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Occupational education in agriculture has increased in importance as job opportunities have shifted. Students require a broad scope of information about the numerous and increasing agriculture related occupations. Although there are several methods of teaching that could be employed, this study attempted to compare audio-visual aids with field trips. The 87 students in the introductory Vocational Agriculture classes at Lebanon Union High School were divided into a control group, audio-visual group, and a field trip group for investigation. Each group was given a pre-test and a post-test to determine their knowledge of agricultural occupations.

The purpose of the study was to compare the use of audio-visual aids with field trips as teaching methods for occupational information.

Within the limitations of this study, the following conclusions

are based on the findings:

1. Students seemed to gain more benefit from field trips than from audio-visual aids. This was not mathematically measurable, but was observed through attitudes and increased interest.

2. Audio-visual aids are excellent for introducing occupations or illustrating occupations unavailable for field trips.

3. Subjective grading of pre-test and post-test gave indefinite research data.

A Study Comparing Methods of Instruction for Occupation Education in Agriculture

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A STUDY COMPARING METHODS OF INSTRUCTION FOR OCCUPATION EDUCATION IN AGRICULTURE

I. INTRODUCTION

Statement of Problem

Production agriculture has required fewer and fewer workers as the production per worker has multiplied. During the same period of time the employment need in agribusiness and agrindustry occupations has increased sharply.

To confront the changes in agriculture, Vocational Agriculture programs have broadened their base of instruction. No longer are most Vocational Agriculture students going into a farm or production situation. The modern Vocational Agriculture programs are including the skills necessary for agribusiness and agrindustry. These skills are being taught by using speciality courses for eleventh and twelfth grade students. In addition, community colleges are adding educational opportunities for students wishing preparation for the agribusiness and agrindustry field.

The student of Vocational Agriculture needs to commence in the ninth grade to determine his interests and to explore the various agricultural occupations. The high school speciality classes and community college courses can then be planned and systematized for

the individual student when he determines occupations of interest.

Worthington (30) has found more than 500 different jobs concerned with agriculture, agribusiness, and agrindustry. His information also indicates a further specialization of jobs and the development of even more jobs related to agriculture. These numerous job opportunities show that a vast quantity of information must be made available to students for comprehensive occupational investigation and selection.

Purpose of Study

The purpose of this study is to compare methods of teaching occupational information to ninth grade Vocational Agriculture students. The specific methods used and compared are audio-visual materials and field trips to the sites of selected occupations. The study is intended to measure the occupational information each student gains while engaged in either the use of audio-visual materials or the activity involving field trips.

Definitions

Agribusiness - The "inputs" of producing food and fiber. It also includes the processing and marketing of food and fiber with all the aids that modern science, engineering, industry,

finance, and trade can provide. It usually does not include agricultural production.

Agricultural Industry - Refers collectively to: (1) the industries producing agricultural commodities, (2) the industries and businesses supplying and servicing those engaged in agricultural commodity production and (3) the industries and businesses performing all the necessary functions in making agricultural commodities available to the consumer.

Agricultural Occupations - An Agricultural Occupation is an occupation involving knowledge and skills in agricultural subjects which has the following characteristics: (a) The occupation includes the functions of producing, processing, and distributing agricultural products and includes services related there to. (b) The occupation requires competencies in one or more of the primary areas of plant science, soil science, animal science, farm management, agricultural mechanization, and agricultural leadership.

Occupation - A group of related jobs in an area of work which constitutes the work a person does regularly to make a living. It is his vocation, employment, trade, profession, or job.

Occupational Choice - Occupational choice is a process rather than an event. The term should denote a whole series of choices. Generally the process results in the elimination of some

occupations and the retention of others until, eventually, an occupational choice is made.

Supervised Farming Program - The project or group of enterprises (animal, plant, etc.) that is managed by the student to gain experience in agriculture.

Supervised Occupational Experience - Supervised farming or supervised work that provides a student with experience in the area of his occupational choice.

Supervised Work Experience - The development of experience in agricultural occupations by working in an agriculturally related job. This experience may be on a production farm, in agribusiness, or in a simulated laboratory experience.

Limitations

1. This paper is limited to a comparison of field trips to audio-visual aids as methods for teaching occupational information to ninth graders in Vocational Agriculture.

2. This research is limited to the field trip resources of the Lebanon, Oregon community.

3. The audio-visual material used for class work are limited to those at or obtainable by Lebanon Union High School.

4. This paper is limited to the students enrolled in the ninth grade Vocational Agriculture Program at Lebanon Union High

School during the 1971-72 year.

