

IMPLEMENTATION AND EVALUATION OF A  
CURRICULUM FOR AGRICULTURAL  
CAREER AWARENESS IN  
OKLAHOMA

By

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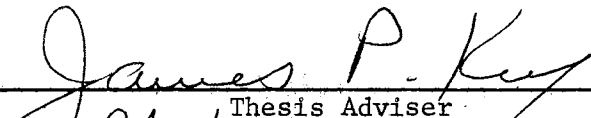
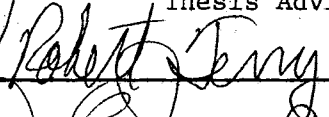
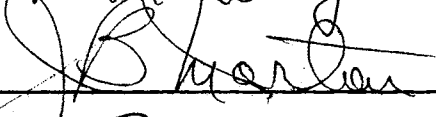
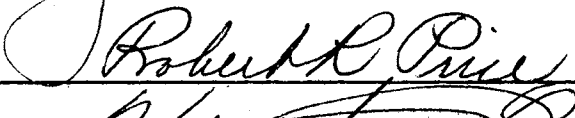

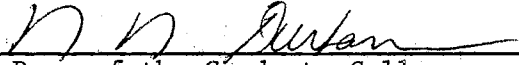
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Thesis Approved:

  
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## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION . . . . .	1
Statement of the Problem . . . . .	3
Purpose of the Study . . . . .	4
Need for the Study . . . . .	4
Objectives of the Study . . . . .	5
Hypotheses . . . . .	7
Scope of the Study . . . . .	7
Limitations of the Study . . . . .	9
Definition of Terms . . . . .	9
II. REVIEW OF LITERATURE . . . . .	11
Development and Implementation of a Curriculum for Career Exploration . . . . .	18
Method of Curriculum Evaluation . . . . .	23
Summary . . . . .	27
III. PROCEDURE AND DESIGN . . . . .	30
Identification of Clusters and Selection of Occupations . . . . .	31
Development of the Instructional Units on Self- Discovery and Decision Making . . . . .	37
Selection of Teachers . . . . .	38
Review of Proposed Units With Curriculum Specialists and Teachers . . . . .	40
Review of the Curriculum Units With Specialists and Teachers After Teaching Was Completed . . . . .	40
Pre-Post Test Development . . . . .	41
Pre-Test Students . . . . .	42
Teaching the Curriculum . . . . .	42
Post-Testing Students . . . . .	43
Identification of Students According to Ethnic Group, Parental Income, and Less-Advantaged . . . . .	43
Statistical Analysis . . . . .	44
IV. PRESENTATION AND ANALYSIS OF DATA . . . . .	46
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS . . . . .	56
Summary . . . . .	56
Conclusions . . . . .	60
Recommendations . . . . .	62

Chapter	Page
SELECTED BIBLIOGRAPHY . . . . .	65
APPENDIXES . . . . .	70
Appendix A . . . . .	71
Appendix B . . . . .	88
Appendix C . . . . .	116
Appendix D . . . . .	121

# LIST OF TABLES

Table	Page
I. Mean Gain Difference of Scores Between Experimental and Control Groups of Students Taught Using the Curriculum for Career Exploration . . . . .	47
II. Analysis of Variance for Variable Gain Between Experimental and Control Groups of Students Taught Using the Curriculum for Career Exploration . . . . .	49
III. Mean Gain Difference of Scores Between Experimental and Control Groups of Students, Taught Using the Curriculum for Career Exploration, by Ethnic and Social Categories in Schools 15 and 25 . . . . .	51
IV. Mean Gain Difference of Scores Between Experimental and Control Groups of Students, Taught Using the Curriculum for Career Exploration, by Ethnic and Social Categories in Schools 17 and 27 . . . . .	53
V. Mean Gain Difference of Scores Between Advantaged and Less-Advantaged Students, Taught Using the Curriculum for Career Exploration in Experimental Schools, Disregarding Ethnic Category . . . . .	54
VI. Mean Gain Difference of Scores Between Caucasian and Minority Ethnic Students, Taught Using the Curriculum for Career Exploration in Experimental Schools, Disregarding Social Category . . . . .	55

## CHAPTER I

### INTRODUCTION

The need for constructing, implementing, and evaluating a curriculum for career exploration and development in agricultural occupations has been evidenced for some time. Prior to and following World War II there has been a shift in the United States in the broad field of agriculture. This shift from basic agricultural production to agri-business and related occupations is in part a result of the scientific and technological developments that have been made in the broad field of agricultural occupations. Inherent with this shift and the scientific and technological advancements has been the increase in the demand for changes in the vocational agricultural training programs to meet these occupational and career development changes.

Oklahoma has begun to meet these changing occupational and career development needs and now has initiated programs in vocational agricultural occupations training (VAOT) in 25 of the 350 schools where they have vocational agriculture programs.

According to Baker, Dilworth, and Eddy (1969):

Career development is the result of relating means to ends through planned work exploration and establishment of career goals. Research findings suggest that information should be presented differently at different stages of career development. Such findings indicate also that early presentation of occupational information will facilitate understanding of occupational concepts, identification of vocational interests, realism in self-concept, appropriateness of vocational choice and readiness to function as an effective employee.



The curricular approach to career choice through vocational agriculture is designed to supply students with information and experiences upon which to base their occupational decisions.

The Advisory Council on Vocational Education (1968) suggested the following:

1. Occupational preparation should begin in the elementary schools with a realistic picture of the world of work. Its fundamental purpose should be to familiarize the student with his world and to provide him with the intellectual tools and rational habits of thought to play a satisfying role in it.

2. In junior high school, economic orientation and occupational preparation should reach a more sophisticated stage with study by all students of the economic and industrial system by which goods and services are produced and distributed. The objective should be exposure to the full range of occupational choices which will be available at a later point and full knowledge of the relative advantages and the requirements of each.

3. Occupational preparation should become more specific in the high school, though preparation should not be limited to a specific occupation. Given the uncertainties of a changing economy and limited experiences upon which vocational choices must be made, instruction should not be overly narrow but should be built around significant families of occupations or industries which promise expanding opportunities.

With these suggestions in mind, it seems that there is a great necessity for constructing, implementing, and evaluating the effectiveness of a curriculum to help students explore the occupations available to them in agriculture.

This project, "Construction, Implementation, and Evaluation of a Career Development Program in Agricultural Occupations for Advantaged and Less-Advantaged Rural Youth," is 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) construction of the curriculum and (2) implementation and evaluation of the effectiveness of the curriculum for career development in agricultural occupations. During phase 1, a career development curriculum was developed to help students explore agricultural occupations. The task of the implementation and evaluation of the effectiveness of this curriculum remained for this study.

#### Statement of the Problem

The shift in the need for workers in agriculture from production agriculture to the agri-business section has created the need for a program to make the rural youth aware of the occupational opportunities available in agri-business. Likewise, this new array of agri-business occupations have varying requirements which necessitate the rural youth being aware of their abilities, interests, and other characteristics in relation to those requirements. At the present time, these rural youth are not adequately oriented to this new array of occupations, to their own characteristics in relation to them, or to the decision making process. A curriculum was developed during Phase I of this project designed to create this awareness and orientation. The problem facing this phase of the project was the implementation and evaluation of this curriculum.

### Purpose of the Study

The purpose of this study was to implement the curriculum for career exploration in agriculture that was developed during Phase I of this project and to evaluate its effectiveness in aiding students to explore the current occupations available and developing in agriculture.

### Need for the Study

From the data reviewed and compiled during Phase I of this two-phase project and evidence presented in the study conducted by the Oklahoma State Research Coordinating Unit (1967), it can be concluded that students in Oklahoma are very uncertain about their future after high school. However, when students enroll in vocational agriculture at the ninth grade, it is assumed that they have an interest in the broad field of agriculture.

As this curriculum for career exploration in agriculture is the first one to be developed and implemented in Oklahoma, it is essential to evaluate its effectiveness in achieving the objectives.

Central to the objectives is the statement made in a position paper adapted by the National Association of State Directors of Vocational Education (1971):

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

### Objectives of the Study

The general objective of this study is to implement and evaluate the curriculum of the career development program that was developed during Phase I as to the achievement of its stated objectives.

The career development curriculum has been designed and developed to increase the awareness of agricultural youth to career opportunities, to their own abilities, interests, and other characteristics in relation to careers, and to the decision making process leading to the choice of a career.

The evaluation of the effectiveness of the career development curriculum was centered around the degree of the achievement exhibited by the students after completing the program by being able to:

1. Identify the occupational clusters available in the broad field of agriculture.
2. Locate specific occupations which might match their abilities and interests within these clusters.
3. Identify specific employment requirements for these occupations.
4. Identify the benefits available through employment in these occupations.
5. Evaluate their own strengths and weaknesses in relation to those occupations with the aid of the instructors and self-assessment instruments.
6. Identify the means of securing employment in these occupations, such as cooperative work-study programs, federal and state employment service, and other personal actions to secure employment.
7. Make a tentative career development plan.

In order to accomplish the implementation and evaluation objectives, a comparison was made of the differences in the achievement of the stated objectives:

1. Between rural youth participating in the career development program and those participating in the conventional school program.
2. Between the advantaged and the less-advantaged rural youth within each of the programs.
3. Among rural youth of different ethnic backgrounds within each of the programs.

In order to achieve these objectives, the following procedures were used:

1. Review of proposed curriculum units and audiovisual aids that were developed during Phase I of the project with curriculum specialists and teachers prior to teaching time.
2. Selection of schools in cooperation with the district supervisors of vocational agriculture.
3. Pre-test of students.
4. Having vocational agriculture teachers teach the units.
5. Post-test of students.
6. Review of the units with curriculum specialists and teachers after units have been taught.
7. Identification of students according to ethnic groups.
8. Identification of students as advantaged and less-advantaged.
9. Determine appropriate statistical technique to analyze pre-test and post-test.

### Hypotheses

The following hypotheses were tested at the .05 level of confidence:

- HO<sub>1</sub>: There is no significant difference between gain in scores made by students taught using the curriculum for career exploration and those students taught using the normal curriculum.
- HO<sub>2</sub>: There is no significant difference between gain in scores made by students who are less-advantaged and those who are advantaged when taught using the curriculum for career exploration.
- HO<sub>3</sub>: There is no significant difference between gain in scores made by students of different ethnic groups who are taught using the curriculum for career exploration.

### Scope of the Study

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. 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 were interested in teaching about agricultural careers should be asked to teach the units. Two schools from each of three districts--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. Six schools from the Northeast District were chosen in order to get a more uniform distribution of ethnic and less-advantaged students.

