

DEVELOPMENT AND TESTING OF SELECTED
CURRICULUM UNITS FOR AGRICULTURAL
CAREER AWARENESS IN OKLAHOMA

By

FLOYD JAMES LARK
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Bachelor of Science
Panhandle State College
Goodwell, Oklahoma
1963

Master of Arts
New Mexico State University
Las Cruces, New Mexico
1970

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Thesis Approved:

James P. Key
Thesis Adviser

Robert R. Price

Wm. W. Stumser

Ernie W. Suggs

William Lewis Bant

D. Durham

Dean of the Graduate College

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CHAPTER I

INTRODUCTION

The need for a curriculum which gives the vocational agriculture student an opportunity to explore various careers available to him in agriculture and agriculturally related occupations has been apparent for some time. During the past 40 years there has been a great shift in the human population of the United States from farms and ranches to city or urban dwelling. Inherent with this shift has been an increase in the number of people who are engaged in the processing and marketing of agricultural products.

A student who has selected vocational agriculture as an area of study in high school should be exposed to the possibilities and opportunities available to him in agriculture. According to Hoppock (12):

One cannot choose what one does not know, and many occupations are unknown to most of us. One may stumble into an appropriate occupation by sheer luck, but the wise choice of an occupation requires accurate information about what occupations are available, what they require and what they offer.

Today approximately one-third of the nation's people are employed in agriculturally related occupations; yet in Oklahoma only 25 schools of the 350 with vocational agriculture in their programs have initiated a program in vocational agriculture occupations training (VAOT). There have been many reasons why programs have not been initiated to teach about agriculturally related occupations, however, the fact remains that the programs are not there. With this thought in mind it is believed that

there is a great necessity for a curriculum to help students explore the occupations available to them in agriculture.

Need for the Study

As civilization has progressed we find that there is less contact between parents and their children while the parents are engaged in their gainful occupations. Fewer children than ever before are being directly exposed to their parents occupations or to other occupations which might be a source of future employment.

According to Venn (36) the father son "pass down" type of gaining an occupation for the son is becoming less common. With this in mind and with the parents having limited knowledge of occupations other than their own, it seems without a doubt that young people need guidance and assistance in learning about careers of their interest. When a student enrolls in vocational agriculture it was assumed in this study that he had an interest in agricultural occupations.

With the great number of opportunities available in agriculture and agriculturally related occupations which do not require a college education, Mitchell (20) recommends changing the high school vocational agriculture curriculum to train students to become qualified for off-farm agri-business jobs.

Presently there has not been developed in Oklahoma a curriculum which will help students to become aware of the various occupations available to them in the broad field of agriculture. There is evidence that a similar condition is present in other states.

Statement of the Problem

A curriculum needs to be developed that will give students the chance to become aware of and explore opportunities for employment in agriculture. This is necessary because many vocational agriculture teachers do not have the resources to develop a curriculum of this kind.

Purpose of the Study

The purpose of this study is to develop and pilot test selected curriculum units as a basis for developing more curriculum which can be used by teachers of vocational agriculture in helping students to explore the current occupations available and developing in agriculture.

This project was being carried out with the support of the State Department of Vocational-Technical Education and the Agricultural Experiment Station. There are two phases of the project: (1) Development of the Curriculum and (2) Implementation of the Curriculum. This study is generally concerned with phase one.

Objectives of the Study

In order to accomplish the purpose it was necessary to accomplish the following specific objectives:

1. Identify the occupational clusters available in the broad field of agriculture, and a representative occupation within each cluster.
2. Develop a curriculum unit and an audio-visual aid for the representative occupation.
3. Develop a unit on self-discovery.
4. Select teachers in cooperation with district supervisors of vocational agriculture.

5. Review proposed units with curriculum specialists and teachers prior to teaching time.
6. Pre-test students using individual unit tests.
7. Have vocational agriculture teachers teach units.
8. Post-test students using individual unit tests.
9. Review units with teachers, curriculum specialists and consultant after units have been taught.
10. Identify students according to ethnic group and parental income.
11. Determine appropriate statistical technique to analyze pre- and post-test results.

Hypotheses

In order to achieve the specific objectives the following hypotheses were tested at the .05 level of significance.

- HO₁ : There is no significant difference between pre- and post-test scores of students taught using the occupational unit about farm management.
- HO₂ : There is no significant difference between pre- and post-test scores of students taught using the occupational unit about agricultural sales clerk.
- HO₃ : There is no significant difference between pre- and post-test scores of students taught using the occupational unit about agricultural mechanics.
- HO₄ : There is no significant difference between pre- and post-test scores of students taught using the occupational unit about meat cutter.
- HO₅ : There is no significant difference between pre- and post-test scores of students taught using the occupational unit about nurseryman.
- HO₆ : There is no significant difference between pre- and post-test scores of students taught using the occupational unit about forestry technician.
- HO₇ : There is no significant difference between pre- and post-test scores of students taught using the curriculum unit on self-discovery.

- HO₈ : There is no significant difference between pre- and post-test scores of students in the control group for the curriculum unit about agricultural sales clerk.
- HO₉ : There is no significant difference between pre- and post-test scores of students in the control group for the curriculum unit about agricultural sales clerk.
- HO₁₀ : There is no significant difference between pre- and post-test scores of students in the control group for the curriculum unit about agricultural mechanic.
- HO₁₁ : There is no significant difference between pre- and post-test scores of students in the control group for the curriculum unit about meat cutter.
- HO₁₂ : There is no significant difference between pre- and post-test scores of students in the control group for the curriculum unit about nurseryman.
- HO₁₃ : There is no significant difference between pre- and post-test scores of students in the control group for the curriculum unit about forestry technician.
- HO₁₄ : There is no significant difference between pre- and post-test scores of students in the control group for curriculum unit on self-discovery
- HO₁₅ : There is no significant difference between gain in scores made by students taught using the occupational unit about farm management and those students taught using the normal curriculum.
- HO₁₆ : There is no significant difference between gain in scores made by students taught using the occupational unit about agricultural sales clerk and those students taught using the normal curriculum.
- HO₁₇ : There is no significant difference between gain in scores made by students taught using the occupational unit about agricultural mechanic and those students taught using the normal curriculum.
- HO₁₈ : There is no significant difference between gain in scores made by students taught using the occupational unit about meat cutter and those taught using the normal curriculum.
- HO₁₉ : There is no significant difference between gain in scores made by students taught using the occupational unit about nurseryman and those taught using the normal curriculum.
- HO₂₀ : There is no significant difference between gain in scores made by students taught using the occupational unit about forestry technician and those taught using the normal curriculum.

- HO₂₁: There is no significant difference between gain in scores made by students taught using the curriculum unit on self-discovery and those taught using the normal curriculum.
- HO₂₂: There is no significant difference between gain in scores made by students whose parents are economically disadvantaged and those whose parents are economically advantaged when taught using the curriculum units on specific agricultural units when compared to students taught using the normal curriculum.
- HO₂₃: There is no significant difference between gain in scores made by students whose parents are economically advantaged and those whose parents are economically disadvantaged when taught using the self-discovery unit as compared to students taught using the normal curriculum.
- HO₂₄: There is no significant difference between pre- and post-test scores made by students of different ethnic groups who are taught using the six specific agricultural occupations units and those scores made by students of different ethnic groups taught using the normal curriculum.
- HO₂₅: There is no significant difference between pre- and post-test scores made by students of different ethnic groups who are taught using the curriculum unit about self-discovery and those taught using the normal curriculum.

Scope of the Study

To teach these units so that reliable results of a pre-test, post-test could be obtained it was felt that teachers of vocational agriculture who are interested in teaching about agricultural careers should be asked to teach the units. The district supervisors of the five districts of vocational agriculture in Oklahoma were asked to identify teachers who had shown an interest in teaching about agricultural careers. Two schools from each of the four districts, Northeast, Northwest, Southwest and Southeast were selected. Four schools from the Central District were chosen because Oklahoma City is located in the Central District and has several departments within the metropolitan area. Students from this area generally do not have a farm or ranch background and because of this different characteristic two schools were selected from Oklahoma City.

In districts where the supervisors suggested more than the desired number, the schools were randomly selected.

Twelve schools were identified statewide. One school in each of the five districts and one from Oklahoma City were assigned to the experimental group and the six remaining schools from each district and Oklahoma City were assigned to the control group. The control group was included in phase one primarily to familiarize the teachers with the project and to preview the statistical analysis to be used in phase two.

The selected curriculum units were taught to ninth grade vocational agriculture students in the experimental schools. The ninth grade was used because, according to developmental theorists, this is the time in many student's lives when they need more information about occupations. Super (31) states:

At this stage of development when adolescents are beginning to be called upon to make a series of pre-vocational and vocational choices they need experiences which help them to develop better self-understanding and self-acceptance.

Furthermore, many boys do not make good use of the resources available to them to aid in orientation to careers. They tend to know something about the requirements of the occupations to which they aspire, but little about the duties, conditions of work, and opportunities in preferred occupations.

Each of the students were identified as economically advantaged if his parents income was over \$3,000 per year or economically disadvantaged if his parents income was under \$3,000 per year. Also, each of the students were identified according to ethnic group. This was done by the teacher in each of the schools. These two characteristics were entered as variables along with the teaching of the curriculum to explain post-test differences.

Limitations of the Study

1. The study was limited to twelve vocational agriculture departments in Oklahoma.
2. Only six specific agricultural occupations were considered in this study.
3. Implications of this study may not be applicable to some vocational agriculture departments.
4. There were a limited number of economically disadvantaged students in the classes chosen to test the curriculum.
5. There were a limited number of students in the study who were from ethnic groups other than caucasian.
6. The author was able to visit only part of the classes to explain the project to the students.

Definition of Terms

1. Specific agricultural occupation -- An occupation of an individual who is employed in one of the seven divisions of agriculture as defined by the United States Office of Education.
2. Normal curriculum -- The curriculum taught in the control schools.
3. Economically disadvantaged -- A student whose parents have an annual income of less than \$3,000.
4. Ethnic group -- Students were identified as either caucasian, indian, black or Mexican American.
5. Special consultant -- A resource person who is knowledgeable about curriculum development and career education who was asked to look at the project and evaluate it from his point of view.

6. Gain -- A positive difference between pre-test and post-test scores.

7. Negative gain -- A negative difference between pre-test and post-test scores.

CHAPTER II

REVIEW OF LITERATURE

In this review of literature the following issues were considered:

1. The theoretical view of occupational choice.
2. The appropriate areas for occupational study in agriculture.
3. Method of curriculum development.
4. The present status of career education.

Osipow (22) discusses the following career development theories:

Trait-factor theories: This system assumes that a straight forward matching of individuals abilities and interests with the world's vocational opportunities can be accomplished, and once accomplished, solves the problems of vocational choice for that individual. Within this model several special approaches have been developed over the years. The vocational testing movement has grown from the trait-factor point of view. Currently the trait-factor model has been absorbed into other approaches to vocational counseling, and few practitioners of vocational counseling today are pure trait-factor adherents.

Sociology and career choice: A second approach might best be referred to as the sociological model of career development. Other descriptive names for position have been the reality or accident theory of vocational choice. This approach has as its central point the notion that circumstances beyond the control of the individual contribute significantly to the career choices he makes and that the principal tasks confronting the youth (or older person, for that matter) is the development of techniques to cope effectively with his environment.

Self-concept theory: A third approach actually weaves two models into one and can be called either the developmental or the self-concept theory. This approach holds as its central thesis that (1) individuals develop more clearly defined self-concepts as they grow older, although these vary to conform with the changes in one's view of reality as correlated with ageing; (2) people develop images of the occupational

world which they compare with their self-image in trying to make career decisions; and (3) the adequacy of the eventual career decision is based on similarity between an individual's self-concept and the vocational concept of the career he eventually chooses.

Vocational choice and personality theories: A fourth category might be called the personality approach to the study of career development. Here the ideas range from elaborate lists of needs inherent in the process of vocational choice, Hoppock, (1957) and the detailed personality types of career areas described by Holland (1959) to the assorted empirical studies of Small (1953), Schafer (1953), Roe, (1957) and many others on the particular personality factors involved in career choice and career satisfaction. There are also many research projects on the personality characteristics of people in different vocations, the life styles of various professionals, psychopathology associated with professional activity, and the specific needs of workers in particular industries or jobs. The general hypothesis underlying these studies is that the workers select their jobs because they see potential satisfaction of their needs.

Without claiming that any one of the presented theories of career development are right or wrong, we can see that many people do concur that selecting an occupation is a process. To lay the ground work for a curriculum in career awareness and exploration it is necessary to look at the stage of the career development process most students are in during the grade levels when vocational agriculture is taught.

Ginzberg (8) states:

We found that the process of occupational decision making could be analyzed in terms of three periods -- fantasy choice (before 11); tentative choices (between 11 and 17) and realistic (between 17 and young adulthood when a person finally determines his choice.)

Since vocational agriculture is taught at the high school level most of the students are between the ages of 14 and 17 years old. We are then dealing with the stage of development Ginzberg calls "Tentative Choices." In discussing the tentative stage, Ginzberg (8) says:

The first stage in the tentative period was called the interests stage because tentative choices made at

this time are based almost exclusively on interests. Next the adolescent takes into consideration his capacities and later his values -- the next two stages -- and around 17 he is in the transition stage, looking for a job.

To narrow the time even more we will assume that the student who has enrolled in vocational agriculture for the ninth grade has already shown an interest in the broad field of agriculture and is not yet in the transition stage. At this stage (the ninth grade) it is most probable that the student is considering his capacities or values. Super (31) says:

. . . Vocational maturity in ninth grade boys, as evaluated by intercorrelations among measures, is primarily orientation to the need to make educational and vocational choices, including acceptance of responsibility for choosing and planning an information getting approach to the orientation and choice process; it is essentially, planfulness.

With these ideas in mind it seems that the curriculum developed for career education at the ninth grade level should help the student gather information about careers in agriculture and help him plan for the transition stage. Roe (28) states:

Occupations as a source of need satisfaction are of extreme importance in our culture. It may be that occupations have become so important in our culture just because so many needs are so well satisfied by them. Whether the relation is caused or not, and if so which is cause and which is effect, does not particularly matter. It is probably a sort of feedback arrangement anyway. What is important is that this relationship exists and is an essential aspect of the value of the occupation of the individual.

