

DEVELOPING A HIGH SCHOOL VOCATIONAL
AGRICULTURE CURRICULUM MODEL FOR
DEVELOPING COUNTRIES

By

AHMADREZA RAFIE

Bachelor of Engineering
Hamadan Agriculture College
Hamadan, Iran
1974

Master of Science Teaching
Tarleton State University
Stephenville, Texas
1979

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Thesis Approved:

James P. Key

Thesis Adviser
Jack Fritchard

Dele E. Weibel

Robert Dmy

Robert T. Persbeck

Norman A. Durbin

Dean of the Graduate College

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CHAPTER I

INTRODUCTION

In human history, hunger is more or less a popular term. In the twentieth century when technology solves many human problems, hunger like a huge enemy still threatens human life. Never before have so many people suffered so much from hunger. The Preliminary Report (20) states that:

. . . the Food and Agriculture Organization of the United Nations (FAO) estimates that as of 1975 approximately 450 million people were eating less than their minimum energy needs required (p. 2).

How are these countries going to feed their population? Is this problem conquerable or not?

For many years importation of food from developed countries to developing countries seemed to be the best solution. Obviously, this solution has not been the cure as it was thought to be; hunger is still prevalent in developing countries. Researchers and food experts tried to find a better and stronger alternative to the dilemma of food crises. Some experts strongly believe in the old adage of "give a man a fish and you feed him for a day, but teach a man to fish and you feed him for a lifetime" as one of the best solutions of the food crises for developing countries, not the theory of moral obligation.

One third of developing nations' potential agricultural land are not in full production due to illiteracy, poor planting, unqualified

personnel, cultural barriers, and government policies that have hindered the development of a sound agricultural business.

As long as people of developing countries are illiterate, there is no other solution but education. Therefore, the major problem is not lack of food; it is illiteracy and lack of education; and if there is any prescription for malnutrition and poverty, it is only through education. According to Fafunwa, a Nigerian professor that was quoted by Gwarzo (9).

Productivity also depends heavily on the attitudes, knowledge and skills of people which in turn reflect the education, training, and complex organizations which modern technology requires. It is my view that no country can rise above the level of its illiterate population especially if the majority of the population is illiterate. Until we can mobilize the whole people, we in Nigeria cannot claim to be living in a technological age; we are at the level of Headpan Technology (p. 9).

At the national level, in developing countries where illiteracy is a major problem, some governments are attempting to provide and expand educational opportunities for their children; but, because of a shortage of trained teachers, instructional programs, lack of funds and facilities, and on the other hand because of poor educational systems, they cannot keep pace with the increase in population of school age children. For example, in some developing countries one-third of all school age children do not have a school to go to. In some countries the rate of illiteracy is over ninety percent of the total population.

With all these ideas and with the fact that the majority of people in developing countries are illiterate and living in rural areas with a situation even worse than urban areas from the standpoint of economics, education, and politics in mind, it is important to explore how curriculum as a component of education would be able to play a greater

role in future agricultural situations in developing countries.

Problem Statement

Vocational agriculture is a specific type of vocational education. It is concerned with training and educating present and future farmers for more proficiency in farming. As long as agriculture development is the key solution to the food crises of the world, vocational agriculture is obviously the key solution to agrarian development.

In developing countries, vocational-technical education, and specifically vocational agriculture, for years have been misguided by those governments that attempt to develop their agricultural production, mainly because the curricular or instructional programs that were designed for those vocational schools were direct replicates from developed countries, or if not they were designed behind closed doors where needs of the people were not fully considered.

In developed countries, vocational agriculture has played a great role in the training of present and future farmers for those countries while in developing countries the role has been much less. Studies show that the majority of agricultural students in developed countries come from rural areas or at least with some background on farming. In developing countries, the majority or almost all of the agricultural students are from urban areas with no background or interest in farming. Those who have the background in farming are not in the main agricultural training system, because of the location of the agricultural schools, lack of funds for the rural students, and poor transportation system to and from the schools.

Curriculum materials in developed countries are designed and

developed based on the needs of individual state or community, while in developing countries the curriculum is designed by the central government based on the information received from a few influential agriculturalists. This curriculum does not take into account the needs of the people they want to serve, despite the known differences in social, economic, religious, and cultural backgrounds of the rural communities. Therefore, without an organized curriculum which is based on the needs of those developing countries, any school either vocational or academic will not be able to function properly.

Purpose of Study

The major purpose of this study was to develop a high school vocational agriculture curriculum model. A secondary purpose was to determine the applicability and importance of such a model for developing countries.

Objectives of the Study

In order to achieve the purpose the following objectives must be achieved:

1. To develop a high school vocational agriculture curriculum model for developing countries.
2. To obtain the judgment of a selected group of international graduate students studying agriculture education through the Land Grant Universities in the United States as to the applicability of the model developed in this study for developing countries.
3. To obtain the judgment of these students as to the importance of the contents of this model for developing countries.

Basic Assumptions of the Study

For the purpose of this study the following assumptions were made:

1. All respondents answered each item of the questionnaire honestly and based on their best knowledge.
2. The instrument communicated the same information to all respondents.
3. The respondents are familiar with the vocational agriculture curriculum in their countries.
4. All graduate students studying agriculture education, in some way are familiar with curriculum design and development.

Scope and Limitations

In view of the difficulties involved in sending the questionnaire to all developing countries for completion, the researcher, after consulting with his committee, decided to limit the sample of this study to international graduate students studying agriculture education through the Land Grant Universities in the United States (Procedure for sampling selection is explained in chapter III).

The model may not be applicable for every developing country because there are different factors which exist among all those nations. But perhaps it could be a pattern for these countries that are searching for a better future in their vocational agriculture schools.

Definition of Terms

Developing Countries: Developing countries are divided, on the basis of 1978 gross national product per person, into: low income countries, with a gross national product per person of U.S. \$360 and below, and middle-income countries, with a gross national product per person between U.S. \$360-\$9684/yr. According to Plano and Olton (18)

Typical features of developing countries include,

1. Low national and per capita income and productivity.
2. High rate of illiteracy.
3. High birth rates with decreasing death rates, leading to virtual "population explosion".
4. A heavy dependence upon subsistence-level agriculture.
5. Extensive use of child labor and few educational facilities and opportunities.
6. Decentralized political institutions.
7. A rigid class structure with a minimum of social mobility.
8. Rudimentary communication and transportation facilities (p. 45).

Developed Countries: Plano and Olton (18) categorized developed countries as those countries that the gross national product per person is more than U.S. \$9,684 per year.

Vocational Education: Patton (1972, p. 5) states "Vocational Education is defined as a program of instruction which provides a person with skills and knowledge for a specific employment opportunity."

Vocational Agriculture: Vocational Agriculture is defined as a program for training present and future farmers for more proficiency in farming.

Curriculum: According to Saylor-William and Alexander (1966, p. 20) "Curriculum is a plan for providing sets of learning opportunities to achieve broad goals and related specific objectives for an identifiable population served by a single school center.

Curriculum Development: According to Zais (1976, p. 17) "Curriculum Development is a process which determines how curriculum construction will proceed."

Applicability: Aqa (1978, p. 15) states: "A measure in this study indicating the extent to which subcomponents of the curriculum can be put to use under local situations as seen by respondents."

CHAPTER II

REVIEW OF LITERATURE

History of Curriculum Development

From the time that man has given conscious attention to the question of how he should educate his children, he has given attention to a question which we would now regard a curriculum question. Befecadu (1975) quoted from The School Curriculum "Curriculum, it seems, was much more clear cut in Plato's days, when the requirements of a small aristocratic ruling class could be satisfied by the simple formula, 'Music for the soul, gymnastic for body'" (p. 32).

In those days when man tried to teach his children and prepare them for social activities, the role of the curriculum was obvious in an informal way. According to Schubert (24).

As civilizations evolved along major river valleys, individuals began to specialize. They no longer needed, nor were they able, to amass all of the knowledge of the social group. As adult roles began to specialize, children could no longer glean a holistic sense of the ways of their culture by following parents in daily activities. Therefore specialists of teachers were needed to introduce the young to essentials to their heritage (p. 1).

Another aspect of informal curriculum was and still is the role of such authors as Homer, Dante, Shakespeare, Tolstoy, Destoevski, Carbantes, Kafka, Dickinson and many more who have taught and continue to teach about the curriculum of learning from life's experiences. For those who want to study curriculum should not pass by the evolution of

philosophy and literature.

In the nineteenth century there was an unusual amount of activity in the educational world directed at the curriculum. The curriculum became a popular issue. In 1893, for example, the famous committee of ten under its chairman, Charles W. Eliot, issued its controversial report. It considered such questions as whether high school should be made available, what subjects should be regarded as distinctly college-preparatory, and what should be taught in some of those subjects. All of these questions we would now consider to be curriculum questions.

John Friedrich Herbert and John Dewey were two people who tried to challenge traditional curriculum practices. But neither Herbert nor Dewey identified themselves as curriculum specialists nor was there a readily identifiable field of curriculum specialization at that time.

According to Kliebard (13).

If I had to pinpoint the actual year when curriculum as a self-conscious field of study emerged, I would probably choose 1918, not only because of the appearance of Franklin Bobbitt's The Curriculum, but also because of Alexander Inglis' brilliant Principles of Secondary Education which, while not exclusively a curriculum book, was in the main concerned with curriculum questions. In short 1918 was a vintage year in curriculum (p. 3).

According to Schubert (24).

. . . The 1918 appearance of Bobbitt's The Curriculum and the Cardinal Principles of Secondary Education, two sources most frequently recognized as the Adam and Eve of curriculum works (p. 5).

In recent years drastic changes in socioeconomic situations in the United States and all around the world caused serious problems for education and the educational system. The public started to question the quality of education. The traditional system of education could no longer prepare students for the world of work. This was the time

that the public strongly wanted the schools to be held accountable. This general criticism of the educational system led to the critical examination of their modus operandi. Teachers, administrators and teaching institutions are interested in evaluating what they are and are not accomplishing. There is an increased interest in providing more information about what it is that students will be able to do in order to successfully complete a course of instruction. This has led to a focus on assessing educational attainment and improving educational techniques. Many educators believe that the way to approach these problems is through model development emphasizing individualized instruction and competence based education, an approach that in recent years has been the topic of many books, speeches, and papers. The next sub-section of this chapter will attempt to explain model development in more detail.

Model Building

One can define model as a convenient way of representing the total experience which we possess then draw conclusions from that experience. Whether we are in the presence of pattern and law and, if so, of showing how such patterns and laws can be used to predict the future. Zais (32) explained that models are miniature representations that summarize data and/or phenomena and thus act as an aid to comprehension. Beauchamp (2) explained that models are analogies, he also mentions that model building is a frequently used process in theorizing. The basic purpose of model development was implied by Rivett (21) when he defined a model as a set of logical relationships, either qualitative or quantitative, which will link together the relevant features of the reality with which

we are concerned.

Key (12) quoted from Belanger another definition of model:

Research in any complex system requires the placement of constraints on the system in order to reduce the complexity to some manageable portion. This reduction of complexity can be accomplished by selecting factors in the system which are of interest to the investigator and which are suspected to be interrelated. The conceptualization of any system as an abstraction consisting of variables (factors) as a network of relations among the variables is frequently termed a model or paradigm.

. . . a well-designed model helps to clarify the factors that have been isolated for investigation. If the relationship among factors are presented in some graphic or outline form, the dynamic states of the model can also be represented.

. . . the goal of model development is parallel to the goal of any scientific enterprise: explanation, prediction and control (pp. 20 & 21).

Zais (32) explained that models can take on a variety of forms depending on the nature and complexity of what they represent, as well as, the purpose to which they are put. He continues that physical model (usually a three-dimensional device that shows how something works), conceptual or verbal models (a verbalized concept or metaphor is imposed on phenomena as an aid to comprehension, mathematical model, and graphic models), Zais (32) stated that:

Graphic models probably the most common of the model types, graphic models are usually drawings or diagrams of some kind that attempt by visual means to describe the components of the things being modeled and to explain the relationship among its parts . . . Curriculum theory has been characterized by the proposal of a large number of graphic models of the curriculum and curriculum processes (p. 92).

Within the past few years model building and theorizing about instruction, curriculum and teaching have become prominent. Educators have started to busy themselves with the process of creating metaphors, of building models of theories which they may gain a greater control and understanding of the educational enterprise. Also in recent years

drastic changes in socio-economic situations in the world have brought up new questions like, "What to teach?" and "How to teach in order to meet every individual's needs and interests". Model building with more emphasis on individualizing instruction and competency based education are used as tools by educators to answer the above questions. Since this study is dealing with vocational agriculture, there would be other variables which contribute to make our model.

An increasing demand for our basic needs, food, clothing, shelter, and natural resources, indicates an unending challenge for the agricultural profession. As a result of these basic demands, developing educated and skilled individuals to fill the various agricultural positions, located on and off the farm, will be a continuing task of educators.

The rapidly changing fields of agriculture and particularly agriculture education requires constant evaluation and periodic change in the curriculum of the vocational agriculture program. Therefore, the need for development of specific curriculum material creates a demand for building a vocational agriculture curriculum model.

The Curriculum Model

Evans (7) identified three basic areas that any public school vocational education curriculum should address. The areas include the manpower needs of society, increasing the options available to each student and a motivating force to enable all types of learning.

The model presented in this study tries to describe ways that the above areas can be achieved through planning, implementation, and evaluation as the most important components of the curriculum model. The following items are the most important items which were used to

create the curriculum model:

1. Curriculum planning
 - a. Decision making procedure
 - b. Decision maker
 - c. Unit planning
2. Curriculum implementation
 - a. Unit of instruction
3. Evaluation procedure
 - a. Learner evaluation
 - b. Teacher evaluation
 - c. Curriculum evaluation

It is important to realize that every one of the above components contains some sub-components which will be explained in more detail in the following pages.

Planning the Curriculum

Saylor and Alexander (23) define curriculum planning as follows:

Curriculum planning is the process whereby these arrangements of learning opportunities or curriculum plans are created. . . . Its most frequent occurrence is in the work teachers do in preparing for their duties of teaching—deciding upon goals and emphasis, determining curriculum content, selecting learning resources and classroom procedure, evaluating progress, and looking toward the next step. Wherever it occurs, and by whomever it is done curriculum planning is essentially a process of making decisions about the curriculum (p. 5).

Befecadu (3) quotes from Draper that curriculum planning:

. . . involves development of general objectives, selecting and validating specific objectives, determining and organizing the content of the course, selecting a method suitable to one's personality and scholarship, the needs of the students, and the teaching materials and planning and developing a

testing program that will enable one to evaluate the result of teaching (p. 34).

"Should we take this approach or that approach?" "Should we offer this program or that program?" are general questions that every curriculum specialist is dealing with and if under any circumstances right decisions are not made for those problems, it would be hard to say that we are going to have a successful curriculum. Finch (8) explained that curriculum development is an extremely complex and intricate process involving many decision making situations. He explained that decision making in education usually involves two major areas, policy decision and operational decision. Operational decisions involve day-to-day activities of the curriculum and serve to move the curriculum smoothly ahead. Policy decisions deal with goals, objectives and some basic structure for achieving these goals and objectives. A curriculum planner must be involved at both levels of decisions. Finch continues that whereas policy decisions will serve to establish the type of curriculum a school will or will not follow, operational decisions will deal with the management of the approved curriculum.

It is the job of the curriculum planner to have strong knowledge of the school system and community, because curriculum should be planned based on the needs of the students and society, therefore to get precise information, we need to collect data from the school and community. For gathering school related data, one of the first factors that must be considered is the status of the current program. This includes current enrollments, current courses offered by the school system. The dropout rate must be examined, plus input of students and parents. Students can provide valuable suggestions if provided the

opportunity.

The follow up of former students is important if curriculum planners are to have a realistic view of what is happening in this current school system. The curriculum planner must continually keep up-to-date with population change in the community or other factors which affect the size of the community when projecting future enrollment. Curriculum planners need to assess the current facilities and future facilities, which will be available in schools.

Related to gathering data from the community, the following ideas may be helpful for the curriculum planner in order to make a better decision.