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

Sixteen schools were identified statewide. One school in each of the three districts--Northwest, Southeast, and Southwest--was assigned to the experimental group, and one in each district was assigned to the control group. In the Central District, two schools were assigned to the experimental group and two schools were assigned to the control group. In the Northeast District, three schools were assigned to the experimental group and three were assigned to the control group. Thus there were eight experimental schools and eight control schools.

The 16 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 students' lives when they need more information about occupations. Super (1962) 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. Furthermore, each of the students was identified as less-advantaged if they were economically disadvantaged or mentally or physically handicapped. Also, each of the students was identified according to ethnic group. This was done by the teachers in each of the schools. These three charac-

teristics were entered as variables along with the teaching of the curriculum to explain post-test differences.

#### Limitations of the Study

1. Implications of this study may not be applicable to some vocational agriculture departments because of the selective sampling of schools.
2. There were a limited number of less-advantaged students in the classes chosen to test the curriculum.
3. There were a limited number of students in the study who were from ethnic groups other than Caucasian.

#### Definition of Terms

1. General agricultural occupational clusters -- one of the seven divisions of agriculture as defined by the United States Office of Education.
2. Specific agricultural occupational cluster -- one specific area of agriculture and agricultural instruction within one of the seven divisions of agriculture as defined by the United States Office of Education.
3. 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.
4. Normal curriculum -- the curriculum taught in the control schools.
5. Economically disadvantaged -- a student whose parents have an annual income of less than \$3,000.



6. Less-advantaged -- a student who is economically disadvantaged or mentally or physically handicapped.

7. Ethnic background -- Students were identified as either Caucasian, American Indian, Negro, or Mexican American.

8. 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 viewpoint.

9. Gain -- a positive difference between pre-test and post-test scores.

10. 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 vocational development, occupational choice, and decision making.
2. The development and implementation of a curriculum for career exploration.
3. Method of curriculum evaluation.

In his summary of "A Theory of Vocational Development," Super (1953) makes the statement that the theory can be stated in a series of ten propositions:

(1) People differ in their abilities, interests, and personalities.

(2) They are qualified, by virtue of these characteristics, each for a number of occupations.

(3) Each of these occupations requires a characteristics pattern of abilities, interests, and personality traits, with tolerances wide enough, however, to allow both some variety of occupations for each individual and some variety of individuals in each occupation.

(4) Vocational preference and competencies, the situations in which people live and work, and hence their self concepts, are generally fairly stable from late adolescence until maturity, making choice and adjustment a continuous process.

(5) The process may be summed up in a series of life stages characterized as those of growth, exploration, establishment, maintenance, and decline; and those stages may in turn be subdivided into (a) the fantasy, tentative, and realistic phases of the exploration stage, and (b) the trial and stable phases of the establishment stage.

(6) The nature of the career pattern (that is, the occupational level attained and the sequence, frequency, and duration of trial and stable jobs) is determined by the individual's parental socio-economic level, mental ability, and personality characteristics, and by the opportunities to which he is exposed.

(7) Development through the life stages can be guided, partly by facilitating the process of maturation of abilities and interests and partly by aiding in reality testing and in the development of the self concept.

(8) The process of vocational development is essentially that of developing and implementing a self concept: It is a compromise process in which the self concept is a product of the interaction of inherited aptitudes, neural and endocrine make-up, opportunity to play various roles, and evaluations of the extent to which the results of role playing meet with the approval of superiors and fellows.

(9) The process of compromise between individual and social factors, between self concept and reality, is one of role playing, whether the role is played in fantasy, in the counseling interview, or in real life activities such as school classes, clubs, part-time work, and entry jobs.

(10) Work satisfactions and life satisfactions depend upon the extent to which the individual finds adequate outlets for his abilities,

interests, personality traits, and values; they depend upon his establishment in a type of work, a work situation, and way of life in which he can play the kind of role which his growth and exploratory experiences have led him to consider congenial and appropriate.

Without claiming that any one of these propositions are right or wrong, we can see that people do differ in their abilities, interests, and personalities and that the process of vocational development is essentially that of developing and implementing a self concept.

Super (1963) in his conclusions from the self-concept studies reviewed on the relationships between self concepts and various criteria of vocational development shows that:

(1) Agreement between the self concept and one's own occupational concept is related to occupational preferences and to both internal and external criteria of success and satisfaction.

(2) Agreement between the self concepts and the occupational role concepts of important persons has so far tended not to be related to external criteria of success.

(3) Vocational self concepts are a function of perception of the occupational role expectations of important persons and are related to level of attainment in an occupation.

(4) Agreement between self concepts and other measures of the same characteristics, that is, self understanding, increases at varying rates with age in adolescence and is related to the strength of certain needs.

(5) Adolescent's parent-identification (agreement between self concept of parent) are related to type of vocational interest. Identification with the life-sexed parent tends, in boys, to be related to similarity of son's to father's vocational interest in the ninth grade but not in the twelfth.

The theories of occupational choice are shown to have certain elements and approaches in common. Each considers the interaction of attributes of the individual and occupational influences. The four approaches to occupational choice--the trait-factor approach, the personality approach, the developmental approach, and the sociological approach--have basic commonalities and also illuminate a different side of the phenomena. Key (1971) states:

The theories of occupational choice, although taking different approaches, primarily agree that the attributes of the individual and the influences of occupations are joined through the matching, need satisfaction, compromise and coping actions of the choice process to result in the individual's occupational career.

Although viewed differently by the different theories, the concept of choice was generally agreed to be a series of compromise choice or interrelated decisions taking place during the individual's life.

The assumption that every person must be given the opportunity to develop to the fullest extent of his capacity deserves special attention. Thompson (1973) discusses a survey that was made in one of our larger cities and revealed that approximately:

- (1) Two out of three out-of-school youth, age 16 through 21, are unemployed.
- (2) One out of three unemployed are high school graduates.
- (3) One out of two unemployed completed only the ninth grade.
- (4) Two out of three unemployed did not graduate from high school.
- (5) Three out of four of those not graduating from high school were unemployed.

Thompson (1973) goes on to say that:

The higher the income level of the parents comprising a local school area, the more likely the pupils of that school would attain or exceed grade level having qualified teachers, and having enrichment programs.

With these theories in mind, it can be seen that many people do concur that selecting an occupation is a process. It is a process that extends over several years, a process in which the accomplishment of one task overlaps the partial fulfillment of others. Therefore, a curriculum in career awareness and exploration must help students accomplish different development tasks at each educational level.

Ginzberg (1951) states:

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

The student who has enrolled in vocational agriculture for the ninth grade will be in the tentative choice stage. During this stage (the ninth grade) it is most probable that the student is beginning to explore his occupational choices.

With these concepts in mind, it seems that curriculum development for career exploration at the ninth grade level should assist the student gather information about careers in agriculture and help him with decision making and tentative choice.

The decision making process in vocational development and occupational choice is perhaps the most important step to be taken by the student. Herr (1970) stated:

It seems clear that although a decision may seem discrete, it is really only a step in a series of previously made decisions. It is influenced by multiple factors which include: (1) personal variables such as aptitudes, interests, sex, age, physical strength, and personal history; (2) social and cultural factors, which operate on an impersonal basis, including social values and other norms, job requirements, and employment opportunities; (3) interpersonal relationships received by the decision-maker; and (4) the relevance of the decision-maker's reference groups.

There are several theories on decision making and its relation to vocational development and career choice. Hilton (1962) states that, "The reduction of dissonance among a person's beliefs about himself and his environment is the major motivation of career decision-making."

He takes his lead from Festenger's Theory of Cognitive Dissonance (1957) which indicates that the magnitude of information, the number of factors which should be considered, in decision making is so great that the individual makes a choice prematurely, without full consideration of the implications of the choice, in order to reduce the pressures besieging him as he sorts through the torrents of information relevant to choice.

To help solve the problems in decision making with the student who is gathering information and exploring occupations, Key (1969) makes the following suggestions:

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 or occupational orientation courses be used.

To make these suggestions more specific to vocational agriculture, Mitchell (1971) 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.

In carrying out the decision making process Croft (1972) discusses the history and use of simulation games in education as follows:

Games can be traced back through antiquity. They have been used for many centuries, for example, by generals in the training of armies. However, the use of games in education has been a relatively recent development.

One of the early supporters of games in education was John Dewey. In addition to stating that games fill a basic human need for make believe activities, he also said 'games provide fresh and deeper meanings to the usual activities of life.' (1928) He believed that games should be considered as an integral part of the curriculum. They should not be considered simply as 'relief from the tedium and strain of regular school work.' (1922)

According to Larson (1969) the field of simulation games in education can be approached by analyzing three stages in their development, which he lists as follows:

The first stage consists of the period when social scientists developed simulation games for classroom use. During this phase the research consisted merely of devising simulation games with little concern for formal evaluation.

The second stage of development of simulation games in social science education was characterized by attempts at controlled experiments. Most often the experiments took place in the classic research form of method A (traditional approach) compared with method B (game approach) concerning subject matter achievement and attitude change.

The third stage of development of social simulation games is the current trend toward a tempered optimism regarding their effectiveness in the classroom.

There has been some recent research in simulation games. The following are the results of such research.

Zoltman (1968) tested participants who played the Consumer Game. He found that teenagers did better than adults and that there was no significant difference in learning associated with family background. He also showed that learning was affected by differential intensity of participation in the game. That is, the more the student participated, the more he learned.

Farran (1968) discovered that for underachievers there was greater



achievement with simulation games based upon individual competition rather than group competition. There is also evidence that games induce individual skills or traits that are not obtained through conventional teaching methods, e.g., decision making.

Anderson (1970) discovered that students were able to perform decision making skills better via the simulation game method. He also found that the simulation game students learned factual information as effectively as the control group students.

Boocock (1969) found no strong or consistent relationship between performance in a game and academic performance. Thus, the poorest student in the class is as likely as the best student to be the winner. The implication is that games would be especially valuable for the underachiever as the non-verbal or cognitively deprived student.

In summary, the design of simulation games for classroom use in social science education is essentially a phenomenon of the '60's and rather incomplete.

#### Development and Implementation of a Curriculum for Career Exploration

In his presentation of "A Curriculum Approach to Vocational Choice," Baker (1969) points out that:

The Curriculum Approach to Vocational Choice Through Vocational Agriculture is designed to supply students with information and experiences upon which to base their occupational decisions.

