structured Department of Agriculture which established in 1934 was responsible for reorganizing, combining, and continuing the scattered agricultural experiment and Extension work in a more efficient manner. Six centers were involved: the rice research station at Rangsit and the fruit research station at Bangkoknoi mentioned above, an experiment station established in the Northeastern region in 1931, two other centers established in the Southern and
Northern regions in 1932 and 1933 respectively, and another station for pepper improvement set up at Chantaburi, the Central Plain, in 1935.

**Higher Level Training Institutions**

As a result of the above mentioned development, more trained men were needed in field work. Top-level specialists firstly received their training abroad. Several practical schools were then initiated in the country. In 1935, the first practical school in vocational agriculture was established by the Department of Agriculture, Ministry of Agriculture. Admitting seventh grade graduates to be trained in a four-year course in practical farming, this school was able to supply most of its graduates as district officers to work in general agricultural Extension work at the district level. The same year, the Department of Forestry established a school of forestry at Prae, in the North, to train future forestry officers. In 1938, the Department of Irrigation (later was moved to be under the new Ministry of National Development) also set up its own school of irrigation.

**Kasetsart University**

The policy regarding agricultural education was changed again in 1937. The practical school in vocational agriculture was expanded and reorganized to become a junior college of agriculture under the Department of Agriculture, Ministry of Agriculture. The college, started with a three-year course, comprised three departments: Agriculture, Fisheries, and Cooperatives. This college admitted high school graduates. In 1943, the college was expanded. The same year saw the transfer of
the School of Forestry into the college which thus consisted of four faculties, namely, Agriculture, Cooperative Science, Fisheries, and Forestry. These four faculties combined to become Kasetsart University at Bangkhen, Bangkok, being one department in the Ministry of Agriculture. This department was the first university of agriculture in Thailand.

In 1955, the Faculty of Veterinary Science of the Medical University, and the School of Irrigation Engineering of the Department of Irrigation were transferred into Kasetsart University. The curriculum of the University was expanded into a five-year program. During the first three years students in agriculture had to study a program similar to that of the earlier junior college. In the last two years, however, they entered into a more specialized field, and were required to conduct a research project and to write a thesis. Upon completion the students were awarded the degree of Bachelor of Science in Agriculture.

In 1955, the Department of Extension Education was set up as a part of the Faculty of Agriculture of the University. Students could begin work in Extension education at the undergraduate level and be trained for specialized jobs in Extension Service. Simultaneously with the establishment of the Department of Extension Education, the Department of Home Economics was organized within the same faculty for the purpose of joining home economics Extension with the agricultural Extension Service.

In 1966, Kasetsart University reorganized the Faculty of Irrigation Engineering into the Faculty of Engineering, and established the Faculty
of Science and Arts. In the same year the Graduate School was organized as being coordinating and supervising unit for graduate programs of all faculties. The Graduate School has the status of a faculty. In addition, the former Faculty of Cooperative Science was changed and renamed it the Faculty of Economics and Business Administration. In 1969, the Department of Extension Education of the Faculty of Agriculture was dissolved to organize the new Faculty of Education.

A new four-year curriculum of the University was adopted in compliance with the policy set by the National Education Council starting with the graduating class of 1967. All faculties have offered a four-year program leading to the Bachelor of Science degree, except the Faculty of Veterinary Science which requires two years for premedical work before pursuing its four-year course for the degree of Doctor of Veterinary Medicine.

Kasetsart University presently comprises nine faculties: Agriculture, Economics and Business Administration, Fisheries, Forestry, Engineering, Veterinary Science, Science and Arts, Education, and the Graduate School. Being a government supported higher-education institution, the University has as its major responsibilities the following (34):

1. The professional training of students at the bachelor and master levels in agriculture, economics and business, education, engineering, fisheries, forestry, veterinary science, and basic sciences which are essential to these disciplines.

2. The development of graduate training and research programs
in the applied and basic sciences.

3. The establishment of an interdepartmental programs for the development of vocational agricultural teachers and Extension and community development personnel.

4. The development of educational and research leadership to meet the future needs of the agricultural and related industries in Thailand and the surrounding region.

5. The development of young people with dedication, analytical minds and the leadership qualities that are required in a democratic society.

For its development, Kasetsart University signed contracts, under the sponsorship of the Agency for International Development (AID, formerly USOM), with Oregon State University and with the University of Hawaii. The Kasetsart-Oregon State University contract began in 1954 and ended in 1960. The Kasetsart-Hawaii University contract was from 1962 to 1965. These made available the counterpart fund to assist Kasetsart University grow and develop in terms of: a) improvement of physical facilities, b) improvement of curriculum, c) training of teaching staff, d) strengthening research opportunities, and e) strengthening internal management and administration.

Kasetsart University has also received aid from other sources, especially, the United Nation's Food and Agriculture Organization, the Colombo Plan, the Fulbright Foundation, the Rockefeller Foundation, and the Agricultural Development Council.

At present, Kasetsart University is in the process of further development under the World Bank Loan Project. For this the government
has made a long-term agreement with the International Bank for Reconstruction and Development. The Loan Agreement has been effective since 1972. The loan repayment will be terminated in 2001. This has made available the sum of 14.5 million dollars for a comprehensive development of the two campuses of the University of Bangkhen and Kamphaengsaen (33).

From its start, to September 2, 1959, Kasetsart University was under the Ministry of Agriculture. Since then, it has been changed to be under the Office of the Prime Minister. The University has long been recognized as the prime important higher learning institution in preparing manpower for various agricultural agencies, especially the Ministry of Agriculture and Cooperatives. Since started the University had already supplied over 5,000 graduates working both directly and indirectly in agricultural development of the country.

Extension-Like Organizations

There are many special organizations instituted to run enterprises for the purpose of agricultural promotion. For example, in connection with and under the Ministry of Agriculture and Cooperatives, there are a number of semi-government agencies, namely, the Rubber Plantation and Fund Organization, Rubber Estate Organization, Fish Marketing Organization, and Cold Storage Organization. These agencies work directly in agricultural development.

Some work has also been carried out by various other government agencies to promote certain occupations. These agencies include the Ministries of Interior, Education, Industry, Public Health, Communications, Commerce, and Finance.
The Department of Public Welfare, the Department of Community Development, and the Rural Reconstruction Organization of the Ministry of Interior have as their own concern the well-being of the people. The Department of Public Welfare has as its concern the establishment and administration of settlements such as self-help land settlements for the unemployed. These settlements are concerned with many phases of community development work such as agriculture, cooperatives, public welfare, health and education. The Department of Community Development has its main duties in social self-help group projects in functioning communities. These projects cover a multi-subject-matter program including agriculture, health, education, and public works. The Rural Reconstruction Organization has as its concern the urgent rural development work. Some agricultural Extension work has been undertaken by both the Community Development and the Rural Reconstruction Organization workers.

The Ministry of Education has taken the lead in the line of vocational agriculture and adult education as well. There are 24 vocational schools in agriculture presently operating under the Department of Vocational Education. Four of these schools also teach technical agriculture, and one other functions as an agricultural teacher training college. These schools include agricultural education as a major part of the curriculum. They train the majority of agricultural technicians of the country.

Numerous other departments contribute, both indirectly and directly to the development of agriculture in a number of ways. Two of the departments, Industrial Works and Industrial Promotion, of the
Ministry of Industry, have encouraged production of some agricultural products such as sugar, jute, kenaf, and cotton. The Nutrition Division in the Ministry of Public Health encourages the consumption of different vegetables, fruits, and other agricultural products like eggs and milk. The departments in land and water transportation of the Ministry of Communications facilitate the marketing of agricultural products. The Office of Standards of the Ministry of Commerce controls the standardization of export commodities so as to maintain foreign markets. The Tobacco Monopoly Factory of the Ministry of Finance has encouraged the production and marketing of tobacco. This is another way of agricultural development.

**Major Problems of Extension Work in Thailand**

From the above presentation, it is clear that Thailand has long been rehearsed and prepared for the development of agriculture. Until now the country has not yet had an agricultural revolution. There are many interrelated reasons for this. The first is due to the Thai administrative deficiency in dealing with the farmers who are justly considered to be the foundation of the "pyramid" of Thai society. Since there are still many departments in the Ministry of Agriculture and Cooperatives doing their own (commodity-oriented) Extension work, confusion and overlapping conditions prevail. The farmers are caught in the confusing situation of having to listen to different representatives who have the same goals in mind in doing work in agricultural development. Moreover, a specialist, who has been trained as an agricultural official, may be the most persuasive
in one area and influences the people of the area to concentrate on one specific enterprise rather than on others which would be more beneficial to them. This does not include representatives from other ministries who have their own separate objectives in the overall development of rural communities. These representatives also pursue similar agricultural programs. This adds to the problems of duplication and confusion in relation to both government officers and the people.

In addition, problems of administration arise when there are no clearly defined divisions of work and control. This causes conflicting directions from various agencies in the same Ministry. Furthermore, as there is no functional interdependence (to avoid conflict of bureaucratic interests) between departments, and each division has its own budget, funds may not be shifted to departments where they are needed should emergencies arise. These combined factors cause ineffectiveness in Thai Extension work. Thus the major handicap of the Ministry in this particular field is its organization.

The shortage of qualified Extension personnel is the second major problem. It is also a common problem for other sectors. As indicated in a report of a Mission of the International Bank for Reconstruction and Development (12), "there is in Thailand a shortage of trained manpower, managers and administrators qualified by experience to operate industrial concerns and government departments efficiently." Smitananda (51) has pointed out, it has long been realized that the pre-employment training of Extension workers was quite inadequate in many respects. This is most clearly seen in the fact that they were
not specifically trained as Extension workers. Other inadequacies are insufficient knowledge and skills in technical agriculture and recent development of new techniques and technology, lack of human relation skills in working with farm people, and not enough emphasis on Extension philosophy, objectives, and methods. Administrators in Extension Services have occasionally in the past remedied these inadequacies by pre-service training.

The present Extension workers of the Department of Agricultural Extension Service, shifted from specialized divisions of crops and rice, have been trained in commodity lines. They have worked as agricultural officials mainly in distributing farm supplies, giving advice through the village headmen, collecting agricultural statistics and other administrative matters. The old staff members have never received training in Extension methods or modern agricultural practices. Qualitatively, these Extension workers do not meet modern requirements in Extension education.

Quantitatively, the Department of Agricultural Extension Service, now helping over 4 million farm families with 1,918 officers (or a ratio of 1:2080 of Extension agents to farm families), has an immediate task of hiring more desired staff to attain the optimum ratio of 1:1000 of Extension personnel to farm families in the future (8). Moreover, the Extension work is hampered by the fact that limited positions allotted by the Civil Service together with the low pay of Extension officials makes it difficult if impossible to hire and keep top personnel.
The use of officials as Extension agents bring to the fore a last problem. This problem is centered around the fact that government officials have an unfavorable aura associated with them due to their authoritative status. Because of this, the people may be unwillinging to associate with them or actually be indifferent. On the other hand the government officials often do not recognize the problems and therefore lack empathy for the farmers and their problems.

The recent developments in agriculture and its trends to be the mainstay of social and economic well-being of the country in the foreseeable future have demanded both quantity and quality of agricultural Extension personnel at all levels within the Extension system. Modern agriculture is essentially dependent on both research and Extension work. The direction of the modernization is toward attaining the increased production and consumption. This needs to be undertaken through intensification of land use with a more diversified agriculture and off-farm technical development. The success or failure of agricultural plans will depend on the degree which the majority of the farmers are provided to adopt more productive techniques. Existing Extension systems being served as the two-way link in passing on the new techniques or discoveries of research to the farmers and relaying the problems of farming to research for solution require quantity, ability, and motivation of their respective staff; and also require a type of functional specialization necessitating intensive interdepartmental coordination. Higher level of education and training for preparing strong educational leadership Extension personnel will be necessary for the success of the systems.
CHAPTER V

ANALYSIS OF JOB CHARACTERISTICS

Variables related to the Thai Extension personnel and job characteristics to be analyzed and discussed in this Chapter cover the four categories: 1) personal and occupational characteristics, 2) job satisfaction, 3) job function emphasis, and 4) behavioral science concepts needed for better job function.

Out of the entire population of the Thai top-level Extension personnel of 202 persons that received the mail questionnaire, 112 in the Department of Agricultural Extension Service and 90 in the Department of Livestock, 152 responded. Of these respondents, 77 were from the Department of Agricultural Extension Service and 75 from the Department of Livestock. The rate of responses was over 75 per cent.

For the purpose of analysis, the respondents were classified into three groups according to their work responsibility in the two departments of the Ministry of Agriculture and Cooperatives under investigation. These three groups were: administration, supervision, and administration-supervision (see Table II). Based on these groups of the respondents, the following variables were studied.

