1971

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Morris Cecil Mayfield

Louisiana State University and Agricultural & Mechanical College

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FACTORS ASSOCIATED WITH CHANGE IN 4-H YOUTH AS A RESULT OF EXPOSURE TO SPECIFIC LEARNING EXPERIENCES

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Education in

The Department of Extension Education

by

Morris Cecil Mayfield
B.S., Auburn University, 1951
M.A., Auburn University, 1967
December, 1971
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Finally, the researcher is deeply indebted to his wife and children, whose assistance, understanding and encouragement helped toward the completion of this study.
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ABSTRACT

The purpose of this study was to gain insight into some factors associated with change in knowledge of 4-H Club members as a result of exposure to a specific learning experience. Specific objectives of the study were:

1. To obtain information from Extension Farm Agents doing 4-H Club work in regard to:
   a. 4-H experience
   b. Personal characteristics
   c. Farm background
   d. College experience
   e. Educational background
   f. Present community involvement

2. To determine specific personal and background characteristics of a representative group of 4-H Club boys.

3. To determine the degree of change in a representative group of 4-H members as a result of exposure to a specific learning experience.

4. To determine the association between degree of change in club members and characteristics of the 4-H Club members and the Extension Farm Agent (4-H).
The data were obtained by giving the 422 respondents included in the study three knowledge tests. One test was given before any information about the subject was presented to the respondents. Following the presentation of the information the respondents were tested again and approximately one month later, they were tested. Background information was also obtained from the 4-H member.

Data were obtained from 29 Extension Farm Agents in the 26 counties represented in the 4-H sample.

Twenty personal, social, and educational factors were tested to determine if there was a significant relationship between each factor and the change in knowledge of the 4-H member. Each factor was considered as an independent variable when related to change in knowledge. Thirteen of these factors were not significantly related to change in knowledge of 4-H'ers in the study. Significant relationships were found to exist between change in knowledge and seven of the factors tested. Relationships were considered significant at the .10 level using the analysis of variance test.

Included among the conclusions were the following:

1. Change in knowledge of 4-H Club members is not significantly associated with their race, tenure in 4-H and degree of participation in church, school or 4-H activities.
2. The positive relationships of age of respondent and number of offices held in 4-H suggest a positive relation to change in knowledge.

3. A significant relationship existed between change in knowledge of 4-H Club members and the age and major field of undergraduate study of the Extension Farm Agents (4-H). These findings suggest that the age and curriculum of Extension employees are important in how effective they may be in bringing about change in 4-H Club members.

4. In general the findings of this study suggest that there are few characteristics of the 4-H member or Extension Farm Agent (4-H) that seem to be essential in order to bring about change in 4-H members as a result of a specific learning experience.
CHAPTER I

INTRODUCTION

The passage of the Smith-Lever Act of 1914 by the Congress of the United States, brought into existence one of the most unique and effective methods of education of this century. The act was signed by President Woodrow Wilson on May 18, 1914. The specific purpose of the act was stated as follows:

...to aid in diffusing among the people of the United States, useful and practical information on subjects relating to Agriculture and Home Economics and to encourage the application of the same...that Cooperative Agricultural Extension work shall consist of giving instruction and practical demonstration in Agriculture and Home Economics to persons not attending or resident in said colleges. (10, pp. 372-372)

This statement of the act, clearly defines Extensions' function as education. The Scope Report of 1958 interprets the function as follows:

---

1/The number indicated after each reference corresponds with the number of this reference in the bibliography. The number for this source is followed by a number indicating the page or pages from which the reference was made. This procedure will be followed hereafter.
This is not education in the abstract, but education for action. It is education of an informal and distinct type. It is education directed to helping people solve the various problems which they encounter from day to day in Agriculture, home economics, and related subjects. (8, p. 3)

In this approach of informal education the Cooperative Agricultural Extension Service\(^2\) carries to the citizens of each state the results of proven research and encourages the application of this research to solving their problems. Specifically, the people are helped to help themselves to:

1. Identify their needs, problems, and opportunities
2. Study their resources
3. Become familiar with specific methods of overcoming problems
4. Analyze alternate solutions to their problems when there exist alternate avenues
5. Arrive at the most promising course of action in light of the resources available to them (8, p. 4)

Educational endeavours in the agricultural field actually began prior to the passage of the Smith-Lever Act with the passage of the Morrill Act of 1862. This act provided for the creation of at least one agricultural and mechanical college in each state whose duty it was to promote the liberal and

\(^2\)Hereafter the organization will be referred to as the Extension Service and the work as Extension work.
practical education of the industrial classes in the several pursuits and professions in life.

Farmers' institutes came into existence about the same time as the agricultural colleges. At the institutes farmers gathered at designated places to receive instructions from members of agricultural colleges.

A very revolutionary educational idea in agriculture was inaugurated by Dr. Seaman A. Knapp at the turn of the century. His method was known as farm demonstration work. This was a method of teaching through demonstrations. Demonstration farms were set up under the direction of Dr. Knapp where he applied farming methods that were successful in increasing agricultural production. The demonstration farms were so successful that the need soon arose for additional professional help to carry on the work. This resulted in the appointment of the first county agent in Smith County, Texas in 1906.

The 4-H Club Program

Coinciding closely with the educational movement among farmers and farm groups was the intense interest on the part of many influential educational and business leaders to reach rural youth with agricultural and homemaking information.
Today, Extensions' educational program for youth is known as 4-H club work and the organized youth are known as 4-H Club members. These Clubs existed prior to the passage of the Smith-Lever Act in the form of corn clubs, tomato canning clubs, pig clubs, and the like. Although the Smith-Lever Act does not specifically mention boys and girls, various discussions leading to the passage of the bill frequently mentioned boys' and girls' clubs. Franklin M. Rech reports as follows:

Mr. Lever, who expressively called his bill a means for providing "itinerant teaching", made certain that club work came within the scope of the measure by stating: one of the main features of this bill is that it is so flexible as to provide for the inauguration of a system of itinerant teaching for boys and girls. (5, p. 123)

He emphasized the point even more with these words:

My efforts to secure the passage of the Smith-Lever Act had the most encouragement from the achievement of the members of the corn and tomato clubs and I hope sincerely that a large share of this money will be devoted to an expansion of the work with young people. (5, p. 123)

From their beginning, 4-H Clubs have been organized within the school system. This may be partly because of the early influence education had in the organizing of the agricultural or homemaking type clubs in their schools in an effort to add something to their teaching curriculum besides the three "R's".
Adult leadership for 4-H Clubs comes primarily from the classroom teachers in the schools. With few exceptions, two members, one man and one woman, of the county Extension staff are primarily responsible for the organization and execution of the 4-H program.