1. Introduction to Occupations  
Seventh and eighth grades (boys and girls)
2. Vocational Orientation  
Ninth grade

3. Basic Agri-Business and Industry  
Tenth grade
4. Occupational Specialization (advanced)  
Eleventh and twelfth grades

Curriculum development should be basic to all program planning in occupational education. Paulter (1971) says, "Occupational education refers to a total program of education oriented to the world of work."

Larson (1969) concurs with Paulter and states that:

Curriculum development based on employment needs is the essence of effective payroll education for the youth and adults in today's world. Curriculum development, in the Amendments to the Vocational Education Act of 1963, has been identified as a needed force. The real thrust of building curriculum for vocational instruction is found in analysis of occupations. Requirements of the employers are essential to identifying content for occupational and vocational education. Interpretation of the employer's needs of today for tomorrow's program of vocational education to meet the requirements of the employers is more complex--but highly significant--in today's changing technological civilization.

Swain (1971) is in general agreement with Baker and Larson when he says:

As the individual develops maturity as a person and as a worker, the school should seek to afford him appropriate experiences to achieve objectives in the cognitive, psychomotor, and effective domains--knowing, doing, and feeling progress simultaneously. Development in each domain has been described by stages in a fairly clear sequence, but individuals differ in the timing and manner of progress toward maturity. Each state depends upon the prior ones, and the quality and timing of success in each determines to some extent the individual's success in later stages. The school must arrange curriculum experiences for each student, based on evaluation of his success in prior stages.

The broad field of agriculture, as a total discipline, is very diversified. Before the problem of developing a curriculum 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, (1969) 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 upgrading 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 aforementioned areas of instruction, and a brief description of the instructional program for each is given in Vocational Education and Occupations (1969).

#### 1.01 Agricultural Production

Subject matter and learning activities which are concerned with the principles and processes or involved in the planning for the economic use of facilities, land, water, machinery, chemicals, finance and labor 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 agriculture 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 emphasizes 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 (1969). To obtain a task analysis and job description for each occupation listed in this book, the Dictionary of Occupational Titles (1965) was used.

In making the selection of the appropriate areas for occupational study and curriculum development in vocational agriculture in Oklahoma, Lark (1972) followed the classification and coding system used by the

United States Department of Health, Education and Welfare (1969) and the United States Department of Labor (1965).

The same systems of selection of appropriate areas, classification and coding system, and curriculum development followed in Phase I of the project (Lark, 1972) were continued in Phase II of the project and this study.

The job descriptions and task analysis for each occupation used in this study is included in the Specific Occupational Unit (Appendix A).

The time of implementation of the curriculum for career exploration in vocational agriculture for this study was at the ninth grade level. It is assumed 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 that he is not yet in the transition stage (Lark, 1972). At this stage (the ninth grade) it is probable that the student is considering his capacities of values, as Super (1962) 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.

Because these students have shown an interest in the broad field of agriculture and because an occupation means so much in an individual's life, the development and implementation of a curriculum for career exploration at the ninth grade level seems most appropriate. Hoppock (1967) 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.

### Method of Curriculum Evaluation

In this study the purpose of the curriculum was to lead to certain desired outcomes which were stated in the form of "terminal" and "specific" objectives (Lark, 1972).

Concerning what the learner needs to know about occupations, Hoppock (1967) says that 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.

It was concluded by Larson (1969) that training and education of youth and adults for jobs and of employers for qualified personnel demands more serious consideration be given to the following:

1. Increasing use of analysis as the foundation for vocational curriculums.
2. Codifying and defining terms used.
3. Developing common understandings of effective processes of analysis.
4. Accepting of procedures found functional by other vocational services.

To write the "terminal" and "specific" objectives for the curriculum units on career exploration in keeping with what the learner needs to know about occupations, Lark (1972) considered five basic elements:

(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.

Patton (171) says, "Since the influence of curriculum materials is becoming more important today than ever before, any evaluation of them must be measured with their potential impact."

With the purpose and desired outcome of the curriculum in mind, it is feasible to determine the method of evaluation to use.

Popham (1969) states:

The most defensible criterion by which to judge the adequacy of the curriculum materials, if used as directed, can consistently bring about desired changes in the behavior of the intended learners.

According to Popham (1969), there are four steps in evaluating curriculum. The first step is to construct or select a set of operationally stated instructional objectives which you expect the curriculum materials to accomplish. Secondly, pre-test the degree to which the learners can already perform the behavior of the intended objectives. The third step is to allow the learners to use the curriculum materials as directed by the developer of the materials. The fourth step involves post-testing learners to see whether or not the objectives have been

reached.

Taba (1962) makes the following statements in reference to evaluation of the outcomes of curricula:

Since the curriculum is essentially a plan for helping students to learn, ultimately all evaluation goes back to the criterion of effectiveness of learning.

No one doubts that evaluation serves an important role in the curriculum, teaching, and learning. The way of evaluating what is learned dictates the way in which learning takes place. The scope of evaluation determines what types or levels of learning are emphasized, no matter what the curriculum indicates. Furthermore, no matter what the teacher stresses, the student will selectively address himself to that learning on which he is examined.

First evaluation must be consistent with the objectives of the curriculum.

Evaluation programs should also be as comprehensive in scope as are the objectives of the school.

Another important criterion of evaluation is that its results be sufficiently diagnostic to distinguish various levels of performance or mastery attained and describe the strengths and weaknesses in the processes as well as in the product performance.

Finally, it should be pointed out the evaluation should be a continuous process and an integral part of curriculum development and of instruction.

Evaluation has been widely acclaimed as essential to the improvement of the instructional process. Popham and Baker (1970) stress that the performance of the student can accurately reflect the performance of the instructor. They advocated criterion-referred tests (designed to measure the objectives taught) as the most desirable gauge. Generally, student behaviors have been sampled to determine if the requisite behavioral change has occurred.

To use this method of evaluation a controlled experimental design was chosen to carry out the evaluation study of the curriculum objectives. The Randomized Control-Group Pre-Test--Post-Test Design as



described in Van Dalen (1966) was used.

In this study the analysis of variance was used as the statistical analysis for evaluation of the gain in test scores made by the students.

According to Popham (1967):

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.

The teaching of occupations appears to be justified by the research to date, but many of them have to be revised if future evidence contradicts rather than confirms the studies. From the research which Hoppock (1967) has found to date, the following inferences appear to be reasonable:

Courses in occupations measurably increased the subsequent job satisfaction and earning power of the students who went to college.

Courses in occupations reduced unemployment among both graduates and dropouts.

Courses in occupations measurably increased the range of occupations in which students were interested and their interest in specific occupations.

Courses in occupations increased the ability of students to answer questions about occupations as little as 0 and by as much as 217 percent.

Courses in occupations, with emphasis upon local opportunities for employment, brought occupational choices into closer harmony with employment opportunity but failed to bring them into closer harmony with measured abilities. Psychological testing plus individual counseling brought occupational choices into closer harmony with the measured abilities of the students but failed to bring them into closer harmony with employment opportunity.

Courses in occupations plus individual counseling produced better results than either one alone.

Courses in occupations increased the demand for individual counseling.

Separate courses in occupational information, which met five times a week for one semester, were measurably more effective than homeroom programs or English courses as mediums for the presentation of occupational information.

Students in different institutions found courses in occupations both more and less interesting and useful than other subjects.

More high school principals were satisfied with the results of courses in occupations than were satisfied with occupational units in other courses.

With college freshmen, plant tours were more effective than occupational films.

With high school students, speakers and visitations were more effective than pamphlets and films.

Preliminary group sessions facilitated subsequent counseling.

Small-group meetings were as effective as individual counseling and more economical.

One day spent in observing a worker in the student's preferred occupation, and two weeks of work experience in the preferred job, both led to changes in expressed occupational goals.

Intensive instruction in how to find a job produced quick results.

Turnover among new employees was reduced by improving the accuracy of the job description given to applicants for employment.

### Summary

Vocational development is a process that may be summed up in a series of life stages characterized as those of growth, exploration, establishment, maintenance, and decline; and those stages may in turn be subdivided into (a) the fantasy, tentative, and realistic phases of the exploration stage and (b) the trial and stable phases of the establishment stage. In this study the tentative stage (between 11 and 17 years)

of vocational 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 theories of occupational choice, although taking different approaches, primarily agree that the attributes of the individual and the influences of occupations are joined through the matching, need satisfaction, compromise, and coping actions of the choice process to result in the individual's occupational career. The concept of choice was generally agreed to be a series of compromise choices or inter-related decisions taking place during the individual's life.

It seems that although a decision may seem discrete it is really only a step in a series of previously-made decisions. It is influenced by multiple factors include (1) personal variables such as aptitudes, interests, sex, age, physical strength, and personal history; (2) social and cultural factors, which operate on an impersonal basis, including social values and other norms, job requirements, and employment opportunities; (3) interpersonal relationships received by the decision-maker; and (4) the relevance of the decision-maker's reference groups.

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.

The appropriate areas for occupational study in vocational agriculture have been identified as agricultural production, agricultural supplies/services, agricultural mechanics, agricultural products

(processing, inspection, and marketing and services), agricultural resources (conservation, utilization, and services), forestry (production, processing, management, marketing, and services), and ornamental horticulture.

The time of implementation of the curriculum for career exploration in vocational agriculture for the study was at the ninth grade level. It is assumed that the student who has enrolled in vocational agriculture for the ninth grade has already shown an interest in the broad field of agriculture. Vocational maturity in ninth grade boys, as evaluated inter-correlations among measures, is primarily oriented to the need to make educational and vocational choices.

Since the influence of curriculum materials is becoming more important today than every before, any evaluation of them must be measured with their potential impact.

The most defensible criterion by which to judge the adequacy of the curriculum materials is the degree to which those materials, if used as directed, can consistently bring about desired changes in the behavior of the intended learner.

There are at least four steps in evaluating a curriculum. The first step is to construct a set of operationally stated instructional objectives which you expect the curriculum materials to accomplish. Secondly, pre-test the degree to which the learner can already perform the behavior of the objectives. The third step is to permit the learner to use the curriculum materials as directed by the developer of the materials. The fourth step involves post-testing the learner to see whether or not the objectives have been reached.

## CHAPTER III

### PROCEDURE AND DESIGN

The purpose of this study was to implement the Curriculum for Career Exploration in Agriculture that was developed and pilot tested during Phase I of this project and to evaluate its effectiveness in aiding students to explore the current occupations available and developing in agriculture.