One of the first tasks of curriculum development is to identify for what community and with what characteristic the curriculum development is going to be planned, for example, the curriculum planner must look at the data regarding the agricultural situation, industrial situation and business existing in the community, along with the employment of people with occupational titles. The curriculum planner must study the supply and demand to project the net labor needs. Net labor needs tell the planner the number of individuals not available who are needed to fill newly created jobs or replace those who are leaving.

Funding, facilities, equipment, human resources and cooperating training stations are vital to the curriculum planner when establishing the vocational educational program.

The task of projecting cost is not an easy one, but it must be achieved to initiate new or expanded programs to determine if established standards can be met. Established standards are important to curriculum

planners as well as community-based information when assessing the success of a vocational education program.

Every effort must be made to collect current accurate data when developing vocational curriculum.

Finch (8) stated that making decisions in curriculum planning consists of the following items:

Stage 1 - Define Problem and clarify alternatives: In this stage a critical step is defining the problem at hand. Once the problem has been defined and agreed upon, then a possible alternative solution can be identified and classified.

Stage 2 - Establish Standards for each alternative: . . . stage 2 allows for the establishment of standards for each of the alternatives . . .

Stage 3 - Gather school - related and community - related data that align with standard: With the establishment of standards in stage 2 data can now be identified and collected for each alternative in stage 3. Data will need to be collected from both the school and community.

Stage 4 - Analyze data: In stage 4, the curriculum planner must objectively analyze all data in terms of the established standards. This stage involves assembling, summarizing, analyzing, and preparing the data in a form that can be used when the decision making time arrives.

Stage 5 - Decide which alternative is supported by the data . . . at this stage alternatives are ruled out as unfeasible or accepted as a feasible approach to curriculum development (p. 44).

The question, who makes the decision is a critical one and the answer is very involved. Finch (8) stated:

The value of systematic planning must be recognized by all who deal with the curriculum. Vocational education curricula must be planned and implemented in such a way to assure that students and societal needs are served. Nothing less than this should be attempted or accepted (p. 45).

In an interview with Patton (16) it was decided that it would be reasonable to use the following people for the different kinds of decisions that need to be made especially in vocational curriculum planning.

Policy Making is perhaps the most difficult of all decision making. Policy making can be simplified as what to teach and what not to teach in the school system. For this type of decision the system uses the board of education, professional staff, representative of business and industry, parents, and pupils.

Occupational Analysis as an important part of every vocational curriculum would bring us the best result if the representative of teacher and representative of business and industry are the contributors for this part of decision making.

Content Selection for this stage, contributors are teachers, representative of business and industry, and farmers (if it is vocational agricultural curriculum) have much to contribute in their selection of materials for printed sources.

Technical Development for this type of decision making Saylor and Alexander (23) stated:

Technical development of curriculum involves decisions as to the conduct of curriculum research and evaluation, and the preparation of curriculum guides, syllabi, resource units, and many other types of materials which give guidance to teacher-learning aids . . . In these more technical tasks there is a real need for specialists in curriculum development (p. 24).

Curriculum specialists, learning and reading specialists are the best people for this kind of decision making.

Arrangement of Curriculum Opportunities, Saylor and Alexander (23) stated that:

Arrangement of curriculum opportunity is the central job of the teacher. Decisions as to the nature and content of learning experiences involves much more than the telling by lecture, television . . . it is at this point of interaction that the teacher decides almost from minute to

minute, and from pupil to pupil, how to aid and abet the learning experiences of individual boys and girls (p. 25).

However, controversy has been going on among educators about personnel involvement. It is important to keep in mind that personnel involvement to a large degree depends on the kind of curriculum that needs to be planned, if it is a national, state, or local curriculum, then different personnel would be involved in planning the curriculum.

After the decision making procedure, which is a very important component of curriculum planning, we need to discuss other components of curriculum planning. At this step more emphasis is needed by the curriculum committee to prepare the content in a way that creates a meaningful and effective teaching and learning procedure. What is the way that can give teaching learning procedure a new dimension? Unit planning obviously is one of the ways that in recent years has been used by educators for the purpose of an effective teaching learning procedure.

Taba (28) stated:

. . . The purpose of creating model units is not only to have a unit but also to develop a model for thinking about curriculum planning . . . planning such units brings into play all consideration and principles important in curriculum development. The decisions made in planning pilot units and the ways of making them should provide important insights into curriculum development in general (p. 346).

It was during the late 1800's and the early 1900's that the concept unit emerged. Johann Friedrich Herbart (1776-1841) is credited with giving birth to the unit plan. Ogletree (15) explained that Morison (1871-1945) was the one who used unit planning. Morison's unit plan influenced curriculum development and changed the format of the high

school textbooks from chapters into a series of units. Ogletree (15) continued that more intellectual freedom and physical movement in education and also concern for individual differences in children and Gestalt psychology, which stressed wholistic and integrated learning, led to the development and acceptance of the unit as a viable means of individualizing classroom instruction.

At the beginning of the unit plan movement educators thought that only subject-matter content should be organized and unified to form the unit plan, but modern unit planning is more concerned about the experiences and interests of the learner, and this is what Olgetree (1980, p. 18) believed "This transition from subject matter to learner concerns produced a multiplicity of curriculum schemes and of unit plan types."

After the above introduction it is time to define unit. Nerbovig (1970, p. 21) defined unit as "A unit is an organization of objectives, activities, and resources, with its focus on a purpose or problem, prepared for use in a teaching-learning situation."

Sowards and Scobey (26) definition was as follows:

. . . a series of highly related learning experiences of various levels, all focused on some significant aspect of the social or scientific-technological environment and having as its purpose, the development of understanding, attitudes, values, appreciations and skills that lead to modification of behavior that are important to the children involved and to the wider society (p. 358).

Ogletree (15) believed that the modern unit approach is a way of building in opportunities for individualization of instruction in the classroom by the fusion of subject matter with learning experiences and activities of many kinds. Also Ogletree (15) explained that properly

developed unit plans should have the following characteristics:

1. It has wholeness and coherence.
2. It is experience-based and life-centered.
3. It utilizes a variety of modern principles of learning.
4. It transcends subject-matter boundary lines and provides for the integration of subject matter content.
5. It contains short and long-range objectives and learning experiences.
6. It provides a wide range of activities adaptable to individual differences.
7. It is flexible in terms of goal setting, integration of content, and developmental activities and adaptability to individual needs and interests.
8. It is informationally contemporary as contrasted with a textbook containing information that may be outdated.
9. It promotes cooperation, democratic planning and social development. It is a total approach in terms of the integration of learning experiences in the cognitive, affective, psychomotor domains (p. 21).

Taba (28) offered eight different steps for planning a unit, they are as follows:

Step one: Diagnosing needs

Step two: Formulating specific objectives

Step three: Selecting content

Step four: Organizing content

Step five and six: Selecting and organizing learning experiences

Step seven: Evaluating

Step eight: Checking for balance and sequence

Step One: Diagnosing Needs

For this step Taba (1962, p. 347) stated: "The diagnosis which precedes the planning of a unit is a fairly general analysis of problems, conditions and difficulties. Its purpose is to generate a new emphasis and new ideas about the curriculum." In the previous pages we have

mentioned that curriculum planning involves gathering and analyzing data from the school system and community. Therefore, reviewing this data enables us to make a systematic relationship between all steps that are important for planning a unit.

Step Two: Formulating Specific Objectives

Taba (28) continued:

The diagnosis of the needs described above will have provided clues as to which objective or which aspect of them to emphasize. A unit is likely to generate richer learning if the areas of the objective for it are fairly comprehensive and include some material on each of the following:

1. Concept or ideas to be learned
2. Attitudes, sensitivities and feelings to be developed
3. Way of thinking to be reinforced, strengthened or initiated
4. Habits and skills to be mastered (p. 350).

Taba continued that a comprehensive set of objectives is likely to help extend both the content and the learning activities which are capable of carrying multiple objectives.

Steps Three and Four: Selecting Content and Organizing Content

At this step it is important to talk about topic and topic selection before starting to talk about other components of content development. As Nerbovig (14) explained, any topic needs to be examined with great care and thought about critically, then modified in relation to all or most of the following criteria:

1. Does it have the quality of significance
 - a. . . . can processes basic to science be used: The first four processes basic to science identified by the American Association for the advancement of science are 'observing', 'classifying', using space and time relation' . . . and 'using numbers' . . .

- b. or relevance to the learner? . . . Thus, the interest abilities of the learners in relation to the possible unit topic could be judged.
2. Does it have organizing capacity, that is
 - a. focus
 - b. continual
3. Is it feasible?
 - a. in terms of teacher talent
 - b. in terms of the resources available (pp. 25-30).

Later on Nerbovig (14) explained that, additionally it should be asked, is there time enough to do this topic, is it the appropriate time of the year, is there a place to do it? If not the topic should be altered so it can be done, or a different topic selected.

Taba (28) explained that after selecting a topic for content we need to select basic ideas according to him

It is also necessary to determine what ideas should be taught about a given topic, for . . . it is the basic ideas which represent the fundamentals of a subject or discipline. They are the knowledge . . . these ideas also should represent the essential knowledge, that is, the knowledge that all students should master (p. 354).

Taba continued that, because of the importance of the basic ideas, care is needed in their selection and formulation. Their selection needs to be tested by experienced teachers, curriculum makers as well as content specialists, because they must be valid, significant and learnable.

Selection of specific content is the next step in which Taba suggests that for every idea we need to construct an appropriate sample of specific content, the specific content should be a valid example of the general idea, have definite logical connection with the idea. Later on Taba (28) stated:

Sampling content is essential to solving the problems of excessive details which so burdens students' minds that there is neither time nor room to think to understand any-

thing in sufficient depth to induce passivity on the part of the students, their main occupation being to remember facts, with little challenge for understanding or originating ideas (p. 356).

The last part of this step is organizing content. Related to this part of unit planning Taba (28) stated:

The content to be arranged so that the dimension of inquiry are in a sequential order according to a feasible learning sequence. The topics, the ideas, and the concrete content samples need to be arranged so that there is a movement from the known to the unknown, from the immediate to the remote, from the concrete to the abstract, from the easy to the difficult. In other words, an inductive logical arrangement of the content and a psychological sequence for learning experiences need to be established to facilitate learning (p. 359).

Nerbovig (14) explained that it would be better if we outline the content, especially if we believe that the content would implement the "knowledge" objectives, by saying this we mean, using the content outline as a guide, state the objectives by describing what the pupil will do when acting upon the subject matter as a result of a teaching-thinking-learning experience.

Steps Five and Six: Selecting and Organizing Learning Experiences or Activities

This part consists of lists of suggested teaching activities through which the content and skill can be taught more effectively. Ogletree (15) suggested that either of the following approaches may be used to construct learning activities:

- A. The activities may be categorized in terms of: initiatory developmental and culmination.
- B. Or they can be categorized according to the ability, interest, and/or need levels of the class or individuals within it.
- C. Activities listed under each of the three domains of learning---Cognitive, affective and psychomotor---helps the teacher to be made aware of their inclusions

- in the actual plans for teaching
- D. Use no categorization of activities (p. 75).

Ogletree (15) classified the learning activities into: initiatory, developmental, culminating, and states the following items for each one.

1. Initiatory activities may consist of some of the following suggestions:
 - a. Arrange room environment to include bulletin boards, display tables or exhibit cases of books, real objects, magazines, etc.
 - b. View films, filmstrips, tapes, cassettes, or other visual aids.
 - c. Take field trips to community resources.
 - d. Invite resource people to the classroom.
 - e. Do exploratory reading.
 - f. Pretest pupils to discover informational background of the pupils.
 - g. Teacher-pupil planning.

2. Developmental activities may be comprised of some of the following suggestions:
 - a. Do research activities.
 - b. Make presentation-type activities
 - c. Develop creative expression activities.
 - d. Develop reinforcement type activities: drill practice and recitation activities.
 - e. Devise appreciation activities.
 - f. Develop observation and listening activities.
 - g. Invent group cooperative activities.
 - h. Create experimental-type activities.
 - i. Organize evaluative-activities that can be used on a daily or weekly basis.

3. Culminating activities may include some of the following suggestions:
 - a. Exhibit pupils' work relating to the unit.
 - b. Demonstrate skills and content learned in such activities as dramatics, panel discussions, original t.v. shows, radio skills, etc.
 - c. Provide cognitive-type activities such as summary review, transfer of learning and sharing with others.
 - d. Paper-pencil tests (pp. 76-77).

It is important to keep in mind that those learning activities which do not have a specific function or on the other hand do not serve the objectives are a waste of the students time.

Step Seven: Evaluating

Evaluation is a procedure to determine how effective our objectives are, Ogletree (15) explains that, when employing evaluation techniques, stress should be placed on trying to find methods of evaluation that bring out not only what the pupils learn about a topic but also what they do with that learning. Therefore the process of evaluation should be continuous. Ogletree (15) suggested the following techniques for evaluation:

- A. Devise sample test (teacher made).
- B. Interview students.
- C. Employ pupil self-analysis inventories.
- D. Use rating scales.
- E. Use observation techniques.
- F. Evaluate transfer of learning skills (p. 77).

Step Eight: Checking for Balance and Sequence

When the unit is completed in writing, it is necessary to check the overall consistency among its parts. Taba (28) explained that when we develop each segment of the unit in separate steps, it is possible to eliminate some of the necessary points of each segment and instead extend some aspects more than necessary. Also at this time it is important to ask, are the ideas pertinent to the topic? Does the content outline match the logic of the core idea? Do the learning activities provide a genuine opportunity for the development of the content ideas? Does the sequence of content and of learning experience flow? And many other questions which unit planners should ask themselves in order to plan an effective unit.

Curriculum Implementation

In the previous pages it was explained how to plan a unit and in this part of the review of literature it will be explained how to implement it in order to achieve the best results. Literature defines curriculum implementation as putting the curriculum to work. At this point, the curriculum becomes a working tool for teachers as they develop their instructional strategies. Also we can say that implementation takes place during the space and time representing the merger of the curriculum model with the instructional model. According to Beauchamp (2).

. . . working procedures may be planned to determine the curriculum goals, to select a curriculum design, to develop details of the design, and to write the curriculum. Procedures will have to be planned to move from the curriculum system to the instructional system, this constitutes the implementation plans (p. 141).

Based on the Beauchamp statement it can be concluded that if we put out the unit in an instructional form then we can claim that the implementation has been achieved. To make it more clear and understandable we call the unit at the implementation period the unit of instruction. After the above explanation it is time to define a unit of instruction and also to describe, what the components of a unit of instruction are. Patton (1972, p. 5) defined unit of instruction as follows: "Materials and/or information necessary for one or more class periods for the teaching-learning process in order to reach the unit objective." Patton (17) stated that the concepts used in development of units of instruction are as follows:

- A. Encompasses many methods of curriculum development.
- B. Focused on the student.
- C. Based on competencies needed for employment.

- D. Provides both teacher and student materials.
- E. Provides scheme for evaluation through criterion referenced tests (p. 8).

A unit of instruction contains several components with each of the components designed to perform a particular function within the teaching-learning process. Figure 1 shows this component.

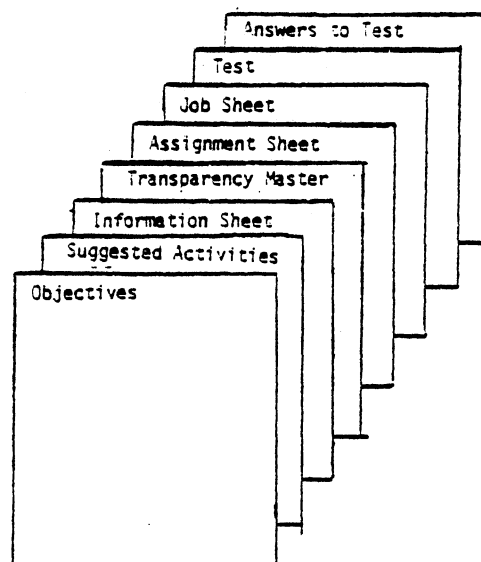


Figure 1

As we showed in Figure 1 the components of a unit of instruction are: Behavioral Objectives, Suggested Activities, Information Sheets, Transparency Master, Assignment Sheets, Job Sheet, Tests, and Answers to the Test.

Behavioral Objectives: Patton (17) explained that effective classroom teaching requires a sense of direction, an aim, an objective. Failure to formulate clear objectives lead to irrelevant learning activities

and ambiguous evaluation procedures. As a result classroom instruction will lack structure and continuity. A functional objective must be clearly stated. It should be definitive. It must define what the student should be able to do, think or feel. It must define the subject matter content to be learned.