Since having an occupation means so much in the individual's life, developing a curriculum for career awareness seems most appropriate.

Hoppock (12) says:

One cannot choose what one does not know, and many occupations are unknown to most of us. One may stumble into an appropriate occupation by sheer luck, but the wise choice of an occupation requires accurate information about the occupations available, what they require, and what they offer.

Venn (36) concurs with Hoppock when he says:

The occupational life of a young person will largely be determined by the kind and level of education he receives. Student decisions are therefore crucial ones. They will, in effect, determine whether vital manpower needs will be met, whether human resources will be equal to economic potential. Further the student's decision about his education will to a large extent define his future occupational role. But student knowledge of the world of work is today quite circumscribed, in-as-much as most situations are unseen and unknown to young people.

To solve the problem which has arisen with students who are gathering knowledge about occupations, Key (13) makes the following recommendation:

During the middle school years, depending upon the type of organization, it is recommended that group guidance be organized as special units, or as special organized sessions and occupational orientation courses. If the middle school years are organized similarly to the later school years then it is recommended that special organized sessions and occupational orientation courses be used.

In making this broad recommendation more specific to vocational agriculture, Mitchell (20) states:

It is recommended that the curricula of all high school, vocational agriculture, and vocational and technical training be reviewed for the purpose of (1) expanding the off-farm agri-business occupations training, (2) emphasizing the continuation of off-farm agri-business occupations training and/or (3) changing the curriculum to train students to become qualified for the off-farm agri-business occupations.

Appropriate Areas for Occupational Study

Agriculture as a total discipline is very diversified. Before the problem of developing selected curriculum units could be approached in a logical sequence of steps it was necessary to divide agriculture into several areas which are unique to themselves but in total make up agriculture.

The United States Office of Education (USOE) has divided agriculture

into several areas of instruction. The Office of Education's Publication, Vocational Education and Occupations (34), makes the following statement:

Agriculture is comprised of the group of related courses or units of subject matter which are organized for carrying on learning experiences concerned with preparation for or up-grading in occupations requiring knowledge and skills in agricultural subjects. The functions of agricultural production, agriculture supplies, agricultural mechanization, agricultural products (processing), ornamental horticulture, forestry and agricultural resources, and the services related thereto, are emphasized in the instruction designed to provide opportunities for pupils to prepare for or improve their competencies in agricultural occupations. An agricultural occupation may include one or any combination of these functions.

The USOE has coded each of the afore-mentioned areas of instruction and a brief description of the instructional program for each is given in Vocational Education and Occupations (34).

1.01 Agricultural Production

Subject matter and learning activities which are concerned with the principles and processes or involved in the planning for and the economic use of facilities, land, water, machinery, chemicals, finance and labor in the production of plant and animal products. Activities include classroom instruction and laboratory experiences in and out of school, including farms, ranches and other agriculturally related establishments.

1.02 Agricultural Supplies/Services

Subject matter with learning experiences concerned with preparing students for occupations involved in providing consumable supplies used in the production phase of agriculture, including processing, marketing, consulting and other services.

1.03 Agricultural Mechanics

A combination of subject matter and activities designed to develop abilities necessary for assisting with and/or performing the common and important operations or processes concerned with the selection, operation, maintenance, and use of agricultural power, agricultural machinery and equipment, structures and utilities, soil and water management, and agricultural mechanics shop, including kindred sales and services.

1.04 Agricultural Products (processing, inspection, and marketing)

A combination of subject matter and learning experiences designed to teach information, processes, scientific principles, and management decisions concerned with agricultural competencies in the food and non-food technology occupations. The groups of food products include (1) meat, fish, poultry and eggs; (2) dairy products; (3) fruits and vegetables; (4) cereal grains; and (5) other foods and beverages. The non-food products include cotton, tobacco, and wool. Instruction may be provided in any or all groups of these products.

1.05 Ornamental Horticulture (production, processing, marketing and services)

Organized subject matter and practical experiences concerned with culture of plants used principally for ornamental aesthetic purposes. Instruction emphasized knowledge and understanding important to establishing, maintaining and managing ornamental horticultural enterprises.

1.06 Agricultural Resources (conservation, utilization and services)

A combination of subject matter and planned learning experiences concerned with the principles and processes involved in the conservation and/or improvement of natural resources such as air, forests, soil, water, fish, plants and wildlife for economic and recreational purposes.

1.07 Forestry (production, processing, management, marketing and services)

A combination of subject matter and experiences concerned with the multiple use of forest lands and resources, including their management and protection.

For each of these areas of instruction the occupations which are contained in each division are identified in Vocational Education and Occupations (34). These occupational clusters or instructional areas were used because of their wide acceptance and cross-reference with other sources. To obtain a task analysis and job description for each occupation used listed in these clusters, the Dictionary of Occupational Titles (35) was used. The job description and task analysis for each occupation used in this study is included in the Specific Occupational Unit (Appendix A).

Method of Curriculum Development

According to Popham (26) "Curriculum is all the planned learning outcomes for which the school is responsible." Is the school responsible for career education and should career education be a part of the planned learning which takes place? Bottoms (4) says, "The need for the school to initiate activities designed to meet the career development needs of youth at different age levels is supported by several changes that have and are occurring in our society." With Bottom's idea that the school should be involved, the way in which the curriculum is developed is the next important step. Bennett (1) writes, "The purpose of the curriculum is just this -- to lead to certain desired outcomes." In this study the desired outcomes were stated in the form of "terminal" and "specific" objectives.

According to Esbensen (5), "The purpose of an instructional objective is to make clear to teachers, students, and other interested persons what it is that needs to be taught -- or what it is that has been taught."

Tyler (33) suggests there are sources of information which should be consulted when developing significant educational objectives. These sources are:

- A. The Learner
- B. Contemporary Life Outside School
- C. Subject Matter Specialists

Concerning what the learner needs to know about occupations, Hoppock (12) says the learner should know (1) employment prospects, (2) nature of the work, (3) work environment, (4) qualifications, (5) unions, (6) discrimination, (7) preparation, (8) advancement, (9) earnings, (10) number and distribution of the workers, and (11) advantages and disadvantages.

This desired job information from the student's point of view was kept in mind when writing the behavioral objectives for each unit.

Tyler (33) suggests:

Objectives are sometimes stated as things which the instructor is to do; as for example, to present the theory of evolution, to demonstrate the nature of inductive proof, to present the Romantic poets, to introduce four-part harmony. These statements may indicate what the instructor plans to do; but they are not really statements of educational ends. Since the real purpose of education is not to have the instructor perform certain activities, but to bring about significant changes in the student's patterns of behavior, it becomes important to recognize that any statement of the objectives of the school should be a statement of the changes to take place in students.

To write objectives for curriculum units on agricultural careers certain basic elements must be considered. Craik (7) describes five basic steps:

(1) Objectives should be clear and concise. The teacher should not be concerned with writing something beautiful and flowery. He is not producing a work that the literature critic will judge. He should be interested in writing his objectives so that anyone who is knowledgeable in the subject can read and know precisely what is meant. There should be no room for misinterpretation.

(2) The objectives should be realistic and fit the grade level for which they are written. If the reader thinks this is unworthy of comment, all he needs to do is examine critically almost any published list of objectives for a unit or course. He will find that most sound good but there are too many and they are too difficult for the given grade level and the amount of learning time.

(3) Objectives should be attainable by instruction and capable of being measured. Many teachers say they are teaching things such as honesty, leadership, and creativity, to name a few. In reality, they have done little to foster these ideas, let alone actually provided instruction to develop and measure them.

(4) Specific objectives listed for a particular unit or course should be claimed only if the course develops them entirely, or more so than any other course, or to a significant degree.

(5) And last of the general considerations, there should be as many objectives as are necessary or appropriate for the course or unit.

According to Cohen (6):

The objective itself will specify these variables: (1) type of behavior the student is to exhibit, (2) the criterion of performance and (3) the conditions under which the performance will occur. Answering questions on a test is a type of behavior commonly expected of students.

The Present Status of Career Education

The present status of career education is attended to by Marland

(17) who says:

I think our choice is apparent. Certainly continued indecision and preservation of the status quo can only result in additional millions of young men and women leaving our high schools, with or without benefit of diploma, unfitted for employment, unable or unwilling to go on to college, unskilled and unschooled, and carrying away little more than an enduring distaste for education in any form. Indeed, if we are to ponder thoughtfully the growing change of "irrelevance" in our schools and colleges, let us look sharply at the abomination known as general education.

The National Association of State Directors of Vocational Education (21) adopted the following statement: "In the quest for relevancy in education, nothing is more pertinent than providing every youth with the capability to make intelligent career decisions -- and the opportunity to prepare for entry and progress into such careers."

Bottoms (3) carries on the theme of relevancy when he says:

One way of rendering school experiences more relevant to the needs of large numbers of students, if indeed not all students, is to organize the school around a career development theme.

Parnel (24) indicates some major changes implied to our schools by adopting a career education curriculum:

It will be necessary to give daily teaching a massive infusion of illustrations from the world of work. The vast

majority of students in our schools need to have academic subject matter related to what concerns them in real life.

Parnel continues:

High school curriculums will need to be rebuilt around the career-cluster or family-of-occupations concept so that students may select a career cluster at the beginning of their high school experiences into this generalized goal.

Summary

Career development is a process which generally occurs in three stages during a person's life; fantasy choice (before 11), tentative choice (between 11 and 17), and realistic (after 17). In this study the tentative stage of career development is being worked with. The middle school years (7-9) are the years when a student should become aware of careers and begin some exploration of careers in which he is interested.

The appropriate areas for occupational study in vocational agriculture have been identified as agricultural production, agricultural supplies/services, agricultural mechanics, ornamental horticulture (production, processing, marketing and services), agricultural resources (conservation, utilization and services), and forestry (production, processing, management, marketing and services).

Curriculum development should be done, considering the needs of the student, contemporary life outside the school and subject matter specialists. Curriculum should contain objectives which are concerned with the student attaining certain behaviors. These should be stated as curriculum objectives or behavioral objectives of which the student should be aware.

Career education, at the present, is being pushed strongly by the Commissioner of Education and the State Directors of Vocational Education.

The National Association of State Directors of Vocational Education (21) make this statement:

Central to the belief that career decisions must be made through sensible choice rather than by haphazard chance -- and that the actual preparation for entry into careers in an organized purposeful manner is a self-evident requisite -- it is propositioned that public education, kindergarten through college, must set about making arrangements for organization and instruction that will meet such needs.

CHAPTER III

PROCEDURE AND DESIGN

The purpose of this study was to develop and pilot test selected curriculum units, incorporating the use of audio-visual aids, to help make students of vocational agriculture aware of occupations in agriculture.

In order to accomplish the broad purpose it was necessary to accomplish the following specific objectives:

1. Identify the occupational clusters available in the broad field of agriculture and a representative occupation within each cluster.
2. Develop a curriculum unit and an audio-visual aid for the representative occupation.
3. Develop a unit on self-discovery.
4. Select teachers in cooperation with district supervisors of vocational agriculture.
5. Review proposed units with curriculum specialists and teachers prior to teaching time.
6. Pre-test students using individual unit tests.
7. Have vocational agriculture teachers teach units.
8. Post-test students using individual unit tests.
9. Review units with teachers, curriculum specialists, and consultant after units were taught.
10. Identify students according to ethnic group and parental income.

11. Determine appropriate statistical technique to analyze pre- and post-test results.

Identification of Clusters and

Selection of Occupations

The occupations selected from the field of agriculture for this study were selected because (1) they represented one of the six areas of instruction in agriculture listed in Vocational Education and Occupations (34), (2) there was high demand for employees in the occupation in Oklahoma, and, (3) they were recommended as being representatives of the occupations in that area by authorities in the field.

The areas of instruction for vocational agriculture as listed in Vocational Education and Occupations (34) are:

1. Agricultural Production
2. Agricultural Supplies/Services
3. Agricultural Mechanics
4. Agricultural Products (processing, inspection and marketing)
5. Ornamental Horticulture (production, processing and services)
6. Agricultural Resources (conservation, utilization, and service)
7. Forestry (production, processing, management, marketing and services)

The Occupational Training Information System (OTIS) was used to determine those occupations which had a projected demand for employees of 50 or more for 1972. If an instructional area did not, according to OTIS, have an occupation with a projected demand of at least 50, the occupation with the most demand was listed.

The following occupations with projected demand were identified in the various areas of instruction.

<u>Instructional Area</u>	<u>Occupation</u>	<u>Demand</u>
Agricultural Production	Field Man	64
	Farm Management (Operator)	823
	Pruner/Picker	103
	Farm Hand	185
	Livestock Caretaker	79
Agricultural Supplies and Services	Buyer (Wholesale & Retail)	119
	Deliveryman	131
	Sales Clerk	2674*
	Sales Driver	232*
Agricultural Products	Yardman	57
	Meat Cutter	166
	Butcher, All around	62
Agricultural Mechanics	Agriculture Mechanic	170
	Maintenance Mechanic	71
	Welding Machine Operator	77*
	Welder, Arc	219*
	Welder, Gas	89*
	Welder, Combination	352*
Ornamental Horticulture	Floral Design	59
	Nurseryman	71
	Groundskeeper	99
Forestry and Agricultural Resources	Gamekeeper	14

As can be readily observed there is a limited amount of demand data available in the OTIS system for the instructional areas of forestry and agricultural resources. After consulting two specialists in these instructional areas the occupation of forestry technician was selected to represent both instructional areas.

Using the counsel of authorities in the field and demand data the following representative occupations from the different areas were selected for units of instruction: farm management (operator), sales clerk, meat cutter, agriculture mechanic, nurseryman and forestry technician.

*These figures represent the combined demand of agriculture, trades and industry, and distributive occupations.