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

1. Review of the pilot curriculum units and audio-visual aids that were developed during Phase I of the project with the curriculum specialist and teachers.
2. Identify the occupational clusters available in the broad field of agriculture and a representative occupation within each cluster.
3. Develop a curriculum unit on general agricultural careers.
4. Develop curriculum units on general occupational clusters.
5. Develop a curriculum unit and audio-visual aid for the representative occupation.
6. Develop a unit on self-discovery.
7. Develop a unit on decision making.
8. Select teachers in cooperation with district supervisors of vocational agriculture.

9. Review proposed units with curriculum specialists and teachers prior to teaching time.
10. Pre-test students using the general test made up of selected representative questions from all units.
11. Have vocational agriculture teachers teach the units.
12. Post-test students using the general test made up of selected representative questions from all units.
13. Review units with teachers, curriculum specialists, and consultant after units are taught.
14. Identify students according to ethnic group, parental income, and other handicaps.
15. Determine appropriate statistical technique to analyze pre- and post-test results.

#### Identification of Clusters and

#### Selection of Occupations

The United States Office of Education has divided agriculture into seven instructional areas. Vocational Education Occupations (1969) contains 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 upgrading in occupations requiring knowledge and skills in agricultural subjects. The functions of agricultural production, agricultural products (processing), and the services related thereto, are emphasized in the instruction designed to provide pupils to prepare for or improve competencies in agricultural occupations.

The occupations selected from the field of agriculture for this study were selected because (1) they represented one of the seven areas of instruction in agriculture listed in the Vocational Education and

Occupations (1969), (2) there was a high demand for employees in the occupations in Oklahoma, and (3) they were recommended as being representative of the occupations in that field by authorities in the field.

The areas of instruction for vocational agriculture as listed in Vocational Education and Occupations (1969) are as follow:

1. Agricultural Production
2. Agricultural Supplies/Services
3. Agricultural Mechanics
4. Agricultural Products (processing, inspecting 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. (Lark, 1972)

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	2,674*
	Sales Driver	232*

<u>Instructional Area</u>	<u>Occupation</u>	<u>Demand</u>
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
	Groundkeeper	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.

This lack of demand data in Oklahoma and the similarity of occupations in forestry and agricultural resources necessitated the combining of these two areas (Lark, 1972). All of these occupations listed for each area of instruction were listed according to the Dictionary of Occupational Titles (1965) numbering system and the job description of each.

The curriculum for career exploration in agriculture was constructed around the occupational opportunities available in the fields of (1) agricultural production, (2) agricultural supplies and services, (3) agricultural products, (4) agricultural mechanics, (5) ornamental horticulture, and (6) agricultural resources and forestry (Lark, 1972).

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



Using the counsel of the supervisors, the vocational agriculture teachers, 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. Also, units of instruction were developed to give an overall view of agricultural careers and the occupational cluster by utilizing selected reference material from the Dictionary of Occupational Titles (1965), Vocational Education Occupations (1969), and the Occupational Training Information System (OTIS).

Curriculum units for each area of instruction were developed. Representative samples of these are included in Appendixes A and B. An audio-visual aid 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 Objective
3. Information Sheets
4. Test
5. Answers to Test

Simultaneously with the development of each unit of instruction for the representative occupations, 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 (Lark, 1972). These were as follow:

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 of the characteristics desired. The methods selected were black and white video tape and a 35 mm slide series with a tape recorder 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.

On the basis of the research findings reported by Campbell (1971), it is recommended that:

(1) efforts by colleges of agriculture to video-tape learning activities for students be expanded. Students enrolled in agriculture science perform as well when taught by use of videotaped instruction as they do when taught by means of live instruction. Videotaped instruction offers an effective means of supporting the competent teacher in the classroom.

(2) the videotaping of selected subject matter presentations for replay should incorporate sufficient variety in choice of method of instruction.

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 (Lark, 1972):

<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 Department 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 the Instructional

##### Units on Self-Discovery and

##### Decision Making

In addition to the set of units on orientation to agricultural occupations, a self-discovery unit to help the students assess their own characteristics in relation to the occupations was constructed. This unit was built around self-assessment instruments, standardized tests such as the General Aptitude Test Battery (GATB), and direct questioning techniques. This also stressed attitudes toward work and human relations.

An additional unit was designed around the concept of career choice as a decision making process. The unit was developed to assist the student in following the steps in decision making and becoming aware of the factors which influence the decision making process. The unit provided an opportunity for the student to study such factors as (1) personality variables such as aptitudes, interests, age, and personal history; (2) social and cultural factors, job requirements, and employment opportunities; and (3) the relevance of the decision-maker's reference group. Super's Career Pattern Study (1967) and Boocock's "Instructional Games" (1969) were used as a basis for this unit.

After these two units were developed, Mr. Stan Hodges was assigned the task of editing. These units did not have audio-visual aids used to assist the teacher. These units contained the following:

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

It was felt that the unit on self-discovery should be taught to all of the students in the experimental group prior to the teaching of the general and specific agricultural occupation units. It was further recommended that the unit on decision making should be taught to all of the students in the experimental group after all the other units had been taught.

#### Selection of Teachers

Selection of the appropriate teachers to test the 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 select schools in their supervisory districts. The supervisors from the Northwest, Southwest, and Southeast Districts were asked to name two schools in their supervisory districts. The Central District supervisors were asked to name four schools because Oklahoma City is located in the Central District and has several departments within the metropolitan area. The Northeast District supervisor was asked to name six schools in his district in order to get a more uniform distribution of ethnic and less-advantaged students. Some of the supervisors recommended several schools where they felt the teachers would be interested in

teaching these units. In districts where the supervisors suggested more than the desired number of schools, the schools were randomly selected. After two schools from each district (except the Central, where four, and the Northeast, where six, were identified) were selected, each was randomly assigned to a control or an experimental group. Thus, there were 16 schools identified state-wide, with 8 being experimental schools and 8 being control schools.

The schools and their assigned groups were as follow:

<u>Code</u>	<u>School</u>	<u>Assigned Group</u>
11	Blackwell	Experimental
21	Alva	Control
12	Anadarko	Experimental
22	Purcell	Control
13	Moore	Experimental
23	Midwest City (Carl Albert)	Control
14	Owasso	Experimental
24	Broken Arrow	Control
15	Hugo	Experimental
25	Idabel	Control
16	El Reno	Experimental
26	Edmond	Control
17	Stilwell	Experimental
27	Okmulgee	Control
18	Sand Springs (Carl Boyd)	Experimental
28	Sand Springs (Central)	Control

## Review of Proposed Units With Curriculum

### Specialists and Teachers

After the first unit (agricultural 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.

The pilot study conducted by Lark (1972) during Phase I of this project indicated that the students who were taught the career development units showed a significant increase in knowledge of the occupations when compared to the students in the control schools taught the regular agriculture units.

Based on this pilot information, additional units were developed making up the career development program carried out during Phase II of the project and this study.

The schools in the control group did not receive any units of instruction. The schools in the experimental group received all of the units in the career development program.

## Review of the Curriculum Units With

### Specialists and Teachers After

### Teaching Was Completed

After the teachers from the experimental schools had completed

teaching the units of curriculum for the pilot study, 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 (Lark, 1972). Dr. Scarborough's report and recommendations are included in Appendix C.

#### Pre-Post Test Development

To evaluate the effectiveness of the career development curriculum, a general test was developed from selected representative questions from each of the unit tests making up the curriculum for Career Exploration. The selection of the questions was made by the research team and curriculum specialist. The basis for the selection of the questions that made up the pre-post test were the questions considered most effective in measuring the degree of achievement exhibited by the student in his ability to:

1. Identify the occupational clusters available in the broad field of agriculture.
2. Locate specific occupations which might match their abilities and interest within these clusters.
3. Identify specific employment requirements for these occupations.
4. Identify the benefits available through employment in these occupations.
5. Evaluate their own strengths and weaknesses in relation to those occupations with the aid of the instructors and self-assessment instruments.
6. Identify the means of securing employment in these occupations.



such as cooperative work-study programs, federal and state employment service, and other personal actions to secure employment.

7. Make a tentative career development plan.

The same general test was used for the pre-test and for the post-test.

#### Pre-Test Students

Students at both the control and experimental schools were pre-tested. In keeping with the recommendations of Lark (1972), a representative from the Department of Agricultural Education gave the pre-test at each school. The pre-tests were given during the period from August 31 to September 21, 1972.

#### 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 control group were to follow these steps:

1. Start with the self-discovery unit followed by the general and specific agricultural occupation units and complete the series by teaching the decision making unit.
2. Review the objectives of the unit with the students.
3. Have student study information sheets and complete assignment sheets.
4. Discuss information and assignment sheets.
5. Utilize audio-visual aids, field trips, or other methods of learning about the occupations.

6. Discuss occupations.

7. Give post-test on each unit.

The teaching of these units was carried out during the fall semester of 1972-73 school year. This amount of time was allotted to facilitate the normal and extra-curricular activities that had to be carried out in each school. By following this type of schedule, the instructor was able to have flexibility as to when he taught the units during the fall semester. However, all units were taught by December 15, 1972. This time frame was followed to add uniformity to the pre-test, post-test, and teaching schedule.

#### Post-Testing Students

A post-test schedule was worked out with all of the schools individually. This was in keeping with their normal and extra-curricular activities and the time frame that had been set. A representative from the Department of Agricultural Education gave the post-test at each school. The post-tests were given during the period from November 3, 1972, to December 20, 1972.

#### Identification of Students According to Ethnic Group, Parental Income, and Less-Advantaged

Ethnic background and socio-economic class of students, it is thought, have become significant factors in a student's achievement in school. These two factors were identified for each of the students participating in the project. Students were classified either as Caucasian or as belonging to a minority group. A student was classified

as belonging to a minority group if he were an Indian, Negro, or Mexican-American. Parents' 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 student was further classified as less-advantaged if he was economically disadvantaged or mentally or physically handicapped.

The students who were neither economically disadvantaged nor mentally or physically handicapped were classified as advantaged.

Given these guidelines, the vocational agriculture teacher made the decision as to the student's being classified as advantaged or less-advantaged.

### Statistical Analysis

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

Popham (1967) 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 variance of the separate groups being tested for mean differences. The scores of all subjects in the sub-groups 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 larger to be statistically significant, the null hypothesis is considered untenable and the researcher concludes that the significant difference between the two means of the two or more of his subgroups exist.

## CHAPTER IV

### PRESENTATION AND ANALYSIS OF DATA

As stated in the hypotheses, this study is concerned with differences between gains in scores made by students taught using the curriculum for career exploration and those made by the students taught using the normal 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 stated by Popham (1967), "When a researcher uses the analysis of variance statistical model he is primarily interested in mean differences rather than variance difference."