Personal and Occupational Characteristics

Age. The average age of the Thai Extension personnel was 33.3 years. The range of age was 22 to 55 years. The personnel in the
administration, and administration-supervision groups had almost the same average age of 35 years while the supervision group averaged 31.6 years.

**TABLE II**

DISTRIBUTION OF RESPONDENTS BY WORK RESPONSIBILITY IN THE AGRICULTURAL EXTENSION SERVICE AND LIVESTOCK DEPARTMENTS, THAILAND, 1972

<table>
<thead>
<tr>
<th>Work Responsibility</th>
<th>Agricultural Extension Service n=77</th>
<th>Livestock n=75</th>
<th>Total n=152</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>15</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>Supervision</td>
<td>24</td>
<td>26</td>
<td>50</td>
</tr>
<tr>
<td>Administration-Supervision</td>
<td>12.5</td>
<td>12.5</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>49</td>
<td>100</td>
</tr>
</tbody>
</table>

* Percentages are based on the total 152 respondents.

**Sex.** Male dominated female in all groups of the Thai Extension personnel. The overall ratio of the male to female Extension personnel was 4:1, or 82 per cent male and 18 per cent female. This may be because the nature of work is more favorable for male than female.

**Status-position.** The hierarchy of status-positions of the Thai Extension personnel extends from the lower third grade to the higher second, first, and top-level special grade of officials. About 72 per cent of the personnel were in the second-grade official.
The rest, 28 per cent were distributed: 16 per cent in the first grade, 11 per cent in the third grade, and 1 per cent in the special grade officials.

**Extension Tenure.** Total average Extension-work tenure of the personnel was 7.8 years. The personnel in both administration, and administration-supervision groups had served on the average over 9 years in Extension duties. The personnel in the supervision group served about 6 years. The range of tenure was 1 to 30 years.

**Education.** Sixty-nine per cent of the respondents were trained at the undergraduate level, and 31 per cent were trained at the graduate level. Out of the graduate level group there was only one individual who was trained in economic development at the doctorate and he worked in the supervision group. Forty-nine per cent of the graduate-level personnel were trained in animal and plant science, 28 per cent in Extension education, 13 per cent in socio-economics, 4 per cent in veterinary medicine, 2 per cent in community development, 2 per cent in home economics, and 2 per cent in agricultural education. Out of the undergraduate-level personnel, 59 per cent were trained in animal and plant sciences, 27 per cent in veterinary medicine, 13 per cent in Extension education and the rest, 1 per cent in community development and farm mechanics.

**Work Location.** A great number of the top-level Extension personnel worked in the Central region, primarily in the central office in Bangkok. This number accounted for 54 per cent of the total. Twenty-eight per cent of the personnel worked in the Northeastern region, 12 per cent in the Northern region, and 6 per cent in the Southern
Job Satisfaction

Extension personnel were questioned relative to their extent of satisfaction with the following job characteristics:

1. Opportunity to work according to ability.
2. Opportunity to work as expected before entering the job.
3. Time to be devoted to the job.
4. Relationship with boss.
5. Relationship with colleagues.
6. Relationship with relevant agencies.

The respondents were asked to select one of five response categories which best described their opinion related to a number of items in a scale. These categories were: 1) completely satisfied, 2) very satisfied, 3) some satisfaction, 4) undecided, and 5) almost not satisfied.

Mean scores were computed for each scale. Mean scores were interpreted as follows: completely satisfied - 5, very satisfied - 4, some satisfaction - 3, undecided - 2, and almost not satisfied - 1. Scores of 5-4 were interpreted as high degree of satisfaction, scores of 3.9-2.9 as moderate degree, and scores of 2.8-1 as low degree of satisfaction.

Based on the mean score distribution, a comparison of the satisfaction of Extension personnel by various job characteristics according to perceived work responsibility was made as shown in Table III.

Variance of the overall mean score was computed to measure the
TABLE III

A COMPARISON OF THE MEAN SATISFACTION SCORES OF EXTENSION PERSONNEL OF VARIOUS JOB CHARACTERISTICS ACCORDING TO PERCEIVED WORK RESPONSIBILITY IN THE AGRICULTURAL EXTENSION SERVICE AND LIVESTOCK DEPARTMENTS, THAILAND, 1972

<table>
<thead>
<tr>
<th>Job Characteristic</th>
<th>Administration Supervision</th>
<th>Supervision</th>
<th>Administration Supervision</th>
<th>F</th>
<th>P</th>
<th>OM</th>
<th>VM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EXTS LIVS OM</td>
<td>EXTS LIVS OM</td>
<td>EXTS LIVS OM</td>
<td>n=19 n=19 n=38</td>
<td>n=19 n=19 n=38</td>
<td>(n=152)</td>
<td></td>
</tr>
<tr>
<td>1. Opportunity to work according to ability</td>
<td>3.4 4.1 3.7</td>
<td>3.3 3.8 3.6</td>
<td>4.0 3.8 3.9</td>
<td>n.s.</td>
<td>3.71</td>
<td>.0019</td>
<td></td>
</tr>
<tr>
<td>2. Opportunity to work as expected before</td>
<td>3.5 3.9 3.6</td>
<td>3.4 3.6 3.5</td>
<td>3.7 3.6 3.6</td>
<td>n.s.</td>
<td>3.60</td>
<td>.0017</td>
<td></td>
</tr>
<tr>
<td>entering the job</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Time to be devoted to the job</td>
<td>3.3 4.1 3.6</td>
<td>3.4 4.0 3.7</td>
<td>4.0 4.0 4.0</td>
<td>8.59b</td>
<td>.01</td>
<td>3.77</td>
<td>.0014</td>
</tr>
<tr>
<td>4. Relationship with boss</td>
<td>3.6 3.9 3.7</td>
<td>3.1 3.8 3.5</td>
<td>3.9 3.6 3.7</td>
<td>n.s.</td>
<td>3.62</td>
<td>.0017</td>
<td></td>
</tr>
<tr>
<td>5. Relationship with colleagues</td>
<td>4.0 4.0 4.0</td>
<td>3.7 4.0 3.9</td>
<td>4.0 4.2 4.1</td>
<td>n.s.</td>
<td>3.97</td>
<td>.0010</td>
<td></td>
</tr>
<tr>
<td>6. Relationship with relevant agencies</td>
<td>3.4 3.4 3.4</td>
<td>3.2 3.2 3.2</td>
<td>3.5 3.5 3.5</td>
<td>n.s.</td>
<td>3.34</td>
<td>.0011</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.5 3.9 3.7</td>
<td>3.3 3.7 3.6</td>
<td>3.8 3.8 3.8</td>
<td>3.67</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Mean scores are interpreted as follows: (1) completely satisfied - 5, (2) very satisfied - 4, (3) some satisfaction - 3, (4) undecided - 2, (5) almost not satisfied - 1.

b - between the departments.
variation of the reaction made by the respondents in relation to the job characteristics.

An analysis of variance was applied to determine the difference of mean scores among groups of the respondents both within and between the two departments of the Ministry of Agriculture and Cooperatives, Agricultural Extension Service, and Livestock. Hypotheses set forth were:

Hypothesis I: There is no significant difference in mean scores made by the respondents within the departments.

Hypothesis II: There is no significant difference in mean scores made by the respondents between the departments.

The F value used to determine the difference in mean scores for the analysis of variance included:

1. F with 4 and 146 degrees of freedom at .05 and .01 levels of significance with the value of 2.44 and 3.46 respectively to detect the mean difference within the departments.

2. F with 1 and 146 degrees of freedom at .05 and .01 levels of significance with the value of 3.91 and 6.82 respectively to detect the mean difference between the departments.

The study on the job satisfaction of the Thai Extension personnel revealed the following results.

The overall mean score made by all groups of respondents: the administrators (25 per cent of all the respondents), the supervisors (50 per cent), and the administrator-supervisors (25 per cent) was 3.67. This mean score interpreted the reaction of the respondents in regard to the job characteristics as being a moderate degree of
satisfaction and at a point above the some satisfaction category. The range of the overall mean score made by all the respondents regarding the various job characteristics was from 3.34 to 3.97. Based on the range of the overall mean score the job characteristics could be listed according to degree of satisfaction, from high to low as follows:

1. Relationship with colleagues.
2. Time to be devoted to the job.
3. Opportunity to work according to ability.
4. Relationship with boss.
5. Opportunity to work as expected before entering the job.
6. Relationship with relevant agencies.

Variance of the overall mean scores related to different job characteristics made by the respondents of both departments ranged from .0010 to .0019. This was a low variation among the overall means in regard to the job characteristics.

It was revealed from the analysis of variance that there was no significant differences of mean scores made by the respondents within the departments. This analysis failed to reject hypothesis I.

A highly significant difference in mean scores made by the respondents between the two departments appeared (hypothesis II was rejected) in only one job characteristic, time to be devoted to the job, \(F = 8.59, P < .01\). This was due to the different reaction of two respondents groups between the two departments. These two groups of respondents were the administrators and the supervisors. When comparing the administrators (15 per cent of all the respondents)
with the mean score of 3.3 and the supervisors (24 per cent) with the mean score of 3.4 in the Department of Agricultural Extension Service to the administrators (10 per cent) with the mean score of 4.1 and the supervisors (26 per cent) in the Department of Livestock, the latter two groups of respondents in the Department of Livestock were found to be more satisfied with the job characteristic (time to be devoted to the job), than those in the Department of Agricultural Extension Service.

The difference in the reaction of the administrators and supervisors between the two departments related to time to be devoted to the job, mentioned above, may be partly due to the difference in work responsibility of the two departments. The Department of Agricultural Extension Service dealing with crops, the major enterprise for the majority of the Thai farm population, may require more work time than the Department of Livestock which deals with animals, the minor agricultural enterprise in the country.

Job Function Emphasis

The respondents were asked to select one of five categories on a scale to indicate their opinion concerning a number of actual job functions. These actual job functions presented to the respondents were as follows:

1. Give advice to Extension workers regarding Extension duties (Give advice).

2. Collect facts on social, economic, and technological resources necessary for planning, execution, and evaluation of the Extension programs (Collect facts).
3. Study the facts and choose problems for Extension work to suit the needs and interests of the community (Study facts).

4. Develop long-term Extension programs based on the problems identified (Develop programs).

5. Analyze the problems and set goals to solve the problems specified in the Extension programs (Analyze problems).

6. Set standards and procedures in Extension evaluation in order to be able to improve the Extension work (Set evaluation standards).

7. Plan and provide training on all phases of farming and rural life to include production, marketing, leadership development, resource use, and public affairs for Extension workers and other leaders such as Farmers' Organization, and 4-H Club leaders to improve their competence in doing Extension work (Provide training).

8. Contact, coordinate, and maintain effective communication with various resource persons, leaders, and relevant professionals (Maintain communication).

9. Furnish educational information in such forms as bulletins and other Extension devices to Extension workers, agricultural agencies, and publics (Furnish information).

10. Study and evaluate work of Extension workers, and use findings for strengthening program efforts (Evaluate work).

For the purpose of analysis, a short form (in the parenthesis) for each of the above job functions was used. The mean score distribution for each of the job functions and the variance of the
overall mean scores were computed. A comparison of the extent of performance of various tasks or job functions by the Extension personnel according to perceived work responsibility is shown in Table IV.

Response categories for the actual job functions were: (1) always, (2) occasionally, (3) undecided, (4) almost never, and (5) never. Mean scores were interpreted as follows: (1) always - 5, (2) occasionally - 4, (3) undecided - 3, (4) almost never - 2, and (5) never - 1. Scores of 5-4 were interpreted as a high degree of the job performance, scores of 3.9-2.9 as a moderate degree, and scores of 2.8-1 as a low degree of the job performance.

Following each of the actual job functions, the respondents were asked to indicate the extent to which they expected to perform this job function in the future. They were asked to select one of three following response categories each of which had a number for scoring: (1) more - 3, (2) same - 2, and (3) less - 1. Scores were interpreted as follows: scores 3-2.6 were a high degree of expectation for performing the job function, scores 2.5-1 were a low degree of expectation for performing the job function. A comparison of the extent to which Extension personnel expect to perform job functions according to perceived work responsibility is shown in Table V.

The basic comparison related to both the actual job and expected future job functions was based on the mean score distribution made by the respondents of the two departments. Variance of the overall mean score of the various actual job and expected job functions was computed.
The analysis of variance to determine the mean differences among respondent groups within and between the departments was applied. The F value at .05, and .01 levels of significance was used to detect the mean differences.

Hypotheses set forth the job function emphasis were:

Hypotheses I: There is no significant difference in mean scores made by the respondents within the departments.

Hypothesis II: There is no significant difference in mean scores made by the respondents between the two departments.

The results of the study concerning the actual and expected job functions are discussed in turn below.