5. Exchange of information between students in the three groups was not controlled.

II. REVIEW OF LITERATURE

The Role of Vocational Agriculture Instructors in Occupational Education

The need for increased emphasis on occupational education in the public school system is pointed out by Worthington (29). His studies indicate that most drop-outs occur at the tenth grade level. These results explain his support of the establishment of occupational education in the kindergarten through ninth grade level.

Worthington also explains the role of Vocational Agriculture instructors in the area of occupational education:

> Agriculture or agri-business is the nation's largest and most basic industry and it still needs expansion. Vocational agriculture teachers can be and must be instrumental in maintaining standards of vocational agriculture, in training some students to remain or return to the farm. Simultaneously they must be training others for careers for the multitude of allied occupations in agri-business. There is a firm mandate for teachers, for supervisors, for state education agencies, and for the United States Office of Education to work together in restructuring and expanding both on and off farm agricultural programs around the career education theme (29).

A strong case for the use of occupational education in the ninth grade Vocational Agriculture curriculum is shown by Sandy (26). He states that the instructor understands the boys' background, family situation, and knowledge of agriculture better than other subject matter teachers. The agriculture instructor is in an

excellent position to do informal counseling during visits to the home. Sandy also mentions that many high schools do not have adequate facilities for occupational counseling. The deficiency is due to the lack of personnel and lack of occupational orientation on the part of available personnel. Sandy sees value in cooperative efforts between guidance and vocational agriculture in the administration and interpretation of vocational and aptitude tests.

Investigations and experience by Buzzell and Hollander (6) illustrate a need for occupational education. Their research conclusions demonstrate a definite requirement for occupational education exposure in the modern, innovative school.

Classroom Methods of Teaching Occupational Information

Roberts (24) suggests that career brochures, bulletin boards, periodicals, and audio-visual materials are excellant for teaching occupational education and that the use of vocational aptitude and interest tests will provide effective background for student and teacher use.

The use of career education has been found important in all vocational areas and used for many years. Davis (9), in the early 1900's, was concerned with the idea that a student should analyze himself before he could effectively make a career choice. The study of vocations came after this self-analysis process. The SUTOE

(Self Understanding Through Occupational Exploration) program (23) developed by the Oregon State Department of Education is parallel to Davis's approach. SUTOE seeks to aid the student to discover his aptitudes, interests, and abilities by using occupational education as a basis for its subject matter. Field trips, audio-visual aids, speakers from industry, and information from government workers are a few methods utilized by the SUTOE program.

Fuller (10) provides a structural outline for agricultural occupation teaching that is similar to others and includes the basic areas: Establishment of a Need for Career Education, Preparation for Job Entry, Core of Agricultural Knowledge, Core of Business Knowledge, and Experience Programs. From this information the student is able to develop background for selection of career opportunities in agriculture. Students are placed in actual experience programs after determining this selection.

Krumboltz (18) developed methods of stimulating career exploration and interest in careers. His work with problems designed to encourage career exploration showed that students could determine their level of occupation. He also investigated the idea of simulated work experience as a means of providing more realistic experience within the school. Another portion of Krumboltz's study dealt with the problem of what age or grade level is best for occupational education. Vocational information in terms of behavioral

objectives was measured by using a problem type of occupation kit. This study was primarily based on simulated work experience but develops other aspects of career education. Krumboltz's research also revealed the use of simulated work experience may motivate students to get more information themselves.

There is a diversity of approaches to teaching for occupational information. The tremendous amount of audio-visual material available allows for students to hear, read, and/or see information about careers.

Hoover (15) presents a diversity of methods of teaching occupational Vocational Agriculture. He advocates the use of occupational information integrated into each subject area. Therefore, a portion of animal science, plant science, farm mechanics, forestry, and other subject areas would be devoted to the investigation of occupations.

A three part plan devised by Hoover (14) shows an outline of a comprehensive occupational education program for Vocational Agriculture. Part one deals with the problem areas of choosing a career, student's personal qualities, requirements of various occupations, and agricultural occupations. Part two narrows the field of agriculture into production, supply, mechanics, products, horticulture, resources, forestry, and other. With the broad picture in mind, part three identifies the individual jobs within each of the

headings of the second part of the plan. This approach utilizes the lecture-class discussion method for part one and two. Part three is an individual study that makes use of occupational booklets, career files, and other printed material.

The use of a scheduled occupational study at regular intervals within the Vocational Agriculture program is recommended by Burlingham and Juergenson (5). This occupational study day may come every week or every other week. During the occupations study period the instructor has audio-visual materials, speakers, or the student may be encouraged to use classroom materials such as booklets, bulletins, pamphlets, and job analysis sheets. This program allows the student to study the occupations of his choice on a continuing basis.