The early philosophy of 4-H Club work was that knowledge about subject matter was the only end to be achieved. Today, however, the over-all goal is the development and growth of the individual member—mentally, physically, socially, and spiritually.

The core of 4-H Club work is the project. Projects give members a chance to learn by doing as well as developing the responsibility of ownership, pride of accomplishment and experience in a free enterprise system. The end result of all project work is the development of the individual.

Some examples of projects that club members can engage in are: livestock, plant science, clothing, baking, leadership, citizenship, entomology, health, recreation, and numerous others related to agriculture and homemaking. The variety of projects is wide, thus enabling boys and girls to select projects based on their interests and needs. Training in technical agriculture, homemaking and related subjects is provided for 4-H Club members by the county Extension agents and, in some instances, by local volunteer leaders if they have had sufficient training in the particular fields concerned.
The developmental needs of young people and the current economic, technological, and social situations affecting their future determine the objectives of the 4-H Club program. Specifically, the 4-H program has the objectives of helping young people to:

1. Acquire knowledge, skills, and attitudes for a satisfying home and family life.
2. Enjoy a useful work experience, together with the responsibility and satisfaction of personal accomplishment.
3. Develop leadership talents and abilities to achieve their citizenship potential.
4. Appreciate the value of research and learn scientific methods of making decisions and solving problems.
5. Recognize the importance of scientific agriculture and home economics and their relationships to our total economy.
6. Explore career opportunities in agriculture, home economics, and related fields and recognize the need for a continuing education.
7. Appreciate nature, understand conservation, and make wise use of natural resources.
8. Cultivate traits of healthful living, purposeful recreation, and intelligent use of leisure time.
9. Strengthen personal standards and philosophies of life, based on lasting and satisfying values.
10. Gain attitudes, abilities, and understandings for working cooperatively with others. (7, pp. 29-30)
From the foregoing objectives it is evident that the job of the Extension agent responsible for 4-H Club work is one of great importance. He must be concerned with the many aspects of teaching and learning processes. Some of the processes involve the planning, organizing, and execution of educational activities to reach the above mentioned objectives. The educational activities or learning experiences which are stressed are based on the results of careful analysis of the local situation in regards to the needs of youth.

In carrying out the educational plan, many different techniques are used in supplying members with the necessary information needed to carry out the projects. The methods or techniques that have been used by Extension agents depend upon each particular situation involved. Wilson and Gallup divided present day Extension teaching methods into three major categories. These are as follows:

1. Individual Contacts, which include farm and home visits, office calls, telephone calls, personal letters, and result demonstrations.

2. Group Contacts, which encompass method demonstration meetings, lecture meetings, conferences and discussion meetings, meetings at result demonstrations, tours, schools, and miscellaneous meetings.

3. Mass Contacts, which include bulletins, leaflets, news stories, circular letters, radio, television, exhibits, and posters. (11, pp. 46-47)
Most of the above mentioned methods are employed by Alabama Extension agents from time to time in presenting information to 4-H Club members about their projects or on subjects relating to 4-H Club work.

Two important methods used frequently by Extension agents in teaching subject matter at 4-H Club meetings are the method demonstration and illustrated lecture.

The method demonstration is defined as a learning experience that combines words and actions to secure desired results; a method of doing something is shown visually step by step and combined with the necessary explanations of each step.

The illustrated lecture may be defined as an oral presentation of subject matter which is supplemented with visual aids to stress key points.

Four-H has enjoyed a continuous growth for almost 60 years and is recognized by our society as one of the leading youth organizations in the world. Its rural image built as a result of the projects offered plus the membership it has worked with is being altered to meet the needs of today's changing society.

Even though the 4-H organization has reached its present state of effectiveness, it is imperative that those who provide the leadership in the organization strive to continue to improve
the organization with respect to its effectiveness in reaching young people it is designed to reach. If the Cooperative Extension Service, through its 4-H Youth Development Program, expects to continue to maximize the total potential of young people, then it must constantly evaluate its effort toward this goal.

1. THE PROBLEM

Statement of the Problem

The scope of the 4-H program has been explained and the major objectives of 4-H Club work have been outlined. An attempt has been made to show the contribution which the Extension Service can make to the total education of the boys and girls who participate in 4-H Club work. The extent of this contribution will depend upon the learning experiences provided by the Extension agents responsible for 4-H Club work or the level of performance of the agent or agents who are responsible for conducting this "learn to do by doing" program. If Extension is to fulfill its obligation to the youth of Alabama, it should make every attempt to improve the methods and techniques used to bring about the desired change in young people.
Specifically, the major problem involved in this study was to evaluate associations between designated factors and a change in knowledge of 4-H youth as a result of exposure to specific learning experiences.

Purpose of Study

The primary purpose of the study was to evaluate associations which would be useful in determining a set of characteristics that were associated with change in 4-H youth as a result of exposure to specific learning experiences. This information could be very helpful to the Extension Service as it constantly tries to make improvements in the 4-H Club program to meet the needs of youth in today's society.

More specifically the study included the following specific objectives:

1. To obtain information from Extension farm agent doing 4-H Club work in regards to:
   a. 4-H experience
   b. Personal characteristics
   c. Farm background
   d. College experience
   e. Levels of education or educational background
   f. Present community involvement

2. To determine specific personal and background characteristics of a representative group of 4-H Club boys.

3. To determine the degree of change in a representative group of 4-H members as a result of exposure to a specific learning experience.
4. To determine the association between degree of change in club members and characteristics of the 4-H Club members and the Extension farm agents (4-H).