It was possible to eliminate the additional variables of the minority ethnic groups, the less-advantaged students and establish a statistically correct design by randomly selecting only Caucasian advantaged students from the control and experimental schools with the following code numbers: 11, 21, 12, 22, 13, 23, 14, 24, 16, 26, 18, and 28. These schools had only a few less-advantaged and/or minority students and this selection process gave equal samples and eliminated the additional variables. As a cross check, an analysis of variance was run including all students from these schools to see if the entire group results would match the randomly selected groups.

Schools 15, 25, 17, and 27 were treated as case studies since they

were the only schools with large numbers of less-advantaged and/or minority students. No statistical comparison was made due to the small number of students in certain categories and the great difference in types of students at the four schools. Descriptive statistics only were given for these four schools as no inferences could be made.

The randomized block design using the 12 schools with the code numbers of 11, 21, 12, 22, 13, 23, 14, 24, 16, 26, 18, and 28 was set up for statistically testing the treatment. In order to equalize the number of students among the 12 schools, the school with the smallest number of students was determined. It had seven students. From the other 11 schools seven students were randomly selected for the statistical comparison.

The curriculum for career exploration was taught in all six experimental schools. The difference between the gain in scores made by the students taught using the curriculum for career exploration and those students taught using the normal curriculum is shown in Table I.

TABLE I  
MEAN GAIN DIFFERENCE OF SCORES BETWEEN EXPERIMENTAL  
AND CONTROL GROUPS OF STUDENTS TAUGHT USING  
THE CURRICULUM FOR CAREER EXPLORATION

Experimental Schools		Control Schools		Mean Gain Difference
Number	Mean Gain	Number	Mean Gain	
42	23.40	42	4.86	18.55

In Table I the researcher computed the mean gain difference in scores made by students from the experimental and control schools. Noted in this table is a mean gain difference of 18.55 between the students in the experimental and control schools. This would indicate that the experimental group of students responded to the treatment and that the curriculum for career exploration was effective.

By using the Statistical Analysis System (S.A.S.) and the computer, the between mean squares and the within mean squares were determined. According to Popham (1967):

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 subgroups exists.

School gain, experimental schools versus control schools, was used as the between mean square. Area 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 II shows the results derived from the analysis of variance for variable gain between the experimental and control schools. The F value of 20.24 indicates that there was a statistically significant difference between the gain of scores made by students in the experimental group and the students in the control group. The analysis of variance (F value) shows to be significant at the .007 level. Therefore, hypothesis 1 was rejected.

TABLE II  
ANALYSIS OF VARIANCE FOR VARIABLE GAIN BETWEEN  
EXPERIMENTAL AND CONTROL GROUPS OF STUDENTS  
TAUGHT USING THE CURRICULUM FOR  
CAREER EXPLORATION

Tests	Source of Variation	Degrees of Freedom	Squares	Mean Square
Numerator:	Between Groups (Treatment)	1	7224.30	7234.30
Denominator:	Within Groups (Area * Treatment)	5	1784.49	356.90

F Value = 22.24\*

Probability F > 0.007

THEREFORE  $H_{01}$  REJECTED.

When the students were identified according to the four ethnic groups, the advantaged group, the economically disadvantaged group, and the less-advantaged group, it was found that there were insufficient numbers for statistical comparison. Therefore, hypotheses 2 and 3 were not statistically tested.

However, by combining three of the minority ethnic groups into one group and the economically disadvantaged and the less-advantaged into one social group, it was possible to obtain some descriptive information. The descriptive information was concerned with the treatment (experimental and control), two ethnic groups (Caucasian and the minority ethnic group), and two social groups (advantaged and less-advantaged).



The schools with codes 15, 25, 17, and 27 were used to obtain this descriptive information because they were the only schools with sufficient numbers of the social and ethnic categories.

In Table III the mean gain difference of scores was computed between the experimental and control groups for Career Exploration by ethnic and social categories in schools 15 and 25. It is noted that there are 10 experimental Caucasian advantaged students and 16 control Caucasian advantaged students with a mean gain difference of 43.95. The 15 control Caucasian less-advantaged students and the 4 experimental Caucasian control students had a mean gain difference of 31.83. It should be noted that there were no minority advantaged students in the experimental group; therefore, no mean gain difference is shown for this group. The three experimental minority less-advantaged students had a mean gain difference of 34.33. It is further shown in Table III that when all categories were combined the 28 experimental groups of students had a mean gain difference of 36.06. This mean gain difference in this table points out the possible effect of the social category upon treatment, as shown in the similarity of the mean gain difference made by the Caucasian less-advantaged and the minority less-advantaged student when compared to the Caucasian advantaged student mean gain difference and the mean gain difference of all categories combined.

It should be noted in Table III that different numbers in the different categories might affect the reported mean gain differences. This was especially true of the minority advantaged category, which was not represented in the experimental group. It was these differences in categories which eliminated statistical comparison. Perhaps noteworthy in this table is the higher mean difference between the advantaged and

the less advantaged categories; however, one advantaged category is not represented.

TABLE III  
MEAN GAIN DIFFERENCE OF SCORES BETWEEN EXPERIMENTAL  
AND CONTROL GROUPS OF STUDENTS, TAUGHT USING  
THE CURRICULUM FOR CAREER EXPLORATION, BY  
ETHNIC AND SOCIAL CATEGORIES IN  
SCHOOLS 15 AND 25

Ethnic	Social	Number	Mean Gain	Mean Gain Difference
<u>Experimental School 15</u>				
Caucasian	Advantaged	10	53.70	43.95
Caucasian	Less-Advantaged	15	40.33	31.83
Minority	Advantaged	0	0.00	0.00
Minority	Less-Advantaged	3	41.33	34.33
All Categories Combined		28	45.21	36.06
<u>Control School 25</u>				
Caucasian	Advantaged	16	9.75	
Caucasian	Less-Advantaged	4	8.50	
Minority	Advantaged	1	13.00	
Minority	Less-Advantaged	5	7.00	
All Categories Combined		26	9.15	

Table IV shows the mean gain difference of scores between the experimental and control groups of students, taught using the curriculum for career exploration, by ethnic and social categories in schools 17 and 27. In this table it is noted that a greater number of ethnic students were represented. It is shown that there were 22 Caucasian advantaged students in the experimental school and 23 Caucasian advantaged students in the control school, with a mean gain difference of 17.75. There were four Caucasian less-advantaged students in the control school with a mean gain difference of 12.50. It is further noted that there were six minority advantaged students in the experimental school and seven minority advantaged students in the control school with a mean gain difference of 22.71. Also, there were 14 minority less-advantaged students in the experimental school and 4 minority less-advantaged students in the control school with a mean gain difference of 13.32. The 49 students in the all categories combined experimental school and the 38 students in the all categories combined control school show a mean gain difference of 15.43. This mean gain difference would indicate the possibility that the ethnic category has less effect upon treatment than does the social category. This can be noted when comparing mean gain difference of the Caucasian and minority advantaged groups to the mean gain difference of the Caucasian and minority less-advantaged groups.

It can be noted in a comparison between Table III and Table IV that there was considerable difference between mean gain difference for schools 15 and 25 and for schools 17 and 27. This prevented combining ethnic and social categories of the two sets of schools to make larger numbers in categories. However, as can be seen from the following tables, relative differences among categories in the two schools were almost alike.

TABLE IV  
MEAN GAIN DIFFERENCE OF SCORES BETWEEN EXPERIMENTAL  
AND CONTROL GROUPS OF STUDENTS, TAUGHT USING  
THE CURRICULUM FOR CAREER EXPLORATION, BY  
ETHNIC AND SOCIAL CATEGORIES IN  
SCHOOLS 17 AND 27

Ethnic	Social	Number	Mean Gain	Mean Gain Difference
<u>Experimental School 17</u>				
Caucasian	Advantaged	22	22.23	17.75
Caucasian	Less-Advantaged	7	15.00	12.50
Minority	Advantaged	6	24.00	22.71
Minority	Less-Advantaged	14	12.07	13.32
All Categories Combined		49	18.57	15.43
<u>Control School 27</u>				
Caucasian	Advantaged	23	4.48	
Caucasian	Less-Advantaged	4	2.50	
Minority	Advantaged	7	1.29	
Minority	Less-Advantaged	4	-1.25	
All Categories Combined		38	3.08	

In Table V the mean gain difference between the social categories, advantaged and less-advantaged, disregarding the ethnic categories, is shown for experimental schools 15 and 17. It is evidenced in this table

that the advantaged groups in both schools had a greater mean gain than did the less-advantaged groups. The mean gain difference of 13.20 in school 15 and 9.56 in school 17 would indicate that the social category did have an effect upon treatment.

TABLE V  
MEAN GAIN DIFFERENCE OF SCORES BETWEEN ADVANTAGED  
AND LESS-ADVANTAGED STUDENTS, TAUGHT USING THE  
CURRICULUM FOR CAREER EXPLORATION IN  
EXPERIMENTAL SCHOOLS, DISREGARDING  
ETHNIC CATEGORY

Advantaged			Less-Advantaged			
School	Number	Mean Gain	School	Number	Mean Gain	Mean Gain Difference
15	10	53.70	15	18	40.50	13.20
17	28	22.61	17	21	13.05	9.55

The mean gain difference shown in Table VI indicates the effect of the ethnic category upon treatment for both school 15 and 17. It is noted here that there is a mean gain difference of 4.35 and 4.83; however, this difference would seem relatively small as compared to Table V as a result of the effect of the social category upon treatment.

TABLE VI  
 MEAN GAIN DIFFERENCE OF SCORES BETWEEN CAUCASIAN  
 AND MINORITY ETHNIC STUDENTS, TAUGHT USING  
 THE CURRICULUM FOR CAREER EXPLORATION  
 IN EXPERIMENTAL SCHOOLS, DIS-  
 REGARDING SOCIAL CATEGORY

Caucasian			Minority Ethnic			Mean Gain Difference
School	Number	Mean Gain	School	Number	Mean Gain	
15	25	45.68	15	3	41.33	4.34
17	29	20.48	17	20	15.65	4.83

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary

The purpose of this study was to implement the curriculum for career exploration in agriculture that was developed during Phase I of this research project and to evaluate its effectiveness in aiding students to explore the current occupations available and developing in agriculture.

The career development curriculum was designed and developed to increase the awareness of agriculture youth to career opportunities, to their own abilities, interests, and other characteristics in relation to careers and to the decision making process leading to the choice of a career.