There are several methods to accomplish occupational orientation in Vocational Agriculture. Most of the programs are pointed toward the objective of getting the student to select an occupation and use certain steps to reach their goal.

Meierhenry and Wimon (21) used visual teaching to stimulate interest and promote memory of material. Their research gives support to the use of audio-visual materials for effective teaching. They investigated the learning taking place in particular controlled situations. According to these authors, learning is not controllable and may include concomitant learning.

Schnakenberg (27) has divided his ninth grade occupation orientation into four parts. The first part "The Agricultural Industry and You" has the student learn about himself in terms of interests, aptitudes, and abilities. The second part titled "Considering Modern Agriculture" is designed to provide the ninth grade student with a view of the aspects of agribusiness, agrindustry, and production agriculture. "Career Opportunities in Agriculture" gives the student a broad view of the types of jobs involved in agriculture. These jobs are concerned with each agricultural occupational area. With this information as a background, the students are then ready to begin the fourth unit "Preparing for a Career". This unit allows the student to become specific in the task of analysing an occupation in terms of training needed, entry level skills needed, special abilities needed, and to determine what is actually done on the job.

A career fair approach is used by Larshus (19) at Stanley, North Dakota. This idea consists of assigning students to prepare a display on a specific career of their choice. The students are given four months to complete their assignment. During this time students gather information from audio-visual materials, interview workers, and take pictures of work situations. These displays are judged and prizes are awarded at an open house. Larshus feels this is an excellent approach for a student to learn specifics about one

occupation and gain general knowledge about the occupations investigated by other students in the Vocational Agriculture program.

Out-Of-Classroom Methods of Teaching Occupational Information

The use of the student supervised farming program is suggested by Hoover (15) as an effective means of occupational education. The student is able to develop opinions about particular jobs while working with his livestock, crop, mechanics, or forestry project. The project will provide an opportunity to develop understanding and skills in an area of agriculture.

The national endorsement of a thrust in occupational education for students in junior high school and senior high school is given by Marland (20). He cites examples of the utilization of field trips for students to begin selection of occupations. Marland emphasizes the field trip as a chance for students to be in the environment and atmosphere of an occupation. The opportunity to talk with workers stimulates interest in gaining more knowledge according to Marland.

Field trips to various portions of the agricultural world are recommended by Byram (7). He states the value of a field trip is more effective if a pre-study and post-study are made of each trip. These experiences provide the students with a look into the actual conditions of a certain occupation. The student may develop a

particular like or dislike for an occupation from a trip into that occupation's environment. Field trips may extend to all areas of agribusiness and agrindustry as well as production agriculture.

Sands (25) outlines the information students can obtain from field trips to observe various occupations. The information gotten should relate directly to the student in terms of working conditions, temperament, qualifications, training, health qualities, benefits, and aid in choosing or not choosing a particular occupation.

The listing of local agricultural occupations by groups within a Vocational Agriculture class is suggested by Hoover (13). The approach is to have the students develop a list of the present agricultural careers in their local community. After the jobs are listed and described, the students may select one or more of these jobs to observe.

Byram (7) proposes that students or groups of students go into the community with prepared occupational lists or questionnaires to interview workers involved in various agriculture jobs. The information gotten from these agricultural workers is then brought into the classroom for reporting and discussion.

Local craftsmen and workers are used to provide occupational information by Allison (2). These people are brought into the classroom to discuss their occupation with the class.

A combination of approaches is recommended by Weyant,

Hoover, and McClay (28). The combination method allows for occupational differences. They designated particular methods for use concerning particular occupations. Observation of workers, class discussions, field trips, audio-visual aids, and speakers were purposed as effective resources for occupational information.

The use of field trips to agricultural businesses and the use of audio-visual aids within the classroom are the basis for the program Sandy (26) operates. Sandy uses pamphlets and bulletins about agricultural occupations on an individual basis.

The career day approach has been found successful in several situations. The following description of a career day uses the combining of several vocational agriculture departments in a local area. Heideman (12) states:

> We ask speakers to include the following points: kinds of jobs in their area of specialization; responsibilities of worker; abilities, education, and other qualifications needed; where the job is done and working conditions; on-the-job or other training needed; starting salaries; and salaries for experienced workers; benefits such as vacation, sick leave, insurance, and fringe benefits; and the rewards and satisfactions of the jobs.

The format for this and other career day approaches to occupational education is to invite several speakers from different areas of agriculture. Students are allowed to choose their areas of interest.