**Actual Job Function.** An examination of the overall mean score made by all respondent groups of the various departments in regard to the actual job functions indicated the mean score of 3.66. This mean score was interpreted to mean that the Thai Extension personnel perceived the present actual job functions as being performed to a moderate degree. This degree of the job performance tended toward the occasionally performed category (Table IV).

The overall mean scores among various job functions ranged from 3.21 to 4.11. Based on this distribution, the actual job functions could be rearranged, from high to low performance according to the mean scores as follows:

1. Maintain communication.
2. Furnish information.
3. Collect facts.
A COMPARISON OF THE EXTENT OF PERFORMANCE OF VARIOUS JOB FUNCTIONS BY EXTENSION PERSONNEL ACCORDING TO PERCEIVED WORK RESPONSIBILITY IN THE AGRICULTURAL EXTENSION SERVICE AND LIVESTOCK DEPARTMENTS, THAILAND, 1972

<table>
<thead>
<tr>
<th>Job Function</th>
<th>Administration</th>
<th>Supervision</th>
<th>Administration-</th>
<th>F</th>
<th>P</th>
<th>OM</th>
<th>VM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EXTS LIVS OM</td>
<td>EXTS LIVS OM</td>
<td>EXTS LIVS OM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n=22 n=16 n=38</td>
<td>n=36 n=40 n=76</td>
<td>n=19 n=19 n=38</td>
<td>(n=152)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Give advice</td>
<td>3.9 4.1 3.9</td>
<td>3.7 3.6 3.6</td>
<td>4.3 4.1 4.2</td>
<td>n.s.</td>
<td>3.87</td>
<td>.0017</td>
<td></td>
</tr>
<tr>
<td>2. Collect facts</td>
<td>4.2 3.4 3.9</td>
<td>4.2 3.7 3.9</td>
<td>4.3 3.9 4.1</td>
<td>9.40b</td>
<td>.01</td>
<td>3.97</td>
<td>.0015</td>
</tr>
<tr>
<td>3. Study facts</td>
<td>4.0 3.8 3.9</td>
<td>3.9 3.6 3.7</td>
<td>4.1 3.8 4.0</td>
<td>n.s.</td>
<td>3.85</td>
<td>.0018</td>
<td></td>
</tr>
<tr>
<td>4. Develop programs</td>
<td>3.6 3.9 3.7</td>
<td>3.0 3.1 3.1</td>
<td>4.1 3.1 3.6</td>
<td>3.54w</td>
<td>.01</td>
<td>3.37</td>
<td>.0032</td>
</tr>
<tr>
<td>5. Analyze problems</td>
<td>3.5 4.0 3.7</td>
<td>3.5 3.4 3.4</td>
<td>4.1 3.3 3.7</td>
<td>n.s.</td>
<td>3.57</td>
<td>.0023</td>
<td></td>
</tr>
<tr>
<td>6. Set evaluation</td>
<td>3.6 3.7 3.7</td>
<td>2.9 3.2 3.1</td>
<td>3.7 3.3 3.5</td>
<td>n.s.</td>
<td>3.33</td>
<td>.0029</td>
<td></td>
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<td>standards</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Provide training</td>
<td>3.3 3.4 3.3</td>
<td>3.4 2.8 3.1</td>
<td>3.8 3.4 3.6</td>
<td>n.s.</td>
<td>3.26</td>
<td>.0030</td>
<td></td>
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<td>8. Maintain commu-</td>
<td>4.4 4.1 4.3</td>
<td>4.0 3.8 3.9</td>
<td>4.5 4.2 4.4</td>
<td>n.s.</td>
<td>4.11</td>
<td>.0016</td>
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<tr>
<td>nication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Furnish information</td>
<td>3.8 4.1 3.9</td>
<td>4.0 3.9 4.0</td>
<td>4.5 4.0 4.3</td>
<td>n.s.</td>
<td>4.05</td>
<td>.0018</td>
<td></td>
</tr>
<tr>
<td>10. Evaluate work</td>
<td>3.5 3.4 3.5</td>
<td>3.0 3.0 3.0</td>
<td>3.6 3.0 3.3</td>
<td>n.s.</td>
<td>3.21</td>
<td>.0029</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.8 3.8 3.8</td>
<td>3.6 3.4 3.5</td>
<td>4.1 3.6 3.9</td>
<td></td>
<td>3.66</td>
<td></td>
<td></td>
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</tbody>
</table>

* Mean scores are interpreted as follows: (1) always - 5, (2) occasionally - 4, (3) undecided - 3, (4) almost never - 2, and (5) never - 1.

b - between the departments; w- within the departments.
5. Study facts.
6. Analyze problems.
7. Develop programs.
8. Set evaluation standards.
9. Provide training.
10. Evaluate work.

The individual groups of respondents, based on the mean score made by each group, in regard to the actual job functions revealed the following reaction. The administrators (25 per cent) with the mean score of 3.8 and the administrator-supervisors (25 per cent) with the mean score of 3.9 perceived the actual job function being at a point near the occasionally performed category. The supervisors (50 per cent) with the mean score of 3.5 perceived the actual job function being at about the mid-point between the undecided and occasionally performed category.

The variance of the overall mean scores of the various actual job functions ranged from .0015 to .0032. This indicated a low variation of mean scores related to the actual job functions.

The analysis of variance revealed that there was a highly significant difference in mean scores within the departments in the job function, develop programs. Hypothesis I was rejected, \( F = 3.54, P < .01 \). In the Department of Agricultural Extension Service, the administrators (15 per cent) with the mean score of 3.6 and the supervisors (24 per cent) with the mean score of 3.0 perceived the job function being performed to a moderate degree; while the administrator-supervisors (12.5 per cent) with the mean score of 4.1 perceived the
job function being performed to a high degree. In the Department of Livestock, the supervisors (26 per cent) and the administrator-supervisors (12.5 per cent) with the same mean score of 3.1 perceived the job function being performed at a point above the undecided category; while the administrators (10 per cent) with the mean score of 3.9 perceived the job function being performed at a point near the occasionally performed category.

A highly significant difference in mean scores between the two departments appeared in only the job function, collect facts. Hypothesis II was rejected, (F = 9.40, P < .01). This difference occurred because all the respondent groups in the Department of Agricultural Extension Service perceived the job function being performed to a high degree and at a point just above the occasionally performed category. In contrast, all the respondent groups in the Department of Livestock, perceived the job function being performed to a moderate degree and at a point just above the undecided category. This difference in the reaction of the respondents between the two departments regarding the job function (collect facts), may be partly due to the nature of work responsibility of the two departments. The Department of Agricultural Extension Service being a newly established department may require more data for doing Extension work than the long established Department of Livestock. In addition, as mentioned earlier the Department of Agricultural Extension Service which deals primarily with crops may require much more data for Extension work than the Department of Livestock which deals with
animals. Crops dominate livestock enterprises in Thailand's agriculture. The majority of the people in the country are engaged in crop, rather than livestock production.

**Expected Future Job Function.** Due to the high mean scores posted by all groups of respondents in all items of the expected future job functions, and the relatively low variation among the overall mean scores of the various job function items, the analysis of the expected future job functions will therefore be limited to the level of the overall mean score distribution. However, the analysis of variance and the F values at .05 and .01 levels to detect the difference in mean scores within and between the departments were included in the Table presented (Table V).

An examination of the overall mean scores of 2.79 revealed that respondents were performing job functions at present and expected to perform these in the future to a greater extent than presently. These job functions were listed according to mean scores ranging from a high of 2.82 to a low of 2.76 respectively as follows:

1. Provide training.
2. Give advice.
3. Evaluate work.
5. Study facts.
6. Develop programs.
7. Set evaluation standards.
8. Furnish information.
TABLE V

A COMPARISON OF THE EXTENT TO WHICH EXTENSION PERSONNEL EXPECT TO PERFORM CERTAIN JOB FUNCTIONS IN THE FUTURE ACCORDING TO PERCEIVED WORK RESPONSIBILITY IN THE AGRICULTURAL EXTENSION SERVICE AND LIVESTOCK DEPARTMENTS, THAILAND, 1972

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<th>Administration-Supervision</th>
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<th>P</th>
<th>OM</th>
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<td>EXTS LIVS OM (n=152)</td>
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<td>2.8 2.9 2.8</td>
<td>3.40&lt;sup&gt;W&lt;/sup&gt;</td>
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<td>2.81</td>
<td>.0003</td>
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<td>2. Collect facts</td>
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<td>2.8 2.7 2.7</td>
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<td>4.82&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>2.81</td>
<td>.0003</td>
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<td>3. Study facts</td>
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<td>2.78</td>
<td>.0003</td>
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<td>4. Develop programs</td>
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<td>2.7 2.8 2.8</td>
<td>2.8 2.9 2.8</td>
<td>4.31&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>5. Analyze problems</td>
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<td>2.8 2.7 2.8</td>
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<td>2.78</td>
<td>.0004</td>
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<td>2.76</td>
<td>.0003</td>
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<tr>
<td>9. Furnish information</td>
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<td>2.7 2.8 2.7</td>
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<td></td>
<td>2.77</td>
<td>.0003</td>
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<td>10. Evaluate work</td>
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<td>n.s.</td>
<td></td>
<td>2.81</td>
<td>.0004</td>
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</tbody>
</table>

* Mean scores are interpreted as follows: (1) more - 3, (2) same - 2, and (3) less - 1.

b - between the departments; w - within the departments.

10. Maintain communication.

Considering the mean scores of all groups in each of the two departments, it can be noted that both departments had an average score of about 2.8. This mean score indicated that respondents of the two departments perceived the job functions to be performed to a greater extent in the future.

The reaction of the individual groups of respondents in regard to the future expected job functions viewing from their mean scores was listed as follows:

The administrators posted three mean score values, 2.7, 2.8, and 2.9. A mean score of 2.7 appeared in two job functions: develop programs, and analyze problems. A mean score of 2.8 was found in six job functions: give advice; study facts; set evaluation standards; provide training; maintain communication; and furnish information. A mean score of 2.9 involved the remaining two job functions: collect facts, and evaluate work.

The supervisors posted two mean score values, 2.7 and 2.8. A mean score of 2.7 was found in five job functions: collect facts; study facts; set evaluation standards; maintain communication; and furnish information. A score of 2.8 appeared in the remaining five job functions, namely, give advice; develop programs; analyze problems; provide training; and evaluate work.

The administrator-supervisors appeared to have two mean score values, 2.7 and 2.8. A mean score of 2.7 was found in only one job function--furnish information. The remaining, nine job functions were
found to have a mean score value of 2.8.

Variance of the overall mean scores posted by the respondents of all groups of the two departments ranged from .0003 to .0005. This indicated that the variation among the overall mean scores was low.

**Behavioral Science Concepts Needed**

In order to determine the behavioral science concepts needed for Extension job functions the respondents were asked to select one of five categories on a scale to indicate their opinion related to six major concepts each of which comprised from three to twenty-two sub-concepts. These six major concepts developed from behavioral science disciplines and presented to the respondents were:

1. Extension Program Development.
2. Extension Teaching and Learning.
3. Extension Communication.
4. Leadership Development.
5. Extension Evaluation.

Response categories for each of the concepts consisted of:
(1) completely important, (2) very important, (3) some importance, (4) almost no importance, and (5) not important. Mean scores were interpreted as follows: (1) completely important - 5, (2) very important - 4, (3) some importance - 3, (4) almost no importance - 2, and (5) not important - 1. Scores of 5-4 were interpreted as a high degree of importance, scores of 3.9-2.9 as a moderate degree and scores of 2.8-1 as a low degree of importance.
The comparison made was primarily on the mean score distribution of the groups of respondents—the administrators, supervisors, and the administrator-supervisors—in the two departments. Variance of the overall mean was computed.

Analysis of variance to determine the difference in mean scores among the respondents within and between the departments together with the F value at .05 and .01 levels of significance was included in the Table presented. This analysis of variance, however, will not be discussed since the reaction of the respondents in all major behavioral science concepts revealed a high mean scores and the variation of the overall mean scores posted by the respondents in regard to various sub-concepts of the major concepts was relatively low.

The comparison was made among the six major concepts. The discussion of the results in regard to the behavioral science concepts needed for Extension education follows.

**Extension Program Development.** An examination of items and scale scores shown in Table VI revealed the mean score posted by the respondents in each of the two departments being about equal to the overall mean score of 4.23 made by all respondents in the two departments (100 per cent). It showed that the Thai Extension personnel perceived Extension Program Development concepts being at a high degree of importance, specifically at a point slightly above the very important category.