In order to accomplish the implementation and evaluation objectives, a comparison was made of the differences in the achievement:

1. Between rural youth participating in the career development program and those participating in the conventional school program.
2. Between the advantaged and the less-advantaged rural youth within each of the programs.
3. Among rural youth of different ethnic backgrounds within each of the programs.

A pre-test was given to the ninth grade students of eight vocational agriculture departments in Oklahoma. The teachers in the eight experimental schools then taught the experimental curriculum units. Following completion of the teaching of the curriculum units a post-test was given to the students. During this same period the same pre-tests and post-tests were given to the students in eight similar vocational agriculture departments in Oklahoma where the test curriculum was not taught. The post-tests were given approximately four months after the pre-test.

Schools for this project were selected by the district supervisors of vocational agriculture. The major 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 16 schools for the study. One school in each of the three districts--Northwest, Southwest, and Southeast--was assigned to the experimental group and one in each district to the control group. In the Central District two schools were assigned to the experimental group and two schools to the control group. In the Northeast District three schools were assigned to the experimental groups and three were assigned to the control group. Thus, there were eight experimental schools and eight control schools.

The field of agriculture was divided into the six appropriate areas of Agricultural Production, Agricultural Supplies/Services, Agricultural Mechanics, Agricultural Resources and Forestry, Agricultural Products, and Ornamental Horticulture. Occupations for each of these areas were identified and the job descriptions were obtained from the Dictionary of



Occupational Titles (1965). 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.

Also, general units of instruction were developed to give an overall view of agricultural careers and the occupational clusters by utilizing selected reference material from the Dictionary of Occupational Titles (1965), Vocational Education Occupations (1969), and the Occupational Training Information System (OTIS).

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.

In addition to the set of curriculum units on orientation to agricultural occupations, a unit to help students assess their own characteristics in relation to the occupations was constructed and named Self-Discovery. Representative samples of these curriculum units are included in Appendixes A and B.

An additional unit was designed around the concept of career choice, a decision making process, and named Decision Making. These units did not have audio-visual aids used to assist the teachers.

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. All units used in the study are filed with the Department of Agricultural Education of the Oklahoma State University.

Before the teachers began teaching the units a suggested order of activities was discussed with each to help standardize the teaching.

In keeping with Lark's (1972) suggestions, a representative of the agricultural education department gave the pre- and post-test to students at each of the 16 schools. The teachers at each of the eight experimental schools taught the career development curriculum, after which the post-test was given to all students at all 16 schools. The post-test was given approximately four months 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 gain in scores made by students taught using the curriculum for career exploration and those students taught using the normal curriculum.
2. There were insufficient numbers of students identified according to advantaged, economically disadvantaged, and less-advantaged for statistical comparison.
3. There were insufficient numbers of students identified according to ethnic backgrounds for statistical comparison.

When the students were identified according to the four ethnic groups, the advantaged group, the economically disadvantaged group, and the less-advantaged group, it was found that there were insufficient numbers for statistical comparison. However, by combining three of the minority ethnic groups into one group and the economically disadvantaged and the less-advantaged group into one social group it was possible to obtain some descriptive information.

Schools 15, 25, 17, and 27 were used to obtain this descriptive

data as they were the only schools with sufficient numbers in the social and ethnic categories. The mean gain differences of scores between experimental and control groups of students, taught using the curriculum for career exploration, by ethnic and social categories were calculated. The greater mean difference was made by the Caucasian advantaged and minority advantaged groups, with the lower mean gain difference made by the Caucasian less-advantaged and the minority less-advantaged students in both sets of schools. This would indicate that the social categories of advantaged and less-advantaged have more effect upon treatment than does the ethnic categories. This was further evidenced in Tables V and VI where the social and ethnic categories were viewed separately.

The extremely small numbers in some categories and the omission of one category in one school must be taken into consideration in interpreting the mean difference. The small numbers in missing cells were the factors which prevented statistical comparison.

### Conclusions

From the statistical and descriptive analysis, review of the curriculum with curriculum specialists, teachers, and students, and the experiences of the researcher, the following conclusions were made about the study:

1. The career exploration curriculum units as taught did increase the students' knowledge about the information for which they were tested as evidenced by significant differences between mean gain for pre- and post-test scores.
2. The control schools reinforced the conclusion that teaching the career exploration curriculum units did result in an increase of knowledge

when the control schools taught their normal curriculum. This is evidenced by the significant difference in mean gain between students in the control and experimental schools.

3. It was concluded that not enough students represented the minority ethnic groups or the less-advantaged groups to make a reliable statistical analysis of hypotheses numbered 2 and 3. However, descriptive data computed and analyzed revealed that the less-advantaged were unable to achieve as well as the advantaged in either the Caucasian or minority ethnic groups. It was further revealed that there was little difference in achievement between Caucasian and the minority ethnic groups in either of the social categories. Thus it would appear that students in the less-advantaged social category of any ethnic group could not achieve as well with this curriculum as could the advantaged.

4. Based on the responses of the teachers and students and the recommendations of the consultant, it was concluded that greater interest could be created in the curriculum units through the use of cartoons or a similar interest approach.

5. Based on the responses of the teacher and the recommendations of the consultant it was concluded that the reading level of the units should be kept as low as possible but that common terminology dealing with careers be included to acquaint the students with career terminology.

6. The reactions of the teachers, students, and the consultant led to the conclusion that video taping is an adequate method for bringing occupational information to the classroom.

7. The general units of instruction as taught did increase the students' knowledge and ability in utilizing selected reference material

on agricultural careers.

8. The six specific occupational units as taught did increase the students' knowledge about the information for which they were tested.

9. The self-discovery and decision making units as taught did increase the students' knowledge about the information for which they were tested.

10. Based on the pre- and post-testing done for comparison purposes and the unit testing done at the end of each unit, it was concluded that the students did achieve the performance objectives listed.

#### Recommendations

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

1. Phase II of this project showed that the units of curriculum taught by this method produced significant differences in mean gain between experimental and control schools. Therefore, it is recommended that the project be continued through Phase III on a broader base including the development of more specific occupational units, refinement of general occupational units, and inclusion of more gaming techniques.

2. A limited number of students from minority ethnic groups and the less-advantaged were included in this study. To determine if these variables have a significant effect on the attainment of curriculum objectives it is recommended that a larger proportion of these groups be included in Phase III of the project.

3. Representatives of the Agricultural Education staff who gave the pre-test created a certain atmosphere which could be a variable.

Therefore, it is recommended that a representative from the Agricultural Education Department give both the pre- and post-test at all schools included in the project for Phase III.

4. Other variables which could have a direct bearing on the accomplishment of the curriculum objectives are mental ability and class attendance of students and years of teaching experience of the teacher. It is therefore recommended that these variables be included in future studies.

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 III or some future studies 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 expanded and made available through the State Department of Vocational-Technical Education Curriculum Division of Oklahoma.

7. It is recommended that the library for 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-type drawings be made in all curriculum units where appropriate to help stimulate the students' interest.

9. It is recommended that the language level on all curriculum units be made as low as possible for ninth grade students, while keeping the basic terminology dealing with careers intact.

10. It is recommended that the general units on careers in agriculture be revised and put into two units.

11. It is recommended that the career development curriculum be made available to students in the seventh and eighth grades.

12. Responses of teachers, students, and the consultant led to the conclusion that video taping is an adequate method for bringing occupational information to the classroom. However, it is recommended that they be kept to a maximum of 15 minutes. It is further recommended that the use of this audio-visual aid for future units be continued.

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## APPENDIXES

## APPENDIX A

Agricultural Careers  
General Occupational Cluster or Field  
Agricultural Supplies/Services

Unit II

Terminal Objectives

After completing this unit of instruction, the student should be aware of the different career opportunities and various occupational choices available to him within the general cluster of agricultural supplies and services. He should be able to identify several of the specific occupations, methods by which a high school student could enter the field of agricultural supplies and services, and determine if he has an interest in pursuing a career in the general area of agricultural supplies and services. This knowledge will be evidenced by completing assignment sheets and scoring 85 percent on the post test.

Specific Objectives

After completing \_\_\_\_\_ hours of instruction, the student should be able to:

1. Match terms associated with career and occupations within agricultural supplies and services to correct definitions.
2. Discuss in a short paragraph ways to enter agricultural supplies and services as an occupation.
3. Determine the net demand for the occupations within the agricultural supplies and services cluster or field from the OTIS Report.
4. Discuss in a short paragraph the education and experiences needed for agricultural supplies and services occupation.
5. List three specific occupational clusters available within the general occupational cluster of agricultural supplies and services.
6. Match the definition of the instructional program with the correct general and/or specific agricultural supplies and services occupational cluster.
7. List one specific occupation in each general and/or specific agricultural supplies and services occupational cluster when given the cluster.

Agricultural Careers  
General Occupational Cluster of Field  
Agricultural Supplies/Services

Unit II

Suggested Activities

Instructor:

1. Provide student with objective sheets, information sheets, and assignment sheets.
2. Discuss terminal and specific objectives with students.
3. Discuss information sheets and assignment sheets with students.
4. Give test.

Student:

1. Discuss objectives with instructor.
2. Study information sheets
3. Complete assignment sheets.
4. Take test.

Instructional Materials

Included in this unit:

1. Objective sheet
2. Information sheets
3. Assignment sheets

Additional materials:

1. "Summarized Information on Vocational Occupations in Agri-Business and Natural Resources."
2. OTIS (Occupational Training Information Service) Department of Vocational and Technical Education, Stillwater, Oklahoma.
3. Hoover, Norman K. D.Ed. Handbook of Agricultural Occupations. Danville, Illinois: The Interstate Printers & Publishers, Inc., 1969.



Agricultural Careers  
General Occupational Cluster or Field  
Agricultural Supplies/Services

Unit II

Information Sheet

I. Terms and definitions

- A. Agricultural supplies and services occupations are those occupations involved in providing consumable supplies used in the production phase of agriculture, including processing, marketing, consulting, and other services.

II. Two ways to enter agricultural supplies and services as an occupation

- A. Self-employed in agricultural supplies and services - To enter as a self-employed person, one would have to have sufficient capital and credit to acquire the business location and inventory. You may begin by working in a supply and service business while still in school, thereby getting experience and perhaps some stock in the business. If this opportunity is not available to you, you will have to obtain the capital in some other way.
- B. Paid employees in agricultural supplies and services - If you decide to enter agriculture supplies and services as a paid employee, the opportunities for you may be to follow an apprentice type approach. This type of an approach could start while you are still in school as a student in vocational agriculture and by working as an employee in an agricultural supply and service business.