Although there were no studies found to parallel this research, other investigators have supported audio-visual aids and field trips as

effective teaching instruments. Weyant (28) established a use of many types of teaching methods for occupations. The relevant aspect to these methods appeared to be the people actually involved in the occupations. A key portion of successful SUTOE (23) programs is the utilization of field trips to get students into occupational situations. Meierhenry and Wimon (21) dealt with stimulation of learning through proper use and quality of audio-visual aids in teaching. Their research indicates positive evidence for use of audio-visual aids in teaching.

There are several effective methods of teaching occupational information. The organization of the information for the student is essential. After the student knows how to investigate a career, he can gather information in several ways. This study is designed to compare the methods of field trips with audio-visual aids.

III. PROCEDURE AND PERTINENT INFORMATION

Procedure

The purpose of this study was to compare the amount of occupational information gained during the one month period from May 4, 1972 to June 2, 1972. This information was in terms of worker qualifications, benefits, and other characteristics of certain occupations in agriculture.

This study involved three introductory Vocational Agriculture classes at Lebanon Union High School. These classes consisted of ninth and tenth graders enrolled in introductory Vocational Agriculture.

The three Vocational Agriculture classes were randomly selected. A control group, a group using audio-visual aids, and a group using field trips were designated. The groups consisted of the following:

Group A - Control - 28 students

Group B - Audio-visual aids - 30 students

Group C - Field trips - 29 students

Each student took a pre-test to determine his prior occupational information. This pre-test consisted of the student selecting five occupations from Hoover's list (13) as a first step. For each

selected occupation the student completed a form (Appendix I) to indicate his knowledge of a particular agricultural occupation before the treatment of this research.

Each student in each of the three Vocational Agricultural classes was given these forms and the instructions were read to the classes to standardize the teaching procedure. The students were given this material May 4, 1972 at Lebanon Union High School.

The three Vocational Agriculture classes then each received a different instructional situation. The control group proceeded with the regular Vocational Agriculture curriculum. They received no occupationally oriented lessons or materials. The next group began work with audio-visual materials. They were instructed in occupational materials specifically for three one-hour periods and to some degree each day. This class was informed of available materials and resources to investigate on their own.

The field trip group's occupations were checked on the pre-test and field trips arranged according to the interests of groups of students. A trip to Gallup's Dairy was concerned with the production phase of agriculture. Students interested in mechanics, sales, service, or general agri-business were able to observe these occupations at Santiam Tractor. The United States Forest Service allowed students to look at conservation, forestry, and government careers.

The students in the field trip group were assigned to fill out

Form C (Appendix IV) at the conclusion of each field trip. The purpose of this form was to help students organize the information they should have obtained from each trip.

On June 2, 1972 the students were allowed to select five occupations from Hoover's List (13) and were to fill out Form A (Appendix I) on occupations as a post-test. These results were to show the gain in information by each student.

Several factors were considered in order to show the similarity among the three Vocational Agriculture classes.

The assignment of students to the classes was done by the computer at the Linn-Benton Intermediate Education District Office in Albany, Oregon. The diversity of curriculum and number of students (1597) at Lebanon Union High School allowed for a random group of students in each introductory Vocational Agriculture class. There were no restrictions to assigning students to classes. Mr. C. R. May, Assistant Principal, at Lebanon Union High School indicates this random selection in his letter (Appendix V).

At the conclusion of the study all students were again given Hoover's list (13) of occupations and instructed to select five occupations. For each occupation each student again filled out an information form (Appendix I). The forms from the beginning of the study and those from the end of the study were subjectively scored by the researcher. The scoring was based on the number of wrong or

omitted responses. The differences in results from the beginning to the end of the study were the basis for determining how much information each student had gained.

Related Student Information

Personal data obtained about the students selected for this study included the results of the Stanford-Binet test, which had been given to all ninth grade students in December of 1971. The scores were used for data analysis and are shown on a frequency table (Appendix VI). The median of each class was determined. The scores will give the capacity for learning or intelligence quotient for each of the classes.

The intelligence quotient data was treated to determine the mean for each of the three Vocational Agriculture classes. The means of the three classes were as follows:

Group A - 107.8

Group B - 103.5

Group C - 99.8

At the beginning of the study May 4, 1972, each student calculated his age in total months to establish similarity in chronological age. Some students in each group were enrolled in the tenth grade. However, the following figures indicate a very close mean for each of the classes.

Group A - 183.82

Group B - 184.17

Group C - 184.93

A frequency table (Appendix XI) was constructed to indicate the age in months for each group. This table shows a close similarity among the groups.