The administrators (25 per cent of all the respondents) and the
TABLE VI

A COMPARISON OF THE EXTENT TO WHICH EXTENSION PERSONNEL PERCEIVE PROGRAM DEVELOPMENT CONCEPTS TO BE OF IMPORTANCE FOR PERFORMING JOB FUNCTIONS ACCORDING TO WORK RESPONSIBILITY IN THE AGRICULTURAL EXTENSION SERVICE AND LIVESTOCK DEPARTMENTS, THAILAND, 1972

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<td>4.65</td>
<td>.0006</td>
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<td>4. Advisory committee</td>
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<td>9. Societal objective</td>
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<td>10. Plan of work</td>
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<td>11. Program action</td>
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*Mean Scores

Table VI - continued


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</table>

*Mean scores are interpreted as follows: (1) completely important - 5, (2) very important - 4, (3) some importance - 3, (4) almost no importance - 2, (5) not important - 1.

b - between the departments; w - within the departments.
administrator-supervisors (25 per cent) each with the same mean score of 4.3 perceived the concepts being of a high degree of importance at a point above the very important category. The supervisors (50 per cent) with the mean score of 4.1 perceived the concepts being of a high degree of importance, but at a point below the level perceived by the other two groups.

A different reaction of the respondents to certain sub-concepts was found. Out of the total Extension Program Development sub-concepts of fourteen, three were perceived by the total group of respondents as being in the same importance category. The remaining eleven sub-concepts were perceived by all groups of respondents at a level above the very important category. The three sub-concepts that were classified in the somewhat important category, from higher to lower included: Planned change, Advisory committee, and Program component. When grouping all the fourteen sub-concepts, from high mean score of 4.65 to low mean score of 3.86, they were:

1. Situational analysis.

2. Plan of work.

3. Objective.

4. Program objective.

5. Program development.

6. Data analysis.

7. Societal objective.

8. Program action.

Variance of the overall mean scores among the various sub-concepts ranged from .0006 to .0012. This indicated a very low variation of mean scores related to Extension Program Development sub-concepts.

**Extension Teaching and Learning.** According to Table VII, the overall mean score made by all groups of respondents of the two departments in regard to Teaching and Learning concepts was 4.00. This revealed that the Thai Extension personnel perceived Extension Teaching and Learning concepts being at a high degree of importance to the job function or exactly at the point of the very important category.

Both the administrators (25 per cent) and the administrator-supervisors (25 per cent) having the same mean score of 4.1 perceived the concepts being slightly above the very important category. The supervisors (50 per cent) with the mean score of 3.9 perceived the concepts being of a moderate degree of importance and at the level fairly near the very important category.

Considering the reaction of all the respondents in all the twenty-two sub-concepts of Extension Teaching and Learning, the sub-concepts could be grouped in two categories according to the
TABLE VII

A COMPARISON OF THE EXTENT TO WHICH EXTENSION PERSONNEL PERCEIVE TEACHING AND LEARNING CONCEPTS TO BE OF IMPORTANCE FOR PERFORMING JOB FUNCTIONS ACCORDING TO WORK RESPONSIBILITY IN THE AGRICULTURAL EXTENSION SERVICE AND LIVESTOCK DEPARTMENTS, THAILAND, 1972

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<tr>
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<td>18. Learning experience</td>
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Table VII - continued
TABLE VII - continued

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<td>OM</td>
<td>EXTS</td>
<td>LIVS</td>
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</table>

* Mean scores are interpreted as follows: (1) completely important - 5, (2) very important - 4, (3) some importance - 3, (4) almost no importance - 2, and (5) not important - 1.
b - between the departments; w - within the departments.
higher to lower mean scores attached to them. The higher mean scores were from 4.55 to 4.02, and the lower mean scores from 3.95 to 3.67. The sub-concepts were then listed, from higher to lower, in the two groups as follows:

<table>
<thead>
<tr>
<th>Higher Scored Group (Means = 4.55--4.02)</th>
<th>Lower Scored Group (Means = 3.95--3.67)</th>
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<tr>
<td>2. Interest.</td>
<td>2. Need.</td>
</tr>
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<td>3. Philosophical screen.</td>
<td>3. Teaching objective.</td>
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<td>5. Educational objective.</td>
<td>5. Individual difference.</td>
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<td>7. Psychomotor objective.</td>
<td>7. Psychological screen.</td>
</tr>
<tr>
<td>8. Teaching device.</td>
<td>8. Affective objective.</td>
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</table>

Variance of the overall mean scores made by all the respondents of the two departments related to the sub-concepts mentioned above ranged from .0001 to .0015. This indicated a low variation of mean scores posted by the respondents on Teaching and Learning sub-concepts.

**Extension Communication.** As can be seen in Table VIII, the reaction of the respondents of the two departments related to the Extension Communication concepts revealed an overall mean score of 3.92. This mean score indicated that the Thai Extension personnel
TABLE VIII

A COMPARISON OF THE EXTENT TO WHICH EXTENSION PERSONNEL PERCEIVE COMMUNICATION CONCEPTS TO BE OF IMPORTANCE FOR PERFORMING JOB FUNCTIONS ACCORDING TO WORK RESPONSIBILITY IN THE AGRICULTURAL EXTENSION SERVICE AND LIVESTOCK DEPARTMENTS, THAILAND, 1972

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<td>Administration</td>
<td>Supervision</td>
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<td>EXTS LIVS OM</td>
<td>EXTS LIVS OM</td>
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</tr>
<tr>
<td></td>
<td>n=22 n=16 n=38</td>
<td>n=36 n=40 n=76</td>
<td>n=19 n=19 n=38</td>
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<tr>
<td>1. Communication</td>
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<td>.0009</td>
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<tr>
<td>2. Source-encoder</td>
<td>4.1 4.1 4.1</td>
<td>3.6 4.0 3.8</td>
<td>4.3 4.0 4.2</td>
<td>3.18&lt;sup&gt;W&lt;/sup&gt;</td>
<td>.05</td>
<td>3.99</td>
<td>.0010</td>
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<tr>
<td>3. Message</td>
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<td>3.6 3.8 3.7</td>
<td>4.0 4.0 4.0</td>
<td>n.s.</td>
<td>3.81</td>
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<td>4. Channel</td>
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<td>n.s.</td>
<td>3.77</td>
<td>.0012</td>
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<tr>
<td>5. Receiver-decoder</td>
<td>3.8 4.1 4.0</td>
<td>3.5 3.7 3.6</td>
<td>4.0 4.0 4.0</td>
<td>2.53&lt;sup&gt;W&lt;/sup&gt;</td>
<td>.05</td>
<td>3.79</td>
<td>.0011</td>
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<td>6. Meaning</td>
<td>4.0 3.9 4.0</td>
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<td>3.9 4.1 4.0</td>
<td>4.95&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>3.89</td>
<td>.0010</td>
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<td>7. Perception</td>
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<td>3.5 3.8 3.7</td>
<td>4.0 4.0 4.0</td>
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<td>8. Persuasion</td>
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<td>3.9 3.9 3.9</td>
<td>4.1 4.2 4.1</td>
<td>n.s.</td>
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<tr>
<td>9. Communication breakdowns</td>
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<td>3.6 3.6 3.6</td>
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<td>10. Feedback</td>
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<td>4.3 3.7 4.0</td>
<td>12.78&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>.0012</td>
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<tr>
<td>11. Fidelity</td>
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<td>4.0 4.3 4.1</td>
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</table>

* Mean scores are interpreted as follows: (1) completely important - 5, (2) very important - 4, (3) some importance - 3, (4) almost no importance - 2, and (5) not important - 1.

b = between the departments; 2 = within the departments.
perceived the Extension Communication concepts being of a moderate degree of importance and at a point near the very important category. When examining the reaction of the individual groups the following results were found.

The administrators (25 per cent) with a mean score value of 4.1 perceived the Extension Communication concepts being of a high degree of importance. The same was true of the administrator-supervisors (25 per cent) with the mean score of 4.0. These two respondent groups considered the concepts being at the point exactly at the very important category. The supervisors (50 per cent) with the mean score of 3.8 perceived the concepts being of a moderate degree of importance and at the point slightly below the very important category.

The overall mean score made by all the respondent groups relative to the Extension Communication sub-concepts ranged from a high of 4.24 to a low of 3.77. Based on these mean scores the sub-concepts could be listed, from high to low as follows:

1. Communication.
2. Fidelity.
3. Persuasion.
4. Source-encoder.
5. Feedback.
7. Perception.


11. Channel.

Variance of the overall mean scores made by all the respondent groups relative to the various Extension Communication sub-concepts ranged from .0009 to .0022. This indicated a low variation of mean scores in regard to Extension Communication sub-concepts.

Leadership Development. Table IX reveals an overall mean score of 4.40 made by all the respondent groups of the two departments relative to this group of concepts. This indicated that the Thai Extension personnel perceived Leadership Development concepts being of a high degree of importance and at a point above the very important category.

Considering the reaction of the individual respondent groups, it can be noted that all three groups of respondents perceived the concepts being at some point above the very important category. The administrator-supervisors (25 per cent) had a mean score of 4.5 followed by the administrators (25 per cent) and the supervisors (50 per cent) with a mean score of 4.4 and 4.3, respectively.

The overall mean score related to each of the sub-concepts ranged from 4.26 to 4.53. The sub-concepts listed from high to low mean scores were:

1. Leadership.
2. Leader recruitment.
3. Leader training.
4. Leader management.
TABLE IX

A COMPARISON OF THE EXTENT TO WHICH EXTENSION PERSONNEL PERCEIVE LEADERSHIP DEVELOPMENT CONCEPTS TO BE OF IMPORTANCE FOR PERFORMING JOB FUNCTIONS ACCORDING TO WORK RESPONSIBILITY IN THE AGRICULTURAL EXTENSION SERVICE AND LIVESTOCK DEPARTMENTS, THAILAND, 1972

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<td>EXTS LIVS OM</td>
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<td>(n=152)</td>
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* Mean scores are interpreted as follows: (1) completely important - 5, (2) very important - 4, (3) some importance - 3, (4) almost no importance - 2, (5) not important - 1.
Variance of the overall mean scores related to these sub-concepts ranged from .0006 to .0011. It indicated a low variation of mean scores regarding Leadership Development sub-concepts.

**Extension Evaluation.** As shown in Table X, the overall mean score of 4.18 made by all the respondents in regard to Extension Evaluation concepts revealed that the Thai Extension personnel perceived these concepts being of a high degree of importance and at the point slightly above the very important category. The administrators (25 per cent) and the administrator-supervisors (25 per cent) perceived the concepts being at a point well above the very important category. The supervisors (50 per cent) with the mean score of 4.0 perceived the concepts being at the exact point set for the very important category.

Based on the overall mean score for each of the sub-concepts made by the respondents, the sub-concepts could be listed from a high mean score of 4.23 to a low mean score of 4.14 as follows:

1. Fact collection.
2. Fact analysis and interpretation.
3. Evaluation.

Variance of the overall mean scores for the sub-concepts ranged from .0008 to .0009. This indicated a low variation of mean scores related to Extension Evaluation sub-concepts.

**Socio-economic Concepts.** As can be seen in Table XI, the overall mean score of 3.97 made by all the respondents indicated that the Thai Extension personnel perceived Socio-economic concepts to be of a moderate degree of importance and at the point near the very important
TABLE X

A COMPARISON OF THE EXTENT TO WHICH EXTENSION PERSONNEL PERCEIVE EXTENSION EVALUATION CONCEPTS TO BE OF IMPORTANCE FOR PERFORMING JOB FUNCTIONS ACCORDING TO WORK RESPONSIBILITY IN THE AGRICULTURAL EXTENSION SERVICE AND LIVESTOCK DEPARTMENTS, THAILAND, 1972

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<td>n=36 n=40 n=76</td>
<td>n=19 n=19 n=38</td>
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<td>4.4 4.1 4.3</td>
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<td>7.16^b</td>
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<td>.0009</td>
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<tr>
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<td>3.9 4.1 4.0</td>
<td>4.4 4.3 4.4</td>
<td>3.95^q</td>
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<td>4.23</td>
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<tr>
<td>3. Fact analysis and interpretation</td>
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<td>3.9 4.1 4.0</td>
<td>4.4 4.2 4.3</td>
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</table>

* Mean scores are interpreted as follows: (1) completely important - 5, (2) very important - 4, (3) some importance - 3, (4) almost no importance - 2, and (5) not important - 1.