Scope of the Study

This study included Extension Farm Agents (4-H) in 26 Alabama counties and one senior boys 4-H Club from each of these 25 counties except in the case of three counties where there were two Extension Farm Agents (4-H) responsible for 4-H Club work and in these counties there were two senior boys 4-H Clubs selected from each.

The 26 counties were selected because the Extension Farm Agents (4-H) were willing to cooperate at the time the researcher was attempting to obtain the data. These counties are representative of the state both geographically, culturally and socially. Figure 1 shows the location of these counties.

The sample of 4-H Club members was selected at random from each county. As has been stated earlier the 4-H members were selected on the basis of random selection of one 4-H Club from the senior clubs from those counties that had one Extension Farm Agent (4-H) and two clubs were selected from those counties that have two Extension Farm Agents (4-H).

The average enrollment of a 4-H Club from the clubs participating in the sample was 15 and the total sample of 4-H Club members was 422.
Figure 1 - The shaded areas show the twenty six counties in which the 4-H members and Extension Farm Agents included in this study were located.
Definition of Terms

4-H Project - a specific phase of 4-H Club work officially adopted and set up in the Alabama 4-H Club regulations and offered to interested club members as part of their program.

4-H Program - the entire scope of 4-H Club work, including both project work and related activities.

4-H Club - a group of boys and girls between the ages of 9 and 19 who have agreed to work as a group or as individuals in some worthwhile activity.

Senior 4-H Member - those boys and girls between the ages of 13 and 19 who have joined a 4-H Club.

Extension Farm Agent (4-H) - a male Cooperative Extension Service agent employed in the county with responsibilities for planning, conducting and evaluating an informal educational program for youth.

Cooperative Extension Service - an educational organization funded by federal, state and county governments whose responsibility is to serve as the educational arm of the United States Department of Agriculture and extend the resources of the state land grant institutions to the people.
CHAPTER II

RESEARCH METHODOLOGY

The Sample

The sample for this study consisted of twenty-nine Extension Farm Agents (4-H) and 422 senior 4-H Club boys from 26 cooperating counties in the State of Alabama.

One 4-H Club was randomly selected from each of 23 cooperating counties two clubs were selected from each of 3 counties where two Extension Farm Agents were responsible for 4-H Club work.

Selection of the Variables

As indicated in the previous chapter, the dependent variable in this study is the amount of change in knowledge of 4-H Club members resulting from a specific learning experience.

The change in knowledge was measured by the result of a simple true and false paper and pencil test and the change discussed in this study is based only on these results.
The degree of change was determined by the difference in scores of three tests given on drug abuse. Each 4-H Club member was tested on his knowledge of drugs prior to being presented pertinent information on the subject. Immediately following the presentation of the information he was tested again in exactly the same manner. A third test was given one month later. The difference in the three scores was tabulated and used as the basis of the dependent variable, representing change in knowledge on drug abuse.

Nine independent variables pertaining to the Extension Farm Agent (4-H) were selected to compare with change in knowledge of 4-H members. These variables were selected on the basis of experience the researcher has had in 4-H work, both as an Extension Farm Agent (4-H) and as a member of the State 4-H staff of Alabama, and on the basis of research conducted by Gassie (13).

The variables selected were:

1. Age of agent
2. Marital status of agent
3. Tenure
4. Place of residence prior to enrolling in college
5. Membership in 4-H Club
6. Major field of study for bachelor's degree
7. Grade-point average
8. Participation in organizations while in college
9. Present participation in community activities
Eleven independent variables pertaining to the 4-H Club members were selected to compare with changes in knowledge. These were chosen on the basis of experiences the researcher has had in 4-H Club work and on research done by Creel (12), Johnson (6), and Jones (2).

The variables selected were:

1. Race
2. Age
3. Present place of residence
4. Tenure in 4-H Club work
5. Number of 4-H Club projects presently enrolled in
6. Participation in school activities
7. Participation in school athletics
8. Grade-point average in high school
9. Participation in church activities
10. Participation in local county and district 4-H Club activities
11. Awards received as a result of 4-H Club project work

The Hypotheses

It was hypothesized that there is no association between change in knowledge and the following independent variable.

1. Race of 4-H members
2. Age of 4-H members
3. Place of residence of 4-H members
4. Tenure in 4-H Club work
5. Number of 4-H Club projects enrolled in
6. Participation in school activities
7. Participation in school athletics
8. Grade-point average in high school
9. Participation in church activities
10. Participation in club activities
11. Awards received in 4-H Club work
12. Age of Extension agents (4-H)
13. Marital status of agents
14. Tenure of agents
15. Former 4-H membership status of Extension agents
16. Major field of study for bachelor's degree
17. Grade-point average of college educational program
18. Participation in organizations while in college.
19. Present participation in community activities

Development and Use of Data Gathering Devices

After determining the specific variables which would be tested in relation to change in knowledge as a result of exposure to a specific learning experience, three devices were developed and used for collecting data. One was a questionnaire that was administered to the 29 Extension Farm Agents (4-H) involved in the study. Another questionnaire was designed and administered to the 4-H Club members involved in the study. The third device was a true-false test given to the members at three different intervals. There were 33 true-false questions. The maximum possible score was 33. The first was a pre-test immediately preceding the presentation of the information on drugs; the second was given immediately following the presentation on drugs, and the third was given approximately one month later. The tests were color coded to reduce the possibility of error.

All of the data gathering devices mentioned above were pre-tested on individuals not involved in this study. Based on these pre-tests, several changes were made in the wording
of questions and length of the true-false test before the instruments were submitted to the respondents in the study. A copy of the instrument is found in Appendix A.

Collection of Data

All Extension Farm Agents (4-H) in the state were requested to participate in the study. However, with the 4-H program already planned in the counties it was possible for only 29 agents representing 26 of the state's 67 counties to participate in the study.

These 29 agents were visited personally by the researcher and given specific instructions on how the tests were to be administered. It was carefully pointed out to the agents that the 4-H members were not to be told of the test prior to their taking it and that no questions were to be answered by the agent at the time of the test. This was necessary so that consistency could be achieved.