Man has three ways of expressing himself---thinking, feeling and doing. These modes of behavior can be classified in three domains---cognitive, affective and psychomotor.

Essentially the cognitive domain deals with recognition, recall, knowledge, intellectualization, and the development of abilities and skills in these areas such as the ability to comprehend to translate to extrapolate, to interpret, to analyze, to complete, to synthesize and to judge. The affective domain includes such behavior as interest, attitude, values, appreciations and psychological adjustments. The psychomotor domain includes the manipulation and handling of materials, speaking, writing, and running, all of which require neuromuscular. Popham (19) explained that psychomotor includes--perception, set guided responses, mechanism, and complex overt responses. These are some of the behavioral terms in each of the three domains of learning that can be used in writing objectives.

Patton classified behavioral objectives (performance objectives) as unit objectives (terminal objectives), and specific objectives.

Terminal objectives which state exactly what the student will be able to do at the end of instruction for a particular unit.

Specific Objectives which serve as learning paths necessary for reaching the terminal objectives are more clearly stated by Patton (1972, p. 16) "Specific objective--statement of performance to be

achieved in order for the student to be able to reach the unit objective." Also Patton (17) itemized the basic components of a performance objective as follows:

- A. Exhibitor of performance--who.
- B. Observable performance--what (action verb)
- C. Acceptable responses--how much (p. 6).

Other components of a unit of instruction are as follows:

Suggested Activities: This component simply provides direction and suggestions for both student and teacher. It also identifies what is contained within the unit and lists the available references used for developing the unit.

Information Sheet: This part of the unit contains the essential information needed to reach each of the specific objectives. It is written in topical outline which provide or allow the instructor to expand as he or she so desires.

Assignment Sheets: Some specific objectives call for problem solving. When such an objective appears in a unit of instruction, an assignment sheet is developed which allows the student to have practice on this activity before the final evaluation is given.

Job Sheet: Job sheet is used whenever a specific objective calls for a type of psychomotor behavior. Patton (17) explained that job sheets provide a step-by-step procedure, list of tools and materials needed for completing the job.

Transparency Master: It is used, when necessary to reach, supplement or enforce a specific objective, mainly it provides illustration for identification and clarification of the content presented on the information sheet.

Test: A criteria referenced evaluation is provided to assess the

student's achievements of the knowledge and performance called for by each specific objective.

Answers to Test: It is prepared for instructors to help them when they evaluate students.

Evaluation Procedure

Stufflebeam (1971, p. 21) defined evaluation as follows: "Evaluation is a process of delineating, collecting and providing information useful for judging."

Worthen and Sanders (31) gave another definition of evaluation as follows:

Evaluation is the determination of the worth of a thing. It includes obtaining information for use in judging the worth of a program, product, procedure, or objective or the potential utility of alternative approaches designed to attain specified objectives (p. 18).

Both of the above definitions have something in common and that is the process of gathering information for judging. Even when Wentling claimed that his definition of evaluation would be workable for occupational education, he talked about collection of information. Wentling (1975, p. 19) defined evaluation as follows: "The collection of information and judgments to facilitate planning, to aid in the improvement of programs, and to meet accountability demands." It seems reasonable to state that evaluation is the scientific way of judging based on accurate information. It is important to keep in mind that the main difference among all evaluation procedures occurs in how the results are presented to decision makers.

For the purpose of this study evaluation procedure has been divided into three parts. They are:

- a. Learner evaluation
- b. Teacher evaluation
- c. Curriculum evaluation

Learner Evaluation

In order to evaluate students performance, one of the effective ways would be to use performance objectives. The performance objective is classified into three domains, they are as follows:

1. Affective domain
2. Cognitive domain
3. Psychomotor domain

Affective Domain--Aqa (1) quoted from Krathwohl the following steps in an affective domain.

1. Receiving--This level of behavior suggests that the learner is first sensitized to the existence of the stimulus or thing.
2. Responding--This behavior indicates that the learner is committing himself in a small measure to the issue under question.
3. Valuing--In this instance, the behavior is seen as being appropriate or having worth, indicating that it is internalized or accepted.
4. Organization--When a student encounters situations in which more than one value is relevant, then several values must be organized into some sort of a system within the mind of the individual.
5. Characterization by a value complex--at this level, values already have a niche in the individual's value hierarchy, and they are organized into some kind of an internally consistent system. These values more over have controlled the behavior of an individual for a sufficient time so that he has adapted to behaving this way. These levels of affective behavior can be related to specific values or attitudes in question when stipulating educational objectives (p. 13).

Cognitive Domain--In the cognitive domain measurable outcomes are divided into two major classifications: knowledge and intellectual abilities, and skills. One can say that the cognitive domain deals

with thinking, knowing and problem solving. Bloom (4) classified the cognitive domain as follows: The hierarchy ranges from simple to recall or factual information through the increasingly complex levels of comprehension, application, analysis, synthesis and evaluation.

Psychomotor Domain--The taxonomy for psychomotor objectives were developed by Simpson (25) and includes competencies in the physical performance of an occupational skill. Wentling (30) stated:

Many technical and occupational tasks require a high degree of ability and skill competencies and these can be derived and assessed through the employment of the psychomotor taxonomy (p. 82).

Simpson divided the psychomotor objectives into rank order, ranging from simplest to most complex. Aqa (1) quoted these five levels as follows:

1. Perception--the process of becoming aware of objectives, qualities or relations by way of sense organs.
2. Set--a preparatory adjustment or readiness for a particular kind of action or experience. Subcategories included in this level are mental, physical and emotional set.
3. Guided response--overt behavioral act of an individual under the guidance of the instructor. The two subcategories under this level are imitation and trial and error.
4. Mechanism--learned response has become habitual. Abilities are combined in action of a skill nature.
5. Complex overt response--at this level, a high degree of skill has been attained. The act can be carried out smoothly and efficiently. The two subcategories in this level are resolution of uncertainty and automatic performance (p. 14).

Teacher Evaluation

Beauchamp (2) explained that evaluation of teacher use is logically one of the most important parts of the evaluation procedure, and it is a step that is almost universally overlooked in evaluation procedure.

The Asian Program for Educational Innovation for Development (APEID)

(29) explained that teacher evaluation will help the curriculum implementation, it also helps to look for ways to optimize the teacher's performance.

Teacher evaluation is not a new exercise. It has been present whenever a teacher has been hired or fired. What is new for educators is the intensive search for improved ways to evaluate teachers and standardize these ways. Two purposes are behind teacher evaluation:

- 1) To perform an evaluative or judgemental function, the results of which are used for making administrative decisions about teachers and
- 2) To perform a developmental function, designed to help improve performance or potential for performance by aiding employees in identifying areas for improvement and growth. The Educational Research Service (ERS) Report (6) explains that, the appraisal function for judging employee performance is usually termed summative evaluation, and when it comes to the developmental function it is called formative evaluation. Then formative evaluation is used to identify the teacher's strengths and weaknesses, and also to design ways to improve performance. Among all the different kinds of teacher evaluation the following are most common:

1. Classroom observation
2. Peer evaluation
3. Student evaluation
4. Self evaluation
5. Competency test

One of the most important points in teacher evaluation is the involvement of teachers in the evaluation process. Heichberg and Young (10)

reported that in a survey of teachers in selected rural and suburban New York Elementary Schools, 87 percent of the respondents indicated that they wanted to participate in the evaluation and supervisory process.

Curriculum Evaluation

Davis (5) developed a curriculum evaluation procedure which was used as part of the curriculum model presented in this study. The curriculum evaluation procedure used by Davis was grouped into four main subprocesses: Delineating, Obtaining, Providing, and Utilization.

The delineating subprocess includes the following steps:

1. Specify the people involved in evaluation procedure and decisions to be made.
2. Describe the information needed.

The obtaining subprocess includes the following steps:

3. Locate and appraise information already available.
4. Decide when, how and from whom to obtain additional information.
5. Construe (or select) the information gathering instruments.
6. Obtain needed information.
7. Analyze information from 3 and 6.

The providing subprocess includes:

8. Interpret analysis and prepare report.
9. Disseminate information to decision makers.

The Utilization subprocess includes:

10. Implementing the information, decisions, and judgments.

After the above explanation it is important to keep in mind that evaluation is a continuous procedure and it should be used continuously

from the time that the foundation of curriculum is constructed.

Talking about evaluation as a continuous procedure may create some confusion, mainly because of the different types of evaluations, therefore it will be useful if we explain two very important types of evaluation, summative and formative evaluation.

Zais (32) defined summative and formative evaluation as follows:

Summative evaluation, as its name implies, is conducted in order to obtain a comprehensive assessment of the quality of a completed curriculum.

. . . Formative evaluation, by contrast, while providing assessments of curriculum quality, is conducted during the curriculum development procedure for the additional purpose of providing data that can be used to 'form' a better finished product (p. 381).

After the above statement one can claim that, formative evaluation is a uniquely well-suited instrument in the guidance of evaluation. In short, formative evaluation, as feedback and guide, operates to keep the curriculum construction process "open".

Content Selection

In previous pages the format of the curriculum model was discussed. In this section of the review of literature the way that content can be selected for a particular vocational program will be discussed.

In this study the curriculum content of the model was selected from different states in the United States and also from some of the developing countries vocational agriculture programs. The basic question that needs to be answered is how the content should be selected for a vocational program. In order to answer the above question a pattern that different states in the United States follow in order to select the content for their vocational program was examined.

Mid America Vocational Curriculum Consortium (MAVCC) is a non-profit organization which is administered through the Oklahoma State Department of Vocational and Technical Education. The following states are the members of this organization: Colorado, Texas, Louisiana, Missouri, Arkansas, Oklahoma, Kansas, Nebraska, South Dakota, North Dakota, and Iowa.

The purpose of MAVCC as reported in their information brochure is as follows:

1. To effectively and efficiently develop mutually needed instructional materials.
2. To serve as an extension of existing curriculum material development capabilities within each of the member states, and
3. To serve and assist the vocational educators in the member states to:
 - a. Develop materials
 - b. Disseminate materials
 - c. Utilize materials
 - d. Evaluate materials

The following steps are used to produce content for vocational programs in those states:

1. Determine priorities.
2. Search for and obtain industry experienced writers.
3. Obtain or complete valid task analysis.
4. Gain input from the curriculum committee. The committee is made up as follows:
 - A. Industrial participants

- a. Company representative (technical expert)
 - b. Worker in field
 - c. Non educational organization representative ie., unions, professional organizations, service/consumer organization.
- B. Educational participants
- a. Vocational instructor
 - b. Teacher-educator by direct invitation
- C. Non-Committee participants
- a. Writer
 - b. Curriculum specialists
 - c. Supervisor
 - d. Development specialist/assistant coordinator. Each state should be represented by one person to serve on the curriculum committee for each developmental area.
5. Complete course outline.
 6. Identify units of instruction to be written.
 7. Research and compile information needed to write a unit of instruction.
 8. Write units of instruction.
 9. Type and edit units.
 10. Validate units by obtaining input from curriculum committee.
 11. Rewrite units.
 12. Print teacher and student materials.
 13. Disseminate completed curriculum to teacher and other educators.

14. Provide inservice instruction about the use of the curriculum materials.

The above procedure is the procedure that MAVCC goes through in order to select the contents of a vocational agriculture program or a vocational technical program.

Summary

The rapidly changing and dynamic field of agriculture thus requires constant evaluation and periodic change for the curriculum of the vocational agriculture program in every country. The model presented in this study is a guide based on the above fact. Curriculum planning, curriculum implementation and evaluation procedures are the three components of the model. The decision making procedure, decision makers, and unit planning are the three components of curriculum planning. Curriculum implementation is the second part of the model, which contains the unit of instruction as the only component. Evaluation procedure is the third part of the model which contains learner evaluation, teacher evaluation, and curriculum evaluation. Every component of the model is broken down into subcomponents which is explained in detail in the review of literature.

The curriculum contents presented in this study were selected from high school vocational agriculture curriculum contents that are taught in different states in the United States and also some of the developing countries. A concise representation of the model can be seen best in the questionnaire (Appendix C).

CHAPTER III

DESIGN AND METHODOLOGY

Introduction

This chapter describes the procedures used in conducting this study, which includes: Sample for the study, development of the instrument, collection of the data, and analysis of the data.

Sample for the Study

Kerlinger (11) defines purposive sampling as follows:

Another form of nonprobability sampling is purposive sampling, which is characterized by the use of judgment and a deliberate effort to obtain representative samples by including presumably typical areas or groups in the sample (p. 129).

For conducting this study the purposive sampling procedure was used in order to obtain the required information.

Among all the universities in the United States, eighty universities were selected based on the number of international graduate students majoring in Agriculture Education at those universities. A letter (see Appendix A) was sent to the selected university's Agriculture Education Departments that requested a list of the names, nationalities, addresses, and telephone numbers of all international graduate students studying in that department. One hundred fourteen names were collected and the questionnaires were mailed to them as the selected sample for this study.

Development of the Instrument

The information needed for the study was obtained through the use of a questionnaire (see Appendix B). The questionnaire was developed with the aid of the researcher's committee.

The questionnaire was divided into two parts. The model was presented through the first part of the questionnaire and it contained CURRICULUM PLANNING, CURRICULUM IMPLEMENTATION, and EVALUATION PROCEDURE as the three basic components. In order to estimate the degree of applicability of the first part of the model in developing countries the following scale was used:

1. 1.00 to 1.49 Applicable
2. 1.50 to 2.49 Applicable with minor changes
3. 2.50 to 3.49 Applicable with moderate changes
4. 3.50 to 4.49 Applicable with major changes
5. 4.50 to 5.00 Not applicable

The questions in the second part of the questionnaire were used to determine the importance of content that could be offered for a vocational agriculture program in developing countries. In order to estimate the degree of the importance of this content the following scales were used

1. 1.00 to 1.49 Very important
2. 1.50 to 2.49 Of moderate importance
3. 2.50 to 3.49 Important
4. 3.50 to 4.49 Of little importance
5. 4.50 to 5.00 Not important

Collection of Data

As was stated earlier, the questionnaire's were mailed to the 114 graduate students majoring in Agriculture Education. A self-addressed stamped envelope was enclosed to encourage a prompt response and return. A cover letter (see Appendix B) was developed by the aid of the researcher's committee and it was enclosed for a better understanding and more complete explanation. The first mailing resulted in 41 completed returns, plus 6 in which the recipient had moved. A second mailing was done and 11 more completed responses were returned for a total of 52 instruments. In the second mailing 14 more were returned in which the recipient had moved. Therefore, after subtracting the total number of recipients who had moved (114-20) the ultimate sample size for this study was 94 and the percent of the return based on the 94 as the ultimate sample size was 55.32.

Analysis of the Data

The questionnaires were coded, keypunched and programmed. For analysis of the data, the Statistical Analysis System (SAS) (22) package was used.

After consulting with the researcher's major advisor, it was decided that descriptive statistics would be the most appropriate treatment to use. The descriptive statistics selected were frequency distributions, and percentage and means. Also in order to explain the characteristics of the sample for this study some histogram's were used.

CHAPTER IV

PRESENTATION OF THE DATA

Introduction

The major purpose of this study was to develop a high school vocational agriculture curriculum model. A secondary purpose was to determine the applicability and importance of such a model for developing countries.

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

1. To develop a high school vocational agriculture curriculum model for developing countries.
2. To obtain the judgment of a selected group of international graduate students studying agriculture education at the Land Grant Universities in the United States as to the applicability of such a model developed in this study for developing countries.
3. To obtain the judgment of these students as to the importance of the curriculum content of such a model for developing countries.

Sample for the Study

Among all the universities in the United States eighty universities were selected based on the number of international graduate students

majoring in Agriculture Education in those universities. A letter (see Appendix A) was sent to the selected universities Agriculture Education Departments that requested a list of the name, nationality, address, and telephone number of all international graduate students studying in that department. One hundred fourteen names were collected and the questionnaires were mailed to them as the selected sample for this study. A copy of the instrument used to collect the data for this study is included in Appendix C.

Characteristics of the Respondents

The entire sample for this study consisted of 52 international graduate students majoring in Agriculture Education. The characteristics of the respondents is shown graphically in Figures 1, 2, 3, and 4.