^ - between the departments; w - within the departments.
TABLE XI

A COMPARISON OF THE EXTENT TO WHICH EXTENSION PERSONNEL PERCEIVE SOCIO-ECONOMIC CONCEPTS TO BE USEFUL OF IMPORTANCE FOR PERFORMING JOB FUNCTIONS ACCORDING TO WORK RESPONSIBILITY IN THE AGRICULTURAL EXTENSION SERVICE AND LIVESTOCK DEPARTMENTS, THAILAND, 1972

<table>
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<td>n=36 n=40 n=76</td>
<td>n=19 n=19 n=38</td>
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<td>4.28</td>
<td>.0006</td>
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<td>5. Social disorganiza­tion</td>
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<td>3.7 3.7 3.7</td>
<td>3.9 3.8 3.8</td>
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<td>3.76</td>
<td>.0013</td>
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<td>6. Social change</td>
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<td>3.5 3.5 3.5</td>
<td>3.9 3.9 3.9</td>
<td>3.36\textsuperscript{W}</td>
<td>.05</td>
<td>3.70  \textsuperscript{a}</td>
<td>.0010</td>
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<td>7. Power</td>
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<td>3.7 3.9 3.8</td>
<td>4.2 4.3 4.2</td>
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<td>3.95</td>
<td>.0012</td>
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<td>8. Role conflict</td>
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<td>3.7 3.9 3.8</td>
<td>4.2 4.1 4.1</td>
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<td>3.93</td>
<td>.0012</td>
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<td>3.8 4.1 4.0</td>
<td>4.0 4.4 4.2</td>
<td>9.62\textsuperscript{b}</td>
<td>.01</td>
<td>4.09  \textsuperscript{a}</td>
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Table XI - continued
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<th>Administration-Supervision</th>
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<td>10. Role frustration</td>
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<td>4.4 4.4 4.4</td>
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<td>.05</td>
<td>4.15</td>
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<td>3.9 4.1 4.0</td>
<td>4.1 4.5 4.3</td>
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<td>.0012</td>
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<td>.05</td>
<td>3.79</td>
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*Mean scores are interpreted as follows: (1) completely important = 5, (2) very important = 4, (3) some importance = 3, (4) almost no importance = 2, and (5) not important = 1.

<sup>b</sup> between the departments; <sup>W</sup> within the departments.
category. The individual groups of respondents reacted to the various Socio-economic sub-concepts in the following manner.

The administrators (25 per cent) and the administrator-supervisors (25 per cent) with the mean score of 4.0 and 4.1 respectively perceived the sub-concepts being of a high degree of importance and at a point set for the very important category. The supervisors (50 per cent) with the mean score of 3.8 perceived the sub-concepts being of a moderate degree of importance and at the point slightly below the very important category.

The overall mean score made by all the respondents regarding the various Socio-economic sub-concepts ranged from a high of 4.28 to a low of 3.76. From this overall range of mean scores, the sub-concepts could be listed from high to low mean scores as follows:

1. Resource development.
2. Role frustration.
3. Role inadequacy.
4. Role boredom.
5. Resource.
6. Power.
7. Social interaction.
8. Role conflict.
9. Social organization.
11. Social disorganization.
12. Social change.
Variance of the overall mean scores as a result of the reaction of all the respondents related to the Socio-economic sub-concepts ranged from .0006 to .0013. This indicated a low variation of mean scores in regard to these sub-concepts.

The overall consideration of the respondents in regard to the importance of the major behavioral science concepts to their job function was expressed in terms of the overall mean scores ranging from a high of 4.40 to a low of 3.92. The six major concepts can be listed as follows from highest to lowest degree of importance as perceived by the respondents.

1. Leadership Development (mean score of 4.40).
2. Extension Program Development (mean score of 4.23).
3. Extension Evaluation (mean score of 4.18).
4. Extension Teaching and Learning (mean score of 4.00).
5. Socio-Economic Concepts (mean score of 3.97).
6. Extension Communication (mean score of 3.92).
CHAPTER VI

A SUGGESTED BEHAVIORAL CONTENT AND SERIES OF COURSES

FOR A CURRICULUM IN EXTENSION EDUCATION

The attempt made in this Chapter is to suggest the behavioral content and a series of courses for a curriculum based on the findings of this study.

The findings in regard to the expected future job functions, that signify the major roles to be performed by the Thai Extension personnel, are ranked below in terms of extent of performance.

1. To plan and provide training on all phases of farming and rural life including production, marketing, leadership development, resource use, and public affairs.

2. To give advice regarding Extension duties.

3. To study and evaluate Extension work, and use findings for strengthening program efforts.

4. To collect facts on social, economic, and technological resources necessary for planning, execution, and evaluation of the Extension programs.

5. To study the collected facts and choose problems for Extension work to suit the needs and interests of the community.

6. To develop a long-term Extension program based on the problems identified.

7. To set standards and procedures in Extension evaluation which will enable improvement of Extension work.
8. To furnish educational information needed for Extension education.

9. To analyze problems and set goals to solve the problems.

10. To contact, coordinate, and maintain effective communication with various resource persons, leaders, and relevant professionals.

Six major concepts in behavioral sciences which appeared to be needed by the Thai Extension personnel for the above mentioned expected future job performance are ranked as follows:

1. Leadership Development.

2. Extension Program Development.


4. Extension Teaching and Learning.

5. Socio-Economic Concepts.


It is therefore logical to have these six major behavioral science concepts as a core content in the curriculum for preparing the Thai top-level Extension personnel.

The broad areas in an Extension education curriculum should include:

1. An understanding of the principles, organization, objectives, and philosophy of Extension work. This would involve the practical ways of leadership development; of organizing for group action; of program development; of evaluating and reporting on Extension work; of methods for developing skills in direct effective teaching; and of communicating new ideas.
Included would be at least an elementary understanding of the principles of sociology and psychology. Some comprehension of administrative procedures and personnel training should also be taught. This area could be referred to as educational change.

2. An understanding of agricultural subject matter and techniques. This would include farm and home practices and their effects on social and economic well-being of the farm people. A knowledge of the marketing mechanism would also be desirable. The students should understand why income based on farms is low compared to income elsewhere in the country's economy; how can abundance of food and clothing material make it feasible for more work in the area of producing comforts and conveniences; and how farm people freed from farming could find and qualify for non-farm opportunities. This area could be referred to as the technical concentration.

The educational objectives set forth for a graduate curriculum in Extension education should include the following:

1. For the students to increase their understanding of the principles, organizations, objectives and philosophy of Extension education. This would include the significance and potential of Extension education in our complex present day social, economic, and technological society. This would emphasize the role of Agricultural Extension Service system and other relevant systems in facilitating the social, economic, and technological adjustments necessary for individuals and
groups to effectively cope with the consequences of changes in the society.

2. For the students to develop and further strengthen their understanding and proficiency in the application of concepts in Extension education and social science disciplines in planning, executing, and evaluating educational programs.

3. For the students to develop a spirit of inquiry regarding Extension teaching and learning concepts which would assist people to develop the necessary skills to solve their problems.

4. For the students to develop proficiency in designing and conducting research which might answer questions relative to effecting behavioral change in people.

5. For the students to develop those qualities of personal leadership which would increase their ability to: (1) recognize and analyze significant problems; (2) formulate principles and use the principles to analyze situations; (3) contact, coordinate, and maintain effective communication with individuals and groups in assisting them develop the capacity to deal with problems; and (4) work effectively with general publics.

6. For the students to develop an appropriate balance of competencies between the educational change and the technical subject matter areas.

7. For the student to acquire a recognition of the need for continued intellectual development throughout life, and to commit themselves to the attainment of this end.
A series of courses based on the two broad areas discussed above should be offered in order that the students could achieve the objectives set forth. The courses suggested in each of the two broad areas are listed and discussed in turn below.

**Courses in Educational Change**

To increase competencies of the students in educational leadership, the following courses should be offered:

1. Leadership Development and Organization.
2. Extension Program Development.
4. Extension Teaching and Learning.
5. Extension Communication.
6. Principles in Extension Education.
7. Advanced Extension Education.

The above series of courses should provide learning experiences to produce educational leadership quality especially in terms of:

1. Developing an atmosphere in which people feel free to discuss their problems, their feeling of difficulty, and their needs.
2. Developing a sense of shared interest in problems and a climate of mutual respect and understanding.
3. Developing the assumption that leaders will change as a result of their experiences.
4. Adopting training programs to meet the needs and interests of all members in a particular group.
5. Developing a problem-solving orientation toward difficulties of leadership.
6. Clarifying training goals.
7. Understanding why leaders in training have been performing as they have been.
8. Modifying forces that will permit leaders, in training, to perform in an improved manner; deciding what changes need to be made to meet local situations.
9. Acquiring and practicing new skills which analyze the leadership situation and indicate the things most needed.
10. Relating training to actual situations in which the member will use it.
11. Providing continued reinforcement and help in applying to the job situation what has been learned in training.

Courses in Technical Concentration

Courses to be offered in this major area should be based on the background of academic training of the students. Besides agricultural technology such as Plant Science, and Animal Science, a series of courses in Socio-Economic Sciences would be necessary to supplement the educational change area for effective Extension work. These Socio-Economic Sciences should include:

1. Resource Development. This should involve agricultural and human resources: the utilization of natural resources including land, water, fish and wildlife; the utilization of human resources including the organization of human resources and the ability to utilize the organization as Extension teaching tools.
2. Agricultural Economics. This should involve: (1) the principles of farm production and management—the aspects of the optimum farm organization and the intensity with which each enterprise should be carried out; (2) the principles of marketing, including pricing policies and general management problems of marketing and processing firms; (3) the principles of farm financing including sources and use of farm credit; (4) principles of commodity outlook including supply, price, and demand situations for the various commodities; and principles of community development and public affairs including a knowledge of the analysis of internal and external resources available to the community. When local or national public issues arises, the students in Extension education should understand how to assist in setting forth the nature of the problems alternative solutions to the problems, and the consequences of each solution, so that the community or area population can make a wise decision.

3. **Home Economics.** This should involve the understanding of the family being the basic unit of society which provides a sense of direction and purpose for its members. Also the understanding that attitudes and values are established, goals are set, skills are acquired, and the ability to make decisions is developed within the home and among members of the family. An understanding of the needs of the family would include: (1) an understanding of human needs and desires for growth and development of children and adults; (2) an understanding of choices
which families have to make in using their resources to attain the family goals; (3) an understanding of the influences of adequate food, clothing, shelter, and recreation on family health and well-being; (4) an understanding of and appreciation for the customs, culture, values, and traditions of the people in the society; (5) an awareness of the needs of people for an informed leadership capable of appraising and solving problems concerning the welfare of the families; and (6) an appreciation for and the use of factual information in making family decisions.

4. **Sociology.** This should include an understanding of and the ability to apply certain concepts in sociology. These concepts would include: (1) social interaction; (2) social organization; (3) social disorganization; (4) social change; (5) change agents; (6) power; (7) role conflict; (8) role frustration; (9) role inadequacy; and (10) role boredom.
CHAPTER VII

SUMMARY AND CONCLUSIONS

SUMMARY

Social and economic well-being in Thailand has been based on agriculture. Although the country has long been prepared for agricultural development, it has not yet accomplished a major breakthrough in agriculture. One of the main problems is low farm productivity. This low productivity stems from different and related factors. These factors include:

1. The organization of production into small scale and technologically backward units together with the drag of culture and tradition.
2. The condition of land tenure.
3. The lack of suitable farm credit.
4. The effect of off-farm employment.

This situation challenges the country to further improve many factors. First, is the need for a more unified Extension system in dealing with the farmers, the foundation of the "pyramid" of Thai society. Second, is the need for qualified Extension personnel who can work efficiently with the Thai farm people, and assist and accelerate changes for agricultural development.

The present and future improvement in agricultural development in the country is based to a large extent on the competency of the top-level Extension personnel to push problem-solving to the grass roots
level to help farm people develop themselves efficiently in a changing society.

The major objective of this study was to develop a graduate curriculum which, among other things, would prepare qualified Extension personnel for this important role. The study was based primarily on the theoretical framework for curriculum development suggested by Tyler (23), and the basic dimensions of behavioral change elaborated in learning theory.

In applying this theoretical framework to the study, the Extension job functions and behavioral science concepts considered significant to job performance by Extension personnel in administrative and/or supervisory positions were initially identified and defined. The degree of relevance of these concepts to the job was ascertained from Extension administrators, supervisors, and administrator-supervisors in the two departments of Agricultural Extension Service and Livestock of the Ministry of Agriculture and Cooperatives. In addition, data about agriculture and Extension work, including the several institutions concerned with agricultural development were also collected.

In terms of Tyler's framework for selecting curriculum objectives, the three sources from which information was obtained were Thai top-level Extension personnel (the learners), and published and unpublished literature relating to Extension work and agricultural development in Thailand (research and society).

The questionnaire for the investigation was developed in three sections: (1) personal and occupational data, and job satisfaction; (2) actual and expected future job functions; and (3) certain behavioral
science concepts thought to be useful for Extension job performance.

Likert-type scaling technique was applied. The respondents were asked to respond to each item in terms of several degrees of judgements or opinions. Each of the items contained a scale with a number for scoring.

The procedure for weighting involved placing the items within each scale into groups of varying degrees of strength. The largest weight assigned was the highest score, and the smallest and/or none was the lowest score indicated in the categories to be studied.