Development of curriculum units and an audio-visual aid for each unit of instruction (Appendix A) was developed for each representative occupation. Each unit, to be consistent with the Oklahoma Vocational Agriculture Core Curriculum, contained the following:

1. Terminal Objective
2. Specific Objectives
3. Information Pages
4. Test
5. Answers to Test

Simultaneously with the development of each unit of instruction, an audio-visual aid was made for each. To accomplish the task of developing an appropriate audio-visual aid, several characteristics of audio-visual aids and limitations of the study had to be considered. These were:

1. The aid should be an interview with a person representing the occupation to be taught.
2. The aid should be as permanent as possible.
3. Motion would be desirable.
4. Color would be desirable.
5. Machinery would have to be available for the vocational agriculture teacher.
6. Making of the audio-visual aids would have to be done by amateurs.
7. Cost must be kept within the budget.

Considering traits of several audio-visual aids led to the selection of two methods, neither of which contained all the characteristics desired. The methods selected were black and white video tape and a 35 mm slide series with a tape recorded at the interview. The video tape did not contain color and the slide presentation did not contain motion. The

video-tape was selected as the method to be used for this project.

Next, the problem of where and with whom to make the video-tape had to be confronted. After considerable consultation with people who were knowledgeable of each instructional area of agriculture the following people or companies were selected.

<u>Instructional Area</u>	<u>Occupation</u>	<u>Company or Individual</u>
Agricultural Production	Farm Operator	Earl Marshall Hennessey, Oklahoma
Agricultural Supplies/ Services	Sales Clerk	Farmers Cooperative Perry, Oklahoma
Agricultural Mechanics	Agriculture Mechanic	Long's Implement Co. Enid, Oklahoma
Agricultural Products	Meat Cutter	Safeway, Inc. Stillwater, Oklahoma
Ornamental Horticulture	Nurseryman	Midwestern Nurseries Tahlequah, Oklahoma
Forestry and Agricultural Resources	Forestry Technician	Oklahoma State Depart- ment of Forestry Wilburton, Oklahoma

Each of these companies or individuals was contacted by a visit to the company location or by telephone prior to making the video tape. During the visit with a representative of the firm the goals of the project were discussed and the representative would designate an individual to represent the firm in making the video tape. The following specific objectives were discussed with the individual:

1. What are the tasks performed in this occupation?
2. What are some of the special tools used in this occupation?
3. Where can a person receive training for this career?
4. What is a method which a high school vocational agriculture student could use to gain entry into this occupation?
5. What are some personal traits that are desirable for a person

in this occupation to have?

6. What is the approximate wage or salary a person could expect in this business or occupation?

7. How did you attain your position?

After the discussion of these objectives an appointment was set for making the video tape. The video tape was made on location and shown to the students without editing.

Development of an Instructional Unit on Self-Discovery

Mr. Bill Henderson was assigned the task of developing the unit on self-discovery. (Appendix B) This unit did not have an audio-visual aid used to assist the teacher. This unit contains the following:

1. Terminal Objective
2. Specific Objectives
3. Information Pages
4. Assignment Sheets
5. Test
6. Answers to Test

It was felt that this unit should be taught to all of the students in the experimental group prior to the teaching of a specific agricultural occupation.

Selection of Teachers

Selection of the proper teachers to test this sample curriculum appeared to be an essential step in this investigation since the teacher has direct control over what happens in the classroom. The district

supervisors of vocational agriculture were consulted and asked to name two schools in their supervisory district and the Central District supervisors were asked to name four schools. Several of the supervisors recommended several schools where they felt the teachers would be co-operative and interested. In these districts the schools were randomly selected. After two schools from each district, except the Central where four were identified, were selected, each was assigned to a control or an experimental group. The units on specific agricultural occupations were assigned to the schools where it was felt the students would have the greatest knowledge about the occupation before this curriculum was taught. This should raise the pre-test scores and give the curriculum a more rigorous test. The schools and their assigned units were as follows:

<u>Code</u>	<u>School</u>	<u>Assigned Group</u>	<u>Unit</u>
01	Anadarko	Experimental	Farm Management
01	Purcell	Control	Farm Management
02	Moore	Experimental	Sales Clerk
02	Midwest City (Carl Albert)	Control	Sales Clerk
03	Blackwell	Experimental	Agriculture Mechanic
03	Alva	Control	Agriculture Mechanic
04	Owasso	Experimental	Meat Cutter
04	Broken Arrow	Control	Meat Cutter
05	El Reno	Experimental	Nurseryman
05	Edmond	Control	Nurseryman
06	Hugo	Experimental	Forestry
06	Idabel	Control	Forestry

Review of Proposed Units With Curriculum

Specialists and Teachers

After the first unit (agriculture mechanic) was written and the video-tape made the selected teachers of both the experimental and control groups, curriculum specialists and the district supervisors were invited to a meeting to discuss the proposed unit and view the video tape. The opinions of these people were recorded and suggested feasible changes were made in the unit. Two of the teachers could not be present so a visit was made to their schools where the project was reviewed and their suggestions solicited. It must be said that the teachers were very enthusiastic about the project.

Schools in the control group did not receive any units of instruction. The schools in the experimental group each received the unit on self-discovery and the assigned specific occupational unit.

Pre-testing Students

Students at both the control and experimental schools were pre-tested. It was hoped that a representative from the Agricultural Education Department could give the pre-test at each school. However, because of conflicting classes and time it was necessary for some of the teachers at the control schools to give the pre-test after an explanation from a representative of the Agricultural Education Department.

Teaching the Curriculum

Before the teachers began teaching a suggested order of activities was discussed with each to help standardize the teaching. The teachers in the experimental group were to follow these steps:

1. Start with the self-discovery unit.
2. Review objectives of unit with students.
3. Have students study information sheets and complete assignment sheets.
4. Discuss information and assignment sheets.
5. Give post-test on self-discovery unit.
6. Start on unit about specific agricultural occupation.
7. Discuss objectives of this unit with students.
8. Have students study information sheets.
9. Discuss information sheets with students;
10. Show video tape about the occupation.
11. Discuss video tape.
12. Give post-test on specific agricultural occupation unit.
13. Return post-tests to agricultural education department.

It was estimated that the teaching of these units would take approximately eight class periods; however the teaching time varied a great deal. The teachers attributed this to extra curricular activities.

Post-testing Students

Teachers in the control schools were asked to give the post-test to their students approximately two weeks after the pre-test had been given and return the post-tests to the Department of Agricultural Education. Teachers in the experimental schools were asked to give the post-tests when they finished teaching the units.

Review of the Curriculum Units With Curriculum
Specialists and Teachers After Teaching
Was Completed

After the teachers from the experimental schools had completed teaching the units of curriculum, they were asked to meet with the investigator, other members of the agricultural education staff, curriculum specialists, and a consultant, Dr. Cayce Scarborough from North Carolina State University. Dr. Scarborough's report and recommendations are included as Appendix C.

Identification of Students According to
Ethnic Group and Parental Income

Socio-economic class and ethnic background of students, it is thought, have become important factors in a student's achievement in school. These two factors were identified for each of the students participating in this project. Students were classified as Caucasian, Indian, Negro, or Mexican American, for ethnic background. Parent's income was considered to be inadequate if it was below \$3,000 and the student was classified as economically disadvantaged if this were the case. The vocational agriculture teacher made the classifications and in some cases the parent's income was an estimate.

Statistical Analysis

In this study the independent variables were the curriculum units taught and the dependent variables were the gain in test scores made by the students. The analysis of variance was used to check all hypotheses.

Popham (25) states:

Analysis of variance, in its most basic form, is nothing more than a clever statistical method of testing for significant differences between means of two or more groups. Typically, the performance of these groups can be considered to represent results of the treatment by an independent variable whose possible relationship to a dependent variable is being studied.

. . . In essence, the method employed in the analysis of variance is to compute the variances of the separate groups being tested for mean differences. The scores of all subjects in the subgroups are then artificially combined into one total group. This is done by regrouping, for analysis purposes, all of the scores in the several groups as though they were one group. The variance of the total group is computed. If the variance of the total group is approximately the same as the average variance of the separate subgroups, then there exists no significant difference. If, on the other hand, the average variance of the artificially combined total groups is considerably larger than the average variance of the separate subgroups then a significant mean difference exists between two or more of the subgroups.

. . . The next step in the analysis is to divide the between mean square by the within mean square (often called the "error term"). The result of this division yields a value referred to as F .

Once the value of F has been obtained, the statistician may check its significance through the use of a special table of the sampling distribution of F . If the obtained F is significantly large to be statistically significant, the null hypothesis is considered untenable and the researcher concludes that the significant difference between the two means of two or more of his subgroups exist.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

As stated in the hypotheses this study is concerned with the difference between pre-test and post-test scores on seven units of curriculum. One of the most accepted statistical methods of determining statistical differences between or among scores is the analysis of variance.

The analysis of variance is a comparison of means. As is stated by Popham (25), "When a researcher uses the analysis of variance statistical model he is primarily interested in mean differences rather than variance differences."

In Table I the researcher has computed the mean difference between the pre- and post-tests of specific agricultural occupational curriculum units by experimental and control schools.

In Table I it is shown that the mean differences for the experimental schools was fairly consistent except for Instructional Unit II. While Units I, III, IV, V and VI showed average mean differences of 8.06, 7.00, 7.94, 7.59 and 6.61 respectively, Unit II showed only a mean increase of 3.72. This could indicate that additional variables were present in this experimental situation that were not present in others.

Table I also shows that the students in the control schools of Units I, II, and III had an average mean difference which was negative. This would indicate that the students in these classes had a negative gain about the occupation for which they were being tested between the time the pre- and post-tests were given.

TABLE I
MEAN DIFFERENCE OF PRE- AND POST-TEST SCORES OF STUDENTS
IN EXPERIMENTAL AND CONTROL SCHOOLS ON
SIX SPECIFIC OCCUPATIONAL UNITS

	Experimental School			Control School		
	Pre- Test	Post- Test	Mean Difference	Pre- Test	Post- Test	Mean Difference
OCCUPATIONAL UNIT I						
Instructional Area: Agricultural Production						
Specific Occupation: Farm Management (Operator)						
N	16	16		21	21	
Sum	98	227		123	107	
Mean	6.13	14.19	8.06	5.86	5.10	- .76
OCCUPATIONAL UNIT II						
Instructional Area: Agricultural Sales/Service						
Specific Occupation: Sales Clerk						
N	21	21		13	13	
Sum	152	218		83	79	
Mean	7.24	10.38	3.72	6.38	6.08	- .30
OCCUPATIONAL UNIT III						
Instructional Area: Agricultural Mechanics						
Specific Occupation: Agricultural Mechanic						
N	15	15		17	17	
Sum	33	138		48	35	
Mean	2.20	9.20	7.00	2.82	2.05	- .77

TABLE I (CONTINUED)

Experimental School			Control School		
Pre- Test	Post- Test	Mean Difference	Pre- Test	Post- Test	Mean Difference
OCCUPATIONAL UNIT IV					
Instructional Area: Agricultural Products (processing)					
Specific Occupation: Meat Cutter					
N	17	17	21	21	
Sum	152	287	223	291	
Mean	8.94	16.88	7.94	10.62	13.86
					3.24
OCCUPATIONAL UNIT V					
Instructional Area: Ornamental Horticulture					
Specific Occupation: Nurseryman					
N	29	29	13	13	
Sum	82	345	47	52	
Mean	2.83	11.90	9.59	3.62	4.00
					.38
OCCUPATIONAL UNIT VI					
Instructional Area: Forestry and Natural Resources					
Specific Occupation: Forestry Technician					
N	26	26	37	37	
Sum	101	273	137	178	
Mean	3.89	10.50	6.61	3.70	4.81
					1.11

The unit on self-discovery was taught in all six experimental schools. In order to equalize the number of students among the various schools, the schools with the smallest number of students was determined. It had 13 students. From all other schools 13 students were randomly selected for the statistical comparison.

In Table II the researcher computed the mean differences between pre- and post-tests from the experimental and control schools. Noted in this table is the negative mean difference shown by schools in the control group. This would indicate that the students in these schools had a negative gain about the material in the self-discovery unit between the pre- and post-test scores. The positive mean difference of 5.42 would indicate that the students in the experimental schools had an increase between pre- and post-test scores.

Table II

MEAN DIFFERENCE OF PRE- AND POST-TEST SCORES OF STUDENTS
IN EXPERIMENTAL AND CONTROL SCHOOLS
ON SELF-DISCOVERY UNIT

	Self-Discovery Unit					
	Experimental Schools			Control Schools		
	Pre- Test	Post- Test	Mean Difference	Pre- Test	Post- Test	Mean Difference
N	78	78		78	78	
Sum	484	907		484	510	
Mean	6.21	11.63	5.42	6.21	6.54	- .33

With the aid of a computer the between mean squares and the within mean squares were determined. According to Popham (25):

The next step in the analysis is to divide the between mean squares by the within mean square (often called the "error term"). The result of this division yields a value referred to as F.

Once the value of F has been obtained, the statistician may check its significance through the use of a special table of the sampling distribution of F. If the obtained F is sufficiently large to be statistically significant the null hypothesis is considered untenable and the researcher concludes that the significant difference between the two means of two or more of his subgroup exists.

School gain, experimental school versus control school, was used as the between mean square. Student gain was used as the within mean square or "error term." It was desired that the F be significant at the 0.05 level of significance.

Table III shows results derived from the analysis of variance between pre- and post-test scores of the students in experimental schools where the six occupational units were taught. For all six units there was a significant gain in the scores.