Figure 2 explains the ages of the 52 respondents, which range from 20-44. The ages 20-24 were selected for the first interval, 25-28 for the second interval, 29-32 for the third interval, 33-36 for the fourth interval, 37-40 for the fifth interval, and 41-44 for the last interval.

Figure 3 explains the nationality of the respondents, which represent 20 different countries. Nigeria, with 16 students, had the largest number of respondents among all the countries.

Figure 4 explains the kind of degree on which the respondents were working. Twenty three students were working towards a Master's degree, twenty two students were working towards a Ph.D. degree and seven of the respondents were working towards a Ed.D. degree. It is important to realize that a few of these students had already received their degree.

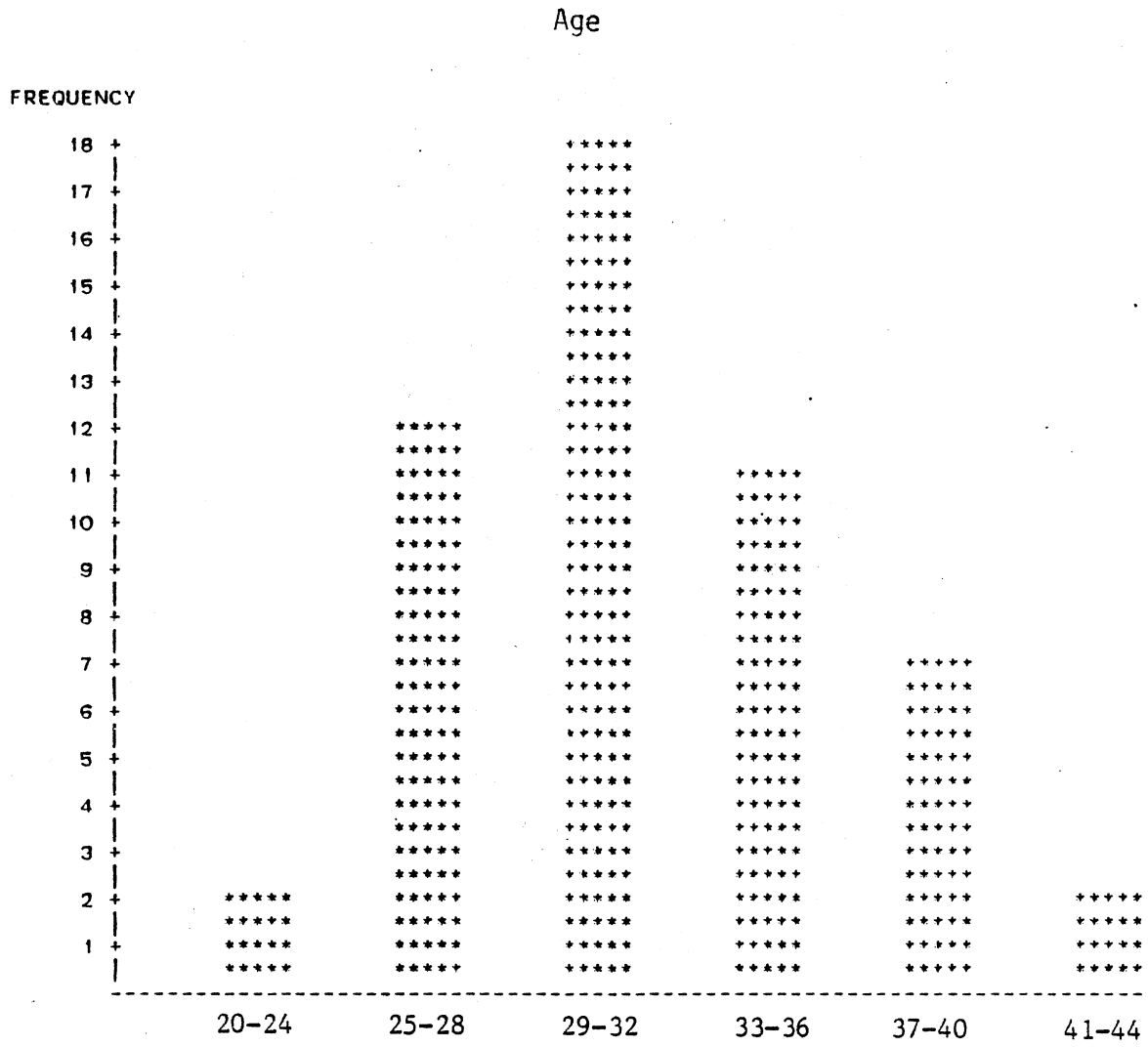


Figure 2. Age of the Respondents Histogram

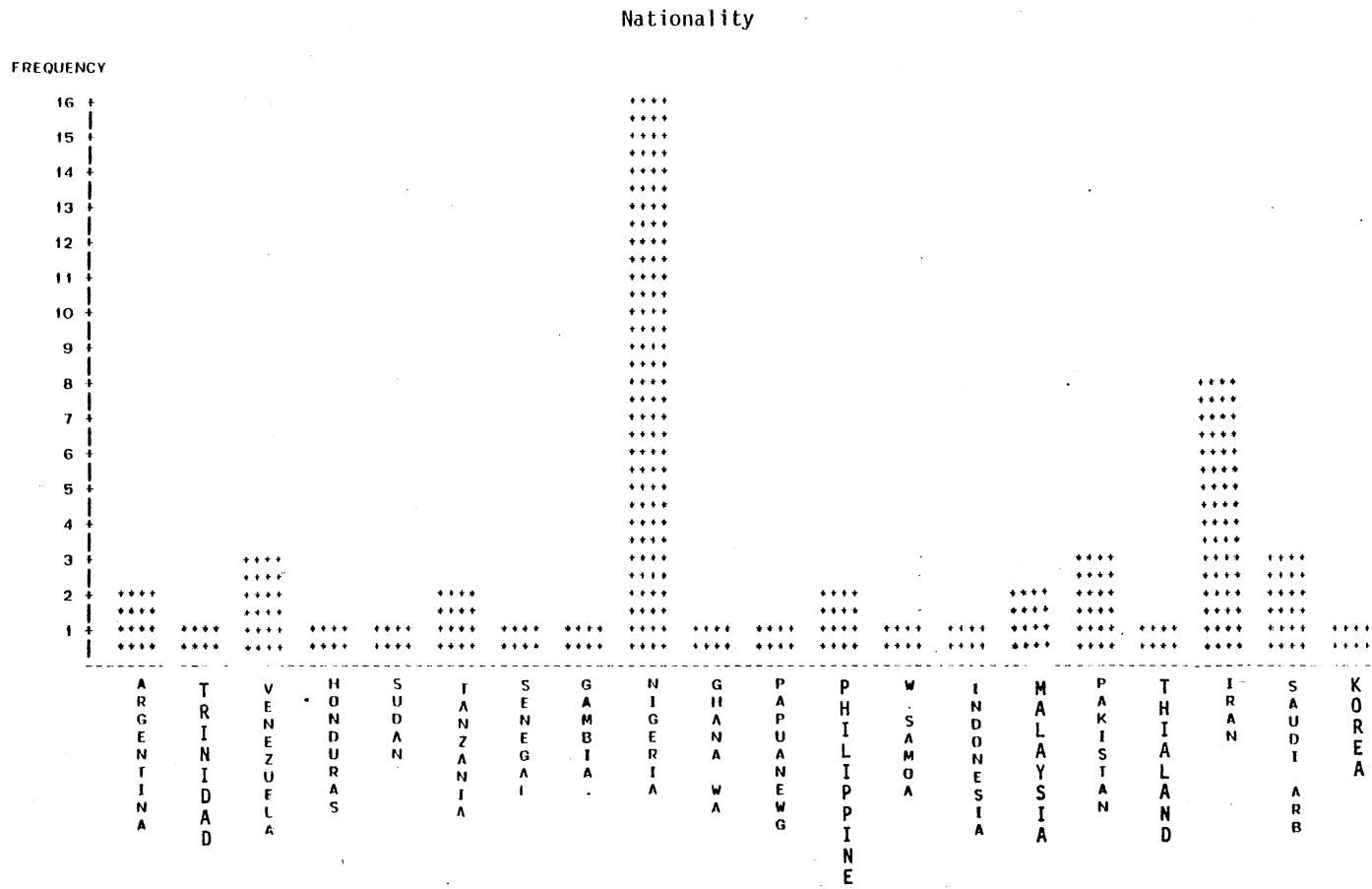


Figure 3. Nationality of the Respondents Histogram

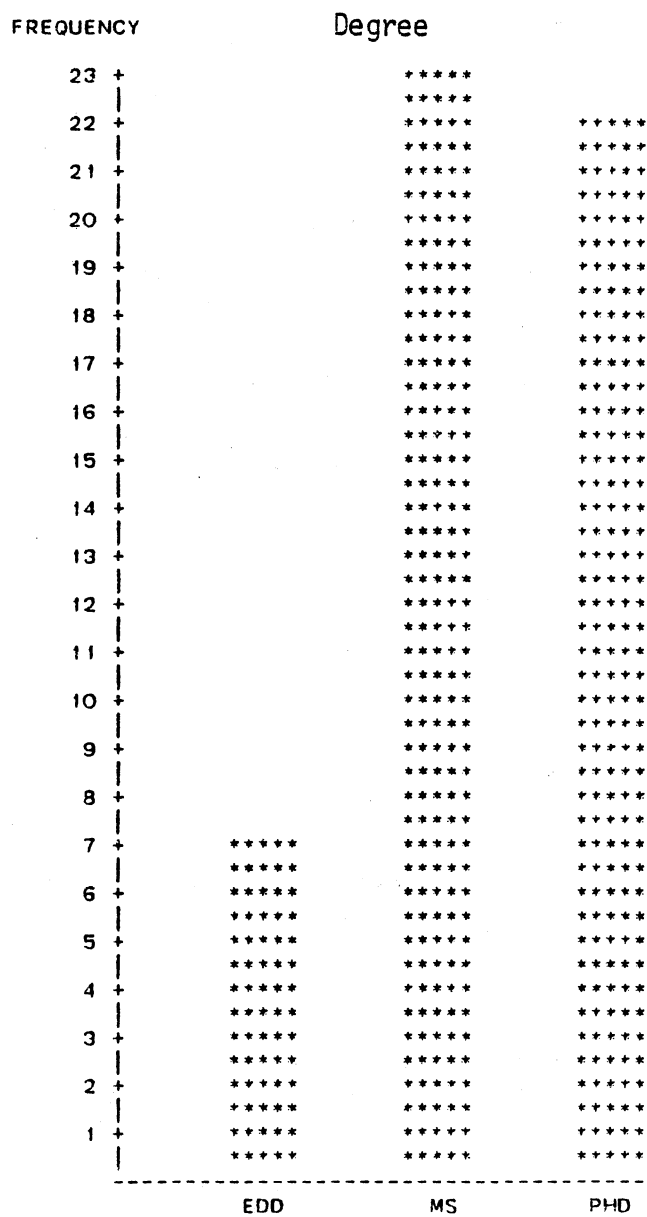


Figure 4. Degree of the Respondents Histogram

Figure 5 explains the field of specialization of the respondents. Agriculture Education, Agriculture Extension, Agriculture Mechanization, Curriculum, and Program Development Evaluation are the fields of specialization of the respondents.

It was also found that 67.3 percent of the selected sample had teaching experience and 59.62 percent of them had been involved in curriculum activities.

Curriculum Model Data

Decision Making Procedure

Table I contains a summary of "Decision Making Procedure" as one of the components of the curriculum planning. The overall mean for this part of curriculum planning was 1.49 which stays in the category of "Applicable". Item A (Define problem and clarify alternatives) with 1.27 has the lowest mean, and item C and D (Gather school and community related data, analyze data in terms of the established standards) with 1.60 have the highest means.

Decision Makers

Table II contains a summary of "Decision Makers" as the second component of curriculum planning. The overall mean for this table is 2.09 which stays in the category of "Applicable with minor changes". For this part of the model five groups; representatives for 5 different kinds of decisions were suggested. Group one for policy making, group two for occupational analysis, group three for content selection, group four for technical development content of the curriculum and group five for arrangement of curriculum opportunities.

Among all the groups, teachers, as the representatives of group

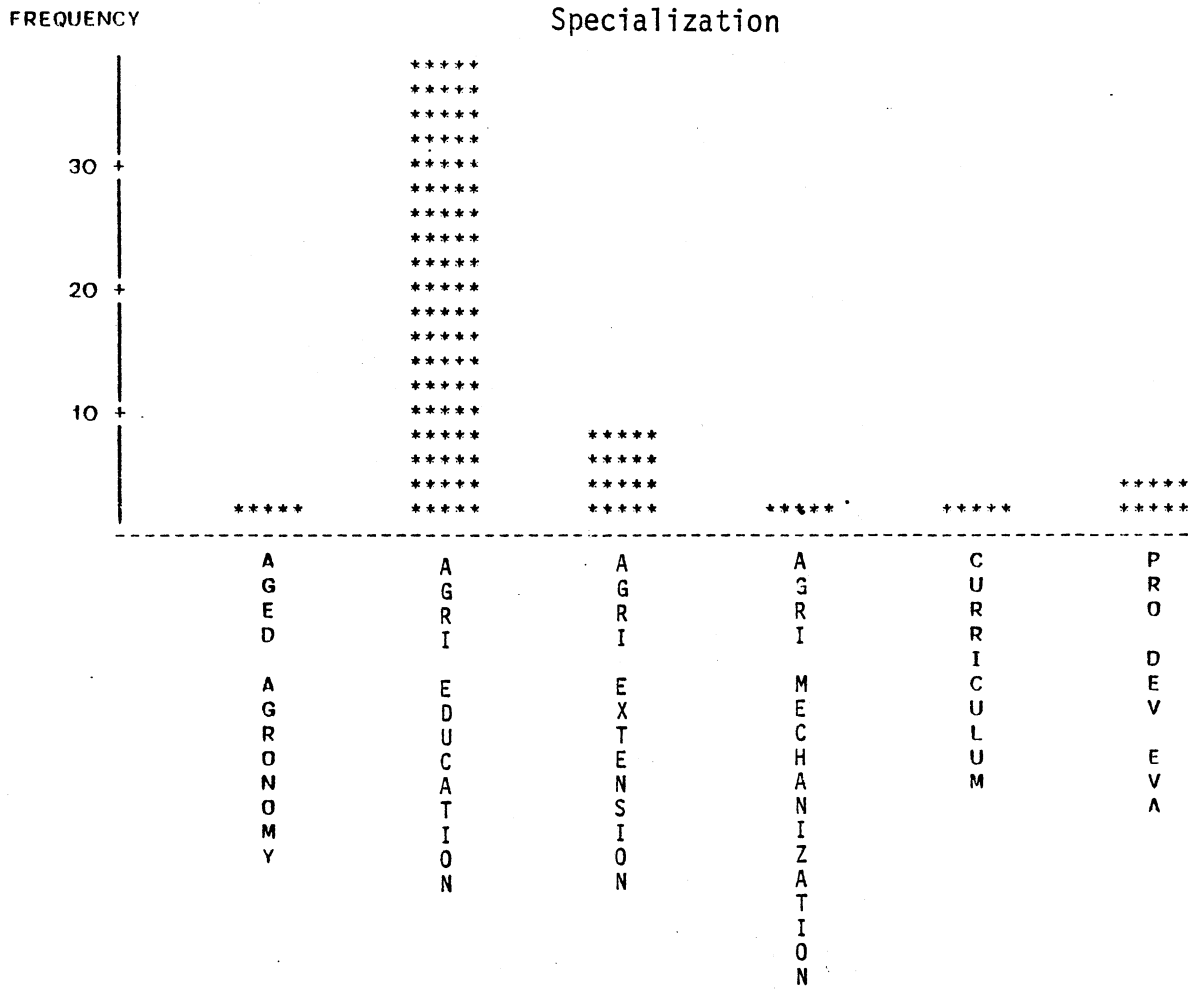


Figure 5. Specialization of the Respondents Histogram

TABLE I
SUMMARY OF DECISION MAKING PROCEDURE AS ONE OF
THE COMPONENTS OF CURRICULUM PLANNING

Decision Making Procedure	A		AWMin		AWMo		AWMaj		NA		Mean	Category
	N	%	N	%	N	%	N	%	N	%		
a. Define the Problem and clarify alternatives	41	78.85	9	17.31	1	1.92	1	1.92	0	0	1.27	A
b. Establish Standard for each alternative	33	63.46	10	19.23	8	15.39	1	1.92	0	0	1.56	AWMin
c. Gather School and Community related data	33	63.46	11	21.15	5	9.62	2	3.85	1	1.92	1.60	AWMin
d. Analyze data in terms of the established standards	32	61.54	13	25.00	3	5.77	4	7.70	0	0	1.60	A
e. Decide which alternative is supported by data	38	73.08	9	17.31	3	5.77	2	3.85	0	0	1.40	A