Supervised occupational experience programs were compiled in order to give an indication as to the interest of the student in agriculture. The student having a project should be more involved in agriculture and know his likes and dislikes in this field. The results for students having supervised occupational experience programs in this study are as follows:

Students With Supervised Occupational Programs

	Group		
	A	B	C
Supervised Occupational Experience Program	13	12	15
No Supervised Occupational Experience Program	15	18	14

Supervised occupational experience programs or projects here are defined as those agricultural enterprises or occupations a student has charge of or in which he is engaged.

The students live in a community which is economically based on forest products and the logging industry. U. S. Plywood is a major employer having over 1000 employees. Crown Zellerbach operates a paper mill in Lebanon. Willamette Industries is an operation extending from the cutting of timber, to a lumber mill,

and a plywood mill. Residents of Lebanon also drive to Albany to work in similar industries.

Agriculture in the Lebanon community is either large grass seed producing farms or small snap bean, berries, and general farms. The majority of the students come from farms of less than 20 acres which generally provide pasture for a few head of livestock.

A prior survey of the students shows the occupations of their fathers. Although the data does not relate individual jobs they do give general occupational fields.

Occupations of Fathers

	Group		
Occupation	A	B	C
Mill worker	19	22	24
Teacher	1	2	1
Farmer		1	3
Cabinet shop employee	1		
Public utility worker	1		
Lumber yard manager	1		
Construction worker	1		
Motel manager	1		
Livestock dealer	1		
County employee		1	
Truck operator		2	
Logging contractor			1
Retired		1	
No father at home	1	1	
Unemployed	1	—	—
	28	30	29

The groups involved in this research were relatively similar in nature. The results of all comparisons appear to be consistant enough for this study.

IV. FINDINGS AND ANALYSIS

Test Information

This investigation was conducted to compare methods of teaching occupational information in agriculture. In this study audio-visual aids were compared to field trips.

Each student completed forms for five occupations at the beginning and at the conclusion of the research. Each occupational information form was scored for that particular occupation. These forms were scored subjectively. Appendix I is the pre-test and post-test. The results of the forms were compiled on the basis of number of incorrect or omitted answers. The results of the occupational information forms show the following:

	Number of Errors	
Group	Pre-test	Post-test
A	4.9	4.7
B	7.1	7.2
C	5.3	4.9

These results are inconclusive; however additional observations give more substance to this investigation.

Student Attitudes

Field trips showed a positive effect in student attitudes. The group selected to take field trips, Group C, was given the opportunity to select the three general occupational areas for the trips. The students were enthusiastic about gaining information. Discussion of the particular occupations began when boarding the bus and ended as the students were dismissed at the conclusion of the trip. The usual boisterous behavior of this group was tempered. They displayed a more serious, attentive approach in relating to occupations and the people in those occupations.

The group that used audio-visual aids, Group B, for occupational studies showed improvement in their cooperation and class participation during this study. Their attitude seemed more serious as they explored possible future occupations. The freedom of selection and use of well-prepared occupational materials appeared to stimulate interest.

The attitude of the control group seemed to effect little change. Although members of the group asked about field trips and certain audio-visual aids, they continued with the regular ninth grade Vocational Agriculture class routine.

Student Observations

The key point of discussions held after field trips was the people involved in these occupations. Students appeared to be concerned with how the workers were benefiting from a particular occupation. Questions were asked about financial returns, working conditions, demands of the job, and the personal satisfaction a worker may find in a particular job situation. Being in the environment of an occupation seemed to enhance the curiousity of the students. Their questions reflected insight concerning how and why certain activities were accomplished.

The group involved with audio-visual aids were methodical in their gathering of information. There appeared to be more student originated questions and a more serious approach than was demonstrated during prior class sessions.

In comparison to the field trip group, the audio-visual group was not especially enthusiastic concerning their individual relationship to a particular occupation.

Teacher Observation

There is much difference in the type and amount of information available to students in field trip situations. Quality of a field trip is dependent on the industry to be shown, the person conducting

the tour and the availability of resources to be observed. A comparison between the field trip to the U. S. Forest Service and the trip to the dairy farm may illustrate this point. The U. S. Forest Service showed the students the offices and facilities, along with a discussion of jobs. The students could not observe employees at work or the environment in which most forestry employees work. The owner of the dairy farm was in his own environment and could point to situations of his occupation. He discussed daily work and told of the key skills and abilities a dairyman must possess. He was able to show the positive and negative aspects in an occupational situation. For example, the students could see the animals and the facilities for each animal. They could experience the noise, odors, and environment of this dairy farm.

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This investigation indicates the value of using field trips and audio-visual aids in occupational education. This value is demonstrated by the enthusiasm of the students. Student behavior and attitude became more serious as they studied occupations.