TABLE III

ANALYSIS OF VARIANCE BETWEEN PRE- AND POST-TEST SCORES
OF STUDENTS IN EXPERIMENTAL SCHOOLS ON
SIX SPECIFIC OCCUPATIONAL UNITS

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
OCCUPATIONAL UNIT I				
Instructional Area: Agricultural Production Specific Occupation: Farm Management (Operator)				
Between Tests	1	520.03	520.03	98.16*

TABLE III (CONTINUED)

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Within Tests	15	79.47	5.30	
TOTAL	16	599.50		

*F > 0.05 = HO_1 REJECTED

OCCUPATIONAL UNIT II

Instructional Area: Agricultural Sales and Services
Specific Occupation: Sales Clerk

Between Tests	1	103.71	103.71	15.45*
Within Tests	20	134.29	6.71	
TOTAL	21	238.00		

*F > 0.05 = HO_2 REJECTED

OCCUPATIONAL UNIT III

Instructional Area: Agricultural Mechanics
Specific Occupation: Agricultural Mechanic

Between Tests	1	367.50	367.50	56.54*
Within Tests	14	91.00	6.50	
TOTAL	15	458.50		

*F > 0.05 = HO_3 REJECTED

OCCUPATIONAL UNIT IV

Instructional Area: Agricultural Products (Processing)
Specific Occupation: Meat Cutter

Between Tests	1	536.03	536.03	93.76*
Within Tests	16	91.48	5.72	
TOTAL	17	627.51		

*F > 0.05 = HO_4 REJECTED

TABLE III (CONTINUED)

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
OCCUPATIONAL UNIT V				
Instructional Area: Ornamental Horticulture				
Specific Occupation: Nurseryman				
Between Tests	1	1206.02	1206.02	212.63*
Within Tests	29	164.48	5.67	
TOTAL	30	1370.50		
*F > 0.05 = HO ₅ REJECTED				
OCCUPATIONAL UNIT VI				
Instructional Area: Forestry and Natural Resources				
Specific Occupation: Forestry Technician				
Between Tests	1	568.92	568.92	79.42*
Within Tests	25	179.08	7.16	
TOTAL	26	748.00		
*F > 0.05 = HO ₆ REJECTED				

Each of the teachers in the experimental schools taught the instructional unit on self-discovery. Table IV shows the results of the analysis of variance (F value) to be significant at the 0.05 level.

TABLE IV
ANALYSIS OF VARIANCE BETWEEN PRE- AND POST-TEST
SCORES ON SELF-DISCOVERY UNIT OF STUDENTS
IN EXPERIMENTAL SCHOOLS

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between Tests	6	1226.58	204.43	26.41*
Within Tests	78	556.92	7.74	
TOTAL	84	1783.50		
*F > 0.05 = HO ₇ REJECTED				

The analysis of variance was used to determine if there was a significant difference between means of the pre- and post-test scores obtained from the control schools for the six specific occupational units. Table V shows the derived F values for these scores. For the units I, IV, and VI there was a significant difference between pre- and post-test scores. In referring back to Table I it was found that the mean difference on unit I was negative, therefore, the significant difference shown in Table VI for unit I was actually a negative difference which reflects a significant loss between pre- and post-test scores. Units II, III, and V had no significant change between pre- and post-test scores.

TABLE V
ANALYSIS OF VARIANCE BETWEEN PRE- AND POST-TEST
SCORES OF CONTROL SCHOOLS FOR SIX
AGRICULTURAL OCCUPATIONS UNITS

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
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OCCUPATIONAL UNIT I

Instructional Area: Agricultural Production
Specific Occupation: Farm Management (Operator)

Between Tests	1	4.97	4.97	6.90*
Within Tests	16	11.52	.72	
TOTAL	17	16.49		

*F > 0.05 = H_{08} REJECTED

OCCUPATIONAL UNIT II

Instructional Area: Agricultural Sales and Services
Specific Occupation: Agricultural Sales Clerk

Between Tests	1	6.10	6.10	2.26*
Within Tests	20	53.90	2.70	
TOTAL	21	60.00		

*F < 0.05 = H_{09} ACCEPTED

OCCUPATIONAL UNIT III

Instructional Area: Agricultural Mechanics
Specific Occupation: Agricultural Mechanic

Between Tests	1	0.62	0.62	0.19*
Within Tests	30	39.38	3.28	
TOTAL	31	40.00		

*F < 0.05 = H_{010} ACCEPTED

TABLE V (CONTINUED)

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
OCCUPATIONAL UNIT IV				
Instructional Area: Agricultural Products (Processing)				
Specific Occupation: Meat Cutter				
Between Tests	1	110.10	110.10	15.85*
Within Tests	20	138.90	6.95	
TOTAL	21	249.00		
*F > 0.05 = HO ₁₁ REJECTED				
OCCUPATIONAL UNIT V				
Instructional Area: Ornamental Horticulture				
Specific Occupation: Nurseryman				
Between Tests	1	0.96	0.96	.66*
Within Tests	12	17.53	1.46	
TOTAL	13	18.49		
*F < 0.05 = HO ₁₂ ACCEPTED				
OCCUPATIONAL UNIT VI				
Instructional Area: Forestry and Natural Resources				
Specific Occupation: Forestry Technician				
Between Tests	1	22.72	22.72	6.66*
Within Tests	36	122.78	3.41	
TOTAL	37	145.50		
*F > 0.05 = HO ₁₃ REJECTED				

Table VI shows the F value calculated for the difference between pre- and post-test scores made by students in the control schools on the self-discovery tests. The F value indicates that there was no significant difference between the scores on the pre- and post-tests.

TABLE VI
ANALYSIS OF VARIANCE BETWEEN PRE- AND POST-TEST
SCORES OF CONTROL SCHOOLS FOR UNIT
ON SELF-DISCOVERY

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between Tests	6	11.05	1.84	.73*
Within Tests	78	196.98	2.52	
TOTAL	84	208.04		
*F < 0.05 = HO ₁₄ ACCEPTED				

Derivation of F comparing scores of experimental to control schools is shown in Table VII. Noted from this table are the comparatively low F values of 8.80 and 16.26 for units II and IV respectively. These lower F values indicate that there was a somewhat smaller mean difference between experimental and control schools for these two units than for the other four, indicating that the students in the control schools either made some increase in test scores between pre- and post-tests and/or the students in the experimental schools testing units II and IV made a smaller amount of progress than students in the other experimental schools as compared to the other schools F values. Also noted is the extreme high F value of 92.80 for unit I. This extremely high F score indicates that the students in the control school had very little or possibly even a negative mean increase in scores while the students in the experimental school had a large positive increase as compared to the other schools.

TABLE VII
ANALYSIS OF VARIANCE BETWEEN SIX EXPERIMENTAL AND
CONTROL GROUPS OF STUDENTS TAUGHT USING
DIFFERENT OCCUPATIONAL UNITS
OF INSTRUCTION

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
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OCCUPATIONAL UNIT I

Instructional Area: Agricultural Production
Specific Occupation: Farm Management (Operator)

Between Groups	1	353.57	353.57	92.80*
Within Groups	35	133.37	3.81	
TOTAL	36	486.94		

*F > 0.05 = HO_{15} REJECTED

OCCUPATIONAL UNIT II

Instructional Area: Agricultural Sales/Service
Specific Occupation: Sales Clerk

Between Groups	1	47.80	47.80	8.80*
Within Groups	32	173.67	5.43	
TOTAL	33	121.47		

*F > 0.05 = HO_{16} REJECTED

OCCUPATIONAL UNIT III

Instructional Area: Agricultural Mechanics
Specific Occupation: Agricultural Mechanic

Between Groups	1	240.22	240.22	70.24*
Within Groups	30	102.53	3.42	
TOTAL	31	342.75		

*F > 0.05 = HO_{17} REJECTED

TABLE VII (CONTINUED)

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
OCCUPATIONAL UNIT IV				
Instructional Area: Agricultural Products (Processing)				
Specific Occupation: Meat Cutter				
Between Groups	1	103.90	103.90	16.24*
Within Groups	36	230.38	6.40	
TOTAL	37	334.28		
*F > 0.05 = HO ₁₈ REJECTED				
OCCUPATIONAL UNIT V				
Instructional Area: Ornamental Horticulture				
Specific Occupation: Nurseryman				
Between Groups	1	338.48	338.48	76.23*
Within Groups	40	177.47	4.44	
TOTAL	41	515.95		
*F > 0.05 = HO ₁₉ REJECTED				
OCCUPATIONAL UNIT VI				
Instructional Area: Forestry and Natural Resources				
Specific Occupation: Forestry Technician				
Between Groups	1	231.58	231.58	46.80*
Within Groups	61	301.86	4.95	
TOTAL	62	533.44		
*F > 0.05 = HO ₂₀ REJECTED				

Table VIII shows the analysis of variance for the unit on Self-Discovery which was taught in six schools. The high F value of 96.59

indicates that there was a statistically significant difference between the gain of scores made by students in the experimental group and scores made by students in the control group.

TABLE VIII
PERFORMANCE OF GROUP OF STUDENTS TAUGHT USING
UNIT OF INSTRUCTION ON SELF-DISCOVERY

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Among Groups	1	505.16	505.16	96.59*
Within Groups	144	753.08	5.23	
TOTAL	145	1258.24		
*F > 0.05 = HO_{21} REJECTED				

When the students were identified according to ethnic group and parents' income it was found that there were insufficient numbers for statistical comparison. Therefore, hypotheses 22 though 25 were not tested.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to develop and pilot test selected curriculum units for career awareness programs in vocational agriculture. A pre-test was given to the ninth grade students of six vocational agriculture departments in Oklahoma. The teachers in the six schools then taught the curriculum units and gave a post-test to the students. Simultaneously the same pre-tests and post-tests were given to students in six similar vocational agriculture departments in Oklahoma where the sample curriculum was not taught. The post-tests were given approximately two weeks after the pre-test.

Schools for this project were selected by the district supervisors of vocational agriculture. The main criterion used by the supervisors was that the teachers must be interested in teaching about agricultural careers. Where the supervisors recommended more schools than were needed the schools used were randomly selected giving a total of 12 schools for the study. One school from each of four districts, Northeast, Southeast, Southwest and Northwest was assigned as experimental and one as control. Two were assigned as control and two as experimental in the Central District since two schools were selected from the metropolitan area of Oklahoma City.

The field of agriculture was divided into the six appropriate areas of Agricultural Production, Agricultural Supplies/Services, Agricultural Mechanics, Agricultural Products, Ornamental Horticulture, and Agricultural Resources and Forestry. Occupations from each of these areas were identified and the job description was obtained from the Dictionary of Occupational Titles (35). Oklahoma demand data from OTIS, and counsel of specialists from the fields were used in selecting the occupations of (1) Farm Management (Operator), (2) Agricultural Sales Clerk, (3) Agriculture Mechanic, (4) Meat Cutter, (5) Nurseryman, and (6) Forestry Technician for development of units of instruction.

Simultaneously with each written unit of the afore-mentioned occupations, a video tape was filmed with a representative of the occupation where he worked. This film was made available to the teacher as he taught the specific occupational unit.

Before a student goes through the process of career selection it is desirable that he know something about his personal characteristics. A unit on self-discovery (Appendix B) was developed by Mr. Henderson which was taught to each of the six classes in the experimental group.

Curriculum specialists and the district supervisors of vocational agriculture reviewed the units prior to the time of teaching and made recommendations. These recommendations were considered and used in writing the final copies of the units.

A representative of the agricultural education department, when possible, gave the pre-test to students at each of the schools. When a representative could not be present to give the test the teacher was briefed on procedure to be used and he gave the test. The teachers at each of the experimental schools taught the self-discovery unit and an

assigned unit on a specific agricultural occupation, after which he gave the post-test. Teachers at each of the control schools gave the post-test approximately two weeks after the pre-test was given.

Use of the analysis of variance to test the proposed hypotheses led to the following results:

1. There was a significant difference between pre- and post-test scores made by students taught using the six occupational units.
2. There was a significant difference between pre- and post-test scores of students taught using the self-discovery unit.
3. Two of the control schools for the specific occupational units had no significant gain between pre- and post-test, two had a significant loss, and two had a significant gain between pre- and post-test scores.
4. There was no significant difference between pre- and post-test scores of students in the control schools for the self-discovery unit.
5. The analysis of variance showed there was a significant gain between scores made by students in the experimental schools when compared to the scores made by students in the control schools for each of the six specific occupational units taught.
6. There was a significant gain in scores made by students in the experimental schools when compared to scores made by students in the control schools for the self-discovery unit.
7. There were insufficient numbers of students identified according to ethnic group and parental income for statistical comparison.

Conclusions

From the statistical analysis, review of curriculum with teachers, curriculum specialists and experience of the researcher the following

conclusions were made about the study:

1. The six specific occupational units as taught did increase the student's knowledge about the information for which they were tested as is evidenced by significant differences between pre- and post-tests for all units.

2. The control schools reinforced the conclusion that teaching the six occupational units did result in an increase of knowledge, when the experimental schools taught the curriculum units and the control schools taught their normal curriculum. This is evidenced by the significant difference in scores made by students in the control and experimental schools.

3. The self-discovery unit as taught did increase the student's knowledge about the information for which they were tested.

4. The control schools reinforced the conclusion that teaching the self-discovery unit did result in an increase of knowledge when the experimental schools taught the curriculum units and the control schools taught their normal curriculum. This is evidenced by the significant difference between scores made in the experimental and control schools.

5. The significant gain in scores between pre- and post-test scores exhibited by the control schools for units IV and VI was due to normal curriculum or other activities in these schools.

6. Some variable or variables caused the post-test scores of students in the control schools for I and III to drop significantly. It is concluded here that the following two elements might have caused this; (a) a certain atmosphere was created in the classroom during the pre-test by a representative from the agricultural education department. This representative was not present for the post-test which could have resulted

in a changed atmosphere and/or (b) the students became frustrated when asked to repeat taking the same test which they had taken two weeks previously and no specific instruction on the subject had been given to them during that time.

7. It was concluded that not enough students representing minority ethnic groups, or enough students whose parents' income was below \$3,000 were represented in this group of students to make a reliable statistical analysis of hypotheses numbered 22, 23, 24, and 25.

8. Based on the reactions of the teachers and the recommendations of the consultant it was concluded that more interest could be created in the curriculum units through the use of cartoons or a similar approach.

9. Based on the reactions of the teachers and recommendations of the consultant it concluded that the reading level of the units be kept as low as possible, but that common terminology dealing with careers be included to acquaint students with career terminology.

10. Reactions of the teachers and the consultant led to the conclusion that video taping is an adequate method for bringing occupational information to the classroom.

Recommendations

The following recommendations are made in light of the conclusions drawn about this study:

1. Phase one of this project showed that the units of curriculum taught by this method produced significant differences between control and experimental schools even though two of the control schools had significant gains between pre- and post-tests. Therefore it is recommended that the project be continued through phase two on a broader base.

It is also recommended that a third phase, using the control schools as experimental schools, be added if possible.