The Extension Farm Agents (4-H) randomly selected the senior 4-H Clubs that would be involved in the study at the time they were visited by the researcher and they administered the true-false test to the 4-H Club members. The researcher mailed the agents questionnaires for completion. However, the details of the questionnaire were explained to each agent prior to his receiving it. (See Appendix E)
Analysis and Treatment of Data

The scores of the three true-false tests and the information from the completed 4-H member questionnaires and the Extension Farm Agent (4-H) questionnaires were coded and then punched on cards for electronic computation. Tabulations and statistical tests were performed on electronic computers in the Louisiana State University Computer Research Center.

Statistical analysis of the data was done by using the analysis of variance procedure. The analysis of variance test was considered significant at the .10 level. The actual level of significance is indicated in the tables.
CHAPTER III

REVIEW OF LITERATURE

From the very beginning of 4-H Club work almost 60 years ago the project concept has been the basic core of this "learn to do by doing" program. However, other aspects of learning are involved before this "learn by doing" process can take place.

The whole process of education is based on the idea of change in behavior in people, and in this case it is changed behavior in 4-H Club members. Extension employs many techniques to stimulate learning among its clientele. How well Extension is equipped to bring about this change will determine its effectiveness with the process of education, which is the only product it has to offer to the public.

The following material in this chapter is concerned with a presentation of a few aspects of education that are relevant to this study.

Related Research

Tyler said, "Education is a process of changing the behavior patterns of people. This is using behavior in the broad sense to
include thinking and feeling as well as overt action." (6, p. 4)

When we refer to change we are naturally talking about change in behavior or change in the cognitive, affective and Psychomotor processes of an individual.

Tyler also went on to explain his thinking on progressive education as follows:

Probably no thoughtful proponent of progressive education ever advocated teaching students only the things in which they were at the moment interested, but the argument for using studies of student interest as a basis for objectives runs somewhat as follows: Education is an active process. It involves the active efforts of the learner himself. In general, the learner learns only those things which he does. If the school situations deal with matters of interest to the learner he will actively participate in them and there learn to deal effectively with those situations. Furthermore, it is argued that the increasing effectiveness with which he handles present situations guarantees his ability to meet new situations as they arise. Hence it is essential to see that education provides opportunities for the student to enter actively into, and to deal wholeheartedly with, the things which interest him, and in which he is deeply involved, and to learn particularly how to carry out such activities effectively. (6, p. 8)

Learning has been given many definitions by scholars, although they all tend to agree that basically learning is the acquisition of knowledge or skill received by instruction or study. Burton stated that "learning is the acquisition of new responses or the modification of old ones." (2, p. 14)

Tyler listed seven specific conditions that are necessary for learning to take place among 4-H Club members. These conditions are as follows:
Motivation - if the learner is to carry on behavior there must be something that compels him to do it -- some drive, some desire, some motive behind it.

A Second Condition for effective learning, one which is often overlooked, is that the learner must recognize that his present behavior is inadequate in some respect; otherwise when one is motivated he just keeps repeating what he has done before.

The Third Condition, one that is commonly recognized, is the need for some guidance to new behavior. Here I am motivated to want to understand something that I haven't understood, or here I am motivated to develop some skill or practice that I have not done before.

A Fourth Condition for effective learning is to have opportunities. The learner must have opportunities to practice the new behavior.

A Fifth Condition for effective learning, and this is basic to all learning whether it be animal or human, is satisfaction in the desired behavior.

A Sixth Condition for effective learning, perhaps more difficult than most of the others, is helping the learner acquire standards of success that for him are high but attainable.

The Seventh Condition is closely related to the sixth. If he has standards that keep him moving ahead in his learning he has to have some way of telling whether he is reaching them, how well he is doing. So we refer to this seventh condition as some means for applying these standards to guide himself. (9, p. 13-14)

Kreece, Crutchfield and Ballachey say that "Man's actions are guided by his cognitions -- by what he thinks, believes, and anticipates. But when asked why he acts at all, we are
asking the question of motivation. And the motivational answer is given in terms of active, driving forces stimulated by some outside force. (3, p. 68)

Many authorities explain that one must experience several stimuli for true learning to take place. The meaning of the term "learning experience" was explained by Tyler as follows:

The term "learning experience" is not the same as the content with which a course deals nor the activities performed by the teacher. The term "learning experience" refers to the external conditions in the environment to which he can react. Learning takes place through the active behavior of the student; it is what he does that he learns, not what the teacher does. (6, p. 41)

It is essential for a teacher to develop many techniques which will influence his students to learn. Many of these techniques may be suggested or learned by the teacher in courses taken in college, but many must be learned through actual experience by working with youth groups.

Experts in the field of learning have many definitions of learning and teaching. Burton defines teaching this way:

Teaching is the stimulation, guidance, direction or encouragement of learning. It is setting the stage upon which learning takes place; it is giving opportunity for learning to arise. It is the guidance of such spontaneous learning as appears in the natural activities of children or older students. It includes all the activities performed in the direct furtherance of learning. (2, p. 70)
Behavioral Change

The emphasis of this study is change as the result of exposure to a learning experience, and it is important at this point to look at related research on this subject.

To the researcher the term or condition of change comes about as the result of some type of learning experience. It is the purpose of this learning experience to diffuse knowledge to the learner. This knowledge must be retained by the learner and this knowledge results in change.

Morgan and associates listed several useful rules in creating permanent retention of knowledge. These are:

1. Develop a strong enduring interest in the subject as a whole and in its important parts.
2. Secure the clearest possible understanding of each part of the subject.
3. Put the learning on a thought basis as much as possible.
4. Provide problems or questions requiring that the knowledge be applied.
5. Maintain the knowledge learned by occasionally recalling it and applying it to new situations.
6. Provide visual illustrations or images of the thing being taught. (4, p. 27-28)

Much research has been done on knowledge retention. Most researchers seem to agree that most knowledge is forgotten after approximately one month unless it is put into practice.
Some research has shown that the method of presentation has much effect on how much is remembered after a length of time.

Creel found that the method demonstration technique of presenting information was superior to the illustrated lecture in helping 4-H Club members retain information about a specific subject. (12)

In the study of a nutrition program by Gassie and Jones (9) it was found that even though the percentage of individuals with minimum adequate diets after four months was the same as before the educational program began, there were some definite positive changes in both knowledge levels and practice of nutrition. Many of these changes were sustained four months after the respondents had completed the educational program.