N = 52

Mean of means = 1.49

A = Applicable = 1.00 to 1.49

AWMIN = Applicable with minor changes = 1.50 to 2.49

AWMO = Applicable with moderate changes = 2.50 to 3.49

AWMaj = Applicable with major changes = 3.50 to 4.49

NA = Not applicable = 4.50 to 5.00

TABLE II
 SUMMARY OF THE BEST REPRESENTATIVE AS "DECISION MAKER" IN PLANNING A
 VOCATIONAL AGRICULTURE CURRICULUM AS ONE OF THE
 COMPONENTS OF CURRICULUM PLANNING

Decision Maker	A		AWMin		AWMo		AWMaj		NA		Mean
	N	%	N	%	N	%	N	%	N	%	
Group 1 (Board of education, Professional Staff, Representative of Business and Industry, Parents, Students) for Policy Making	25	48.08	11	21.15	7	13.40	5	9.62	4	7.09	2.08
Group 2 (Representative of Teacher, Representative of Business and Industry and Researcher) for Occupational Analysis	19	36.54	17	32.70	7	13.46	7	13.046	2	3.85	2.15
Group 3 (Teacher, Farmer, Representative of Business and Industry) for Content Selection	9	17.31	17	32.70	14	26.92	8	15.39	4	7.69	2.63
Group 4 (Curriculum Specialist, Learning and Reading Specialist) for Technical Curriculum Development	22	42.31	18	34.62	7	13.46	4	7.69	1	1.92	1.92
Group 5 (Teacher) for Arrangement or Curriculum Opportunities	31	59.62	10	19.23	8	15.39	2	3.85	1	1.92	1.69

N = 52

Mean of means = 2.09

five had the lowest mean (1.69) and group three had the highest mean (2.63), which tells us that the degree of applicability for teachers as arranger of curriculum opportunities is higher than the degree of applicability of teachers, farmers, and representatives of business and industry for content selection.

Unit Planning

The data in Table III is the distribution of responses for "Unit Planning" as the last component of the curriculum planning. The overall mean for this part of the curriculum planning was 1.54 which stays in the category of "Applicable with minor changes". As can be seen there is a consistency of the degrees of applicability of every item in this table.

Unit of Instruction

The data contained in Table IV indicates "Unit of Instruction" as the only component of curriculum implementation. The overall mean for this table is 1.73 which stays in the category of "Applicable with minor changes". Transparency master with a mean of 2.48 and Job Sheet with a mean of 2.00 are the only items that have higher means, other than those two there exists a consistency between all other parts of the table.

Learner Evaluation

The data contained in Table V indicates "Learner Evaluation" as the first component of evaluation procedures for the model. The overall mean for this table is 1.80 which stays in the category of "Applicable with minor changes". The affective domain has the highest

TABLE III
SUMMARY OF "UNIT PLANNING" AS ONE OF THE
COMPONENTS OF CURRICULUM PLANNING

Unit Planning	A		AWMin		AWMo		AWMaJ		NA		Mean
	N	\bar{X}	N	\bar{X}	N	\bar{X}	N	\bar{X}	N	\bar{X}	
a. Diagnosing needs (Those needs which were identified by gathering data for school and community)	35	67.31	9	17.31	6	11.54	1	1.92	1	1.92	1.54
b. Formulate specific objectives (Objectives for student's achievement)	36	69.23	10	19.23	2	3.85	4	7.69	0	0	1.5
c. Selecting contents for units, which contains: 1. selecting topics 2. selecting basic ideas (The ideas would be taught about given topics) 3. Selecting specific content (Selecting content for development of basic idea)	35	67.31	8	15.39	6	11.54	3	5.77	0	0	1.56
d. Organizing content (Presenting sources of information in a teachable sequence)	35	67.31	11	21.15	5	9.62	1	1.92	0	0	1.46
e. Selecting learning experience (Objectives need to be implemented by appropriate learning activities designed to help students develop and practice the level of behavior they are supposed to learn.)	33	63.46	12	23.08	3	5.77	4	7.69	0	0	1.58
f. Organizing learning experience (learning experiences should follow a sequence which makes continuous and cumulative learning possible.)	37	71.15	7	13.46	7	13.46	1	1.92	0	0	1.46
g. Evaluation (Procedure to find how effective our objectives are.)	37	71.15	7	13.46	7	13.46	1	1.92	0	0	1.48
h. Checking for balance and sequence (When unit is completed in writing, it is necessary to check the overall consistency among its parts.)	33	63.46	9	17.31	3	5.77	5	9.62	2	3.016	1.73

N = 52

Mean of means = 1.54

TABLE IV
SUMMARY OF "UNIT OF INSTRUCTION" AS THE COMPONENT OF CURRICULUM IMPLEMENTATION

Unit of Instruction	A		A _{WMin}		A _{WMo}		A _{WMaj}		NA		Mean
	N	%	N	%	N	%	N	%	N	%	
a. Performance Objectives (Objectives for student achievement)	39	75.00	7	13.46	3	5.77	2	3.85	1	1.92	1.44
b. Suggested activities (Teaching and study methods)	35	07.31	15	28.85	2	3.85	0	0	0	0	1.37
c. Information sheet (Outline of curriculum information)	32	61.53	12	23.08	3	5.77	4	7.69	1	1.92	1.65
d. Transparency master (Drawing to make visuals from)	18	34.62	10	19.23	11	21.15	7	13.46	6	11.54	2.48
e. Assignment sheet (Home or outside work)	33	63.46	10	19.23	3	5.77	6	11.54	0	0	1.65
f. Job sheet (Manipulative assignment)	23	44.23	15	28.85	8	15.39	3	5.77	3	5.77	2.00
g. Test (Examination)	37	71.15	7	13.46	5	9.62	2	3.85	1	1.92	1.52
h. Answers to the test (Examination Answers)	32	61.54	7	14.46	10	19.23	2	3.85	1	1.92	1.71

N = 52

Mean of means = 1.80

TABLE V
 SUMMARY OF "LEARNER EVALUATION" AS ONE OF THE
 COMPONENTS OF EVALUATION PROCEDURE

Learner Evaluation	A		AWMin		AWMo		AWMaj		NA		Mean
	N	%	N	%	N	%	N	%	N	%	
a. Affective	24	46.15	15	28.85	5	9.62	4	7.69	4	7.69	2.02
b. Cognitive	33	63.46	12	23.08	2	3.85	4	7.69	1	1.92	1.62
c. Psychomotor	27	51.92	15	28.85	5	9.62	4	7.69	1	1.92	1.79
d. Combination of the above (Performance objectives)	26	50.00	18	34.62	5	9.02	1	1.92	2	3.85	1.75

N = 52

Mean of means = 1.80

mean and the cognitive domain has the lowest mean.

Teacher Evaluation

The data in Table VI indicates "Teacher Evaluation" as the second component of the evaluation procedure. The overall mean for this table is 2.27 which stays in the category of "Applicable with minor changes". As can be seen all the respondents selected classroom observation as the best method of teacher evaluation among all other methods available in the model. The next method which was selected by respondents was competency testing with a mean of 2.19. Self evaluation, peer evaluation, and student evaluation each had means of 2.25, 2.61, and 2.65 which indicated less importance in the teacher evaluation procedure.

Curriculum Evaluation

The data in Table VII indicates "Curriculum Evaluation" as the last component of the evaluation procedure. The overall mean for this table was 1.63 which make up curriculum evaluation. The range of the changes". As can be seen in this table there is a consistency among all items which construct curriculum evaluation. The range of the means is between 1.54 to 1.79. The lowest mean (more applicable) are steps 2 and 6 and the highest mean (less applicable) is step 5.

Curriculum Content Data

Soil Science

Table VIII indicates the importance of "Soil Science" as part of the curriculum content for a high school vocational agriculture program. The overall mean for this table was 1.60 which stays in the

TABLE VI
 SUMMARY OF "TEACHER EVALUATION" AS ONE OF THE
 COMPONENTS OF EVALUATION PROCEDURE

Teacher Evaluation	A		A _{Min}		A _{Mo}		A _{Maj}		NA		Mean
	N	%	N	%	N	%	N	%	N	%	
a. Classroom observation	31	59.62	11	21.15	4	7.69	7	7.69	2	3.85	1.75
b. Student evaluation of the teacher	16	30.77	11	21.15	9	17.31	7	13.46	9	17.31	2.65
c. Self evaluation (By the teacher himself)	20	38.46	10	19.23	15	28.85	3	5.77	4	7.70	2.25
d. Peer evaluation (By other teachers)	12	23.08	16	30.77	11	21.15	6	11.54	7	13.46	2.61
e. Competency test (Over technical information and teaching methods)	18	34.62	19	36.54	6	11.54	5	9.62	4	7.69	2.19
f. Combination of a,b,c,d,e	22	42.31	12	23.08	8	15.39	7	13.46	3	5.77	2.17

N = 52

Mean of means = 2.27

TABLE VII
SUMMARY OF "CURRICULUM EVALUATION" AS ONE OF THE
COMPONENTS OF EVALUATION PROCEDURE

Curriculum Evaluation	A		AMMin		AMMO		AMMaJ		NA		Mean
	N	%	N	%	N	%	N	%	N	%	
Delineating Sub-process											
Step 1. Specify the people involved in evaluation procedure and decision to be made	33	63.40	10	19.23	5	9.62	4	7.69	0	0	1.62
Step 2. Describing the information needed	34	65.39	10	19.23	6	11.54	2	3.85	0	0	1.54
Obtaining Sub-process											
Step 3. Locate and appraise information already available	31	59.62	15	28.85	2	3.85	4	7.69	0	0	1.60
Step 4. Decide when, how and from whom to obtain additional information	30	57.69	11	21.15	6	11.54	5	9.62	0	0	1.73
Step 5. Construct (or select) the information gathering instrument	30	57.69	9	17.31	7	13.46	6	11.54	0	0	1.79
Step 6. Obtain needed information	34	65.39	10	19.23	6	11.54	2	3.85	0	0	1.54
Step 7. Analyze information from step 3 and 6	33	63.46	9	17.31	4	7.69	6	11.54	0	0	1.67
Providing Sub-process											
Step 8. Interpret analysis and prepare report	34	65.39	9	17.31	5	9.62	4	7.69	0	0	1.60
Step 9. Disseminate information decision maker	34	65.39	11	21.15	2	3.85	5	9.62	0	0	1.58
Utilization Sub-process											
Step 10. Implementing the information, decision and judgements	32	61.54	10	19.23	7	13.46	1	1.92	2	3.85	1.67

N = 52

Mean of means = 1.63

TABLE VIII
 SUMMARY OF "SOIL SCIENCE" AS ONE OF THE COMPONENTS OF
 VOCATIONAL AGRICULTURE CURRICULUM CONTENT

Soil Science	VI		OM		IM		OL		NI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Importance of soil	42	80.77	5	9.62	5	9.62	0	0	0	0	1.28
2. Nature and Property of soil	39	75.00	4	7.69	8	15.39	1	1.92	0	0	1.44
3. Conserving and controlling soil water	43	82.69	6	11.54	2	3.85	1	1.92	0	0	1.25
4. Improving soil fertility	46	88.46	3	5.77	3	5.77	0	0	0	0	1.17
5. Reading and interpreting soil maps	19	36.54	12	23.08	11	21.15	10	19.23	0	0	2.23
6. Managing soil	38	73.08	8	15.39	5	9.62	1	1.92	0	0	1.40
7. Soil testing	31	59.62	6	11.54	10	19.23	5	9.62	0	0	1.79
8. Land evaluation	22	42.31	12	23.08	12	23.08	5	11.54	0	0	2.03
9. Acid, alkaline, saline and sodic soils	30	57.69	8	15.39	8	15.39	5	9.62	1	1.92	1.23

N = 52

Mean of means = 1.60

category "Of moderate importance". As can be seen in the table "Reading and Interpreting Soil Maps" is the only item in the table that has a higher mean. Other than that there is a consistency among all the means in the table. The most important item in the table was "Improving Soil Fertility" which had the lowest mean 1.17.

Plant Science

Table IX indicates the importance of "Plant Science" as another item of the curriculum content for a high school vocational agriculture program. The overall mean for this table is 1.37 which stays in the category of "Very important". The lowest mean is for item numbers 5, 9, and 12 with a mean of 1.21 and the highest mean belonging to item number 11 (plant breeding) with a mean of 1.79. As can be seen in this table there is a consistency among all the items.

Agriculture Mechanics

Table X indicates the importance of "Agriculture Mechanics" as an item of curriculum content for a high school vocational agriculture program. The overall mean for this table is 2.13 which stays in the category "Of moderate importance". In this table item number 4 (selecting and applying paint) has the highest mean (2.81) which is in the category of "Important" and the lowest mean (1.55) belongs to item 12 (Farm water supply) which stays in the category "Of moderate importance".

General Animal Science

Table XI indicates the importance of "General Animal Science" as an item of curriculum content for a high school vocational agriculture

TABLE IX
 SUMMARY OF "PLANT SCIENCE" AS ONE OF THE COMPONENTS OF
 VOCATIONAL AGRICULTURE CURRICULUM CONTENT

Plant Science	VI		OM		IM		OL		NI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Introduction to Plant Science	40	76.92	6	11.54	4	7.69	2	3.84	0	0	1.38
2. Plant Growth	36	69.23	10	19.23	4	7.69	2	3.85	0	0	1.46
3. Identification and Selection of Plant Field Crops	38	73.08	6	11.54	4	7.69	4	7.69	0	0	1.50
4. Reproduction	36	69.23	10	19.23	5	9.62	1	1.92	0	0	1.44
5. Seed Bed Preparation	42	80.77	9	17.31	1	1.92	0	0	0	0	1.21
6. Planting	42	80.77	7	13.46	3	5.77	0	0	0	0	1.25
7. Identification and Selection of Plants	38	73.08	7	13.46	5	9.62	2	3.85	0	0	1.44
8. Plant Nutrients	41	78.85	6	11.54	3	5.77	2	3.85	0	0	1.35
9. Insect and Disease Control	46	88.46	2	3.85	3	5.77	1	1.92	0	0	1.21
10. Weed Control	43	82.69	5	9.62	4	7.69	0	0	0	0	1.25
11. Plant Breeding	32	61.54	7	13.46	7	13.46	4	7.69	2	3.85	1.79
12. Harvesting	45	86.54	5	9.62	2	3.85	0	0	0	0	1.21

N = 52

Mean of means = 1.37

TABLE X
 SUMMARY OF "AGRICULTURE MECHANICS" AS ONE OF THE COMPONENTS
 OF VOCATIONAL AGRICULTURE CURRICULUM CONTENT

Agriculture Mechanics	VI		OH		IM		OL		NI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Shop orientation	21	40.39	16	30.77	8	15.39	5	9.62	2	3.85	2.06
2. Farm carpentry	22	42.31	13	25.00	6	11.54	7	13.46	4	7.69	2.19
3. Cold metal work	16	30.77	15	28.85	11	21.15	8	15.39	2	3.85	2.33
4. Selecting and applying paint	12	23.08	10	19.23	12	23.08	12	23.08	6	11.54	2.81
5. Conditioning hand tools (wood metals)	16	30.77	16	30.77	10	19.23	5	9.62	5	9.62	2.37
6. Proper use of power tools	25	48.08	12	23.08	10	19.23	3	5.77	2	3.85	1.94
7. Hot metal work	18	34.62	11	21.15	10	19.23	9	17.31	4	7.69	2.42
8. Concrete	16	30.77	12	23.08	13	25.00	8	15.39	3	5.77	2.42
9. Farm electricity	21	40.39	11	21.15	7	13.46	6	11.54	7	13.46	2.37
10. Agricultural power-small engines	32	61.54	12	23.08	3	5.77	3	5.77	2	3.85	1.67
11. Tractor maintenance	38	73.08	6	11.54	2	3.85	3	5.77	3	5.77	1.60
12. Farm water supply	36	69.23	9	17.31	2	3.85	4	7.69	1	1.92	1.55
13. Farm level	19	36.54	14	26.92	11	21.15	4	7.69	4	7.69	2.23
14. Farm building construction	28	53.85	11	21.15	7	13.46	4	7.69	2	3.85	1.87
15. Farm machinery	34	65.39	3	5.77	10	19.23	3	5.77	2	3.85	1.77
16. Advanced oxy-acetylene welding and brazing	20	38.46	11	21.15	9	17.31	5	9.62	7	13.46	2.38
17. Farm fencing	17	32.69	17	32.69	9	17.31	5	9.62	4	7.69	2.27