2. A limited number of students from minority ethnic groups and students whose parents had an income of less than \$3,000 were included in this study. To determine if these two variables have a significant effect on the attainment of curriculum objectives it is recommended that a larger proportion of minority group students and students whose parents are economically disadvantaged be included in phase two of the project.

3. Representatives of the agricultural education staff who gave the pre-test at the control schools created a certain atmosphere. This atmosphere was not present when the post-test was given and could have been the variable causing a negative gain in the mean score for some of the control schools. It is therefore recommended that a representative from the Agricultural Education Department give both the pre- and post-tests at schools included in the project for phase two.

4. Other variables which could have a direct bearing on the accomplishment of the curriculum objectives are mental ability and class attendance. It is therefore recommended that these variables be included in phase two.

5. It is contended by some that students of vocational agriculture in Oklahoma achieve the objectives of these curriculum units during the four years they are enrolled in vocational agriculture. It is recommended that the same post-test, given to freshmen students who will be participating in phase two, also be given to senior students of vocational agriculture in the participating schools.

6. It is recommended that the units of curriculum developed in this research project be made available to teachers of vocational agriculture

in Oklahoma through the State Department of Vocational Technical Education Curriculum Division.

7. It is recommended that a library of the video tapes be established at the State Department of Vocational Technical Education Curriculum Division where teachers can have access to the tapes.

8. It is recommended that cartoon types of drawings be made in the self-discovery unit to help stimulate the student's interest.

9. It is recommended that the language level in the self-discovery unit be made as low as possible for ninth grade students, while keeping the basic terminology dealing with careers intact. A more explicit explanation of the terms should be included with this unit.

10. Because of the very low pre-test scores made by students in this experiment it is recommended that a feasibility study be conducted to determine the possibility of an undergraduate course on teaching career development be added to the curriculum at Oklahoma State University.

11. Reactions of the teachers and the consultant led to the conclusion that video taping is an adequate method for bringing occupational information to the classroom. It is recommended that use of this audio-visual aid for future units be continued.

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APPENDIX A

Agriculture Careers

Specific Occupation - Farm Management (Operator)

Terminal Objectives

After completion of this unit, the student should be aware of the importance of the farm operator in production of agricultural products, identify several of the responsibilities a farmer accepts, methods by which a high school student could become a farm operator, and determine if he has any interest in becoming a farm operator. This will be evidenced by a score of 85 percent on a post test.

Specific Objectives

The student should be able to:

1. List three areas of responsibility accepted by the farmer.
2. Develop a plan by which a high school vocational agriculture student could become established in farming.
3. List four enterprises which might be part of a farm operation.
4. List four areas of study taught in vocational agriculture that can aid a student in becoming a farmer.
5. Determine if he is interested in becoming a farm operator.

Farm Management (Operator)

Suggested Activities

Instructor:

1. Decide on method of teaching -- audio visual aid, field trip, skill trial, or resource person -- to be used.
2. Provide students with objective sheets, information sheets, and work sheets.
3. Discuss terminal and specific objectives with students.
4. Discuss information sheets with students and make application to local situation.
5. Give test.

Student:

1. Discuss objectives with instructor.
2. Study information sheets.
3. Fill out work sheets.
4. Take test.

Instructional Materials

Included in this unit:

1. Objective sheet
2. Information sheets
3. Work sheets
4. Audio-visual aids
5. Test
6. Answers to test

Additional Materials:

1. OTIS (Occupational Training Information Service), Department of Vocational Technical Education, Stillwater, Oklahoma.
2. VIEW (Vital Information for Education and Work), Department of Vocational Technical Education, Stillwater, Oklahoma.
3. DOT (Dictionary of Occupational Titles), United States Printing Office, Washington, D.C.

Farm Management (Operator)

Information Sheet

I. Job Description

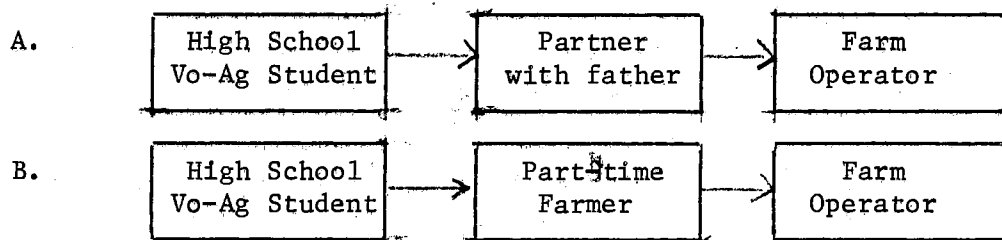
Raises various kinds of crops and livestock: Determines kinds and amounts of crops to be grown and livestock to be bred, according to market conditions, weather, and size and location of farm. Selects and purchases seed, fertilizer, farm machinery, livestock and feed, and assumes responsibility for sale of crop and livestock products. Hires and supervises farm hands engaged in planting, cultivating, and harvesting crops, and raising livestock. Performs duties of farm hands, depending on size and nature of farm, including setting up and operating machinery.

Other closely related occupations and their D.O.T. numbers are:

421.131-010 Farm Foreman
421-884-010 Caretaker, Farm
421.883-010 Farm Hand, General

III. The farm operator usually accepts responsibility for financing his operation, production of his products, and the selling of his product.

III. Two of the ways which a high school vocational agriculture student could become established in farming are:



IV. Enterprises that are grown on the farm are usually products which are common to the locality. Some of the more common enterprises in Oklahoma are:

Crops: Wheat
Milo
Corn
Soybeans

Livestock: Cattle
Swine
Sheep
Horses

V. Some of the areas taught in vocational agriculture that can help an individual to become established in farming are:

- | | |
|------------------------------|---------------------------|
| A. Farm and ranch management | D. Breeds of livestock |
| B. Feeds and feeding | E. Plant and soil science |
| C. Fertilization methods | |

VI. Some of your personal characteristics which could help you to be a successful farmer are:

- A. A desire to work with the soil.
- B. Satisfaction from seeing animals or plants grow.
- C. The ability to plan production programs.
- D. The ability to make management decisions.
- E. A willingness to develop and use new ideas.
- F. The desire to work long hours.

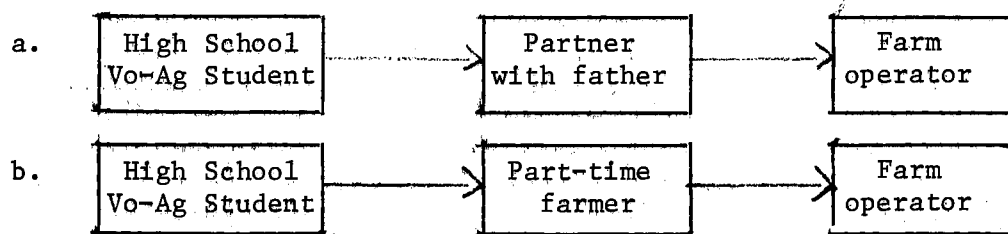
Farm Management (Operator)
Unit - Hours
Test

1. List three areas of responsibility accepted by the farmer.
 - a.
 - b.
 - c.
2. Develop a plan by which a high school vocational agriculture student could become established in farming.
3. List four enterprises which might be part of a farm operation.
 - a.
 - b.
 - c.
 - d.
4. List four areas of study taught in vocational agriculture that can aid you in becoming a farmer.
 - a.
 - b.
 - c.
 - d.
5. List four personal characteristics that would indicate your interest in becoming a farm operator.
 - a.
 - b.
 - c.
 - d.

Farm Management (Operator)
Unit - Hours
Answers to Test

1.
 - a. Financing his operation
 - b. Production of his products
 - c. Selling of his products

2. Either one of the following:



3. Any four of the following:

Crops: Wheat
Milo
Corn
Soybeans

Livestock: Cattle
Swine
Sheep
Horses

4. Any four of the following:

- a. Farm and ranch management
- b. Feeds and feeding
- c. Fertilizer methods
- d. Breeds of livestock
- e. Plant and soil science

5. Any four of the following:

- a. A desire to work with the soil
- b. Satisfaction from seeing animals or plants grow
- c. The ability to plan production programs
- d. The ability to make management decisions
- e. A willingness to develop and use new ideas
- f. The desire to work long hours

Agriculture Careers

Specific Occupation - Agricultural Sales Clerk

Terminal Objective

After completion of this unit, the student should be aware of the importance of the sales clerk in an agricultural business, identify several of the requirements of this occupation, methods by which a high school student could become an agricultural sales clerk, and determine if he has any interest in pursuing this career. This knowledge will be evidenced by a score of 85 percent on a post-test.

Specific Objectives

The student should be able to:

1. List five duties of an agricultural sales clerk.
2. List five products which an agricultural sales clerk might sell.
3. Develop a plan whereby a high school student in vocational agriculture could become employed as an agricultural sales clerk.
4. Write a short paragraph on what is meant by a trial period.
5. Identify an approximate starting wage for an agricultural clerk.
6. Determine if he is interested in becoming an agricultural sales clerk.

Agricultural Sales Clerk

Suggested Activities

Insructor:

1. Decide which method of teaching -- audio visual aids, field trip, skill trial, or resource person -- to be used.
2. Provide students with objective sheets, information sheets, and work sheets.
3. Discuss terminal and specific objectives with students.
4. Discuss information sheets with students and make application to local situation.
5. Give test.

Students:

1. Discuss objectives with instructor.
2. Study information sheets.
3. Fill out work sheets.
4. Take test.

Instructional Materials

Included in this unit:

1. Objectives
2. Information sheets
3. Work sheets
4. Test
5. Answers to test
6. Audio-visual aids

Additional Materials:

1. OTIS (Occupational Training Information System), Department of Vocational Technical Education, Stillwater, Oklahoma.
2. VIEW (Vital Information for Education and Work), Department of Vocational Technical Education, Stillwater, Oklahoma.
3. DOT (Dictionary of Occupational Titles), United States Government Printing Office, Washington, D.C. 20402.

Agricultural Sales Clerk

Information Sheet

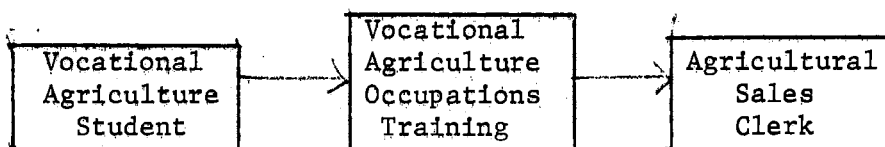
I. General Job Description

Sells agricultural products, erects displays of products and maintains displays of products sold in the business. Must have technical knowledge about each product. Suggests changes for customers to make. Writes sales tickets and operates a cash register. Might be required to demonstrate and deliver products. Must have a personality which is pleasing to the customer.

Specific job descriptions can be found in the Dictionary of Occupational Titles under the following numbers:

262.358-014 Salesman, Grain-and-Feed Products
282.358-010 Salesman, Veterinarian Supplies
277.251-010 Service Salesman, Agricultural Mechanics
261.358-010 Raw Wool Salesman

- II. An agricultural sales clerk sells products used in agriculture. Some examples might be feed, seed, fertilizer, medicine, machinery, tires, and gasoline.
- III. A student in vocational agriculture could become an agricultural sales clerk in the following way:



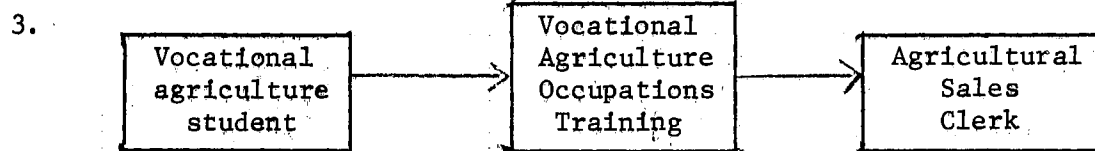
- IV. When some employees are hired, they must prove their ability to do the job they are hired for. So that a company can be sure of hiring qualified people, it will sometimes require the employee to complete a trial period. During this time the employee usually does not get a salary increase, nor is he sent to school for further training. The trial period will usually last for about six months. After the new employee has finished his trial period, he then will obtain pay increases and other benefits offered by the company.
- V. Usually the beginning agricultural sales clerk can expect to receive the minimum wage as set by the government.

Agricultural Sales Clerk
Unit - Hours
Test

1. List five duties of an agricultural sales clerk.
 - a.
 - b.
 - c.
 - d.
 - e.
2. List five products which an agricultural sales clerk might sell.
 - a
 - b.
 - c.
 - d.
 - e.
3. Develop the plan for becoming an agricultural sales clerk.
4. Define the term "trial period."
5. A beginning agricultural sales clerk can expect to receive what kind of wage?

Agricultural Sales Clerk
Unit - Hours
Answers to Test

1.
 - a. Sell agricultural products
 - b. Erect displays of products
 - c. Write sales tickets
 - d. Demonstrate products
 - e. Deliver products
2.
 - a. Feed
 - b. Seed
 - c. Fertilizer
 - d. Machinery
 - e. Tires



4. The period of time that the employee is given to prove to the employer that he has the technical qualifications and ability to do the job he has been hired to do. The period is usually six months for a sales clerk.
5. Minimum wage as set by the government.

Agriculture Careers

Specific Occupation - Agricultural Mechanic

Terminal Objective

After completion of this unit, the student should be aware of the importance of the agricultural mechanic in the agricultural machinery business, identify several of the requirements of this occupation, methods by which a high school student could become an agricultural mechanic, and determine if he has any interest in pursuing this career. This knowledge will be evidenced by a score of 85 percent on a post-test.

Specific Objectives

The student should be able to:

1. List five competencies needed to become an agricultural mechanic.
2. Identify the type of school which provides training for agricultural mechanics.
3. Identify the approximate number of agricultural mechanics needed in Oklahoma during 1972.
4. Identify the approximate yearly salary a beginning agricultural mechanic could expect.
5. List two ways an agricultural mechanic can earn his wages.
6. Draw a diagram showing how a high school vocational agriculture student could become an agricultural mechanic.

Agricultural Mechanic

Suggested Activities

Instructor:

1. Decide on method of teaching -- audio visual aid, field trip, skill trial, or resource person -- to be used.
2. Provide students with objective sheets, information sheets, and work sheets.
3. Discuss terminal and specific objectives with students.
4. Discuss information sheets with students and make application to local situation.
5. Give test.