III. Based upon Jesse Mitchell's study and the Occupational Training Information System; Cycle Four Report (OTIS Report), the total demand is 294 less the supply of 108, leaving a net demand of 186 for 1972 for all the occupations within the agricultural supplies and services cluster or field. (Note: The instructor should refer to Jesse Mitchell's study and the OTIS Report for additional information concerning the numbers of employees needed in each occupation. If copies of these studies are needed, please write the Curriculum and Instructional Materials Center.)

IV. The student will find considerable skill, experience, and education are required in performing some agricultural supplies and services jobs; others can be done with limited training. The student, however, should be interested in farm and ranch work, should have a general knowledge of farming and ranching, and should be interested in meeting the public, and have some business management ability. Desirable training includes a farm or ranch background,

high school vocational agriculture, and some study in the particular type of work involved in the specific occupation within agriculture supplies and services.

- V. The specific occupational clusters making up the general agricultural supplies and services cluster of occupations as also found in the Vocational Education and Occupations publication are as follow:

A. Agricultural Chemicals	O.E. 01.0201
B. Feeds	O.E. 01.0202
C. Seeds	O.E. 01.0203
D. Fertilizers	O.E. 01.0204
E. Others	O.E. 01.0299

(Note: See the information sheet supplement.)

- VI. The definitions of the instructional programs  
(See information sheet supplement.)

- VII. The specific occupations within the agricultural supplies and services cluster. (See information sheet supplement.)

Agricultural Careers  
General Occupational Cluster or Field  
Agricultural Supplies/Services

Unit II

Information Sheet Supplement

INSTRUCTIONAL PROGRAM AND OCCUPATION

O.E. 01.02     Agricultural Supplies/Services

Subject matter and 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.

Specific occupations within "Agricultural Supplies/Services" are as follow:

DOT 049.384-010	Biological Aid
DOT 096.128-014	County Agricultural Agent
DOT 180.168-014	Artificial-Breeding Distributor
DOT 187.168-018	Director, Agricultural Labor Camp
DOT 096.128-	Four-H Club Agent
DOT 467.384-014	Artificial-Breeding Technician
DOT 467.384-010	Artificial Inseminator
DOT 421.384-010	Agricultural Aid
DOT 421.883-010	Farm Hand, General
DOT 469.158-010	Harvest Contractor

O.E. 01.0201     Agricultural Chemicals

The study of a variety of chemicals, drugs, and related products which are associated with the production of animals and plant products. Usually included for study are various types of chemicals used to prevent, control, or cure animal and plant diseases and to control pests.

Specific occupations within "Agricultural Chemicals" are as follow:

DOT 389.138-010	Exterminator Supervisor
DOT 465.137-010	Blight-Control Foreman
DOT 465.137-014	Spray Foreman
DOT 465.381-010	Scout
DOT 465.781-010	Weed Inspector

## O.E. 01.0202 Feeds

The study of the business of processing and distributing feeds and feedstuffs.

Specific occupations within "Feeds" are as follow:

DOT 262.358-014	Salesman, Grain-and-Feed Products
DOT 469.168-010	Contractor, Field Hauling
DOT 520.885-122	Feed Mixer
DOT 520.886-302	Feed-Mixer Helper
DOT 521.885-302	Processor, Grain
DOT 521.886-026	Custom-Feed-Mill-Operator Helper
DOT 529.138-026	Superintendent, Grain Elevator

## O.E. 01.0203 Seeds

The study of the business of producing, processing, and distributing seeds.

Specific occupations within "Seeds" are as follow:

DOT 040.381-014	Seed Analyst (profess. & kin.)
-----------------	--------------------------------

## O.E. 01.0204 Fertilizers (Plant Food)

The study of the principles concerned with the analysis, sale, and application of chemical elements known to be necessary for plant growth.

## O.E. 01.0299 Agricultural Supplies/Services, Other

Include here other subject matter and experiences emphasized in agricultural supplies/services which are not listed above. (Specify.)

Specific occupations within "Agricultural Supplies/Services, Other" are as follow:

DOT 073.381-010	Laboratory Technician, Veterinary
DOT 282.358-010	Salesman, Veterinarian Supplies
DOT 356.381-010	Horseshoer
DOT 356.874-046	Veterinary-Hospital Attendant
DOT 404.884-014	Tree Pruner
DOT 412.887-018	Poultry Debeaker
DOT 412.387-010	Poultry Technician
DOT 412.687-014	Chicken Sexer
DOT 412.687-010	Chick Grader
DOT 412.884-022	Poultry Vaccinator
DOT 429.228-010	Poultryman, Technical Advisor
DOT 467.138-010	Wool Shearer, Contract
DOT 467.384-014	Artificial-Breeding Technician
DOT 467.384-010	Artificial Inseminator
DOT 467.384-018	Blood Tester, Fowls
DOT 467.384-022	Poultry Inseminator

Agricultural Careers  
General Occupational Cluster or Field  
Agriculture Supplies/Services

Assignment Sheet 1

Determining the Net Demand for Occupations

Following the discussion on the use of the Occupational Training Information (OTIS Report) and the Off-Farm Agri-Business Occupations in Oklahoma, the student should complete this assignment sheet from the information found in the two reports.

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Net Additional Manpower Requirements

1972

Statewide Totals for Oklahoma (Page 6 OTIS Report)

---

	<u>Cluster of Occupations</u>	<u>Demand</u>	<u>Supply All Sources</u>	<u>Demand Minus Supply</u>	<u>Cluster of Programs</u>
1.					
2.					
3.					
4.					
5.					
6.					
7.					01.0200 Agricultural Supplies and Services
TOTAL					

---

Where does 01.0200 Agricultural Supplies and Services rank in the state-wide manpower demand? \_\_\_\_\_

(Page 37 in OTIS Report Cycle Four)

(Note: Manpower demands by districts, p. 37)

Agricultural Careers  
General Occupational Cluster or Field  
Agricultural Supplies/Services

Assignment Sheet #2 - Using Resource Material

Following the discussions of the information sheets and the information sheet supplement, the student should complete the assignment by using the resource materials.

Complete by filling in the blanks.

<u>General Occupational Cluster</u>	<u>Specific Occupational Clusters</u>	<u>Specific Occupations</u>
OE 01.02 Agricultural Supplies/Services	OE 01.0200 Agricultural Supplies/Services	1. DOT _____
OE 01.02 _____	OE 01.0201 <u>Agricultural</u> <u>Chemicals</u>	1. DOT _____ 2. DOT _____
OE 01.02 _____ _____	OE 01.0203 _____ _____	1. DOT _____ 2. DOT _____
OE 01.02 _____ _____	OE 01.0204 _____ _____	1. DOT _____ 2. DOT _____
OE 01.02 _____ _____	OE 01.0299 _____ _____	1. DOT _____ 2. DOT _____

Agricultural Careers  
General Occupational Cluster or Field  
Agriculture Supplies/Services

Unit II

Test

1. Discuss in a short paragraph ways to enter agricultural supplies and services as an occupation.
  
  
  
  
  
  
  
  
  
  
2. What is one source from which you can determine the demand for occupations within agricultural supplies/services in Oklahoma?
  - a. \_\_\_\_\_
  
3. Discuss in a short paragraph the education or experience needed for agricultural supplies and services occupation.
  
  
  
  
  
  
  
  
  
  
4. List three specific occupational clusters available within the general occupational cluster of agricultural supplies and services.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  
5. Match the definitions of the instructional programs on the right with the correct general and/or specific agricultural supplies and services occupational cluster on the left.

Clusters

- |  |  |
|--|--|
| a. _____ Agricultural Supplies/ Services | 1. OE 01.0201 - The study of a variety of chemicals, drugs, and related products which are associated with the production of animals and plant products. |
| b. _____ Agricultural Chemicals          |  |

- c. \_\_\_\_\_ Feeds                      Usually included for study are various types of chemicals used to prevent, control, or cure animal and plant diseases and to control pests.
- d. \_\_\_\_\_ Seeds
- e. \_\_\_\_\_ Fertilizers

2. OE 01.0204 - The study of the principles concerned with the analysis, sale, and application of chemical elements known to be necessary for plant growth.
3. OE 01.0200 - Subject matter and 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.
4. OE 01.0202 - The study of the business of processing and distributing feeds and feedstuffs.
5. OE 01.0203 - The study of the business of producing, processing, and distributing seeds.

6. List one specific occupation in each of the general and/or specific agricultural supplies and services clusters.

<u>Clusters</u>	<u>Specific Occupations</u>
a. Agricultural Chemicals	1.
b. Feeds	2.
c. Seeds	3.
d. Fertilizers	4.



Agricultural Careers  
General Occupational Cluster or Field  
Agricultural Supplies/Services

Unit II

Answers to Test

1. Discussion should include the following:
  - a. Self-employed
  - b. Capital
  - c. Credit
  - d. Partnership
  - e. Paid employee
  - f. Apprentice
  - g. Part-time employment while in school
2. OTIS Report (Occupational Training Information System)
3. Discussion should include the following:
  - a. Formal education
  - b. Work experience
  - c. Basic skills
  - d. Supervised training programs
4. Any three of the following:
  - a. Agricultural Chemicals
  - b. Feeds
  - c. Seeds
  - d. Fertilizers
5.
  - a. 3
  - b. 1
  - c. 4
  - d. 5
  - e. 2
6. One specific occupation should be selected from each of the agricultural supplies and services clusters. (Note: The instructor should use the information sheet supplement for the complete list and use it for checking.)

## 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 occupations, 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

#### Instructor:

1. Decide which method of teaching--audio-visual aids, field trip, skill trial, or resource persons--is 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 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 Government Printing Office, Washington, D.C. 20402.

## Agricultural Sales Clerk

### Information Sheet

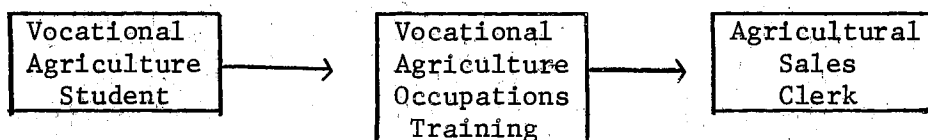
#### I. General Job Description

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:

DOT 262.358-014	Salesman, Grain-and-Feed Products
DOT 282.358-010	Salesman, Veterinarian Supplies
DOT 277.251-010	Service Salesman, Agricultural Mechanics
DOT 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:

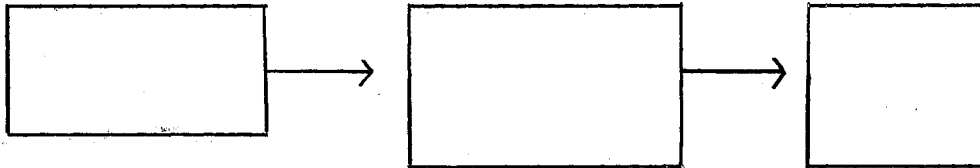


- IV. When some employees are hired, they must prove their ability to do the job they are hired for. So that a company can be sure of hiring qualified people, it will sometimes require the employee to complete a trial period. During this time the employee usually does not get a salary increase, nor is 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 will then 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.