N = 52

Mean of means = 2.13

TABLE XI
 SUMMARY OF "GENERAL ANIMAL SCIENCE" AS ONE OF THE COMPONENTS
 OF VOCATIONAL AGRICULTURE CURRICULUM CONTENT

General Animal Science	VI		OM		IM		OL		NI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Introduction to Animal Science	37		8		5		2		0	0	1.46
2. Feeding factors affecting the growth of animals	36	69.23	11	21.15	4	7.69	1	1.92	0	0	1.42
3. Study of digestive systems	30	57.69	10	19.23	9	17.31	2	3.85	1	1.92	1.73
4. Study of the Process of milk secretion, egg, wool and meat production.	35	67.31	10	19.23	5	9.62	2	3.85	0	0	1.5
5. Identifying and controlling animal disease and parasites	46	88.46	2	3.85	1	1.42	3	5.769	0	0	1.25
6. Caring for livestock and their products	42	80.77	3	5.77	6	11.54	1	1.92	0	0	1.35
7. Locating livestock carriers in agriculture	29	55.77	8	15.39	8	15.39	4	7.69	3	5.77	1.92
8. Feeding livestock for a profit	35	67.31	10	19.23	4	7.69	3	5.77	0	0	1.52
9. Animal metabolism and growth	26	50.00	10	19.23	15	28.85	1	1.92	0	0	1.83
10. Livestock production management	38	73.08	6	11.54	8	15.39	0	0	0	0	1.42
11. Anatomy and Physiology of domestic animals	28	53.85	6	11.54	11	21.15	6	11.54	1	1.92	1.96
12. Feed and Feeding	38	73.08	7	13.46	6	11.54	1	1.92	0	0	1.42

N = 52

Mean of means = 1.57

program. The overall mean for this table is 1.57 which stays in the category "Of moderate importance". Item number 5 (Identifying and controlling animal disease and parasites) with 1.25 and item number 11 (Anatomy and physiology of domestic animals) with 1.96 have the lowest and the highest mean among all other items.

Animal Science-Beef Cattle

Table XII explains the importance of "Animal Science-Beef Cattle" as an item of curriculum content for a high school vocational agriculture program. The overall mean for this table is 1.83 which stays in the category "Of moderate importance". Item 3 (Judging) with 2.56 has the highest mean and item 4 (Feeding) with 1.46 has the lowest mean among all other items.

Animal Science-Sheep

The data in Table XIII explains the importance of "Animal Science-Sheep" as part of the curriculum content for a high school vocational agriculture program. The overall mean for this table was 2.24 which stays in the category "Of moderate importance" "Types and Breeds" with 1.85 and "Judging" with 2.63 has the lowest and highest means among all other items.

Animal Science-Dairy Cattle

Table XIV indicates the importance of "Animal Science-Dairy Cattle" as a part of the curriculum content for a high school vocational agriculture curriculum program. The overall mean for this table is 1.47 which stays in the category of "Very important". The highest

TABLE XII

SUMMARY OF "ANIMAL SCIENCE - BEEF CATTLE" AS ONE OF THE COMPONENTS
OF VOCATIONAL AGRICULTURE CURRICULUM CONTENT

Animal Science - Beef Cattle	VI		OM		IM		OL		NI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Sex classes	23	44.23	14	26.92	12	23.08	2	3.85	1	1.92	1.92
2. Types and breeds	28	53.85	15	28.85	7	13.46	1	1.92	1	1.92	1.69
3. Judging	18	34.62	8	15.39	13	25	5	9.62	8	15.39	2.56
4. Feeding	40	76.92	5	9.62	3	5.77	3	5.77	1	1.92	1.46
5. System of production	37	71.15	8	15.39	4	7.69	1	1.92	2	3.85	1.51

N = 52

Mean of means = 1.83

TABLE XIII

SUMMARY OF "ANIMAL SCIENCE - SHEEP" AS ONE OF THE COMPONENTS
OF VOCATIONAL AGRICULTURE CURRICULUM CONTENT

Animal Science - Sheep	VI		OM		IM		OL		NI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Sex classes	21	40.39	17	32.69	7	13.46	6	11.54	1	1.92	2.02
2. Types and Breeds	29	55.77	9	17.31	8	15.39	5	9.62	1	1.92	1.85
3. Judging	17	32.69	10	19.23	7	13.46	11	21.15	7	13.46	2.63
4. Wool production	22	42.31	8	15.39	8	15.39	5	9.62	9	17.31	2.44

N = 52

Mean of means = 2.24

TABLE XIV

SUMMARY OF "ANIMAL SCIENCE - DAIRY CATTLE" AS ONE OF THE COMPONENTS
OF VOCATIONAL AGRICULTURE CURRICULUM CONTENT

Animal Science - Dairy Cattle	VI		OM		IM		OL		MI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Sex classes	27	51.92	14	26.92	10	19.23	1	1.92	0	0	1.71
2. Breeds	33	63.46	10	19.23	7	13.46	2	3.85	0	0	1.58
3. Feeding	41	78.85	8	15.39	3	5.77	0	0	0	0	1.27
4. Reproduction	36	69.23	10	19.23	5	9.62	1	1.92	0	0	1.44
5. Dairy production	39	75.00	8	15.39	4	7.69	1	1.92	0	0	1.37

N = 52

Mean of means = 1.47

mean belongs to item number 1 (Sex Class) with 1.71 and the lowest mean belongs to item number 3 (Feeding) with 1.27.

Animal Science-Horses

Table XV indicates the importance of "Animal Science-Horses" as a part of the curriculum content for a high school vocational agriculture program. The overall mean for this table is 2.94 which stays in the category of "Important". The lowest mean in this table belongs to item number 4 (Feeding) with 2.65 and the highest mean belongs to item number 3 (Judging) with 3.26.

Animal Science-Poultry

The data in Table XVI indicates the importance of "Animal Science-Poultry" as a part of the curriculum content for a vocational agriculture program. The overall mean for this table is 1.30 which stays in the category of "Very important". The lowest mean belongs to "Egg-production" with 1.27 and the highest mean belongs to "Other Poultry" with 1.60.

Horticulture

The data indicated in Table XVII explained the importance of "Horticulture" as part of the curriculum content for a high school vocational agriculture program. The overall mean for this table is 1.58 which stays in the category "Of moderate importance". Item number 4 (Fertilizer) with 1.33 has the lowest mean and item number 9 (Potting Procedure) with 1.88 has the highest mean among all other items.

TABLE XV

SUMMARY OF "ANIMAL SCIENCE - HORSES" AS ONE OF THE COMPONENTS
OF VOCATIONAL AGRICULTURE CURRICULUM CONTENT

Animal Science - Horses	VI		OM		IM		OL		NI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Sex classes	11	21.15	10	19.23	12	23.08	12	23.08	7	13.46	2.88
2. Types and Breeds	12	23.08	6	9.62	17	32.69	10	19.23	8	15.39	2.94
3. Judging	8	15.39	5	9.62	17	32.69	9	17.31	13	25.00	3.26
4. Feeding	15	28.85	9	17.31	14	26.92	7	13.46	7	13.46	2.65
5. Grooming	10	19.23	9	17.31	12	23.98	13	25.00	8	15.39	3.00
6. Health	18	34.62	7	13.46	12	23.08	6	11.54	9	17.31	2.63
7. Horsemanship	6	11.538	11	21.15	12	23.08	11	21.15	12	23.08	3.23

N = 52

Mean of means = 2.94

TABLE XVI

SUMMARY OF "ANIMAL SCIENCE - POULTRY" AS ONE OF THE COMPONENTS
OF VOCATIONAL AGRICULTURE CURRICULUM CONTENT

Animal Science - Poultry	VI		OM		IM		OL		NI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Egg production	43	82.69	6	11.54	1	1.92	2	3.85	0	0	1.27
2. Broiler production	42	80.77	6	11.54	3	5.77	1	1.92	0	0	1.29
3. Other poultry	31	59.61	13	25.00	6	11.54	2	3.85	0	0	1.60

N = 52

Mean of means = 1.39

TABLE XVII

SUMMARY OF "HORTICULTURE" AS ONE OF THE COMPONENTS
OF VOCATIONAL AGRICULTURE CURRIUCLUM CONTENT

Horticulture	VI		OM		IM		OL		NI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Plant growth and reproduction	37	71.15	9	17.31	4	7.69	2	3.85	0	0	1.44
2. Plan propagation	34	65.39	11	21.15	6	11.54	1	1.92	0	0	1.50
3. Soils	36	69.23	11	21.15	4	7.69	1	1.92	0	0	1.42
4. Fertilizer	41	78.85	7	13.40	3	5.77	1	1.92	0	0	1.33
5. Plant Growth Media	30	57.69	15	28.85	5	9.62	2	3.85	0	0	1.60
6. Plant Problem and Control	33	63.40	10	19.23	8	15.39	1	1.92	0	0	1.56
7. Pruning	28	53.85	17	32.69	6	11.54	1	1.92	0	0	1.62
8. Plant Identification	29	55.77	8	15.39	10	19.23	4	7.69	1	1.92	1.85
9. Potting Procedure	23	44.23	16	30.77	9	17.31	4	7.69	0	0	1.88

N = 52

Mean of means = 1.58

Agriculture Management

The data in Table XVIII explains the importance of "Agriculture Management" as part of the curriculum content for a high school vocational agriculture program. The overall mean for this table is 1.82 which stays in the category "Of moderate importance". The lowest mean belongs to item number 4 (Agricultural Planning) with 1.44 and the highest mean belongs to item number 6 (Agricultural Insurance) with 2.62.

Forestry

The data in Table XIV explained the importance of "Forestry" as part of the curriculum content for a high school vocational agriculture program. The overall mean for this table is 2.10 which stays in the category "Of moderate importance". The lowest mean in the table belongs to item number 7 (Forest Management) with 1.90 and the highest mean belongs to item number 4 (Forest Measurement) with 2.37.

Supervised Experience Program and Records

The data in Table XX explained the importance of "Supervised Experience Program and Records" as a part of the curriculum content for a high school vocational agriculture program. The overall mean for this table is 2.03 which stays in the category "Of moderate importance". The lowest mean in this table belongs to item number 1 (Planning and Establishing) with 1.90 and the highest means belong to items numbered 2 and 3 (Keeping Records of Supervised Experiences, and Analysis and Evaluation of Supervised Experience Program) with

TABLE XVIII

SUMMARY OF "AGRICULTURE MANAGEMENT" AS ONE OF THE COMPONENTS OF
VOCATIONAL AGRICULTURE CURRICULUM CONTENT

Agriculture Management	VI		OM		IM		OL		NI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Introduction to Agricultural management	34	65.39	10	19.23	7	13.46	1	1.92	0	0	1.52
2. Principle of Economics	32	61.54	11	21.15	7	13.46	1	1.92	1	1.92	1.62
3. Agricultural Finance	33	63.46	9	17.31	8	15.39	2	3.85	0	0	1.60
4. Agricultural Planning	34	67.31	11	21.15	6	11.54	0	0	0	0	1.44
5. Agricultural Record	28	53.85	13	25.00	7	13.46	4	7.69	0	0	1.75
6. Agricultural Insurance	16	30.77	10	19.23	10	19.23	10	19.23	6	11.54	2.62
7. Marketing	37	71.15	8	15.39	4	7.69	2	3.85	1	1.92	1.50
8. Legal Relations	17	32.69	12	23.08	9	17.31	9	17.31	5	9.62	2.48

N = 52

Mean of means = 1.82

TABLE XVIV

SUMMARY OF "FORESTRY" AS ONE OF THE COMPONENTS OF
VOCATIONAL AGRICULTURE CURRICULUM CONTENT

Forestry	VI		OM		IM		OL		NI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Orientation	25	48.08	10	19.23	12	23.08	3	5.77	2	3.85	1.98
2. Identification of trees	22	42.31	10	19.23	13	25.00	5	9.62	2	3.85	2.13
3. Using measurement unit to solve forestry problem	20	38.46	11	21.15	11	21.15	7	13.40	3	5.77	2.27
4. Forest measurement	18	34.62	13	25.00	8	15.39	10	19.23	3	5.77	2.37
5. Forest ecology	24	46.15	11	21.15	7	13.46	8	15.39	2	3.85	2.10
6. Forest protection	29	59.62	8	15.39	7	13.46	6	11.54	2	3.85	1.92
7. Forest management	31	59.62	6	11.54	7	13.46	5	9.62	3	5.77	1.90

N = 52

Mean of means = 2.10

TABLE XX

SUMMARY OF "SUPERVISED EXPERIENCE PROGRAMS AND RECORDS" AS ONE OF THE COMPONENTS OF VOCATIONAL AGRICULTURE CURRICULUM CONTENT

Supervised Experience Program and Record	VI		OM		IM		OL		NI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Planning and establishing	31	59.62	8	15.39	5	9.62	3	5.77	5	9.62	1.90
2. Keeping records of supervised experiences	25	48.08	10	19.23	9	17.31	3	5.77	5	9.62	2.10
3. Analysis and evaluation of supervised experience program	27	51.92	9	17.31	6	11.54	4	7.69	6	11.54	2.10

N = 52

Mean of means = 2.03

means of 2.10.

Environmental Protection

The data in Table XXI explained the importance of "environmental Protection" as part of the curriculum content for a high school vocational agriculture program. The overall mean for this table was 2.18. There are only 2 items in this table which have almost the same mean, so the category of this table stays in "Of moderate importance".

Opportunity in Agriculture

The data indicated in Table XXII explained the importance of "Opportunity in Agriculture" as part of the curriculum content for a high school vocational agriculture program. The overall mean for this table is 2.04 which stays in the category "Of moderate importance". "Career in Agriculture" with a mean of 1.79 and "Job Placement Technique" with a mean of 2.29 represent the lowest and highest means.

Agriculture Extension

The data indicated in Table XXIII explained the importance of "Agriculture Extension" as part of the curriculum content for a high school vocational agriculture program. The overall mean for this table is 1.53 which stays in the category "Of moderate importance". The lowest mean in this table belongs to item number 1 (Understanding the Meaning of Agriculture Extension) with 1.33 and item number 4 (Familiarity with Visual Aids and their use) has the highest mean with 1.78.