Student:

1. Discuss objectives with instructor.
2. Study information sheets.
3. Fill out work sheets.
4. Take test.

Instructional Materials

Included in this unit:

1. Objective sheet
2. Information sheets
3. Work sheets
4. Audio-visual aids
5. Test
6. Answers to test

Additional Materials:

1. OTIS (Occupational Training Information Service), Department of Vocational Technical Education, Stillwater, Oklahoma.
2. VIEW (Vital Information for Education and Work), Department of Vocational Technical Education, Stillwater, Oklahoma.
3. DOT (Dictionary of Occupational Titles), United States Printing Office, Washington, D.C.

Agricultural Mechanic

Information Sheet

I. General Job Description

Determines why tractors do not operate correctly. Repairs tractors and tractor parts according to manuals, factory directions, and knowledge of engine operations, using handtools, power tools, and testing instruments. Attaches instruments to certain parts of the tractor using clamps and handtools. Removes and takes apart engines, transmissions, and clutches, using hoists, jacks and other tools. Inspects parts for damage and determines dimensions and clearance for parts according to specifications using very precise tools. Replaces worn or damaged parts. May weld defective body or frame parts. For related jobs refer to the following DOT numbers and titles:

620.884-050	Tractor Mechanic Helper
624.381-014	Farm Machinery Set-Up Man
624.281-010	Farm-Equipment Mechanic I
624.281-014	Farm-Equipment Mechanic II
624.781-018	Assembly Repairman
624.884-010	Greaser

II. Training for an agricultural mechanic is given at technical schools. Schools in Oklahoma where training is available for agricultural mechanics:

A. Oklahoma State University Tech., Okmulgee, Oklahoma (post-secondary)

B. The following secondary vocational-technical schools in Oklahoma:

1. Oklahoma City
2. Tulsa
3. O.T. Autry -- Enid
4. Southern Oklahoma -- Ardmore
5. Central Oklahoma -- Drumright
6. Canadian Valley -- El Reno
7. Mid America -- Wayne
8. Great Plains -- Lawton
9. Kiamichi -- Hugo

In addition to attending some technical institution to acquire the basic knowledge and skills required of an agricultural mechanic, it is also required by some dealerships that the mechanic attend annual training schools, which are paid for by the dealer.

Information Sheet

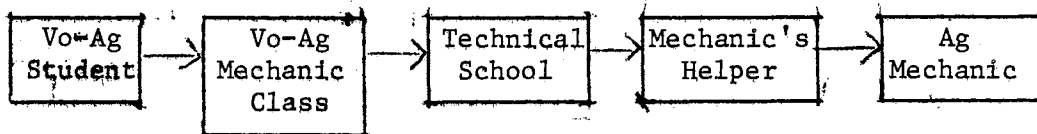
III. Items most mechanics working for a dealership are required to furnish:

- A. Tools - \$1,000
- B. Special clothing - \$50

IV. Demand for agricultural mechanics during 1972 is 170 in Oklahoma, according to the OTIS system.

V. The approximate beginning yearly salary for a beginning agricultural mechanic is \$7,000. An agricultural mechanic can make his salary either on an hourly pay scale or on a percentage of the charges for repairs.

VI. A student of vocational agriculture could become an agricultural mechanic as shown:



Agricultural Mechanic
Unit - Hours
Test

1. List five educational requirements needed to become an agricultural mechanic.
 - a.
 - b.
 - c.
 - d.
 - e.
2. Identify the school that offers training in agricultural mechanics.
 - a. Elementary school
 - b. Private school
 - c. Vocational-technical school
3. List two items which a mechanic is required to furnish and their approximate cost.
 - a.
 - b.
4. Select from the following list the one that represents the approximate number of mechanics that will be needed in Oklahoma during 1972.

a. 100	c. 150
b. 170	d. 180
5. Select from the following list the one that most nearly represents the salary a beginning mechanic can expect.

a. \$8,000	c. \$7,000
b. \$5,000	d. \$6,000
6. List the two ways a mechanic can earn his wages.
 - a.
 - b.

7. Draw a diagram which a high school student in vocational agriculture could follow to become an agricultural mechanic.

Agricultural Mechanic
Unit - Hours
Answers to Test

1. Any five of the following:
 - a. Be able to follow factory directions or manuals while repairing tractors and machinery.
 - b. Be familiar with engine operations.
 - c. Become proficient in the use of power and hand tools.
 - d. Become proficient in the use of testing equipment.
 - e. Become proficient in the disassembling and assembling of tractors and machinery.
 - f. Be able to determine worn and defective parts.
2. c
3.
 - a. Tools at approximately \$1,000 cost
 - b. Special clothing at approximately \$50 cost
4. b.
5. c
6.
 - a. Hourly pay scale
 - b. Percentage of the charges made for repairs

7.

Vo-Ag Student

Vo-Ag Mechanics Class

Technical School

Mechanic's Helper

Ag Mechanic

Agriculture Careers

Specific Occupation - Meat Cutter

Terminal Objectives

After completion of this unit, the student should be aware of the importance of the meat cutter in processing agricultural products, identify several of the requirements of this occupation, methods by which a student could become a meat cutter, and determine if he has any interest in pursuing this career. This will be evidenced by scoring at least 85 percent on the post test.

Specific Objectives

1. List four tasks the meat cutter must perform.
2. List four kinds of meat a meat cutter usually works with.
3. Draw a diagram which a high school student in vocational agriculture could follow to become a meat cutter.
4. Write a short paragraph on what is meant by apprentice program.
5. Identify the approximate starting wage for an apprentice meat cutter and the wages drawn by a journeyman meat cutter.
6. List five of the special tools used by the meat cutter.
7. Identify the approximate number of meat cutters needed in Oklahoma and in the local area during the current year.
8. List four personal traits which are desirable for a successful meat cutter.

Meat Cutter

Suggested Activities

Instructor:

1. Decide on method of teaching -- audio visual aid, field trip, skill trial, or resource person -- to be used.
2. Provide students with objective sheets, information sheets, and work sheets.
3. Discuss terminal and specific objectives with students.
4. Discuss information sheets with students and make application to local situation.
5. Give test.

Student:

1. Discuss objectives with instructor.
2. Study information sheets.
3. Fill out work sheets.
4. Take test.

Instructional Materials

Included in this unit:

1. Objective sheet
2. Information sheets
3. Work sheets
4. Audio-visual aids
5. Test
6. Answers to test

Additional Materials:

1. OTIS (Occupational Training Information Service), Department of Vocational Technical Education, Stillwater, Oklahoma.
2. VIEW (Vital Information for Education and Work), Department of Vocational Technical Education, Stillwater, Oklahoma.
3. DOT (Dictionary of Occupational Titles), United States Printing Office, Washington, D.C.

Meat Cutter

Information Sheet

- I. Job Description from the Dictionary of Occupational Titles,
No. 316,884

Cuts and trims meat to size for display or as ordered by customer, using hand tools and power equipment, such as grinder, cubing machine, and power saw. Cleans and cuts fish and poultry. May place meat in cardboard containers to be wrapped by other workers. May place meat on trays in display counter. May wrap and weigh meat for customers and collect money for sales. May inspect and grade meats and be designated meat inspector

For related jobs refer to the following numbers in the Dictionary of Occupational Titles:

525.381-010 Butcher, All-Round
525.387-010 Grader, Meat
529.138-030 Supervisor, Specialty Food Products

- II. A meat cutter may work with the following kinds of meat:

- A. Beef
- B. Lamb
- C. Pork
- D. Veal
- E. Poultry
- F. Fish

- III. The following diagram might be followed by a high school vocational agriculture student to become a meat cutter:



- IV. The apprenticeship program is a training program which has been developed by labor unions. This program is designed so that a person trying to get a union job can gain experience as an assistant or helper to an experienced man in the job. This man is called a journeyman. To become a journeyman meat cutter, the apprentice must serve two years as an apprentice.
- V. The approximate starting wage for an apprentice meat cutter is \$3.25 per hour. The journeyman meat cutter makes \$4.75 per hour.
- VI. Special tools used by the meat cutter:

- A. Hand tools
 - 1. Boning knife
 - 2. Steak knife

Information Sheet

3. Meat saw
4. Sharpening steel
5. Carborundum stone

B. Power tools

1. Band saw
2. Meat grinder
3. Cubing machine
4. Mixer

VII. The approximate number of meat cutters needed in Oklahoma for 1972 is 166 according to the Occupational Training Information Service (OTIS).

VIII. Some of the traits of individuals who are successful meat cutters are:

- A. A desire to work with people
- B. The ability to work with his hands
- C. A pleasing personality
- D. The ability to get along with other people

Meat Cutter
Unit - Hours
Test

1. List four tasks the meat cutter must perform.
 - a.
 - b.
 - c.
 - d.
2. List four kinds of meat a meat cutter usually works with.
 - a.
 - b.
 - c.
 - d.
3. Draw a diagram which a high school student in vocational agriculture could follow to become a meat cutter.
4. Write a short paragraph on what is meant by "apprentice program."
5. Select from the following list the approximate starting wage for an apprentice meat cutter.
 - a. \$1.60 per hour
 - b. \$2.20 per hour
 - c. \$3.25 per hour
 - d. \$3.75 per hour
 - e. \$4.00 per hour
6. List five of the special tools used by the meat cutter.
 - a.
 - b.
 - c.
 - d.
 - e.

7. Select from the following list the number that represents the approximate number of meat cutters needed in Oklahoma during 1972.
- a. 106
 - b. 76
 - c. 166
 - d. 206
8. List four personal traits which are desirable for a successful meat cutter.
- a.
 - b.
 - c.
 - d.

Meat Cutter
Unit - Hours
Answers to Test

1. Any four of the following:

- a. Cuts and trims meat to size for display as ordered
- b. Must be able to use handtools
- c. Must be able to use power tools
- d. Cleans and cuts fish
- e. Cleans and cuts poultry
- f. Prepares display counter
- g. Packages meat

2. Any four of the following:

- a. Beef
- b. Lamb
- c. Pork
- d. Veal
- e. Poultry
- f. Fish

3.



4. The apprenticeship program is a training program which has been developed by labor unions. This program is designed so that a person trying to get a union job can gain experience as an assistant or helper to an experienced man in the job. This man is called a journeyman. To become a journeyman meat cutter, the apprentice must serve two years as an apprentice.

5. c

6. Any five of the following:

- a. Boning knife
- b. Steak knife
- c. Meat saw
- d. Sharpening steel
- e. Carborundum stone
- f. Band saw
- g. Meat grinder
- h. Cubing machine

7. c

8. a. A desire to work with people
 b. The ability to work with his hands
 c. A pleasing personality
 d. The ability to get along with other people

Agriculture Careers

Specific Occupation - Nurseryman

Terminal Objectives

After completion of this unit, the student should be aware of the importance of the nurseryman in horticulture production, identify several of the requirements of this occupation, methods by which a high school student could become a nurseryman, and determine if he has any interest in pursuing this career. This knowledge will be evidenced by a score of 85 percent on a post test.

Specific Objectives

The student should be able to:

1. List four duties of a nurseryman.
2. Draw a diagram showing how a high school vocational agriculture student could become a nurseryman.
4. Identify the approximate starting wage of a person beginning his career in horticulture.
5. List four personal traits which could help a person to become a successful nurseryman.
7. Write a paragraph about his impression of the occupation of nurseryman.
8. Indicate whether he has any interest in pursuing this career further.

Nurseryman

Suggested Activities

Instructor:

1. Decide on method of teaching -- audio visual aid, field trip, skill trial, or resource person -- to be used.
2. Provide students with objective sheets, information sheets, and work sheets.
3. Discuss terminal and specific objectives with students.
4. Discuss information sheets with students and make application to local situation.
5. Give test.

Student:

1. Discuss objectives with instructor.
2. Study information sheets.
3. Fill out work sheets.
4. Take test.

Instructional Materials

Included in this unit:

1. Objective sheet
2. Information sheets
3. Work sheets
4. Audio visual aids
5. Test
6. Answers to test

Additional Materials:

1. OTIS (Occupational Training Information System), Department of Vocational Technical Education, Stillwater, Oklahoma
2. VIEW (Vital Information for Education and Work), Department of Vocational Technical Education, Stillwater, Oklahoma.
3. DOT (Dictionary of Occupational Titles), United States Printing Office, Washington, D.C.

Nurseryman

Information Sheet

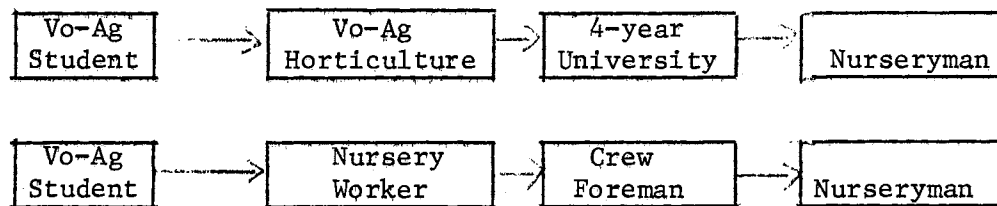
- I. Job description from the Dictionary of Occupational Titles, DOT No. 406.168-010

Manages nursery to grow trees, shrubs, and ornamental plants. Determines kinds and amounts of plants to be grown, using knowledge of plant germination, soil content, growing habits of plants, and market conditions. Selects and purchases seeds, fertilizer, and gardening equipment. Hires and supervises Nursery Workers (DOT 406.887-030) to plant seeds and cultivate plants. Supervises activities of workers engaged in marketing nursery products. Provides nursery services, such as landscape planting and customer instruction in planting and cultivating ornamental plants. May be designated according to specialization of nursery stock such as Azalea Grower; Evergreen Grower; or when performing duties in greenhouse, may be designated as Greenhouse Florist.

Related jobs and DOT numbers are:

406.884-010	Laborer, Nursery
406.887-022	Groundman
406.887-030	Nursery Worker
406.887-010	Bagger-and-Burlap Man Baller
407.137-010	Greenskeeper

- II. The following diagrams are methods by which a vocational agriculture student could become a nurseryman.