The pretest of the questionnaire was made with six individuals who represented the Thai Extension personnel in the Department of Agricultural Extension Service. This pretest was done to determine the amount of time for completion and corrections of statements and questions which were ambiguous or misleading. The pretest accounted for changes in the content of certain items and questions and helped develop a more highly standardized questionnaire form for completion.

The determination of the sample was based on the status-positions and tenure in Extension responsibilities of the Extension personnel. The Extension personnel selected were those who had had at least one year experience in Extension work, and who were degree holders and working in lines of crop and livestock production. A mail questionnaire was distributed to the entire selected Extension personnel, comprising 112 in the Department of Agricultural Extension Service and 90 in the Department of Livestock. The data collection began in October and ended in November, 1972. One-hundred-and-fifty-two staff members responded,
accounting for over 75 per cent of the population of 202. Seventy-seven respondents were from the Department of Agricultural Extension Service, and 75 from the Department of Livestock.

The data were coded and analyzed on computer for various statistical measures to study differences among Extension personnel in the two departments who had administrative, supervisory, and joint administrative-supervisory responsibilities with regard to the following major categories:

1. Personal and Occupational Characteristics.
2. Job Satisfaction.

The statistical measures used to analyze differences within and between these groups included: (1) mean score distribution to measure the central value, (2) variance of the overall mean scores to measure variability in respect to the variables being studied; and (3) analysis of variance (F test) to measure the variations of mean scores posted by the respondents in regard to the variables within and between the two departments. The levels of significance used to determine significance of obtained F values were .05 and .01.

Two hypotheses set forth for the analysis of all the major variables were:

Hypothesis I: There is no significant difference of mean scores posted by the respondents related to various variables being studied within the departments.
Hypothesis II: There is no significant difference of mean scores posted by the respondents related to various variables being studied between the two departments.

The results of the study are summarized below.

The analysis of the four major categories under investigation is mostly based on the overall mean score-level because the reaction of the respondents revealed similar high mean scores with a low variation of the overall mean scores related to various variables being studied.

**Personal and Occupational Characteristics**

**Age.** The average age of the Thai Extension personnel was 33.3 years. Administrators and administrator-supervisors were about the same age, namely 35 years, while the supervisors averaged 31.6 years.

**Sex.** The overall ratio of male to female Extension personnel was 4:1.

**Status-position.** The heirarchy of status-position of the Extension personnel extended from the lower third grade to the higher second and third grade and to the highest special grade of officials. Over 70 per cent of the Extension personnel were in the category of second-grade official. The remaining 30 per cent were in the first, third, and special grades. The special grade officials were smallest in number—only two persons, and the next lowest were the third grade officials with 16 persons in this category.

**Extension Tenure.** The total average Extension-work tenure of the Extension personnel was 7.8 years. The administrators and administrator-supervisors had served on the average over 9 years, while the supervisors had served about 6 years in Extension work.
Education. Sixty-nine per cent of the Extension personnel were trained at the undergraduate level, and 31 per cent at the graduate level. Out of the graduate level group, there was one individual who had a doctorate in economic development and was working in the supervisory group. Forty-nine per cent of the graduate-level respondents were trained in animal and plant sciences, 28 per cent in Extension education, 13 per cent in socio-economics, 4 per cent in veterinary medicine, 2 per cent in community development, 2 per cent in home economics, and 2 per cent in agricultural education. Out of the undergraduate level personnel, 59 per cent were trained in animal and plant sciences, 27 per cent in veterinary medicine, 13 per cent in Extension education, and the remaining 1 per cent in community development and farm mechanics.

Work Location. Fifty-four per cent of the total respondents worked in the Central region, primarily in Bangkok; 28 per cent in the Northeastern region; 12 per cent in the Northern region; and the remaining 6 per cent in the Southern region.

Job Satisfaction

To determine the extent to which the Extension personnel were satisfied with their job, the following job characteristics were presented to the respondents: opportunity to work according to ability; opportunity to work as expected before entering the job; time to be devoted to the job; relationship with boss; relationship with colleagues; and relationship with relevant agencies.

The respondents were asked to select one of five response categories
each of which had a number for scoring as follows: (1) completely satisfied - 5, (2) very satisfied - 4, (3) some satisfaction - 3, (4) undecided - 2, and (5) almost not satisfied - 1. Mean scores of 5-4 were interpreted as a high degree of satisfaction, scores of 3.9-2.9 a moderate degree, and scores of 2.8-1 were considered as a low degree of satisfaction. Based on the mean score distribution, the satisfaction of the respondents related to the job characteristics was considered.

The overall mean score posted by all the respondents revealed that the Extension personnel expressed their satisfaction on the job characteristics to a moderate degree. Based on the range of the overall mean score from a high of 3.97 to a low of 3.34, the job characteristics were listed as follows:

1. Relationship with colleagues.
2. Time to be devoted to the job.
3. Opportunity to work according to ability.
4. Relationship with boss.
5. Opportunity to work as expected before entering the job.
6. Relationship with relevant agencies.

The administrator-supervisors showed a relatively higher degree of satisfaction of the job characteristics followed by the administrators and supervisors respectively.

The reaction of the respondents in each of the departments showed no significant difference (at .05 level of significance) of mean scores posted by respondents. A highly significant difference (at .01 level of significance), however, of mean scores posted by the respondents between
the two departments occurred in only one job characteristic, time to be devoted to the job. There still appeared to be some consensus among administrator-supervisors of the two departments regarding this job characteristic. This consensus was at the level of the very satisfied category. On the other hand, the administrators and supervisors in the Department of Agricultural Extension Service showed a relatively less degree of satisfaction in the matter of time to be devoted to the job than those in the Department of Livestock. This difference may be partly due to the difference in work responsibility between the two departments. The Department of Agricultural Extension Service being newly established and dealing with crops, the major agricultural enterprise in Thailand, may require more work time than the long-established Department of Livestock which deals with animals, a minor agricultural enterprise in the country.

**Job Function Emphasis**

Ten job functions were presented to the respondents for their opinion regarding extent to which they were performing these job functions and anticipated involvement in the future. An abbreviated form of each function is given in parenthesis.

1. Give advice to Extension workers regarding Extension duties (Give advice).

2. Collect facts on social, economic, and technological resources necessary for planning, execution, and evaluation of Extension programs (Collect facts).

3. Study the facts and choose problems for Extension work to suit
needs and interests of the community (Study facts).

4. Develop long-term Extension programs based on the problems identified (Develop programs).

5. Analyze the problems and set goals to solve the problems specified in Extension programs (Analyze problems).

6. Set standards and procedures in Extension evaluation in order to be able to improve the Extension work (Set evaluation standards).

7. Plan and provide training on all phases of farming and rural life to include production, marketing, leadership development, resource use, and public affairs for Extension workers and other leaders such as Farmers' Organization, and 4-H Club leaders to improve their competence in doing Extension work (Provide training).

8. Contact, coordinate, and maintain effective communication with various resource persons, leaders, and relevant professionals (Maintain communication).

9. Furnish educational information in such forms as bulletins and other Extension devices to Extension workers, agricultural agencies, and public (Furnish information).

10. Study and evaluate work of Extension workers, and use findings for strengthening program efforts (Evaluate work).

The respondents were asked to indicate the extent of their present involvement in the above job functions on a five-point scale. The response categories on the scale and the score assigned to them were:
(1) always - 5, (2) occasionally - 4, (3) undecided or uncertain - 3, (4) almost never - 2, and (5) never - 1. Scores ranging between 5 and 4 were interpreted as a high degree of the job performance, scores from 3.9 to 2.9 as a moderate degree, and scores from 2.8 to 1 as a low degree of job performance. They were asked to indicate the extent to which they expected to perform each of these job functions in the future--more than at present (score 3), the same as at present (score 2), and less than at present (score 1). Scores from 3 to 2.6 were interpreted to mean a high degree of expectation for performing the job function, and scores ranging from 2.5 to 1 indicated a low degree of expectation for performing the job function.

Based on the mean score distribution, the actual and expected future job functions were determined.

**Actual Job Function.** The mean score posted by the respondents of all three groups relating to the actual job functions indicated that the Thai Extension personnel perceived the actual job functions as being performed to a moderate degree. This degree of job performance tended toward the occasionally performed category. The actual job functions ranked from the high overall mean score of 4.11 to a low of 3.21, in terms of extent of performance were as follows:

1. Maintain communication.
2. Furnish information.
3. Collect facts.
5. Study facts.
6. Analyze problems.

7. Develop programs.

8. Set evaluation standards.

9. Provide training.

10. Evaluate work.

The reaction of the individual groups of respondents in relation to the job functions was as follows. The administrator-supervisors (overall mean score 3.9) appeared to perceive the job functions being performed at a point near the occasionally performed category which was the highest point among all the three respondent groups. The group of administrators (overall mean 3.8) and supervisors (overall mean 3.5) perceived the job function performance at slightly lower levels. All three groups of respondents, however, perceived the job functions being performed near the occasionally performed category.

A highly significant difference in mean scores between the reaction of the respondents in the two departments appeared in only the function of collecting facts. This difference occurred because all the respondent groups in the Department of Agricultural Extension Service perceived the job function being performed to a high degree and at a point above the occasionally performed category. In contrast, all respondent groups in the Department of Livestock perceived the job function being performed to a moderate degree and at a point just above the undecided category. This difference in the reaction of the respondents between the two departments regarding the job function (collect facts) may be partly because of the different nature of work responsibility of the two departments. The Department of Agricultural Extension Service
being newly established may require more data for doing Extension work than the long established Department of Livestock. Moreover, the former department dealing with crops may require much more data than the latter one which deals with animals. Crops dominate livestock enterprises in Thailand's agriculture. The majority of the Thai farm people are engaged in crop rather than livestock production.

Expected Future Job Function. The overall mean scores posted by all respondent groups in relation to the expected future job functions revealed that the respondents were performing the job functions at present and expected to perform these in the future to a greater extent than presently. These expected future job functions ranked according to the overall mean score ranging from a high of 2.82 to a low of 2.76 were as follows:

1. Provide training.
2. Give advice.
3. Evaluate work.
5. Study facts.
6. Develop programs.
7. Set evaluation standards.
8. Furnish information.
10. Maintain communication.

The reaction of the respondents in both departments revealed about the same high mean score of 2.8. This indicated that the respondents of
the two departments perceived the above job functions to be performed to a greater extent in the future.

**Behavioral Science Concepts**

To determine the behavioral science concepts needed for Extension job functions, the respondents were asked to select one of five categories on a scale to indicate their opinion related to 66 sub-concepts which were subsumed under six major concepts, namely: Extension Program Development, Extension Teaching and Learning, Extension Communication, Leadership Development, Extension Evaluation, and Socio-Economic Concepts. Response categories for each of the concepts were: (1) completely important, (2) very important, (3) some importance, (4) almost no importance, and (5) not important. Mean scores were interpreted as follows: (1) completely important - 5, (2) very important - 4, (3) some importance - 3, (4) almost no importance - 2, and (5) not important - 1.

The reaction of all respondent groups in both departments to the six major concepts revealed the high mean scores at about the point of the very important category. The range of the overall mean scores of the six major concepts was a high of 4.40 to a low of 3.92. The six major concepts could be ranked according to the overall mean scores from high to low as follows:

1. Leadership Development (mean score 4.40).
2. Extension Program Development (mean score of 4.23).
3. Extension Evaluation (mean score of 4.18).
4. Extension Teaching and Learning (mean score of 4.00).
5. Socio-Economic Concepts (mean score of 3.97).

6. Extension Communication (mean score 3.92).

Based on the present and expected future job functions, and the importance of behavioral science concepts expressed by the top-level Extension personnel (learners) in the two departments, the Thai personnel should be prepared in the direction which would develop their educational leadership quality for working efficiently with farm people. They are expected to play a very constructive role for the success of the Extension systems in agricultural development of the country.

Derived from the concepts revealed by the respondents, two broad areas should be included in an Extension education curriculum. These two areas are:

1. An understanding of educational change— involving the basic principles in Extension education, namely, the principles, organization, objectives, and philosophy of Extension work. This would include the practical ways of leadership development and organization; of organizing for group action; of evaluating and reporting on Extension work; of methods for developing skills in direct effective teaching; and of communicating new ideas. Included would be at least an elementary understanding of the principles of sociology and psychology. Some comprehension of administrative and personnel training should also be taught.

2. An understanding of technical concentration— involving agricultural subject matter and techniques including farm and
home practices and their effects on social and economic well-being of the farm people.

The educational objectives set forth in Extension education curriculum should include the following:

1. Increasing understanding of the principles, organizations, objectives, and philosophy of Extension education. This would include the role of Extension education in facilitating the social, economic, and technological development necessary for individuals and groups to effectively cope with the consequences of changes in the society.