TABLE XXI

SUMMARY OF "ENVIRONMENTAL PROTECTION" AS ONE OF THE COMPONENTS
OF VOCATIONAL AGRICULTURE CURRIUCLUM CONTENT

Environmental Protection	VI		OM		IM		OL		NI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Regulation and Certification in use of chemicals	26	50.00	8	15.39	7	13.46	7	7.69	7	13.46	2.19
2. Conserving energy on the farm	25	48.08	11	21.15	5	9.62	4	7.69	7	13.46	2.17

N = 52

Mean of means = 2.18

TABLE XXII

SUMMARY OF "OPPORTUNITY IN AGRICULTURE" AS ONE OF THE COMPONENTS
OF VOCATIONAL AGRICULTURE CURRICULUM CONTENT

Opportunity in Agriculture	VI		OM		IM		OL		HI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Career in Agriculture	29	55.77	13	25.00	4	7.69	4	7.69	2	2.85	1.79
2. Job Placement Techniques	22	42.31	11	21.15	6	11.54	8	15.39	5	9.62	2.29

N = 52

Mean of means = 2.04

TABLE XXIII

SUMMARY OF "AGRICULTURE EXTENSION" AS ONE OF THE COMPONENTS OF
VOCATIONAL AGRICULTURE CURRICULUM CONTENT

Agriculture Extension	VI		OM		IM		OI		NI		Mean
	N	%	N	%	N	%	N	%	N	%	
1. Understanding the meaning of Agriculture extension	41	78.85	8	15.39	3	5.77	0	0	0	0	1.33
2. Recognition of ideal characteristics of extension office	37	71.15	8	15.39	3	5.77	3	5.77	1	1.92	1.52
3. Ability in determining farmer's needs	40	76.92	6	11.54	4	7.69	2	3.85	0	0	1.38
4. Familiarity with visual aids and their use	35	67.31	7	13.46	7	13.46	3	5.77	0	0	1.78
5. Ability to control meeting	32	61.54	11	21.15	7	13.46	2	3.85	0	0	1.60
6. Leadership ability	35	67.31	10	19.23	6	11.54	1	1.92	0	0	1.48
7. Ability in Evaluation Program	32	61.54	11	21.15	5	9.62	3	5.77	1	1.92	1.65

N = 52

Mean of means = 1.53

TABLE XXIV
SUMMARY OF THE OVERALL APPLICABILITY OF THE
FIRST PART OF THE CURRICULUM MODEL

Name of the Components of the Curriculum Model	Overall Mean	Category
<u>Curriculum Planning</u>	1.71	AWMin*
1. Decision Making Procedure	1.49	A
2. Decision Maker	2.09	AWMin
3. Unit Planning	1.54	AWMin
<u>Curriculum Implementation</u>	1.73	AWMin
1. Unit of Instruction	1.73	AWMin
<u>Evaluation</u>	1.90	AWMin
1. Learner Evaluation	1.73	AWMin
2. Teacher Evaluation	2.27	AWMin
3. Curriculum Evaluation	1.63	AWMin

Overall Mean = 1.78

* A = Applicable
 AWMin = Applicable with Minor Changes
 AWMo = Applicable with Moderate Changes
 AWMaj = Applicable with Major Changes
 NA = Not Applicable

TABLE XXV
 SUMMARY OF THE OVERALL IMPORTANCE OF
 THE CURRICULUM CONTENT AS THE
 SECOND PART OF THE MODEL

Name of the Topics in the Curriculum Content	Overall Mean	Category
Soil Science	1.60	OM
Plant Science	1.37	VI
Agriculture Mechanics	2.13	OM
General Animal Science	1.57	OM
Animal Science - Beef Cattle	1.83	OM
Animal Science - Sheep	2.24	OM
Animal Science - Dairy Cattle	1.47	VI
Animal Science - Horses	2.94	IM
Animal Science - Poultry	1.39	VI
Horticulture	1.58	OM
Agriculture Management	1.82	OM
Forestry	2.10	OM
Supervised experienced Programs and Records	2.03	OM
Environmental Protection	2.18	OM
Opportunity in Agriculture	2.04	OM
Agriculture Extension	1.53	OM

Overall Mean = 1.86

VI = Very Important
 OM = Of Moderate Importance
 IM = Important
 OL = Of Little Importance
 NI = Not Important

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

The purpose of this chapter is to present a summary of the study findings related to the purpose and objectives, to present conclusions derived from the findings, and to propose specific recommendations that are important as a result of this study.

Purpose

The major purpose of this study was to develop a high school vocational agriculture curriculum model. A secondary purpose was to determine the applicability and importance of such a model for developing countries.

Objectives of the Study

The objectives of the study were:

1. To develop a high school vocational agriculture curriculum model for developing countries.
2. To obtain the judgment of a selected group of international students studying agriculture education through Land Grant Universities in the United States as to the applicability of such a model developed in this study for developing countries.

3. To obtain the judgment of these students as to the importance of the contents of such a model for developing countries.

Procedures Used in the Study

After completing the review of literature, the following tasks were involved in the collection and analysis of the data:

1. Eighty Land Grant Universities in the United States were selected based on the number of international graduate students in each agriculture education department.

2. A letter was prepared by the researcher with the aid of his committee, which requested the name, address, nationality, and telephone number of those international graduate students in the eighty agriculture education departments.

3. An instrument was developed for collection of data.

4. Appropriate procedures were used for analyzing the data.

Design and Conduct of the Study

A questionnaire was utilized to collect data for the study. One hundred fourteen (114) questionnaires were mailed in the first mailing and 68 questionnaires were mailed in the second mailing. The respondents of the study numbered 52 of the 114 international graduate students majoring in agriculture education.

The Curriculum Model

The curriculum model presented in this study has the following components with every component containing subcomponents:

1. Curriculum Planning

- a. Decision making procedure

- b. Decision maker
- c. Unit planning
- 2. Curriculum Implementation
 - a. Unit of instruction
- 3. Evaluation Procedure
 - a. Learner evaluation
 - b. Teacher evaluation
 - c. Curriculum evaluation

Finding of the Study

Characteristics of the Respondents

Fifty-two students from twenty different countries contributed in this study, Nigeria with sixteen students had the largest number of students. Twenty three students were working for Master's degrees, twenty-two were working for Ph.D. degrees, and seven of the respondents were working for Ed.D degrees. Agriculture Education, Agriculture Extension, Curriculum, Program Development Evaluation were the fields of the respondents.

It was found that 67.3 percent of the respondents had teaching experience, while just 59.62 percent of them had curriculum experience.

Curriculum Planning

Curriculum planning is one of the three components of the first part of the curriculum model. The overall mean for this part was 1.71 which stays in the category of "Applicable with minor changes."

"Decision Maker" had the largest mean (2.09) and the "Decision Making

Procedure" with 1.49 had the smallest mean.

Curriculum Implementation

It was found that curriculum implementation as the second component of the first part of the curriculum model had a mean of 1.73 which stayed in the category of "Applicable with minor changes." Among all the subcomponents of curriculum implementation, transparency master had the largest mean (2.48).

Evaluation Procedure

Evaluation was another component in the model which caused some inconsistency in the data. The overall mean for this part was 1.90 which stayed in the category of "Applicable with minor changes". The combination of the affective domain, cognitive domain, and psychomotor domain were selected as the most applicable way for evaluating student performance.

Teacher evaluation with a mean of 2.27 had the largest mean among all others. It was found that the most applicable method of teacher evaluation was through "Classroom Observation". "Students evaluation of the Teacher" with a mean of 2.65 was the least applicable method for teacher evaluation.

Curriculum evaluation was the only component in the evaluation procedure that was consistent with the other means, it had an overall mean of 1.63.

Table XXIV (p. 80) shows the findings for the first part of the curriculum model.

Curriculum Content

The second part of the finding dealt with the contents of the curriculum model. It was found that the overall mean for the content as shown in Table XXV (p. 81) was 1.86 which stayed in the category "Of moderate importance".

It was found that units such as Soil Science, Plant Science, Horticulture, Agriculture Extension, Dairy Cattle Production, Poultry Production, Agriculture Management, are vital for the contents of the Vocational Agriculture Program. Units such as Forestry, Supervised Experienced Programs and Record, Environmental Protection, Opportunity in Agriculture, and Horse Production are not as important to the program.

Surprisingly, units such as Sheep Production, and Agriculture Mechanics were not scaled as very important by the respondents. At the same time items like Farm Machinery, Farm Water Supply, and Tractor Maintenance were scaled as more important as compared to the other items in Table X.

Sheep production was another item in the curriculum content which had an overall mean of 2.24 which stays in the category "Of moderate importance".

Conclusion

Curriculum Model

1. The first component of the curriculum model was curriculum planning. By referring to Table II and evaluating the items included in this table one can conclude that those items included in representative of business and industry had a higher mean than those which did

not, therefore it seems reasonable to say that, by the opinion of the respondents the contribution of the representative of business and industry for curriculum planning were not welcome, or one can conclude that the reason for having a high mean for "Decision Maker" was the complexity of personal involvement, a problem which always carries some controversy.

2. The second component of the curriculum model was implementation with only one subcomponent, "Unit of Instruction". Table IV shows the items in the unit of instruction, by comparing the mean of all these items we realize that transparency master (drawing to make visuals from) had the highest mean among all other items (2.48). The reason being, in most of the developing countries, rural areas the lack of electricity is a major problem. Therefore, it can be concluded that other tools must be used instead of transparency master.

3. The third component of the curriculum model was evaluation procedure with the following subcomponents:

- a. Learner evaluation
- b. Teacher evaluation
- c. Curriculum evaluation

One could conclude that, the combination of the affective, cognitive, and psychomotor domain would be the most effective way for evaluating student performances. By referring to Table VI and comparing the means among all the items we can conclude that classroom observation had the lowest mean and therefore the most effective way and student evaluation of the teacher had the least effective way for teacher evaluation.

4. Overall, it was concluded that the curriculum model developed in this study with a mean of 1.82 is applicable with minor changes for

developing countries.

Contents

1. By referring to Table X and evaluating the units listed under "Agriculture Mechanics" and making comparisons among the mean of means of Table IX (1.37) we get the feeling that the units listed in "Agriculture Mechanics" by the opinion of the respondents do not look too important for a high school Vocational Agriculture Curriculum Content for developing countries.

2. Animal science had the following components:

- a. Animal science - beef cattle with a mean of 1.83
- b. Animal science - sheep with a mean of 2.24
- c. Animal science - dairy cattle with a mean of 1.47
- d. Animal science - horses with a mean of 2.94
- e. Animal science - poultry with a mean of 1.29

Poultry with a mean of 1.39 was selected as the most important item in animal science for a vocational agriculture curriculum content for developing countries, by the opinion of the respondents horses as another item in animal science were selected as the least important item for the same purpose.

One could claim that sheep production could be as important as poultry production for developing countries, but the information gathered for this study showed that this is not true. Two following reasons might help for a better explanation:

- a. Questions related to sheep production in the questionnaire couldn't communicate with respondents properly.
- b. Sheep production is not as important as poultry or dairy

cattle production

3. Table XVIII is a summary of "Agriculture Management". Units as "Agriculture Insurance" with a mean of 2.62, and "Legal Relations" under "Agriculture Management" by the opinion of the respondents were not as important as other units for vocational agriculture curriculum contents for developing countries.

4. Table XXI is a summary of "Environmental Protection". By the opinion of the respondents it was concluded that units under this table such as "Regulation and Certification in use of Chemicals" with a mean of 2.19 and "Conserving Energy on the Farm" with a mean of 2.17 are not as important as other items for a vocational agriculture curriculum content for developing countries.

5. "Job Placement Techniques" as a unit of instruction with a mean of 2.29 under "Opportunity in Agriculture" by the opinion of the respondents is not as important as other units for a high school vocational agriculture program in developing countries.

Recommendations

Curriculum Model

1. It is recommended that more research be done in order to find the best personal involvement for curriculum planning.

2. It is recommended that other tools such as bulletin board, chalkboard be used instead of the "Transparency Master" listed in the "Unit of Instruction".

3. It is recommended that more research be done in order to find the most effective way for teacher evaluation.

4. As it was found, the curriculum model stayed in the category of Applicable with minor changes with a mean of 1.82. Therefore, it is recommended that any Ministry of Education or any other Education Agency in developing countries that wants to use this model for their vocational agriculture program, try to find those minor changes that need to be done in order to make this model perfectly applicable for that specific country.

Content

1. It is recommended that more research be done in order to find the most proper units under "Agriculture Mechanics".

2. It is recommended that more research be done in order to find whether or not sheep production is as important as poultry production for a high school vocational agriculture program.

3. It is recommended that every developing country conduct similar studies for selecting the best vocational agriculture curriculum content based on the needs of the society.

4. Overall, it is recommended that the finding of this study be discussed in teacher workshops and seminars by the Ministry of Education Personnel in every country.

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APPENDIX A

LETTER TO THE UNIVERSITIES



OKLAHOMA STATE UNIVERSITY • STILLWATER

 Department of Agricultural Education
 (405) 624-5129

74078

April 26, 1982

Dear

An international doctoral student in the Agricultural Education Department here at Oklahoma State University is developing a "model" agriculture curriculum for secondary schools, which he hopes will be adaptable to many developing countries in the world. In order to get "expert" opinions concerning this curriculum and its adaptability he needs international graduate students with knowledge of both agriculture and curriculum to help evaluate this curriculum.

He needs the names, addresses and phone numbers (where possible) of any international graduate students majoring in Agricultural Education at your institution. Your assistance in helping him obtain this list is greatly appreciated. A stamped, self-addressed envelope is enclosed to aid the early return of the list.

Thanks again for your great aid in this matter.

A. R. Rafie

Ahmadreza-Rafie

AR/RT:mam

Sincerely,

Robert Terry

Robert Terry
 Professor and Head

APPENDIX B

COVER LETTER TO THE QUESTIONNAIRE



OKLAHOMA STATE UNIVERSITY • STILLWATER

Department of Agricultural Education
(405) 624-3129

74078

Dear

I am requesting your cooperation in answering this questionnaire.

The study being conducted is to determine whether or not a high school Vocational Agriculture Curriculum Model developed by the Researcher is applicable for Developing Countries.

The questionnaire is divided into two parts. The Model has been presented through the first part of the questionnaire and it contains, CURRICULUM PLANNING, CURRICULUM IMPLEMENTATION, and EVALUATION as three basic components of the Model. Each component is divided in subcomponents. The questions in the second part of the questionnaire are to be used to determine the importance of those courses that could be offered for a Vocational Agriculture Program.

Please answer the questions based on the applicability of the Model, and also the importance of those courses for a Vocational Agriculture Program in your country.

Let us be optimistic, that this could be a positive action for the future of Agriculture Education in our countries. We are sure that without your help this would be impossible.

James P. Key
James P. Key
Professor

Sincerely,
A. R. Rafie
Ahmadreza-Rafie
Doctoral student

APPENDIX C

QUESTIONNAIRE

PART 1CURRICULUM PLANNINGDecision Making Procedure

1. The first step in curriculum planning is "decision making". Decision making procedure in the study has been divided into five (5) steps. Please circle the number which represents the degree of applicability of the following 5 steps in your country.

A = Applicable, AWMin = Applicable with minor changes, AWMo = Applicable with moderate changes, AWMaj = Applicable with major changes, NA = Not applicable.

	A	AWMin	AWMo	AWMaj	NA
a. Define the problem and clarify alternatives	1	2	3	4	5
b. Establish standards for each alternative	1	2	3	4	5
c. Gather school and community related data.	1	2	3	4	5
d. Analyze data in terms of the established standards	1	2	3	4	5
e. Decide which alternative is supported by data	1	2	3	4	5

If not applicable please comment below.

Decision Maker

2. To include the best representative as "decision maker" in planning a Vocational Agriculture Curriculum, this model suggests 5 groups of representatives for 5 different kinds of decisions, please circle the number which represents the degree of applicability of these groups for making these kinds of decisions in your country.

A = Applicable, AWMin = Applicable with minor changes, AWMo = Applicable with moderate changes, AWMaj = Applicable with major changes, NA = Not applicable.

Group 1	Kind of Decision to be Made	A	AWMin	AWMo	AWMaj	NA
Board of education, professional staff, representatives of business and industry, parents, students	→ For → Policy Making	1	2	3	4	5
Group 2	Kind of Decision to be Made	A	AWMin	AWMo	AWMaj	NA
Representative of teacher, representative of business and industry, and researcher	→ For → Occupational analysis	1	2	3	4	5

Group 3		A	AWMin	AWMo	AWMaj	NA	
Teacher, farmer representative of business and industry	→ For →	Content selection	1	2	3	4	5
Group 4							
Curriculum specialist, learning and reading specialist	→ For →	Technical development of the curriculum	1	2	3	4	5
Group 5							
Teacher	→ For →	Arrangement of curriculum opportunities (creating a learning environment)	1	2	3	4	5

If not applicable please comment below.

Unit Planning

3. Literature defines "unit planning" as a way of building opportunities for individualization of instruction in the classroom by the fusion of subject matter with learning experience and activities of many kinds. Our model suggests 8 steps for unit planning. In order to find out if "unit planning" is applicable for developing countries, every step of that should be under precise consideration for this purpose. Please circle the number which represents the degree of applicability of these steps in your country.

A = Applicable, AWMin = Applicable with minor changes, AWMo = Applicable with moderate changes, AWMAj = Applicable with major changes, NA = Not applicable.