- III. Two areas taught in vocational agriculture that can aid a person to become a nurseryman area:

- A. Plant and Soil Science
- B. Leadership

- IV. The entry level jobs in horticulture usually start at the government minimum wage of \$1.60 per hour.

- V. A nurseryman can obtain a yearly income of about \$20,000.

- VI. Some of the personal traits which could help a person be a successful nurseryman are:

Information Sheet

- A. The ability to work with and supervise people
- B. A desire to work with the soil
- C. Satisfaction gained from watching plants grow
- D. A willingness to keep on the latest developments in growing plants

Nurseryman
Unit - Hours
Test

1. List four duties of a nurseryman.
 - a.
 - b.
 - c.
 - d.
2. Draw a diagram showing how a high school vocational agriculture student could become a nurseryman.
3. List two areas taught in vocational agriculture that could aid a person to become a nurseryman.
 - a.
 - b.
4. The approximate starting wage of a person beginning his career in horticulture is: (Circle one.)

\$1.90/hr. \$3.00/hr. \$1.60/hr. \$2.50/hr.
5. The nurseryman could expect to obtain a salary of _____.
6. List four personal traits which are desirable for a nurseryman to have.
 - a.
 - b.
 - c.
 - d.
7. Write a paragraph giving your impression of the nurseryman.
8. Would you like to pursue this career further? (Circle one)

Yes No

Nurseryman
Unit - Hours
Answers to Test

1.
 - a. Grows plants
 - b. Determines kinds and amounts of plants to be grown
 - c. Selects and purchases seeds, fertilizer, and gardening tools
 - d. Hires and supervises nursery workers

2.
 - a.

➤

➤

➤

 - b.

➤

➤

➤

3.
 - a. Plant and Soil Science
 - b. Leadership

4. \$1.60/hour

5. \$20,000

6.
 - a. The ability to work with and supervise people
 - b. A desire to work with the soil
 - c. Satisfaction gained from watching plants grow
 - d. A willingness to keep up on the latest developments in growing plants

Agriculture Careers

Specific Occupation - Forestry Technician

Terminal Objectives

After completion of this unit, the student should be aware of the forestry technician in the forestry business, identify several of the requirements of the occupation, a method by which a high school student could become a forestry technician, and determine if he has any desire to pursue this career. This will be evidenced by a score of 85 percent on a post test.

Specific Objectives

The student should be able to:

1. List four divisions of forestry in which a forestry technician might be employed.
2. List a school in Oklahoma where forestry technology is taught.
3. List four specific duties a forestry technician might perform.
4. Draw a diagram indicating how a high school vocational agriculture student could become a forestry technician.
5. Identify the beginning wage of a forestry technician employed by the State of Oklahoma.
6. Determine if he is interested in becoming a forestry technician.

Forestry Technician

Suggested Activities

Instructor:

1. Decide on method of teaching -- audio visual aid, field trip, skill trial, or resource person -- to be used.
2. Provide students with objective sheets, information sheets, and work sheets.
3. Discuss terminal and specific objectives with students.
4. Discuss information sheets with students and make application to local situation.
5. Give test.

Student:

1. Discuss objectives with instructor.
2. Study information sheets.
3. Fill out work sheets.
4. Take test.

Instructional Materials

Included in this unit:

1. Objective sheet
2. Information sheets
3. Work sheets
4. Audio visual aids
5. Test
6. Answers to test

Additional Materials:

1. OTIS (Occupational Training Information System), Department of Vocational Technical Education, Stillwater, Oklahoma.
2. VIEW (Vital Information for Education and Work), Department of Vocational Technical Education, Stillwater, Oklahoma.
3. DOT (Dictionary of Occupational Titles), United States Printing Office, Washington, D.C.

Forestry Technician

Information Sheet

I. General Job Description

The forestry technician will work in one of four general areas: research, sales and service, operations, or forest products buyer. He must be capable of working and communicating directly with forest engineers, professional foresters, and scientists as well as the production personnel in his area of work. He may perform manual skills or supervise people who perform manual skills -- most do both.

Specific job descriptions can be found in the Dictionary of Occupational Titles under the following numbers:

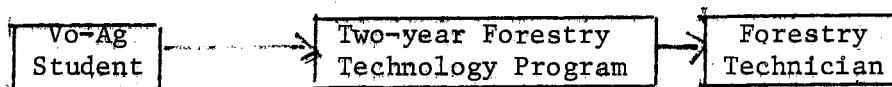
162.158-058 Buyer, Log
162.158-078 Fieldman
449.168-010 Chief Cruiser
449.287-010 Cruiser

II. In Oklahoma, Forestry Technology is taught at Eastern Oklahoma State College in Wilburton.

III. Specific duties which a forestry technician might perform are:

- A. Timber selection and marking
- B. Surveying
- C. Fire control
- D. Insect control
- E. Determine amount of lumber in a tree
- F. Control undesirable kinds of trees in a forest
- G. Advise land owners on forestry problems

IV. A plan which could be followed for a high school vocational agriculture student to become a forestry technician could be:



V. A beginning forestry technician, employed by the Oklahoma Department of Forestry, will earn \$465 per month.

VI. Some of the personal traits which are desirable for a forestry technician to have are:

- A. A desire to work with and advise people
- B. The ability to work with his hands
- C. A desire to work out-of-doors
- D. The desire to work with and take care of tools
- E. Satisfaction gained from working with soil and trees

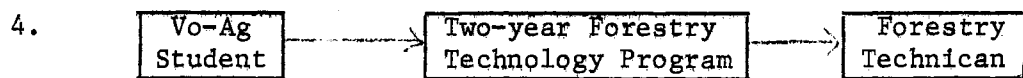
Forestry Technician
Unit - Hours
Test

1. List four divisions of forestry in which a forestry technician might be employed.
 - a.
 - b.
 - c.
 - d.
2. What is the name of a school in Oklahoma where Forestry Technology is taught?
3. List four specific duties a forestry technician might perform.
 - a.
 - b.
 - c.
 - d.
4. Draw a diagram of how a high school vocational agriculture student could become a forest technician.
5. Circle the letter which is the approximate beginning salary of a forestry technician in Oklahoma.

a. \$800 per month	c. \$465 per month
b. \$200 per month	d. \$550 per month
6. List three personal traits which are desirable for a forestry technician to have.
 - a.
 - b.
 - c.

Forestry Technician
Unit - Hours
Answers to Test

1.
 - a. Research
 - b. Sales and Service
 - c. Operations
 - d. Forest Products Buyer
2. Eastern Oklahoma State College in Wilburton
3. Any four of the following:
 - a. Timber selection and marking
 - b. Surveying
 - c. Fire control
 - d. Insect control
 - e. Determine amount of lumber in a tree
 - f. Control undesirable kinds of trees in a forest
 - g. Advise land owners on forestry problems



5. c. \$465
6. Any three of the following:
 - a. A desire to work with and advise people
 - b. The ability to work with his hands
 - c. A desire to work out-of-doors
 - d. The desire to work with and take care of tools
 - e. A satisfaction gained from working with soil and trees

APPENDIX B

Self-Discovery
Unit I-5 Hours

Terminal Objective

After completing Unit I, the student should be able to recognize and list his own characteristics (what are his interests, experiences, skills, and how he gets along with people) in relation to occupations. This knowledge will be evidence through demonstration and by scoring 85 percent on the post test.

Specific Objectives

After five hours of instruction, the student should be able to:

1. Match five associated terms with the correct definitions associated with self-discovery.
2. List five ways in which an individual identifies his characteristics as related to occupations.
3. List three steps used in organizing his characteristics.
4. List six questions he should ask himself about his characteristics in looking at possible occupations.
5. Identify his agricultural occupations interest by taking the Vocational Agriculture Interest Examination.
6. Identify his personality rating by completing the Personality Self-Rating Scale.
7. Identify his interest, experiences, skills, and personality characteristics.
8. Write an autobiography using perviously collected information on personality rating, interest, and experiences.
9. Identify the characteristics of an individual in an agricultural occupation that he would like to pursue and compare with his own characteristics.
10. Associate previously identified characteristics while looking into occupational areas for employment.

Self-Discovery Unit I-5 Hours

Suggested Activities

I. Instructor:

- A. Provide student with objective sheet.
- B. Provide student with information sheet.
- C. Discuss terminal and specific objectives.
- D. Discuss information and assignment sheets.
- E. Explain the relationship between self-discovery and its use in decision-making and career choice.
- F. Give test.

Note: The instructor should contact the guidance counselor and obtain the personnel file on each student. The instructor should review the student's records as to: (1) academic achievement, (2) interests, (3) environmental background, and (4) other tests that the student has completed from kindergarten through the ninth grade. The instructor should administer the Vocational Agriculture Interest Inventory, available from Interstate Printers, and the Personality Inventory, included in the unit. After discussing the student's files with the guidance counselor, it may be found that interest and aptitude tests have been administered to the student. If such tests have been administered, it would be helpful to discuss the tests results and meaning with the counselor before interviewing the student. The instructor should have each student write an autobiography of himself and his interests to be placed with his permanent records.

II. Student:

- A. Read objectives
- B. Study information sheets.
- C. Take the Vocational Agriculture Interest Inventory.
- D. Complete assignment sheets.
- E. Take test.

Instructional Materials

I. Provided in this unit:

- A. Information sheets
- B. Assignment sheets
 - 1. Vocational Agriculture Interest Inventory
 - 2. Personality Self-Rating Scale
 - 3. Identify Interest, Experiences, Skills, and Personality Characteristics

4. Autobiography
5. Identify the Characteristics of an Individual in an Agricultural Occupation with his own Individual Characteristics
6. Associate Previously Identified Characteristics while Looking into Occupational Areas for Employment
- C. Evaluation of Assignment #2
- D. Test
- E. Answer Sheet for Test

II. Reference Material:

- A. Key, James P., "Orientation and Occupational Theory, Contemporary Concepts in Vocational Education," ed. Gordon F. Low, American Vocational Association, Washington, D.C., 1971, pp. 255-266.
- B. Mathery, Kenneth B., "The Role of the Middle School in Career Development," American Vocational Journal, Vol. 44, December, 1969, pp. 18-21.
- C. Super, Donald E., "A Vocational Development Theory: Persons, Positions, and Processes," The Counseling Psychologist, Vol. 1, 1969, pp. 2-9.
- D. Super, Donald E., "Self-Concepts in Vocational Development," Self-Concept Theory, ed. Donald E. Super, Reuben Starishevsky, Norman Matlen, and Jean P. Jordan (Teachers College, Columbia University, 1963), pp. 1-15.
- E. Oklahoma Vocational Agriculture Education Basic Core Curriculum I. Oklahoma State Board of Vocational and Technical Education. 1970 (Revised, 1971).
- F. Oklahoma Vocational Agriculture Education Basic Core Curriculum II. Oklahoma State Board of Vocational and Technical Education, 1971.

III. Additional Materials:

- A. Agriculture is More than Farming, prepared by American Association of Teacher Educators in Agriculture, The National Association of Agriculture Education Supervisors, and the National Vocational Agricultural Teacher's Association, Inc., The Future Farmers Supply Service, Alexandria, Virginia.
- B. Agri-business and Industry, Archie A. Stone, The Interstate Printers and Publishers, Danville, Illinois 1965.
- C. Handbook of Agricultural Occupations, Norman K. Hoover, Interstate Printers and Publishers, Danville, Illinois, 1963.
- D. Guidance in Agricultural Education, Harold M. Byrum, Interstate Printers and Publishers, Danville, Illinois, 1966.

- E. Official Classification of Agricultural Occupations, U.S. Office of Education, 1966-1967.
- F. "Attachment #2 VE6000 Report," Occupational Objective for Vocational Agriculture.
- G. Statistical Abstract of the United States 1969, prepared under the supervision of William Lerner, U.S. Department of Commerce, Washington, D.C.
- H. County Business Patterns 1967, U.S. Department of Commerce, Washington, D.C.
- I. "What Tests Can Tell You About You," Guidance Division, Oklahoma State Department of Education.
- J. Audio-Visual Aids:
 - a. "Testing: Its Place in Education," Guidance Division, Oklahoma State Department of Education.
 - b. "Aptitudes and Occupations," 15 minutes, McGraw-Hill, New York.
- K. Kuder General Interest Survey, published by the Science Research Associates, Inc., 259 East Erie Street, Chicago, Illinois 60611.
- L. "Finding Out About Ourselves," Guidance Division, Oklahoma State Department of Education.
- M. "All About You," Guidance Division, Oklahoma State Department of Education.
- N. "Insight Into People," (Filmstrip and Record), #83657, Special Vocational Education, Tulsa.

Self-Discovery
Unit I-5 Hours
Information Sheet

- I. Definition of terms:
 - A. Self-discovery -- The way a person looks at himself.
 - B. Interests -- The likes and dislikes a person has.
 - C. Experiences -- The events, skills, and facts making up a person's past.
 - D. Skills -- What a person is able to do.
 - E. Personality -- The characteristics of a person which determine how he gets along with others.
- II. A person identifies his characteristics as they relate to occupations through the following ways:
 - A. Exploring his interests, experiences, skills, and personality in relation to the occupations he knows about.
 - B. Seeing how he differs from the other people in those occupations.
 - C. Admiring or looking up to certain people in those occupations.
 - D. Imitating these people who are admired or looked up to.
 - E. Seeing if these characteristics he has identified about himself hold true in a part-time job.
- III. The steps a person follows in organizing these characteristics into a form he can use in looking at possible future occupations are:
 - A. Looking at admired adults' characteristics in relation to their occupations.
 - B. Comparing his characteristics to the characteristics of those of adults.
 - C. Finding out what other characteristics people have said or written are important for that occupation.

- IV. A person uses these characteristics in looking at possible occupations by asking if:
- A. He is interested in that occupation.
 - B. He will be able to learn the skills needed in it.
 - C. His personality is suited for that occupation.
 - D. More experiences are needed.
 - E. More training is needed.
 - F. He is willing to spend the time to meet the requirements of the occupation.

Self-Discovery
Unit I-5 Hours

Assignment Sheet #1 -- Vocational Agriculture Interest Inventory

Take the Vocational Agriculture Interest Inventory when assigned by
your instructor

Self-Discovery
Unit I-5 Hours

Assignment Sheet #2 -- Personality Self-Rating Scale

Circle the appropriate number following each characteristics. Four is outstanding, three is above average, two is average, one is poor. Total your score below.