2. Developing and further strengthening understanding and proficiency in the application of concepts in Extension education and social science disciplines in planning, executing, and evaluating educational programs.

3. Developing a spirit of inquiry regarding Extension teaching and learning concepts in helping people develop skills to solve their own problems.

4. Developing proficiency in designing and conducting research which might answer questions relative to effecting behavioral change in people.

5. Developing qualities of personal leadership which would increase ability to solve problems.

6. Developing an appropriate balance of competencies between the educational change area and the technical subject matter area.

7. Appreciating a recognition for the need for continued intellectual
development throughout life, and commitment to the attainment of this end.

In order to achieve these objectives a series of courses in the two broad areas should be offered in providing learning experiences for the students. These courses would include in the areas as follows:

Courses in Educational Change

Leadership Development and Organization.

Extension Program Development.

Extension Evaluation and Research.

Extension Teaching and Learning.

Extension Communication.

Principles in Extension Education.

Advanced Extension Education.

Courses in Technical Subject Matter—based on background of training of the students which may involve the concentration in Plant Science, Animal Science, and Socio-Economic Sciences. The Socio-Economic Sciences appeared to be desirable and should include: Resource Development, Agricultural Economics, Home Economics, and Sociology.

CONCLUSIONS

The graduate curriculum for Extension personnel in Thailand proposed in the study has been developed using an acknowledged curriculum development model, including the important dimension of learner educational needs. The latter were obtained by sampling opinions of top-level Extension personnel with regard to their performance of job functions and the relevance of certain behavioral science concepts to adequate job performance.
The curriculum, therefore, had a sound research base, and could be introduced into a graduate program for Extension education in the country.

The educational program should be of value in preparing qualified Extension personnel to initiate and assist with effective changes in increasing and accelerating agricultural development in the country. It would suit the existing graduate program at the Kasetsart University to better upgrade and/or supply strong educational leadership for the existing Extension Service systems and the several relevant institutions.

To meet special needs, the Extension curriculum in the country could be reinforced by various media and methods. These might include:

(1) schools for formal training, such as summer schools, country-wide training schools, off-campus courses; (2) written material such as personal correspondence, newsletters, bulletins, service letters and articles in Extension publications and other farm magazines; (3) meetings such as leadership training meetings, visits with specialists, industry groups, specialists participation, and workshops; (4) conferences; (5) exchange of work responsibilities between agents; (6) field trips; (7) committees to study specific problems; and (8) allowing sabbatical leave to Extension personnel to undergo training.

The training period should be extended through the summer, a period suitable for both the persons who would conduct the training program and the trainees involved. During this period the facilities of the universities and schools can be made available because of summer recess. The length of the training period would vary depending on the background and number of students and/or trainees. In addition to staff members at Kasetsart
University, persons who would conduct the teaching and/or training could be borrowed from different sources. These sources of the resource persons may include government agencies, and some international organizations like the FAO Regional Committee.

The implementation of the curriculum will be feasible only if the top-level administrators of the University and institutions involved accept the curriculum as being of value for their systems. These innovative ideas will have to be communicated to and be accepted by the institutional authorities capable of initiating the suggested changes. It is possible that some time will be needed to initiate changes among the various departments in the Ministry of Agriculture and Cooperatives and other concerned ministries and the Kasetsart University before the curriculum is accepted.

The success of this curriculum will depend to a large extent on which Extension systems will cooperate with the University in preparing their Extension personnel. A joint effort between the University and relevant organizations in which the graduates of the University will ultimately work is a necessity for the continuity and success of the curriculum.

This curriculum is subject to change in order to reach optimum effectiveness in preparing the Extension personnel for various agencies. It needs to be continuously evaluated and re-evaluated for suitable changes and modifications. The first graduate group, after training, should be evaluated using suitable evaluation techniques.

The content suggested in the curriculum, on the other hand, needs
to be utilized with an appropriate balance between the educational change area and the technical subject matter area. This will be based on the background and needs of the individuals and groups to be trained so that optimum opportunities and learning experiences can be provided to the learners. The concepts included in the curriculum would also be subject to change and adaptation depending on the needs, interests, and background of the learners.
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C. UNPUBLISHED MATERIALS


APPENDIX

MAIL QUESTIONNAIRE USED TO STUDY JOB CHARACTERISTICS AND JOB-RELATED BEHAVIORAL SCIENCE CONCEPTS FOR TOP-LEVEL EXTENSION PERSONNEL, THAILAND, 1972

SECTION I. GENERAL INFORMATION

For the purpose of statistical analysis, please indicate the facts about yourself and your job, by putting ✓ mark or complete the blank in the following items:

1.1a Sex ________________ 1.1b Age ________________ years.

1.1c Present Position ________________

1.1d Section, Division, and Department ________________

1.1e Region, and Province ________________

1.2 Highest education background and field of studies:

1.2a B.S. ___ Major ________________ Minor ________________

1.2b M.S. ___ Major ________________ Minor ________________

1.2c Ph.D. ___ Major ________________ Minor ________________

1.3 Number of years served in Extension work ________________ years.

1.4 Number of years served in present position ________________ years.

1.5 Major function in present position:

1.5a More in Administration ______

1.5b More in Supervision ______

1.5c Other (please specify) ______

Note: Administration function includes policy making, controlling, and taking active responsibilities in doing the job of the agency.

Supervision function includes giving advice and helping the Extension workers in doing the job of the agency.
1.6 Please indicate the extent of your satisfaction in your present Extension job, by circling the number (such as 5, 4, 3, 2, or 1) which expresses the level of your job satisfaction in each of items, 1.6a through 1.6f. Circle only one number per item.

<table>
<thead>
<tr>
<th>Item</th>
<th>Level of Satisfaction</th>
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<tbody>
<tr>
<td></td>
<td>Completely Satisfied</td>
</tr>
<tr>
<td>1.6a</td>
<td>Opportunities to work according to ability.</td>
</tr>
<tr>
<td>1.6b</td>
<td>Opportunities to work as expected before entering the job.</td>
</tr>
<tr>
<td>1.6c</td>
<td>Time to be devoted to the job.</td>
</tr>
<tr>
<td>1.6d</td>
<td>Relationships with boss.</td>
</tr>
<tr>
<td>1.6e</td>
<td>Relationships with colleagues.</td>
</tr>
<tr>
<td>1.6f</td>
<td>Relationships with various agencies.</td>
</tr>
</tbody>
</table>

SECTION II. ROLES OF EXTENSION PERSONNEL

Items 2.1 through 2.10 are certain roles which Extension Administrators and Supervisors perform. Indicate the frequency (i.e. always, occasionally, undecided, almost never, or never) with which you perform each of the roles by circling the number expressing the frequency (such as 5, 4, 3, 2, or 1). Circle only one number per role. Indicate also the extent you should perform the role in a more or same or less manner by putting one \( \checkmark \) mark above the appropriate performance. Put only one \( \checkmark \) mark above the three choices.

2.1 Give advice to Extension workers regarding Extension duties.

| 5 | Always |
| 4 | Occasionally |
| 3 | Undecided |
| 2 | Almost Never |
| 1 | Never |

Do you feel that for better performance of your job you should do this:

(3) More  (2) Same  (1) Less
2.2 Collect facts on social, economic, and technological resources necessary for planning, execution, and evaluation of the Extension programs.

5 Always 4 Occasionally 3 Undecided 2 Almost 1 Never

Do you feel that for better performance of your job you should do this:

(3) _______ (2) _______ (1) _______

More Same Less

2.3 Study the collected facts and choose problems for Extension work to suit the needs and interests of the community.

5 Always 4 Occasionally 3 Undecided 2 Almost 1 Never

Do you feel that for better performance of your job you should do this:

(3) _______ (2) _______ (1) _______

More Same Less

2.4 Develop long-term Extension programs based on the problems identified.

5 Always 4 Occasionally 3 Undecided 2 Almost 1 Never

Do you feel that for better performance of your job you should do this:

(3) _______ (2) _______ (1) _______

More Same Less

2.5 Analyze the problems and set goals to solve the problems specified in Extension programs.

5 Always 4 Occasionally 3 Undecided 2 Almost 1 Never

Do you feel that for better performance of your job you should do this:

(3) _______ (2) _______ (1) _______

More Same Less
2.6 Set standards and procedures in Extension evaluation in order to be able to improve the Extension work.

<table>
<thead>
<tr>
<th>5</th>
<th>4</th>
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<th>2</th>
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<tbody>
<tr>
<td>Always</td>
<td>Occasionally</td>
<td>Undecided</td>
<td>Almost Never</td>
<td>Never</td>
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</tbody>
</table>

Do you feel that for better performance of your job you should do this:

(3) More  (2) Same  (1) Less

2.7 Plan and provide training on all phases of farming and rural life to include production, marketing, leadership development, resource use, and public affairs for Extension workers and other leaders such as Farmer Organizations, 4-H Club leaders to improve their competence in doing Extension work.

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<thead>
<tr>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
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<tbody>
<tr>
<td>Always</td>
<td>Occasionally</td>
<td>Undecided</td>
<td>Almost Never</td>
<td>Never</td>
</tr>
</tbody>
</table>

Do you feel that for better performance of your job you should do this:

(3) More  (2) Same  (1) Less

2.8 Contact, coordinate, and maintain effective communication with various resource persons, leaders, and relevant professionals.

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<tr>
<th>5</th>
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<th>1</th>
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<tbody>
<tr>
<td>Always</td>
<td>Occasionally</td>
<td>Undecided</td>
<td>Almost Never</td>
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</tbody>
</table>

Do you feel that for better performance of your job you should do this:

(3) More  (2) Same  (1) Less

2.9 Furnish educational information in such forms as bulletins and other Extension devices to Extension workers, agricultural agencies and publics.

<table>
<thead>
<tr>
<th>5</th>
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<tr>
<td>Always</td>
<td>Occasionally</td>
<td>Undecided</td>
<td>Almost Never</td>
<td>Never</td>
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</tbody>
</table>

Do you feel that for better performance of your job you should do this:

(3) More  (2) Same  (1) Less
2.10 Study and evaluate work of the Extension workers, and use findings for strengthening program efforts.

<table>
<thead>
<tr>
<th>Always</th>
<th>Occasionally</th>
<th>Undecided</th>
<th>Almost</th>
<th>Never</th>
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<tbody>
<tr>
<td>5</td>
<td>4</td>
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</table>

Never

(3) More (2) Same (1) Less

2.11 Please specify any other roles you feel should be included.

________________________________________________________________________

________________________________________________________________________

SECTION III. CONCEPTS REQUIRED BY EXTENSION PERSONNEL

Items 3.1 through 3.66 specify concepts from the behavioral sciences which appear to be useful to Extension personnel in performing their jobs. After each concept a brief definition has been given. For each concept, please indicate by circling the appropriate number (i.e., 5, 4, 3, 2, or 1) whether you consider the concept of completely important, very important, some importance, no importance and not important. Circle only one number per concept.

### Extension Program Development

<table>
<thead>
<tr>
<th>Relative Importance</th>
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<tbody>
<tr>
<td>Completely Important</td>
</tr>
<tr>
<td>Concept</td>
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</tbody>
</table>

3.1 Situational Analysis:
An orderly method of studying a condition, problem, or concern in terms of the factors in the total setting giving rise to the condition, problem, or concern.