	A	AWMin	AWMo	AWMAj	NA
a. Diagnosing needs (Those needs which were identified by gathering data for school and community.)	1	2	3	4	5
b. Formulating specific objectives (Objectives for student's achievement).	1	2	3	4	5
c. Selecting Content for Units, which contains:	1	2	3	4	5
1. Selecting topics					
2. Selecting basic ideas (The ideas would be taught about given topics.)					
3. Selecting specific content (Selecting content for development of basic ideas)					

	A	AWMin	AWMo	AWMaj	NA
d. Organizing content (Presenting sources of information in a teachable sequence)	1	2	3	4	5
e. Selecting learning experiences (Objectives need to be implemented by appropriate learning activities designed to help students develop and practice the level of behavior they are supposed to learn.)	1	2	3	4	5
f. Organizing learning experiences (Learning experiences should follow a sequence which makes continuous and cumulative learning possible.)	1	2	3	4	5
g. Evaluation (Procedures to find how effective our objectives are)	1	2	3	4	5
h. Checking for balance and sequence (When unit is completed in writing, it is necessary to check the overall consistency among its parts.)	1	2	3	4	5

If not applicable please comment below.

CURRICULUM IMPLEMENTATION

Unit of Instruction

4. Curriculum implementation is defined as "putting curriculum to work". If our curriculum is based on the "unit planning" approach, it will be organized into an instruction form, which is called "unit of instruction". If instructional materials for Vocational Agriculture schools would be designed as "units of instruction", then, the teaching-learning process would be improved. Every unit of instruction contains the following components. Please circle the number which represents the degree of applicability of these components in your country.

A = Applicable, AWMin = Applicable with minor changes, AWMo = Applicable with moderate changes, AWMaj = Applicable with major changes, NA = Not applicable.

	A	AWMin	AWMo	AWMaj	NA
a. Performance objectives (Objectives for student achievement)	1	2	3	4	5
b. Suggest activities (Teaching and study methods)	1	2	3	4	5
c. Information sheet (Outline of curriculum information)	1	2	3	4	5
d. Transparency master (Drawings to make visuals from)	1	2	3	4	5
e. Assignment sheet (Home or outside work)	1	2	3	4	5
f. Job sheet (Manipulative assignments)	1	2	3	4	5
g. Test (Examination)	1	2	3	4	5
h. Answers to the test (Examination answers)	1	2	3	4	5

If not applicable please comment below.

EVALUATION

Our model divides the evaluation procedure into three (3) different parts

- a. learner evaluation
- b. teacher evaluation
- c. curriculum evaluation

Learner Evaluation

5. Evaluation is defined as a process used to assess the student's achievement of performance objectives, therefore in order to evaluate the learner, the model suggests to use performance objectives (statement of performance that instruction is to produce stated in terms of observable or measurable students performance).

Performance objectives may be classified into 3 types:

- | | | |
|--|---|---|
| <p>1. <u>Affective</u>
deals with</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 40px;"> attitudes, values,
interest application
and social emotional
adjustment </div> | <p><u>Cognitive</u>
deals with</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 40px;"> thinking, knowing
and problem solving </div> | <p><u>Psychomotor</u>
deals with</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 40px;"> a manipulative or motor
skill as well as a concern
for process or product
or both </div> |
|--|---|---|

Please circle the number which represents the degree of applicability of the affective, cognitive, psychomotor or a combination of the three (performance objective) as ways for the learner evaluation of your country.

A = Applicable, AWMin = Applicable with minor changes, AWMo = Applicable with moderate changes, AWMaj = Applicable with major changes, NA = Not applicable.

- | | A | AWMin | AWMo | AWMaj | NA |
|--|---|-------|------|-------|----|
| a. Affective | 1 | 2 | 3 | 4 | 5 |
| b. Cognitive | 1 | 2 | 3 | 4 | 5 |
| c. Psychomotor | 1 | 2 | 3 | 4 | 5 |
| d. Combination of the above (performance objectives) | 1 | 2 | 3 | 4 | 5 |

If not applicable please comment below.

Teacher Evaluation

6. To evaluate teachers five techniques or a combination of them are suggested by our model. Please circle the number which represents the degree of applicability of the following five techniques in your country.

A = Applicable, AWMin = Applicable with minor change, AWMo = Applicable with moderate changes, AWMaj = Applicable with major changes, NA = Not applicable.

- | | A | AWMin | AWMo | AWMaj | NA |
|--|---|-------|------|-------|----|
| a. Classroom observation (by the teacher's supervisor) | 1 | 2 | 3 | 4 | 5 |

	A	AWMin	AWMo	AWMaj	NA
b. Student evaluation of the teacher	1	2	3	4	5
c. Self evaluation (by the teacher himself)	1	2	3	4	5
d. Peer evaluation (by other teachers)	1	2	3	4	5
e. Competency test (over technical information and teaching methods)	1	2	3	4	5
f. Combination of a, b, c, d, e.	1	2	3	4	5

If not applicable please comment below.

Curriculum Evaluation

7. Literature defines Curriculum Evaluation as a process of delineating, obtaining and providing information useful for making decisions and judgement about curricula. When planning an evaluation the 10 steps must be taken into account. They can be grouped into 4 main subprocesses: Delineating, Obtaining, Providing and Using. It is important to keep in mind that this procedure can be used for different aspects of curriculum (Planning, Implementation and Evaluation). Please circle the degree of applicability of these steps for your country.

A = Applicable, AWMin = Applicable with minor changes, AWMo = Applicable with moderate changes, AWMaj = Applicable with major changes, NA = Not applicable.

	A	AWMin	AWMo	AWMaj	NA
<u>Delineating Subprocess</u>					
Step 1. Specify the people involved in evaluation procedure and decisions to be made.	1	2	3	4	5
Step 2. Describe the information needed.	1	2	3	4	5
<u>Obtaining subprocess</u>					
Step 3. Locate and appraise information already available.	1	2	3	4	5
Step 4. Decide when, how and from whom to obtain additional information.	1	2	3	4	5
Step 5. Construct (or select) the information gathering instruments.	1	2	3	4	5
Step 6. Obtain needed information.	1	2	3	4	5
Step 7. Analyze information from Steps 3 and 6.	1	2	3	4	5
<u>Providing subprocess</u>					
Step 8. Interpret analysis and prepare report.	1	2	3	4	5
Step 9. Disseminate information to decision makers.	1	2	3	4	5
<u>Utilization subprocess</u>					
Step 10. Implementing the information, decisions, and judgements.	1	2	3	4	5

If not applicable please comment below.

PART 2

The following content was selected from curriculum content used by different states in the United States and also some of the Developing Countries for their Vocational Agriculture Programs. Please circle the number which represents the degree of importance of the content for agriculture curriculum in your country.

VI = Very important, OM = Of Moderate importance, IM = Important, OL = Of Little importance, NI = Not Important.

	VI	OM	IM	OL	NI
SOIL SCIENCE					
Importance of soil-----	1	2	3	4	5
Nature and property of soil-----	1	2	3	4	5
Conserving and controlling soil water-----	1	2	3	4	5
Improving soil fertility-----	1	2	3	4	5
Reading and Interpreting soil maps-----	1	2	3	4	5
Managing soil-----	1	2	3	4	5
Soil testing-----	1	2	3	4	5
Land evaluation-----	1	2	3	4	5
Acid, Alkaline, Saline and Sodic soils-----	1	2	3	4	5
PLANT SCIENCE					
Introduction to plant science-----	1	2	3	4	5
Plant growth-----	1	2	3	4	5
Identification and selection of plant fieldcrops---	1	2	3	4	5
Reproduction-----	1	2	3	4	5
Seed bed preparation-----	1	2	3	4	5
Planting-----	1	2	3	4	5
Identification and selection of plants-----	1	2	3	4	5
Plant nutrients-----	1	2	3	4	5
Insect and disease control-----	1	2	3	4	5
Weed control-----	1	2	3	4	5
Plant breeding-----	1	2	3	4	5
Harvesting and storing-----	1	2	3	4	5
AGRICULTURE MECHANICS					
Shop orientation-----	1	2	3	4	5
Farm carpentry-----	1	2	3	4	5
Cold metal work-----	1	2	3	4	5
Selecting and applying paint-----	1	2	3	4	5
Conditioning hand tools (wood metals)-----	1	2	3	4	5
Proper use of power tools-----	1	2	3	4	5
Hot metal work-----	1	2	3	4	5
Concrete-----	1	2	3	4	5
Farm electricity-----	1	2	3	4	5
Agricultural power-small engines-----	1	2	3	4	5
Tractor maintenance-----	1	2	3	4	5
Farm water supply-----	1	2	3	4	5
Farm level-----	1	2	3	4	5
Farm building construction-----	1	2	3	4	5
Farm machinery-----	1	2	3	4	5
Advanced oxy-acetylene welding and brazing-----	1	2	3	4	5
Farm fencing-----	1	2	3	4	5
ANIMAL SCIENCE					
Introduction to Animal Science-----	1	2	3	4	5

	VI	OM	IM	OL	NI
Beef Cattle					
Sex classes-----	1	2	3	4	5
Types and breeds-----	1	2	3	4	5
Judging-----	1	2	3	4	5
Feeding-----	1	2	3	4	5
System of production-----	1	2	3	4	5
Sheep					
Sex classes-----	1	2	3	4	5
Types and breeds-----	1	2	3	4	5
Judging-----	1	2	3	4	5
Wool production-----	1	2	3	4	5
Dairy Cattle					
Sex classes-----	1	2	3	4	5
Breeds-----	1	2	3	4	5
Feeding-----	1	2	3	4	5
Reproduction-----	1	2	3	4	5
Dairy production-----	1	2	3	4	5
Horses					
Sex classes-----	1	2	3	4	5
Types and breeds-----	1	2	3	4	5
Judging-----	1	2	3	4	5
Feeding-----	1	2	3	4	5
Grooming-----	1	2	3	4	5
Health-----	1	2	3	4	5
Horsemanship-----	1	2	3	4	5
Poultry					
Egg production-----	1	2	3	4	5
Broiler production-----	1	2	3	4	5
Other poultry-----	1	2	3	4	5
Animal Science continued					
Feeding factors affecting growth of animals-----	1	2	3	4	5
Study of digestive systems-----	1	2	3	4	5
Study of the process of milk secretion, egg, wool and meat production-----	1	2	3	4	5
Identifying and controlling animal disease and parasites-----	1	2	3	4	5
Caring for livestock and their products-----	1	2	3	4	5
Locating livestock carriers in agriculture-----	1	2	3	4	5
Feeding livestock for a profit-----	1	2	3	4	5
Animal metabolism and growth-----	1	2	3	4	5
Livestock production management-----	1	2	3	4	5
Anatomy and Physiology of domestic animals-----	1	2	3	4	5
Feeds and feeding-----	1	2	3	4	5
HORTICULTURE					
Plant growth and reproduction-----	1	2	3	4	5
Plant propagation-----	1	2	3	4	5
Soils-----	1	2	3	4	5
Fertilizer-----	1	2	3	4	5
Plant growth media-----	1	2	3	4	5
Plant problem and control-----	1	2	3	4	5
Pruning-----	1	2	3	4	5
Plant identification-----	1	2	3	4	5
Potting procedure-----	1	2	3	4	5

	VI	OM	IM	OL	NI
AGRICULTURE MANAGEMENT					
Introduction to agricultural management-----	1	2	3	4	5
Principal of economics-----	1	2	3	4	5
Agricultural finance-----	1	2	3	4	5
Agricultural planning-----	1	2	3	4	5
Agricultural record-----	1	2	3	4	5
Agricultural insurance-----	1	2	3	4	5
Marketing-----	1	2	3	4	5
Legal relations-----	1	2	3	4	5
FORESTRY					
Orientation-----	1	2	3	4	5
Identification of trees-----	1	2	3	4	5
Using measurement unit to solve forestry problem----	1	2	3	4	5
Forest measurement-----	1	2	3	4	5
Forest ecology-----	1	2	3	4	5
Forest protection-----	1	2	3	4	5
Forest management-----	1	2	3	4	5
SUPERVISED EXPERIENCE PROGRAMS AND RECORD					
Planning and establishing-----	1	2	3	4	5
Keeping records of supervised experiences-----	1	2	3	4	5
Analysis and evaluation of supervised experience program-----	1	2	3	4	5
ENVIRONMENTAL PROTECTION					
Regulation and certification in use of chemicals----	1	2	3	4	5
Conserving energy on the farm-----	1	2	3	4	5
OPPORTUNITY IN AGRICULTURE					
Career in agriculture-----	1	2	3	4	5
Job placement techniques-----	1	2	3	4	5
AGRICULTURE EXTENSION					
Understanding the meaning of agriculture extension--	1	2	3	4	5
Recognition of ideal characteristic of an exten- sion officer-----	1	2	3	4	5
Ability in determining farmers' needs-----	1	2	3	4	5
Familiarity with visual aids and their use-----	1	2	3	4	5
Ability to control meeting-----	1	2	3	4	5
Leadership ability-----	1	2	3	4	5
Ability in evaluating program-----	1	2	3	4	5
PERSONAL INFORMATION					
Name _____					
Age _____					
What Country are you from _____					
What degree are you working for _____					
What is your field of specialization _____					
Have you ever taught? Yes _____ No _____					
If Yes, Please explain what, where and how long _____					

Have you ever been involved in any curriculum activity?					
Yes _____ No _____					
If Yes, please explain how. _____					

APPENDIX D

COMMENTS OF RESPONDENTS

The respondents comments related to this study are listed below:

1. I left Nigeria six years ago. There may have been changes that I am not aware of.

2. In my country, Venezuela, the programs are so strict to cover during the school year, teachers don't have the opportunity to contribute in curriculum planning as decision makers.

3. In my country, W. Samoa, the system does not allow students to evaluate teachers.

4. In my country, Iran, policies are made at the higher levels in government offices. Parents, students and teacher's involvement is meaningless.

5. In my country, Iran, most of the decisions are made based on political reasons rather than results of evaluation.

6. Student evaluation of teacher's in my country is not practical because of the cultural problems.

7. These five steps in the "Decision Making Procedure" ideally should be applicable! However in terms of reality it is a different story!

8. In my country, Indonesia, the community has no involvement in the the decision making process, only the board of education, professional staff and representatives of teachers are involved in the "Decision Making Procedure."

9. There is no opportunity given to students to evaluate their teacher. There does not exist competency testing in my country because few people prefer to teach, therefore, the main problem is how to train teachers.

10. In Nigeria, as in other West African countries, the West

African Exam Council develops secondary school curricula.

11. All of the items in this model can be applicable for Argentina, even though we have similar vocational agriculture programs. The main problem is not the lack of vocational agriculture curriculum but, the job market that can attract the graduates from these programs.

12. There is no such thing as vocational agriculture education in the Philippines, but there are many agriculture courses offered.

13. All of the items in your model are applicable in all developing countries that are truly and earnestly searching for meaningful education in agriculture, but the problem is that there are limitations to the capabilities for application in some if not all countries. There are economic conditions that are very poor and less receptive political administration (civilian or military), therefore your model is theoretically sound and applicable but practically not so under many circumstances which are not educationally based.

VITA 2

Ahmadreza Rafie

Candidate for the Degree of

Doctor of Education

Thesis: DEVELOPING A HIGH SCHOOL VOCATIONAL AGRICULTURE CURRICULUM
MODEL FOR DEVELOPING COUNTRIES

Major Field: Agriculture Education

Biographical:

Personal Data: Born in Nahavand, Iran on April 23, 1952, the
son of Mr. and Mrs. Rafie.

Education: Graduated from Kharazmy High School, Tehran, Iran,
1970; received the Bachelor degree from College of Agriculture
of Hamadan, Iran, in 1974; received the Master of Science
Teaching degree in 1980 from Tarelton State University,
Stephenville, Texas; completed requirements for the Doctor
of Education degree at Oklahoma State University, in May
1984.

Professional Experience: Served as officer in Experimental
Station, at the same time teaching Physics and Mathematics
in high school, in Iran, 1975-76; served as Agronomist in
Agrotechnique Company, in Iran, 1976-77; served in Khovarduay
Company as Mechanical Technician, in Iran, 1977-78; served
as Graduate Teaching Assistant in the Statistics Department
at Oklahoma State University, 1982, fall semester; Graduate
Research Assistant in the Department of Statistics at
Oklahoma State University from Spring 1982 to present.