- | | | | | |
|--|---|---|---|---|
| 1. Do I maintain a well-groomed appearance? | 1 | 2 | 3 | 4 |
| 2. Do I have a pleasing voice? | 1 | 2 | 3 | 4 |
| 3. Is my posture alert and poised? | 1 | 2 | 3 | 4 |
| 4. Is my disposition cheerful? | 1 | 2 | 3 | 4 |
| 5. Do I make friends easily? | 1 | 2 | 3 | 4 |
| 6. Do I exert a positive leadership? | 1 | 2 | 3 | 4 |
| 7. Am I generally thoughtful of others? | 1 | 2 | 3 | 4 |
| 8. Is my enthusiasm sincere and contagious? | 1 | 2 | 3 | 4 |
| 9. Do I persevere until I achieve success? | 1 | 2 | 3 | 4 |
| 10. Am I sincere in my interest in other people? | 1 | 2 | 3 | 4 |
| 11. Am I ambitious to get ahead? | 1 | 2 | 3 | 4 |
| 12. Do I get along well with others? | 1 | 2 | 3 | 4 |
| 13. Do I react constructively to criticism? | 1 | 2 | 3 | 4 |
| 14. Do I remember names and faces? | 1 | 2 | 3 | 4 |
| 15. Am I punctual on all occasions? | 1 | 2 | 3 | 4 |
| 16. Do I have and evidence a spirit of cooperation? | 1 | 2 | 3 | 4 |
| 17. Am I free from prejudice? | 1 | 2 | 3 | 4 |
| 18. Do I know how people react in most situations? | 1 | 2 | 3 | 4 |
| 19. Am I generally a good listener? | 1 | 2 | 3 | 4 |
| 20. Do I refuse to allow what other people say to hurt me? | 1 | 2 | 3 | 4 |
| 21. Can I criticize without giving offense? | 1 | 2 | 3 | 4 |

- | | | | | |
|--|---|---|---|---|
| 22. Do I usually like people for what they are, or do I wait to see if they like me? | 1 | 2 | 3 | 4 |
| 23. Do I enjoy being part of a group? | 1 | 2 | 3 | 4 |
| 24. Am I reliable? | 1 | 2 | 3 | 4 |
| 25. Can I adapt myself to all situations? | 1 | 2 | 3 | 4 |
| 26. Am I easily discouraged? | 1 | 2 | 3 | 4 |
| 27. Do I apply myself to the problems of each day? | 1 | 2 | 3 | 4 |
| 28. Can I make a decision quickly and accurately? | 1 | 2 | 3 | 4 |
| 29. Am I loyal to my superiors and associates? | 1 | 2 | 3 | 4 |
| 30. Do I try to get the other fellow's point of view? | 1 | 2 | 3 | 4 |
| 31. Am I neat and clean in my work as well as my personal appearance? | 1 | 2 | 3 | 4 |
| 32. Do I know where I make my mistakes and do I admit them? | 1 | 2 | 3 | 4 |
| 33. Am I looking for opportunities to serve others better? | 1 | 2 | 3 | 4 |
| 34. Am I following a systematic plan for improvement and advancement? | 1 | 2 | 3 | 4 |
| 35. Can I accept honors and advancements and yet keep my feet on the ground? | 1 | 2 | 3 | 4 |
| 36. Am I playing the game of life honestly and fairly with myself, my fellow members, and others with whom I work? | 1 | 2 | 3 | 4 |

Total Score _____

Self-Discovery
Unit I-5 Hours

Evaluation of Assignment Sheet #2

And now, to evaluate your scores -- If your score totaled over 100, your personality rating is definitely superior. And, if you've been honest with yourself, you are among the people who are most likely to succeed. 90 - 100 is above average. 75 - 90 is average. Below 75 shows plenty of room for improvement. How did you rate?

Self-Discovery
Unit I-5 Hours

Assignment Sheet #3 -- Identify Interest, Experiences, Skills, and
Personality Characteristics

Now that you know that self-discovery is the picture that you have of yourself and that this picture is partially formed by your experiences, let us begin to list those experiences so that you may see yourself more clearly by asking and answering the following questions about yourself and record your answers in the space provided:

Identification of self-discoveries:

1. Who am I? (Vital Statistics -- name, age, family information, etc.)
2. Where do I live?
3. What is my father's occupation?
4. What experiences have I had in the occupation of my father?
5. What occupations are some of my friends' father working in at the present time?
6. What are some occupations that I have had working experiences in other than my father's?
7. What are the subjects in school that I am most interested in taking?

8. What extra-curriculum activities do I enjoy?
9. What are the sports activities that I enjoy, both in school and out?
(hunting, fishing, baseball, etc.)
10. How am I different from my father?
11. How am I different from the men in occupations that I think I would
enjoy?
12. What are the occupations that I have had experiences in that I think
I would like to pursue as my career? (List in order of preference.)
13. What are the occupations that I have not had experiences in that
I think I would like to pursue as a career? (List in order of
preference.)

Self-Discovery
Unit I-5 Hours

Assignment Sheet #4 - Autobiography

After completing the Vocational Agriculture Interest Examination and the Personality Self-Rating Scale, checking with your instructor and/or counselor about other test scores, and completing assignment sheet #3, write your autobiography. The following is a list of suggestions:

1. Check with your instructor as to the form to follow in writing the autobiography.
2. Be sure to include all of your vital statistics.
3. Review assignment sheet #1 and use as much of the information as you feel necessary.
4. Be sure to include your aspirations (what occupations do you want to become a part of your career, what your goals in life are, and what your plans for the future are).
5. Be sure to include past experiences which could aid you in possible occupations.
6. Include any information from specialized aptitude, achievement, or interest tests you might have taken through your teacher or guidance counselor.

Self-Discovery
Unit I-5 Hours

Assignment Sheet #5

After determining your characteristics by doing the first four assignments, list the characteristics of a man working in an occupation you think you might like to follow; and then rate your characteristics compared to his.

CHARACTERISTICS OF A MAN
(List his characteristics on the
blank lines)

HOW WELL MY CHARACTERISTICS
MATCH HIS

Interests

Experiences

Skills

Self-Discovery
Unit I-5 Hours

Assignment Sheet #6 - Associate Previously Identified Characteristics
While Looking into Occupational Areas for
Employment

After completing the self-discovery exercises in the previous assignments, how can they be of use in looking at possible occupations? Answer the following questions about an occupation you choose.

1. Does this occupation interest me greatly?
2. What additional background experiences do I need if I choose this occupation?
3. Will I be able to learn the skills needed in this occupation?
4. What additional technical training will I need?
5. What additional formal education (high school, college, university) will I need?
6. How long will it take me to acquire the necessary technical and formal educational training to meet the minimum requirements of this occupation (as I see and know them at this time)?
7. Is my personality suitable for this occupation?

Self-Discovery
Unit I-5 Hours

Test

1. Match the following terms to the correct definitions.

- | | | |
|----------|--|-------------------|
| _____ a. | The likes and dislikes a person has. | 1. Personality |
| _____ b. | The events, skills, and facts making up a person's past. | 2. Interest |
| _____ c. | What a person is able to do. | 3. Skills |
| _____ d. | The characteristics of a person which determine how he gets along with others. | 4. Experience |
| _____ e. | The way a person looks at himself. | 5. Self-discovery |

2. List the five steps used in identifying your characteristics in relation to occupations.

a.

b.

c.

d.

e.

3. List three steps used in organizing your characteristics

a.

b.

c.

4. List six questions that you should ask yourself about your characteristics in looking at possible occupations.

a.

b.

c.

d.

e.

f.

Self-Discovery
Unit I-5 Hours

Answers to Test

1.
 - a. 2
 - b. 4
 - c. 3
 - d. 1
 - e. 5
2.
 - a. Exploring my interest, experience, skills, and personality in relation to the occupations I know about.
 - b. By seeing how I differ from other people in those occupations.
 - c. By admiring or looking up to certain people in those occupations.
 - d. By imitating the people who are admired or looked up to.
3.
 - a. Look at admired adults.
 - b. By comparing my characteristics to the characteristics of those adults.
 - c. By finding out what other characteristics people have said or written are important for that occupation.
4.
 - a. Am I interested in that occupation?
 - b. Will I be able to learn the skills needed in it?
 - c. Is my personality suited to that occupation?
 - d. Do I need more experience?
 - e. Do I need more training?
 - f. Am I willing to spend the time necessary to meet the requirements of this occupation?

APPENDIX C

Construction and Evaluation of a Career
Development Program in Agricultural Occupations*

It appears that the project is moving toward the stated objectives, with one exception, in a highly satisfactory manner. In fact, to see the amount of work done on the project to date is amazing. The coordination of the different parts of the project, especially in view of the involvement of a number of people, is most commendable. The Associate Director and the two assistants were most cooperative and helpful in helping me get a clear understanding of all phases of the project. Some more specific suggestions are listed for the consideration of those concerned.

1. The only part of the objectives that leave some question at this stage is with the difference, if any, for the disadvantaged students. Since the economic criterion indicates none in some programs and a limited number in most programs, every reasonable effort should be made to secure information on the two other characteristics used to classify a student as disadvantaged. I would suggest that other available characteristics be examined for each individual classified as disadvantaged. For example, the difference in performance on pre-test and post-test which is already available. I believe that we mentioned the possibility of checking the record of school attendance. Even though none of these may give enough population to warrant conclusions you might be able to identify further study that could be built into another project. Incidentally as a sidelight, it is my opinion that as we learn more about career development we may need to identify another type of

*Summary Report based upon a visit to Oklahoma State University, May 26 and 27, 1972 by Cayce Scarborough, N.C. State University as a consultant to the project May 2.

disadvantaged student. That is, the one who is not presently financially able to move toward his occupational goal. For example, establishment in farming or getting a degree in veterinary medicine. This could be the brightest boy in the class from a family above the poverty level but not able to help the boy move toward his objective.

2. Based upon what I think I heard the teachers saying, I believe that your most urgent addition to your units is in self-discovery. Certainly the Career Game(s) will help. Some Peanuts-type cartoon strips would help. See if you have a creative person around there who might create a Greenhand cartoon character. (Years ago I created a Greeny Greenhand character to remind FFA Advisors of deadlines, jobs, etc. Maybe I'll dust this off and up-date him!) I am enclosing a summary on Professional Bills use of ++ etc. in looking at self-concept if you want to try it with your teachers. My point is I believe that your teachers were saying that they needed a little more content and maybe a little more interest helps. By the way, some of Burchiral and Haller materials on rural youth and occupational choice might be helpful. It is getting a little old and maybe out-of-date, but it would still be a challenge I think. Also, the planned interviews by each student mentioned by someone would be helpful I think.

3. I like your idea of shifting control programs to experimental programs next year. You might try to think if any safeguards need to be added.

4. Could pre-test and post-test be different? I don't know this much about testing but I know that you need to try to avoid "studying for the test" if you can. It would seem to me that two or three alternate pre-tests and post-tests might be developed so that either set

would test to what extent the objectives had been reached. But I have not tried this nor checked the idea with the test and measurement experts.

5. The idea of a quickie introduction to the job being considered (video, slides, written, etc.) giving an over-all view of what working in this job or occupation would be like. Maybe the key characteristics of the person who makes good in this type of work. Then follow with a specific case, as you did with the video tape. I believe that it would be a mistake though to develop one which de-emphasizes your real-life approach. Many commercial films, I think, make the mistake of too much general information about an occupation without looking closely at someone in that occupation. (The Chronicle Guidance Publications make use of D.O.T. in giving a description that you might use. See the Occupational Brief on Farm Equipment mechanic.)

6. You are correct, I think, in leaning heavily on the Behavioral Objectives approach, especially since the curriculum guide materials follow them very closely. Of course, you must be concerned with measurement of change in your project. However, this should not force you into looking only for those outcomes that can be easily measured. One way to help keep the objectives broad and appropriate yet measureable is to note whether objectives are stated if needed, in the affective and psychomotor areas as well as cognitive. Also to be sure that the cognitive area included some objectives relating to understanding concepts. Specific recall on a written test is just simply not enough to know about a vocational subject -- in my opinion. For example, changes in attitude and values are extremely important in decision making for change and must not be avoided in objectives because they are difficult to measure. You might check with your people in tests and measurements to see if any

of the attitude inventory or value scales are appropriate for your project.

If any of these comments are not clear please let me know. It will be much appreciated if I can be kept advised on the progress of the project.

CAYCE SCARBOROUGH

May 29, 1972

North Carolina State University

VITA

Floyd James Lark

Candidate for the Degree of

Doctor of Education

Thesis: DEVELOPMENT AND TESTING OF SELECTED CURRICULUM UNITS FOR
AGRICULTURAL CAREER AWARENESS IN OKLAHOMA

Biographical:

Personal Data: Born at Raton, New Mexico, September 15, 1941, the son of Richard Floyd and Margaret Lillian Lark.

Education: Attended elementary, junior high and high school in Raton, New Mexico; graduated from Raton High School, May 1959; Received the Bachelor of Science degree from Panhandle State College, Goodwell, Oklahoma, July 1963; fulfilled requirements for vocational agriculture teaching certificate, New Mexico State University, June 1964; Received Master of Arts degree from New Mexico State University, June 1970; Completed requirements for Doctor of Education degree from Oklahoma State University, July 1972.

Professional Experiences: Teacher of vocational agriculture, Hoehne, Colorado, 1964-1966; teacher of vocational agriculture, Raton, New Mexico, 1966-1969. Employed as graduate teaching assistant, Department of Agricultural and Extension Education, New Mexico State University, 1969-70. Employed at Oklahoma State University as a graduate teaching assistant in Agricultural Education 1970-71 and as a research assistant during 1971-72.

Professional Organizations: Member of Colorado Vocational Agriculture Teacher's Association, Colorado Education Association, New Mexico Vocational Agriculture Teacher's Association, New Mexico Education Association, National Vocational Agriculture Teacher's Association, National Education Association, American Vocational Association, Lion's Club, Alpha Tau Alpha, Phi Delta Kappa, and the United Methodist Church