Normally there are several teaching devices used by Extension workers to present information to 4-H Club members. The two most commonly used methods by agents in Alabama are the method demonstration and the illustrated lecture.

The Method Demonstration

The method demonstration has been a widely used method of presenting educational information since the beginning of the Cooperative Extension Service some 55 years ago.
It is generally agreed by Extension workers that the method demonstration combines words and action to secure the desired results; a method of doing something is shown visually step by step and includes the necessary explanations of each step.

Although method demonstrations are used effectively to teach many kinds of information and skills to groups, it has limitations. It is normally not used with adult Extension groups, but is widely used with 4-H groups in a club situation.

Wilson and Gallup pointed out the extensive use of the method demonstration in Extension teaching when they indicated that:

During 1952, County Extension workers held 780,000 method demonstration meetings with a total attendance of 16,600,000. The average 4-H Club agent presents 61 method demonstrations per year. (11, p. 44)

Other authors have written about the value of a method demonstration. Algood, in describing the method demonstration, wrote:

Educational demonstrations are like continued stories. They should leave students or women with the desire for a continuation of the work rather than with completed satisfaction. The demonstration itself should be complete and give satisfaction, but it should also stimulate the members of the audience to go home and attempt the things that they have seen demonstrated or follow through other suggestions that have been made. (1, p. 4)
For method demonstrations to be successful in providing the learning experiences expected, they must be well planned. They must be timely and motivate the audience. Wilson and Gallup listed the necessary elements of a good method demonstration as:

1. Determine that the subject matter practice involves skills which need to be demonstrated to people.
2. Plan the demonstration in detail.
3. Rehearse the demonstration.
4. Give the demonstration.
5. Follow up. (11, p. 46)

Wilson and Gallup, in their elaboration on the method demonstration, listed advantages and limitation.

**Advantages:**

1. Peculiarly suited to teaching skills to many people.
2. Seeing, hearing, discussing, and participating in a group stimulates action.
3. Builds confidence in Extension workers if demonstration is performed skillfully.
4. Simple demonstrations readily lend themselves to repeated use by local leaders.
5. Influences changes in practice for a below-average cost.
Limitations:

1. Frequently considerable portion of audience cannot see clearly.

2. May require considerable equipment to be transported to meeting place.

3. Requires a certain amount of showmanship not possessed by some agents. (11, p. 47)

The Illustrated Lecture

Sometimes it is difficult to differentiate between the illustrated lecture and the method demonstration. Apparently the primary difference between the two is the use of extensive visual aids to strengthen lectures.

Morgan and associates, in discussing the place of audio-visual aids in instruction, wrote as follows:

Printed and spoken words are very useful in most learning situations, but there are some concepts which they cannot transmit as clearly or as completely as can audio-visual aids — the ideal, however, is not to rely on visual aids alone or on words alone but upon a combination of both. This combination, like the food a person eats, should be balanced and selected to meet the taste and requirements of the person, or group, concerned. (4, p. 134-135)

Appropriate visual aids, according to Morgan and associates, may contribute much to the success of any meeting. The very nature of the lecture meeting makes it desirable to supplement hearing with some seeing, where ever possible.
CHAPTER IV

CHARACTERISTICS OF 4-H MEMBERS RELATED TO CHANGE

The major emphasis of this study was to measure change in knowledge of 4-H Club members as a result of exposure to specific learning experiences. The respondents consisted of 422 senior 4-H Club members from 26 counties located throughout Alabama.

To adequately test change in knowledge by the respondents, it was necessary to establish their level of knowledge about a particular subject. They were pre-tested just before the presentation of a method demonstration on drug abuse, and retested again immediately after the presentation of the information to determine how much knowledge of the subject had been retained. Another test was given approximately one month later to establish the level of knowledge retention about the subject by the respondents after a period of time. All three tests were given to the respondents without advance notice. It should be pointed out at this point that there were 33 true-false questions on the test. The average score made by 4-H members on the first test was 23, the second test 27, and the third test 24. The mean change in knowledge score between
test two and three is a negative score since the change in knowledge declined on the second series of tests. The data from these tests are included in the following pages of this chapter.

It should be pointed out that the knowledge scores used in this study were obtained solely from a "pencil and paper" test.

The method used in analyzing the data was to compare the change in knowledge on test 1 and 2 and test 2 and 3. Analysis of variance was computed to determine the association between selected variables and the change in knowledge. As a basis for presentation, the variables which were related to change of knowledge are divided into three categories. These categories are: (1) characteristics of the respondents, (2) participation in 4-H Club work, and (3) participation in school and church activities.

1. **Characteristics of the Respondents**

The respondents were compared according to race. More than 75 per cent of the respondents were white 4-H Club members with one-fourth (23 per cent) being Negro 4-H Club members. The data on race (Table I) indicated very little difference in the change in knowledge between races on test 1 and 2 and test 2 and 3. The mean change values for both list scores very similar. The "F" value of .120 indicated that the race characteristic was not
TABLE I
A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS BY RACE

<table>
<thead>
<tr>
<th>Race</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Test 1 &amp; 2</td>
</tr>
<tr>
<td>White</td>
<td>323</td>
<td>77</td>
<td>3.71</td>
</tr>
<tr>
<td>Negro</td>
<td>99</td>
<td>23</td>
<td>3.76</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
</tr>
</tbody>
</table>

*F = .120, 1 and 420 df. - not significant at .10

**F = .473, 1 and 420 df. - not significant at .10

3/ Note: In all tables one asterisk refers to the mean change in knowledge between tests one and two, and two asterisks refers to the mean change in knowledge between tests two and three. The F values with levels of significance are noted under the tables. This procedure should not be confused with the procedure of using asterisks to designate levels of significance.
The ages of the respondents ranged from 13 to 18 years. For the purpose of analysis, all respondents were placed in two categories. The categories were as follows: 13 through 15 years of age and 16 through 18 years of age. All data concerning age are included in Table II.