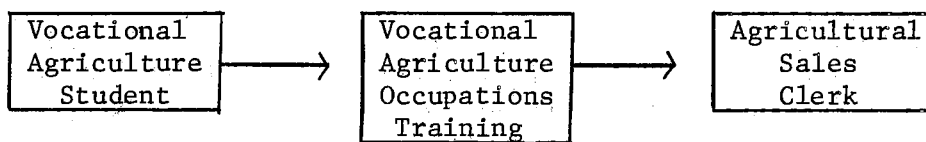
4. Define the term "trial period."
5. A beginning agricultural sales clerk can expect to receive what kind of wage?

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

3.



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.

## 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 evidenced 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 previously 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 sheets.
- 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 test 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., "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 the American Association of Teacher Educators in Agriculture, The National Association of Agricultural Education Supervisors, and The National Vocational Agricultural Teacher's Association, Inc., The Future Farmers Supply Service, Alexandria, Virginia.
- B. Agribusiness 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, Oklahoma.

## Self-Discovery

## Unit I - 5 Hours

## Information Sheet

- I. Definitions 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 related 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 those 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 characteristic. 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 the feelings 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' fathers working in at the present time?
6. What are some occupations that I have had working experiences in other than my father's occupation?

7. What are the subjects in school that I am most interested in taking?
8. What extra-curricular 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 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 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.



## CHARACTERISTICS OF A MAN

HOW WELL MY CHARACTERISTICS  
MATCH HIS

## Skills

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## Personality

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Other characteristics you have heard or read are necessary in this occupation.

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---

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none								
little								
some								
similar								
alike								

How well I match these characteristics.

[illegible]

## Self-Discovery

## Unit I - 5 Hours

## Assignment Sheet #6

Associate Previously Identified Characteristics  
While Looking Into Occupational Areas for Employment

After completing the self-discovering 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.
  - e. By seeing if these characteristics I have identified about myself hold true in a part-time job.
3.
  - a. Look at admired adults.
  - b. By comparing my characteristics to the characteristics of those of 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?

## Agricultural Careers

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

- a.  
b.  
c.  
d.  
e.  
f.

3. Name a way to obtain experience for comparing occupations while in school.

4. Match the characteristics that represent a career-conscious student on the right to the areas on the left.

- |                    |   |
|--------------------|---|
| _____ a. Work task | 1. A challenge, not always pleasant, but provides proof of ability. |
|                    | 2. Something to avoid, unpleasant associations.                     |
| _____ b. Education | 1. Required, something to live through and get by.                  |
|                    | 2. Preparation for life, appreciation for learning.                 |

- \_\_\_\_\_ c. Work place
    - 1. Where you put in time.
    - 2. Opportunity to achieve, something to identify with.
  - \_\_\_\_\_ d. Self
    - 1. Unique person, can control own destiny.
    - 2. Just a student, an object to be manipulated.
  - \_\_\_\_\_ e. Teachers
    - 1. Make decisions for you, someone to resist.
    - 2. Equals with differing responsibilities.
  - \_\_\_\_\_ f. Peers
    - 1. Interdependency, cooperate
    - 2. Compete against, guard against
- 5. List the seven general occupational areas that are in the field or cluster for agri-business and natural resources.
  - a.
  - b.
  - c.
  - d.
  - e.
  - f.
  - g.
- 6. List five important factors to consider about an occupation before making a decision to select it as an occupation in your career.
  - a.
  - b.
  - c.
  - d.
  - e.
- 7. List the seven areas of instruction for the broad field of agriculture.
  - a.
  - b.

7. --continued--

c.

d.

e.

f.

g.

8. List three specific occupational clusters available within the general cluster of agricultural production.

a.

b.

c.

9. Match the definitions of the instructional program with the correct general and/or specific agricultural production occupational cluster.

a. \_\_\_\_\_ Farm Business  
Management

b. \_\_\_\_\_ Animal Science

c. \_\_\_\_\_ Agricultural  
Production

d. \_\_\_\_\_ Plant Science

1. Subject and learning activities which are concerned with the principles and processes involved in the planning related to 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 agricultural related establishments.

2. Planned learning experiences which are concerned with the study and operations dealing with theories, principles, and practices involved in producing (breeding, feeding, care, and housing) animals and animal products for economic and other uses.

3. Planned learning experiences which are concerned with the study and operations dealing with principles and practices involved in the culture and production of agricultural plants.

4. Planned learning activities which

concerned with farm resources, analysis, accounting, production, financing, resource acquisition, purchasing, farm marketing, and maintenance. The results of those learning activities are applied to formulating decisions involved in managing a farm or ranch operation.

10. What is one source from which you can determine the demand for occupations within agricultural supplies/services in Oklahoma?
  - a. \_\_\_\_\_
11. List three specific occupational clusters available within the general occupational cluster of agricultural supplies and services.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
12. What is one source from which you can determine the demand for occupations within agricultural mechanics in Oklahoma?
  - a. \_\_\_\_\_
13. List one specific occupation in each of the general and/or specific agricultural clusters.

- | <u>Clusters</u>                     | Specific Occupations |
|-------------------------------------|----------------------|
| a. Agricultural Power and Machinery | 1.                   |
| b. Water Management                 | 2.                   |
14. List three specific occupational clusters available within the general occupational cluster of agricultural products.
    - a. \_\_\_\_\_
    - b. \_\_\_\_\_
    - c. \_\_\_\_\_

15. Match the definitions of the instructional programs on the right with the correct general and/or specific agricultural products occupational cluster on the left.

Clusters

- |   |  |
|---|--|
| <p>_____ a. Agricultural Products</p> <p>_____ b. Food Products</p> <p>_____ c. Dairy Products</p> <p>_____ d. Nonfood Products</p> | <p>1. OE 01.0402 - A combination of subject matter and practical experiences concerned with information, scientific principles, processes, and marketing functions associated with nonfood products such as cotton, tobacco, and wool, as well as the industrial nonfood uses of grains and oilseeds.</p> <p>2. OE 01.040102 - A combination of subject matter and practical experiences concerned with information, processes, science, and decisions associated with milk, and products derived from milk, e.g., cream, ice cream, butter, and cheese.</p> <p>3. OE 01.0400 - A combination of subject matter and learning experiences designed to track 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 of these products.</p> <p>4. OE 01.0401 - A combination of subject matter and learning experiences concerned with the scientific principles and operations involved in the preparation of agricultural products for sale and consumption, including home and</p> |
|---|--|

institutional preparation of  
food and its nutritive value.

16. List three specific occupational clusters available within the general occupational cluster of ornamental horticulture.
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
17. List one specific occupation in each of the general and/or specific ornamental horticulture clusters.

<u>Clusters</u>		<u>Specific Occupations</u>
a. Arboriculture	1.	_____
b. Floriculture	2.	_____
c. Greenhouse Operation and Management	3.	_____
d. Landscaping	4.	_____

18. What is a source from which you can determine the demand for occupations within agricultural resources in Oklahoma?
- \_\_\_\_\_
19. List three specific occupational clusters available within the general occupational cluster of agricultural resources.
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
20. List three specific occupational clusters available within the general occupational cluster of forestry.
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_



21. List three areas of responsibility accepted by the farmer.
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
22. List four areas of study taught in vocational agriculture that can aid you in becoming a farmer.
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
23. List four tasks the meat cutter must perform.
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
24. Draw a diagram which a high school student in vocational agriculture could follow to become a meat cutter.
25. Identify the school that offers training in agricultural mechanics.
- a. Elementary school
  - b. Private school
  - c. Vocational-technical school
26. Select from the following list the one that represents the approximate number of mechanics that will be needed in Oklahoma during 1972.
- a. 100
  - b. 170
  - c. 150
  - d. 180

27. List two areas taught in vocational agriculture that could aid a person to become a nurseryman.
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
28. List four personal traits which are desirable for a nurseryman to have.
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
29. What is the name of a school in Oklahoma where Forest Technology is taught?
- a. \_\_\_\_\_
30. List four specific duties a forestry technician might perform.
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
31. List five duties of an agricultural sales clerk.
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
32. Develop the plan for becoming an agricultural sales clerk.
33. Define the term "trial period."

## 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 deference, 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

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

we learn more about career development we may need to identify another type of 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 the 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 interests 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 must 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 Chronical 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 measurable 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 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

## APPENDIX D



## SUMMARY OF QUESTIONNAIRE - STUDENTS AND INSTRUCTORS

Even though the students were more critical of the units than the instructors, the majority of the responses indicate that the units were acceptable as taught. There was agreement between both groups that the units should be taught at the 9th grade, with the exception of the instructors on the specific units. There they were divided equally between the 9th and 11th grades.

The students were divided on the question about the material being enjoyable to use. They were also divided when asked if the material took too much time. On the time matter the instructors were in agreement. Both instructors and students were divided on the incorporation of the units into the core curriculum.

When all factors were considered the instructors and the students liked the video tapes and the specific units best, with the self-discovery units being next. In reviewing comments about the units, the ones that seem to be most important were:

1. Units were too long and took too much time.
2. Units needed to be consolidated.
3. Material needed a greater variety.
4. Reading level was too high.

## VIDEO TAPES

Again, both students and instructors were in favor of the tapes as they were done. The instructors felt the length was all right, while

the students thought they were too short.

The comments that seemed to be most important were:

1. Need more tapes of a wider variety.
2. More action, less talk.
3. Tapes should follow information sheets and unit objectives.

There should also be more information about the job.

4. Camera and microphone quality need to be improved.
5. Try a new interviewer for each tape.

#### SUMMARY OF GENERAL COMMENTS:

A few of the general comments need to be evaluated:

1. Units need progressive difficulty built in.
2. If possible, use FFA members and parents.
3. Reorganize material to reduce time requirements.
4. Reading level and vocabulary too high level.
5. Units are too similar; need variety; too boring.

✓  
VITA

Billie Louis Henderson

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