<table>
<thead>
<tr>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
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</thead>
<tbody>
<tr>
<td>Concept</td>
<td>Relative Importance</td>
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<td></td>
<td>Completely Important</td>
<td>Very Important</td>
<td>Some Importance</td>
<td>Almost Important</td>
</tr>
<tr>
<td>3.2 Data Analysis:</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Purposeful ordering of data in a manner that facilitates objective interpretation with respect to a particular question, concern, or objective.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
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<tr>
<td>3.3 Audience:</td>
<td></td>
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<tr>
<td>Participants who are targets for program objective.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
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<tr>
<td>3.4 Advisory Committee:</td>
<td></td>
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<tr>
<td>An elected, selected, or appointed group organized to perform advisory, to offer opinions, suggestions, or recommendation on matters pertaining to program development.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>3.5 Program Component:</td>
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<td></td>
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<tr>
<td>A constituent part of a program document containing a situational statement of the problem and statement of the objective.</td>
<td>5</td>
<td>4</td>
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<tr>
<td>3.6 Problem:</td>
<td></td>
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<tr>
<td>A situation or condition, after studying, is believed should be changed and the desired change can be brought about in a total or in part through educational endeavor. It is the conditions which prevent change from &quot;what is&quot; to &quot;what ought to be.&quot;</td>
<td>5</td>
<td>4</td>
<td>3</td>
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<tr>
<td>Concept</td>
<td>Relative Importance</td>
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<td>Completely Important</td>
<td>Very Important</td>
<td>Some Importance</td>
<td>Almost Important</td>
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<tr>
<td><strong>Objective:</strong></td>
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<tr>
<td>The end toward which</td>
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<td>efforts or ambitions are directed.</td>
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<tr>
<td><strong>Program Objective:</strong></td>
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<tr>
<td>A statement of change</td>
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<td>to be accomplished within a designated period of time.</td>
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<tr>
<td><strong>Societal Objective:</strong></td>
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<tr>
<td>A statement of change</td>
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<td>desired in regard to the broad human, social, economic concerns of people.</td>
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<td><strong>Plan of Work:</strong></td>
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<tr>
<td>A written outline of</td>
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<td>strategy for one year or less included in the program, that sets forth in an integrated and coordinated manner of elements.</td>
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<td><strong>Program Action:</strong></td>
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<tr>
<td>Implementation of the</td>
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<tr>
<td>plan of work.</td>
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<tr>
<td><strong>Program Evaluation:</strong></td>
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<td>The process by which</td>
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<td>evidence or data, objec-</td>
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<td>tives, and/or criteria</td>
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<td>are used as a basis for</td>
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<td>judgement in determin-</td>
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<td>ing accomplishments of程序s.</td>
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</table>
### Relative Importance

<table>
<thead>
<tr>
<th>Concept</th>
<th>Completely Important</th>
<th>Very Important</th>
<th>Some Importance</th>
<th>Almost Important</th>
<th>Not Important</th>
</tr>
</thead>
</table>

#### 3.13 Program Development:
The continuous series of processes which include organizing, planning a program, preparing a plan of work and teaching plans, implementing the plans, evaluating and reporting accomplishments.

| | 5 | 4 | 3 | 2 | 1 |

#### 3.14 Planned Change:
Change derived from a purposeful decisions to effect improvements in personality system or social system, and which is achieved with the help of professional guidance.

| | 5 | 4 | 3 | 2 | 1 |

---

**Extension Teaching and Learning**

#### 3.15 Educational Objective:
A statement which specifies the audience, the desired behavior and the content or area of life in which the behavior is to operate.

| | 5 | 4 | 3 | 2 | 1 |

#### 3.16 Teaching Objective:
A statement which specifies under what and to what extent a specified kind of audience performance is expected relative to a program objective.

| | 5 | 4 | 3 | 2 | 1 |

#### 3.17 Cognitive Objective:
The educational objective which emphasizes the change in intellectual abilities and skills of the learner.

| | 5 | 4 | 3 | 2 | 1 |
### Concept

<table>
<thead>
<tr>
<th>Relative Importance</th>
<th>Completely Important</th>
<th>Very Important</th>
<th>Some Importance</th>
<th>Almost Important</th>
<th>Not Important</th>
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</table>

#### 3.18 Affective Objective:
An educational objective which emphasizes the change in interest, attitude, value, and development of appreciation and adequate adjustment.  

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<th>Concept</th>
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#### 3.19 Psychomotor Objective:
An educational objective which emphasizes the change in muscular skills. It needs neuro-muscular coordination.  

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<th>Concept</th>
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#### 3.20 Philosophical Screen:
The screen through which the educational objective is selected based on philosophical values of the organization.  

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<th>Concept</th>
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#### 3.21 Psychological Screen:
The screen through which the educational objective is selected based on the theory of learning.  

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#### 3.22 Need:
Tensions due to the imbalance in human organism.  

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#### 3.23 Interest:
An expressed desire to learn.  

<p>| Concept | 5 | 4 | 3 | 2 | 1 |</p>
<table>
<thead>
<tr>
<th>Concept</th>
<th>Relative Importance</th>
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<tr>
<td>Concept</td>
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<td>tant</td>
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</table>

3.24 **Concept**:  
A notion of idea as perceived image formed by generalization from particular. It is a map of things or situations that one is confronting.  
|            | 5 | 4 | 3 | 2 | 1 |

3.25 **Individual Difference**:  
Differences in concepts, skills, values, and other traits of individuals.  
|            | 5 | 4 | 3 | 2 | 1 |

3.26 **Adjustment**:  
The way in which an individual changes the meaning of the situation and acts to avoid the continuing punishment.  
|            | 5 | 4 | 3 | 2 | 1 |

3.27 **Reinforcement**:  
The way to increase the strength of responses in learning process.  
|            | 5 | 4 | 3 | 2 | 1 |

3.28 **Motivation**:  
The drive to do something resulting from unsatisfied needs of people.  
|            | 5 | 4 | 3 | 2 | 1 |

3.29 **Concept Learning**:  
Learning by putting things into a class and identifying their properties.  
|            | 5 | 4 | 3 | 2 | 1 |

3.30 **Principle Learning**:  
Learning through the chain of concepts.  
|            | 5 | 4 | 3 | 2 | 1 |

3.31 **Problem Solving**:  
Learning through facing problems.  
|            | 5 | 4 | 3 | 2 | 1 |
### Learning Experience:
The interaction between the learner and the environment to which the learner can react. It is these encounters through which learning takes place and educational activities are attained.  

<table>
<thead>
<tr>
<th>Relative Importance</th>
<th>Completely Important</th>
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<th>Almost Important</th>
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<td>Concept</td>
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<tr>
<td>Learning Experience</td>
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### Transfer:
The process of using what has been learned in one situation in a different situation.  

<table>
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<tr>
<th>Relative Importance</th>
<th>Completely Important</th>
<th>Very Important</th>
<th>Some Importance</th>
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<tbody>
<tr>
<td>Concept</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
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</table>

### Teaching Method:
The way the learner is organized to conduct an educational activity.  

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<tr>
<th>Relative Importance</th>
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<td>Concept</td>
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### Teaching Technique:
The way the educator establishes a relationship between the learner and the learning task.  

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<th>Relative Importance</th>
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### Teaching Device:
The instructional aids that supplement the teaching method and technique.  

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</table>

### Communication:
A process of interchange meanings, ideas, and feelings in a mood of mutuality.  

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<thead>
<tr>
<th>Relative Importance</th>
<th>Completely Important</th>
<th>Very Important</th>
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<td>3.38 Source Encoder:</td>
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<tr>
<td>Individual or group of persons who encode a message intended to produce the desired response.</td>
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<td>3.39 Message:</td>
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<tr>
<td>The actual physical produce of the source-encoder; such as when writing the writing is the message.</td>
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<td>3.40 Channel:</td>
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<tr>
<td>The complete system for transmitting a signal from an input location to an output location.</td>
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<td>3.41 Receiver-Decoder:</td>
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<tr>
<td>The person or group of persons who decode the message at the opposite end of the communication.</td>
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<tr>
<td>3.42 Meaning:</td>
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<tr>
<td>Covert responses contained within human organism. Meanings are developed through perception.</td>
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<td>3.43 Perception:</td>
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<td>The meaning one gets from an experience or observation.</td>
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<td>3.44 Persuasion:</td>
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<tr>
<td>The process of obtaining acceptance from the other by an appeal to both feeling and intellect.</td>
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<tr>
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<td><strong>Concept</strong></td>
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<tr>
<td>3.45 Communication Breakdowns: Problems of communication due to the message not getting across between the source and the receiver.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
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</tr>
<tr>
<td>3.46 Feedback: The process in which the source decodes the message that he encodes. The message is put back into his system. This is the mechanism to check the effect of the system.</td>
<td>5</td>
<td>4</td>
<td>3</td>
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<tr>
<td>3.47 Fidelity. The clearness of the message.</td>
<td>5</td>
<td>4</td>
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<tr>
<td><strong>Leadership Development</strong></td>
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<tr>
<td>3.48 Leadership: A relationship between persons in various positions which enables one to motivate, coordinate, and direct the action of others.</td>
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<td>4</td>
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<tr>
<td>3.49 Leader Recruitment: A selection of leaders for particular jobs required.</td>
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<td>4</td>
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</tr>
<tr>
<td>3.50 Leader Training: A process of helping the selected leaders to acquire knowledge and skills.</td>
<td>5</td>
<td>4</td>
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<tr>
<td>3.51 Leader Management: The process for improving leader performance.</td>
<td>5</td>
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### Extension Evaluation

<table>
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<tr>
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<thead>
<tr>
<th>3.52 Evaluation:</th>
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<tbody>
<tr>
<td>A process of judging the worth or value of things by using relevant information and relating it to predetermined standards.</td>
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<table>
<thead>
<tr>
<th>3.53 Fact Collection:</th>
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<tbody>
<tr>
<td>The process by which the facts are systematically collected.</td>
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<td>4</td>
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<table>
<thead>
<tr>
<th>3.54 Fact Analysis and Interpretation:</th>
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<tbody>
<tr>
<td>The process by which the collected facts are systematically studied and interpreted.</td>
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<td>4</td>
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### Socio-Economic Concepts

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<tr>
<th>Concept</th>
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<thead>
<tr>
<th>3.55 Resources:</th>
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<tbody>
<tr>
<td>Means available for producing goods and services which in turn are used to satisfy wants.</td>
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<tr>
<th>3.56 Resource Development:</th>
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<tr>
<td>The distribution of resources to maximize satisfaction of human needs.</td>
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<thead>
<tr>
<th>3.57 Social Interaction:</th>
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<tbody>
<tr>
<td>The mutual influencing by two or more people or groups of each other's expectation or behavior or both.</td>
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<tr>
<td>3.58</td>
<td><strong>Social Organization:</strong> An organized network of social interaction in a society.</td>
<td>5 4 3 2 1</td>
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<tr>
<td>3.59</td>
<td><strong>Social Disorganization:</strong> A process that articulates the stress-strain element of social systems. It is characterized by deviations from normative cultural patterns.</td>
<td>5 4 3 2 1</td>
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<tr>
<td>3.60</td>
<td><strong>Social Change:</strong> A process of alteration in patterns of interaction in social systems.</td>
<td>5 4 3 2 1</td>
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<tr>
<td>3.61</td>
<td><strong>Power:</strong> A capacity to control the behavior of others.</td>
<td>5 4 3 2 1</td>
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<tr>
<td>3.62</td>
<td><strong>Role Conflict:</strong> Inconsistencies of roles of an actor resulting from incompatible norms forming the roles.</td>
<td>5 4 3 2 1</td>
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<tr>
<td>3.63</td>
<td><strong>Role Inadequacy:</strong> Inconsistencies of roles due to inadequate preparation for the roles.</td>
<td>5 4 3 2 1</td>
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<tr>
<td>3.64</td>
<td><strong>Role Frustration:</strong> Inconsistencies of roles due to inadequate facilities and/or opportunities to perform the roles.</td>
<td>5 4 3 2 1</td>
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<td>Concept</td>
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<td>3.65 Role Boredom:</td>
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<tr>
<td>Inconsistencies of roles</td>
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<td>due to inadequate utilization</td>
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<td>of actor's behavioral capacity.</td>
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<td>The assigned roles are</td>
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<td>too simple and repetitious.</td>
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<td>3.66 Change Agent:</td>
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<td>Individuals who are</td>
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<td>attempting to bring about</td>
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<td>changes or aiding those</td>
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<td>attempting to accomplish</td>
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<td>changes.</td>
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</tbody>
</table>

Kindly recheck all of your answers and please mail this questionnaire today to:

Dean, College of Agriculture
Kasetsart University
Bangkhen, Bangkok 9
THAILAND

Thank you very much for your contribution and cooperation in this research.
Pote Boonruang was born on October 9, 1933, in Tambol Bandua, a small farm community of Umphur Taboa, Changwad Nongkhai, Thailand.

He completed his pre-university education under the open-examination of the Ministry of Education in 1954. The following year, he passed an entrance examination to enroll in a five-year program of the Faculty of Agriculture, Kasetsart University, Bangkok. Majoring in Agricultural Extension Education, he was awarded a Bachelor's of Science in Agriculture with honors in 1960.

After graduation he was employed as an Assistant Instructor at the Extension Education Department of the Faculty of Agriculture, Kasetsart University. In 1963 he won the East-West Center scholarship and took an official leave of absence to further his graduate studies at the University of Hawaii, Honolulu. He was awarded the Master of Science in Agricultural Economics and resumed his teaching job in 1965. He accepted the position of Secretary of the Faculty of Agriculture, Kasetsart University in 1967.

In August, 1970, he received the fellowship of the Agricultural Development Council, Inc. and took an official leave of absence to enroll for the Doctorate in Extension Education at the Louisiana State University, Baton Rouge.

He is married to Pongjai Pramuan. They have a son, Pijai, aged 10, and a daughter, Pimonchan, aged 9.
Candidate: Pote Boonruang

Major Field: Extension Education

Title of Thesis: Graduate Curriculum Development for Preparing Extension Personnel in Thailand

Approved:

Edward W. Gassie
Major Professor and Chairman

Max Goodrich
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination:

April 27, 1973