TABLE II

A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS BY AGE

<table>
<thead>
<tr>
<th>Age</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Test 1 &amp; 2</td>
</tr>
<tr>
<td>13 thru 15</td>
<td>274</td>
<td>65</td>
<td>3.89</td>
</tr>
<tr>
<td>16 thru 18</td>
<td>148</td>
<td>35</td>
<td>3.36</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
</tr>
</tbody>
</table>

*F = 3.538, 1 and 420 df. - significant at .10

**F = .1333, 1 and 420 df. - not significant at .10

A comparison of the two age groups shows that there was a difference in the level of change in knowledge between the two groups. The 13 through 15 age had a higher change at both intervals when compared to the older age group.

The results of the statistical analysis of the data from the two age groups yielded an "F" value of 3.538 for the mean change of the first test comparison, which is significant at
the .10 level. The data also yielded an "F" value of .1333 for the mean change between the second and third test and this "F" value was not significant when compared with the theoretical value in the normal table at the .10 level.

A third variable used to establish a basis for comparison of change in knowledge as the result of exposure to a specific learning experience was classwork grades. Each respondent was asked to indicate his grades ranging from primarily A's to primarily D's. Data pertaining to the classwork grades are presented in Table III. The grades of the respondents were fairly well distributed between primarily A's, primarily B's and primarily C's. These three grade categories represented 95 per cent of the respondents. Five per cent of the respondents indicated they made primarily D's in school. The greatest change for all the age categories on both tests were made by those respondents who made primarily D's. A difference of 1.12 is noted in the change in knowledge on the first two tests when the primarily D respondents are compared to the primarily A respondents. There was very little difference in the change in the other categories. As indicated, the primarily D respondents also had the highest change in knowledge between test 2 and 3. This was only slight, however. The "F" values of 2.078 and .554 indicated that grades made on classwork by the respondents were not significantly associated with knowledge change between tests 1 and 2 or tests 2 and 3, respectively.
TABLE III
A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS AS RELATED TO CLASSWORK GRADES

<table>
<thead>
<tr>
<th>Classwork Grades</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge Test 1 &amp; 2</th>
<th>Test 2 &amp; 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primarily A's</td>
<td>118</td>
<td>28</td>
<td>3.75</td>
<td>2.64</td>
</tr>
<tr>
<td>Primarily B's</td>
<td>156</td>
<td>37</td>
<td>3.78</td>
<td>2.36</td>
</tr>
<tr>
<td>Primarily C's</td>
<td>125</td>
<td>30</td>
<td>3.35</td>
<td>2.67</td>
</tr>
<tr>
<td>Primarily D's</td>
<td>23</td>
<td>5</td>
<td>4.87</td>
<td>2.70</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
<td>2.55**</td>
</tr>
</tbody>
</table>

*F = 2.078, 3 and 418 df. - not significant at .10

**F = .554, 3 and 418 df. - not significant at .10

Information concerning place of residence of the 4-H Club members is presented in Table IV. The respondents were asked to indicate whether they lived on a farm, in the country but not on a farm, or in a town or city. An analysis of the table showed that the highest percentage of the respondents (41 per cent) lived in the country but not on a farm. This could have been expected since this is almost identical to the percentage in this category when all Alabama 4-H Club members are considered. Thirty five per cent of the respondents lived on a farm and 24 per cent lived in a town or city. The data showed that 4-H Club members living on a farm had a slightly higher change when test 1 and 2 were compared than the other categories.
The town or city respondents held an edge in amount of change in knowledge on test 2 and 3. However, here again it was only very slight. The "F" value of .107 for test 1 and 2 change indicated that the place of residence was not significantly related to change at the .10 level of probability. The "F" value of .2907 for the change between test 2 and 3 also indicated no significant relationship at the .10 level.

### TABLE IV

**A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS BY PLACE OF RESIDENCE**

<table>
<thead>
<tr>
<th>Residence</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Test 1 &amp; 2</td>
</tr>
<tr>
<td>Farm</td>
<td>149</td>
<td>35</td>
<td>3.79</td>
</tr>
<tr>
<td>Country, Not Farm</td>
<td>172</td>
<td>41</td>
<td>3.67</td>
</tr>
<tr>
<td>Town or City</td>
<td>101</td>
<td>24</td>
<td>3.64</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>422</strong></td>
<td><strong>100</strong></td>
<td><strong>3.70</strong>*</td>
</tr>
</tbody>
</table>

*F = .1070, 2 and 419 df. - not significant at .10

**F = .2807, 2 and 419 df. - not significant at .10

When the four characteristic criteria (race, age, classwork, and place of residence) were analyzed, it appeared that age was the only characteristic significantly related to change in knowledge.
2. **Participation in 4-H Club Work**

To get a better understanding of the respondents, it was necessary to obtain data concerning the number of years in the 4-H Club, number of 4-H projects carried during the current year, number of club activities they had participated in and the total awards received during their tenure in 4-H Club work.

Data concerning the number of years the individual had been in 4-H Club work are presented in Table V. The years were as follows: 1-3; 4-5 and 6 or more.

As indicated by the data, there was very little difference in the categories set up for years in 4-H Club work. If a category had an edge on change in knowledge for the test given it would have to be the 4- and 5-year members. The change in knowledge was slightly higher for this age group in both the first series of tests and the second series of tests.