Field trips appear to be a more effective method than audio-visual aids for occupational instruction. The students seemed to gain more information by being in the environment of the particular occupation. Students appeared to relate effectively to the people involved in the occupation of the field trip.

Although measurement of results was not conclusive students appeared to gain significantly in their occupational understanding in using either method.

Conclusions

Field trips and audio-visual aids appear to have value in providing occupational information. A combination of these methods may be the best approach. Field trips are not feasible for all areas of occupational interest of the students. Audio-visual aids could be used for introductory information, to broaden understanding of occupations, and to compile information concerning occupations not available for field trips.

The environment of occupations appears to stimulate learning activity. The students are surrounded by the activities and conditions concerned with a particular occupation. Audio-visual aids seem dependent on the stimulation of the teaching situation. Students do not appear to relate audio-visual aids to their personal career choice.

Recommendations

1. In similar studies an objective scoring system could give results which could allow more analysis of the students' learning.

2. Studies could be done on a more correlated basis. The audio-visual materials would depict the occupations that were considered with the field trips.

3. It would be useful to study more effective ways of utilizing and organizing both the audio-visual method and the field trip method.

4. A follow-up of the students used in the study at various intervals would be a useful study for the effectiveness of this research.

5. Further data concerning the occupations of the students' parents or guardians may augment background information.

BIBLIOGRAPHY

1. Agricultural Statistics 1971, United States Department of Agriculture - U. S. Government Printing Office, Washington D. C. 1971. pp. 452 and 470.

2. Allison, John W. Fifteen years experience in teaching for agricultural careers - in North Carolina. Agricultural Education 36:20. July 1963.

3. Bartz, Albert E. Elementary statistical methods of educational measurement. Burgess Publishing Company, Minneapolis 15, Minnesota. 1963.

4. Best, John B. Research in education, Prentice-Hall, Inc. Englewood Cliffs, New Jersey. 1970.

5. Burlingham, H. H. and Elwood M. Juergenson. Selected lessons for teaching off-farm agricultural occupations. Danville, Illinois, The Interstate, 1966. 250 p.

6. Buzzell, Charles H. and Sophie S. Hollander. Schools without failure, School and Society. The Society for the Advancement of Education February 1972. Vol. 100:97.

7. Byram, H. M. Guidance in vocational agriculture. 2nd ed. Danville, Illinois, The Interstate, 1966. 250 p.

8. Cain, Paul and Roy Dillon. Opportunities in off-farm occupations but -- educational programs need revising. Agricultural Education, 40:118-119. Nov. 1967.

9. Davis, Jesse B. Vocational and moral guidance. Boston, Ginn and Company. 1914. 303 p.

10. Fuller, Gerald R. Education for agricultural occupations. (abstract) Abstracts of Instructional Material in Vocational and Technical Education. Fall 1969:3.

11. Hammonds, Carrie and Carl F. Lamar. "Teaching vocations," The Interstate Printers and Publishers, Inc. Danville, Illinois, 1968.

12. Heideman, S. W. Career day in agriculture. Agricultural Education. 42:32. Aug. 1969.

13. Hoover, Norman K. Handbook of agricultural occupations, The Interstate Printers and Publishers, Inc. Danville, Illinois, 1969.

14. Hoover, Norman K. Teaching about agricultural occupations - how to begin. Agriculture Education, 34:220-221. April 1962.

15. Hoover, Norman K. Teaching for occupational guidance in agriculture. Agriculture Education, 36:226-227. April 1964.

16. Hutchison, Chester S. Your future in agriculture, Richard Rosen Press, Inc. New York 10010. 1965. pp. 15-29.

17. Kohler, Alan A. An experimental evaluation of the effectiveness of selected techniques and resources on instruction in vocational agriculture 1970, Iowa State University of Technology and Science, Ames, Iowa. Eric Educational Resources Information Center. U. S. Office of Education.

18. Krumboltz, John D. Vocational problem-solving experiences for stimulating career exploration and interest. (abstract) Abstracts of Research and Related Materials in Vocational and Technical Education. Winter 1969:335.

19. Larshus, Leonard. "Vocational agriculture career fair", Agricultural Education, 44:119. November 1971.

20. Marland, Sidney P. Jr. Career education the most exciting trend in education today. Parents Magazine 47:58-59. September 1972.

21. Meierhenry, Wesley C. and Raymond V. Wimon. Educational media; theory in practice. Charles E. Merrill Publishing Company, Columbus, Ohio. 1969. p. 217-252.