The "F" scores for both sets of tests representing the change was not significant. Therefore, in this particular situation, one would have to conclude that the number of years in club work had no bearing on the change in knowledge as a result of the learning experience on drugs.
TABLE V

A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS BY YEARS IN 4-H CLUB WORK

<table>
<thead>
<tr>
<th>Years in 4-H Club Work</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge Test 1 &amp; 2</th>
<th>Test 2 &amp; 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3 years</td>
<td>148</td>
<td>35</td>
<td>3.68</td>
<td>2.44</td>
</tr>
<tr>
<td>4-5 years</td>
<td>172</td>
<td>41</td>
<td>3.88</td>
<td>2.64</td>
</tr>
<tr>
<td>6 or more years</td>
<td>102</td>
<td>24</td>
<td>3.47</td>
<td>2.58</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
<td>2.55**</td>
</tr>
</tbody>
</table>

*F = 1.080, 2 and 419 df. - not significant at .10
**F = .594, 2 and 419 df. - not significant at .10

In an effort to further determine variables which might be associated with knowledge change in 4-H members as a result of exposure to a specific learning experience, the researcher considered the number of projects carried by the 4-H members. The data relative to this variable are presented in Table VI. Number of projects carried was broken into four categories. Since all 4-H members are required to carry at least one project, the categories were one project, two projects, three projects and four or more projects. Fifty nine per cent of the club members carried two or three projects. As can be seen in the table, there was very little difference between categories in the amount of change. Four-H members who carried two projects...
had a slightly higher change score for the first and second test. However, with an "F" value of .642 this was not a significant association. Looking at the change in the second and third test, we find that the respondents who carried four or more projects had the highest score. The "F" value of .586 reveals that there was no association between number of projects and the change. It can be assumed then that at the .10 probability level there is no significance in the relationship between the variable and change in knowledge as a result of this specific learning experience.

**TABLE VI**

A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS BY THE NUMBER OF PROJECTS CARRIED

<table>
<thead>
<tr>
<th>Number of Projects</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge Test 1 &amp; 2</th>
<th>Test 2 &amp; 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Project</td>
<td>85</td>
<td>20</td>
<td>3.67</td>
<td>2.46</td>
</tr>
<tr>
<td>2 Projects</td>
<td>141</td>
<td>33</td>
<td>3.83</td>
<td>2.45</td>
</tr>
<tr>
<td>3 Projects</td>
<td>110</td>
<td>26</td>
<td>3.62</td>
<td>2.52</td>
</tr>
<tr>
<td>4 Projects</td>
<td>86</td>
<td>21</td>
<td>3.69</td>
<td>2.87</td>
</tr>
<tr>
<td>TOTAL</td>
<td>442</td>
<td>100</td>
<td>3.70*</td>
<td>2.55**</td>
</tr>
</tbody>
</table>

*F = .642, 3 and 418 df. - not significant at .10

**F = .586, 3 and 418 df. - not significant at .10
Data pertaining to participation as a 4-H officer are presented in Table VII. The respondents were asked to indicate how many offices they had held in 4-H since they became members. Fifty one per cent of the members reported they had not served as a 4-H officer. Twenty eight per cent had held one office while 21 per cent had held two or more offices during their stay in 4-H. Four-H members who had held one or more offices in 4-H had a mean change score in the first series of tests which was higher than those respondents who had never held an office, but this did not hold true in the second series of tests. The low "F" value of 1.422 for the change in the first series of tests indicated that participation as a 4-H officer was not significantly associated with change at the .10 probability level. This analysis did not hold true for the tests 2 and 3. The "F" score of 3.852 at the .05 probability level did reveal a significant relationship between offices held and change in the second series of tests. It is noted respondents who held two or more offices had the highest change score in the second series of tests which indicated although they retained more knowledge in the first series, they also suffered the greatest loss on the second series of tests.
TABLE VII

A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS AS RELATED TO THE NUMBER OF 4-H OFFICES HELD

<table>
<thead>
<tr>
<th>4-H Offices Held</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Test 1 &amp; 2</td>
</tr>
<tr>
<td>No Offices Held</td>
<td>213</td>
<td>51</td>
<td>3.55</td>
</tr>
<tr>
<td>1 Office Held</td>
<td>117</td>
<td>28</td>
<td>3.64</td>
</tr>
<tr>
<td>2 or More Offices Held</td>
<td>92</td>
<td>21</td>
<td>4.13</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
</tr>
</tbody>
</table>

*F = 1.422, 2 and 419 df. - not significant at .10

**F = 3.852, 2 and 419 df. - significant at .05

Table VIII contains data relative to the participation in 4-H activities by the respondents. The respondents were asked to indicate the 4-H activities in which they had participated and the number of times they had participated. Each respondent was scored one point for each time he had participated in any 4-H activity. The largest percentage (55 per cent) of the respondents had no 4-H activity participation. Nineteen per cent had participated in only one activity and 26 per cent had participated in two or more activities. The data indicated that the highest change in knowledge score for the first series
of tests was found among the respondents who had participated in two or more activities, while the lowest change was found within those members who had no activity participation. The lowest change for the second series of tests was also found within the no participation group. The "F" score of 2.182 for the change in the first series of tests indicated that there is an association with activity participation at the .10 level. However, the "F" score of .944 for the second series of tests was not significantly associated with change at the .10 level of probability.

TABLE VIII

A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS AS RELATED TO PARTICIPATION IN 4-H ACTIVITIES

<table>
<thead>
<tr>
<th>Activity Participation</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge Test 1 &amp; 2</th>
<th>Test 2 &amp; 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Participation</td>
<td>234</td>
<td>55</td>
<td>3.40</td>
<td>2.41</td>
</tr>
<tr>
<td>Participation in One Activity</td>
<td>78</td>
<td>19</td>
<td>4.06</td>
<td>2.82</td>
</tr>
<tr>
<td>Participation in Two or More Activities</td>
<td>110</td>
<td>26</td>
<td>4.13</td>
<td>2.67</td>
</tr>
<tr>
<td>TOTAL</td>
<td>442</td>
<td>100</td>
<td>3.70*</td>
<td>2.55**</td>
</tr>
</tbody>
</table>

*F = 2.182, 4 and 417 df. - significant at .10

**F = .944, 4 and 417 df. - not significant at .10
TABLE IX

A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS AS RELATED TO THE NUMBER OF AWARDS RECEIVED IN 4-H CLUB WORK

<table>
<thead>
<tr>
<th>Awards Received</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Test 1 &amp; 2</td>
</tr>
<tr>
<td>No Awards</td>
<td>249</td>
<td>59</td>
<td>3.52</td>
</tr>
<tr>
<td>One Award</td>
<td>80</td>
<td>19</td>
<td>4.14</td>
</tr>
<tr>
<td>Two Awards</td>
<td>34</td>
<td>8</td>
<td>3.82</td>
</tr>
<tr>
<td>Three or More Awards</td>
<td>59</td>
<td>14</td>
<td>3.78</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
</tr>
</tbody>
</table>

*F = .814, 4 and 417 df. - not significant at .10

**F = .401, 4 and 417 df. - not significant at .10

Data relative to number of 4-H awards received by the respondents are found in Table IX. As in the activity participation, it can be noted that the highest per cent (59) of respondents had received no awards for their participation in club work. Twenty seven per cent had received one or two awards and 14 per cent had received three or more awards. As for change in knowledge for the first series of tests, the respondents who had received one award were slightly higher than those who received two or more awards. The one award
group was considerable higher in change than the no award respondents. There was very little difference in change for any of the respondents for the second series of tests. Here again, those respondents who had received three or more awards had a slightly higher change score than did those respondents receiving no awards. However, in the case of both test series there was no significant association between awards received and change.