22. National Vocational Agricultural Teachers' Association, Inc. Agriculture is more than farming. Danville, Illinois, The Interstate, 1963. 20 p.

23. Oregon Board of Education. Self-understanding through occupational exploration. (abstract) Research in Education. vol. 4, no. 5, part 2:22 p. 1969.

24. Roberts, Laurence Arnold. Dissemination of occupational information through group instruction by classroom teachers in selected secondary schools. (abstract) Dissertation Abstracts. vol. 29, no. 7, 276 p. Jan. 1969.

25. Sands, Lester B. Audio visual procedures in teaching. The Ronald Press Company, New York p. 60. 1956.

26. Sandy, Donald R. A study of high school counseling regarding occupational opportunities in agriculture. Agricultural Education. 32:222-224. April 1960.

27. Schnakenberg, Eldon R. Orientation to careers in agriculture. Agricultural Education, 42:46. Aug. 1969.

28. Weyant, J. Thomas, Norman K. Hoover, and David R. McClay. An Introduction to agricultural business and Industry. The Interstate Printers and Publishers, Danville, Illinois. 1966.

29. Worthington, Robert. Career education for all American youth. Agricultural Education Magazine. March 1972.

APPENDICES

APPENDIX I

Careers* in Agriculture

1. Nature of work

   _____ Hard, physical work - Little thinking
   _____ Physical work and thinking equal
   _____ Mostly thinking and planning - Some physical work
   _____ Office job

2. Hazards of work

   _____ Machinery
   _____ Dust
   _____ Livestock
   _____ Chemicals and fertilizers
   _____ Extreme temperatures

3. Working conditions

   _____ Pleasant, quiet surroundings
   _____ Varied working conditions
   _____ Mostly dirty, unpleasant conditions

4. Routine of work

   _____ Regular (do same thing every day)
   _____ Usually regular
   _____ Varied

5. Education or training

   _____ Less than high school
   _____ High School graduate
   _____ Community College
   _____ Trade School
   _____ Four-year College
   _____ More than four-year college
   _____ Specific training.

* In this study the term career is synonomous with occupation

6. Personal qualifications

_____ Work with people
_____ Work with things
_____ Work with information

7. Working with people

_____ Work alone
_____ Work with 1 or 2 other persons
_____ Work with small groups (less than 15)
_____ Work with large groups (more than 15)

8. Income

_____ Set pay scale - Low pay - Up to $6,000
_____ Set pay scale - Medium - $6,000 - $12,000
_____ Set pay scale - High - Over $12,000
_____ Pay according to production (Number of sales, amount accomplished)
_____ Own business

9. Financial

_____ No investment
_____ Usually can invest
_____ Small investment - Under $20,000
_____ Large investment - Over $20,000

10. Need for this job

_____ Decreasing in the number of people
_____ Number of people remaining the same
_____ Number of people increasing

11. Benefits other than salary

_____ Retirement
_____ Medical and dental
_____ Travel and expenses paid
_____ House to live in

12. Advancement

_____ No advancement
_____ Regular advancement (according to years worked)
_____ Advance according to your capabilities

APPENDIX II

Careers in Agriculture

I. Common Types of Farmers

Beekeeper
Cattle farmer
Cotton farmer
Crop specialty farmer
Dairy farmer
Flower grower
Fruit farmer
Fur farmer
Game farmer
General farmer
Grain farmer
Greenhouse operator
Hatchery operator
Horse breeder
Livestock farmer
Mushroom grower
Nurseryman
Part-time farmer
Poultry farmer
Sheep farmer
Small animal producer
Swine farmer
Tobacco farmer
Tree farmer
Truck farmer
Vacation farm operator

II. Farm Hand or Laborer

Agricultural aide
Crop specialty farm hand
Dairy farm hand
Fruit farm hand
General farm hand
Grain farm hand
Hatchery employee
Livestock farm hand
Nursery laborer

Poultry farm hand
Tree farm hand

III. Common Types of Farm Service Occupations

Artificial inseminator
Auctioneer
Country butcher
Crop duster
Crop pollinator
Crop sprayer
Custom farm machine worker
Dairy herd supervisor
Farm building painter
Farm building renovator
Feed and hammer mill operator
Field supervisor (A. S. C.)
Fruit caretaker
Fruit sprayer
Lime spreader
Mobile blacksmith shop operator
Mobile repair shop operator
Sheep dipper
Sheep shearer

IV. Farm Machinery Sales and Service Occupations

Blacksmith, welder, and general repairman
Custom farm machine operator
Farm machinery mechanic's helper
Farm machinery mechanic
Farm machinery service center foreman
Farm tire service operator
Farm machinery parts helper or clerk
Farm machinery parts manager
Farm machinery salesman
Farm machinery fieldman

V. Farm Supplies and Equipment Occupations

Country store clerk
Farm hardware and equipment store employee
Feed mill employee
Farm cooperative service store employee
Farm equipment and supplies salesman
Truck driver for a feed mill or farmer cooperative
Truck driver for a rural gasoline and oil distributor

VI. Livestock Industry Occupations

Animal industry laboratory assistant or technician
Apiary inspector
Artificial inseminator (breeding technician)
Dairy herd supervisor
Dairy plant employee (creamery or milk plant)
Egg grader
Egg inspector
Live-care caretaker
Livestock auction employee
Livestock buyer
Livestock disease control worker
Livestock truck driver
Milk sanitation or inspector
Milk truck driver
Poultry and egg buyer
Slaughter house, locker plant, and poultry processing, plant employee
Stockyard employee
Veterinarian's assistant

VII. Occupations in Crops, Forestry, and Soil Conservation

Cannery or processing plant employee
Field crop, fruit, and vegetable inspector employee
Fruit and vegetable produce buyer
Grain elevator employee
Irrigation ditch rider
Lumberman or sawmill employee
Soil conservation aide
State and national forest employee

VIII. Occupations in Ornamental Horticulture, Wildlife, and Recreation

City, state, or national park employee
Florist
Game bird propagator
Game management employee
Garden center employee
Golf course employee
Greenhouse employee
Grounds maintenance employee
Landscape gardener
Nursery employee
Tree pruner
Tree surgeon

IX. Professional Occupations in Agriculture

Agricultural chemistry
Agricultural economics
Agricultural education
Agricultural engineering
Agricultural journalism
Agronomy
Animal science
Bacteriology
Botany
Dairy science
Entomology
Forestry
Horticulture
Plant pathology
Poultry science
Pre-veterinary science
Rural sociology
Zoology

X. Forestry Occupations

Forestry aide
Forest cruiser
Forest engineer technician
Logger
Logger scaler and lumber grader

APPENDIX III

Careers in Agriculture

Name _____

1. Name of career: _____

2. Need for people in this career:

3. Training and education needed:

4. Who employs these people?

5. What are the working conditions?

6. What activities would you do in this job?

7. What likes and dislikes should a person have to do this job?

APPENDIX IV

Field Trip Report

Name _____

1. Place visited:

2. Type of business:

3. Number of people employed:

4. List the different jobs involved:

5. Select one job and tell the following: Advantages, disadvantages, training, education, and what you need to know to do it.

6. What is the nature of the work?

	Yes	No
Physical labor		
Hazardous		
Routine		
Work with others		
Low pay (less than $2/hr.)		
Own your own business		

7. Other comments you have about this occupation.

APPENDIX V

LEBANON PUBLIC SCHOOLS
60 Main St. - Lebanon, Oregon (97355)
Telephone: Area 503 - 258-7196

Dr. George M. Henderson, Superintendent
Dr. Marleau S. Harris, Asst. Supt. Curriculum
Dr. Archie W. McCrae, Asst. Supt. Business

Public School Dists.
Union High School No. UH-1
Elementary Schools No. 16c

May 18, 1972

This is to certify that the placement of students in Mr. Allen Yenne's classes for the school year 1971-72 was done at random by a computer.

C. R. May
Assistant Principal
Lebanon Union High
School

APPENDIX VI

Frequency Table

Student Ages in Months as of May 3, 1972

Age in Months	Group A	Group B	Group C
170 - 175	3	4	0
176 - 180	7	8	8
181 - 185	9	6	10
186 - 190	5	3	3
191 - 195	2	7	5
196 - 200	2	2	2
201 - 205	0	0	1
	28	30	29

Intelligence Quotient

I. Q. Score	Group A	Group B	Group C
85 - 95	5	10	8
96 - 105	7	7	7
106 - 115	9	10	9
116 - 125	6	1	3
126 - 135	0	2	1
136 - 145	1	0	1
	28	30	29

APPENDIX VII

Schedule of Activities

Pre-test - May 4, 1972

Post-test - June 3, 1972

Information to audio-visual group - May 17, 1972

May 24, 1972

June 1

Animal Science Filmstrip - Vocational Education Productions

Plant Science Filmstrip - Vocational Education Productions

The Veterinarian - Film - Texaco

The County Agent - Film - Texaco

Chronicle Occupational Series

Various other professional organizations' bulletins and commercial bulletins

Field trips for Group C

Gallup's Dairy - May 18, 1972

Santiam Ford Tractor - May 22, 1972

United States Forest Service - May 24