3. Participation in School and Church Activities

The respondents' school and church experiences, which were studied, included the activities participated in such as student council, honor club, band and similar organizations. In addition, the 4-H members were asked to indicate whether they were members of an athletic team. As for church activities, the members were asked to list their involvement in church, such as Sunday School member, youth group member, etc.

Table X contains data on participation in school activities, other than varsity sports. The respondents were divided into two categories. Those members who participated in one or two activities and those members who participated in three or more activities. The members were given one point for each activity participated in. Seventy per cent of the respondents participated in one or two activities while 30 per cent participated in three or more activities. The change score for
both series of tests was highest for those members who participated in one or two activities. The "F" value of 1.441 for the first test series and the "F" value of 1.971 for the second test series were not significant statistically at the .10 level.

**TABLE X**

A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS BY SCHOOL ACTIVITIES PARTICIPATED IN

<table>
<thead>
<tr>
<th>Number of School Activities</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge Test 1 &amp; 2</th>
<th>Test 2 &amp; 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 Activities</td>
<td>296</td>
<td>70</td>
<td>3.75</td>
<td>2.59</td>
</tr>
<tr>
<td>3 or More Activities</td>
<td>126</td>
<td>30</td>
<td>3.57</td>
<td>2.45</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
<td>2.55**</td>
</tr>
</tbody>
</table>

*F = 1.441, 2 and 419 df. - not significant at .10

**F = 1.971, 2 and 419 df. - not significant at .10

Respondents were asked to indicate whether or not they participated in any of the traditional high school varsity athletics. The data for the athletic participation are presented in Table XI. It is interesting to note that approximately 50 per cent participated in some kind of high school athletics. As can be seen from Table XI, there is
very little difference in the change in knowledge for all categories. Those respondents who did not participate in athletics had a slightly higher change score on the second series of tests (tests 2 and 3). The "F" value of .393 and 1.506, respectively, indicated that participation in school athletics was not significantly associated with change in knowledge at the .10 level of probability.

TABLE XI
A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS BY THEIR PARTICIPATION IN SCHOOL ATHLETICS

<table>
<thead>
<tr>
<th>Athletic Team</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Test 1 &amp; 2</td>
</tr>
<tr>
<td>Yes</td>
<td>207</td>
<td>49</td>
<td>3.69</td>
</tr>
<tr>
<td>No</td>
<td>215</td>
<td>51</td>
<td>3.74</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
</tr>
</tbody>
</table>

*F = .393, 2 and 419 df. - not significant at .10
**F = 1.506, 2 and 419 df. - not significant at .10

Is participation in church activities significantly associated with change in 4-H Club members as a result of exposure to a specific learning experience? The answer to
this question can be found in Table XII, which contains data pertaining to participation in church activities by the respondents. As was mentioned earlier, the respondents were asked to indicate whether they participated in church activities such as Sunday School, Methodist Youth Fellowship, Baptist Student Union, and such youth groups. These members were given one point for each activity participated in. Forty four per cent of the respondents did not participate in any church activities while 56 per cent participated in at least one activity. Those members who participated in at least one activity had a slightly higher change in knowledge score on the first series of tests (tests 1 and 2). However, the "F" value of 1.050 indicates that participation in church activities was not significantly associated with change at the .10 probability level. A further look at the table reveals that there was only a slight variation between categories in change on the second series of tests (tests 2 and 3) and the "F" value of 1.130 indicated that there was no significant association between participation in church activities and change in knowledge at the .10 probability level.
### TABLE XII

A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS BY THEIR PARTICIPATION IN CHURCH ACTIVITIES

<table>
<thead>
<tr>
<th>Church Activities</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Test 1 &amp; 2</td>
</tr>
<tr>
<td>No Activities</td>
<td>186</td>
<td>44</td>
<td>3.49</td>
</tr>
<tr>
<td>1 Activity</td>
<td>151</td>
<td>36</td>
<td>3.92</td>
</tr>
<tr>
<td>2 or More Activities</td>
<td>85</td>
<td>20</td>
<td>3.79</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
</tr>
</tbody>
</table>

*F = 1.050, 2 and 419 df. - not significant at .10

**F = 1.130, 2 and 419 df. - not significant at .10
CHAPTER V

CHARACTERISTICS OF EXTENSION FARM AGENTS (4-H) AS THEY RELATE TO CHANGE IN 4-H MEMBERS

This chapter presents a description of personal, social, and educational factors that are characteristic of the Extension Farm Agents (4-H) included in this study. These variables are related to the change of knowledge of 4-H members to determine if there is a statistically significant relationship between the variable and knowledge change in 4-H members as a result of the exposure of 4-H members to the learning experience on drugs.

I. Personal Characteristics

The personal characteristics of the Extension Farm Agents (4-H) that were studied included age and tenure. The individuals were asked to indicate their age at nearest birthday and the number of years employed by the Alabama Cooperative Extension Service.

Age

The Extension Farm Agents (4-H) were divided into two categories according to age: (1) 23 to 35 and (2) 36 to 53. The majority (54 per cent) were from 23 to 35 years of age (Table XIII). The 23- to 35-year age group had a slightly
higher change in knowledge score for both series of tests than did the older age group (36 to 53). However, the change was not significant. The "F" values for both tests suggested that there was no significant association between age levels of Extension Agents (4-H) and change at the .10 probability level.

TABLE XIII

A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS AS RELATED TO THE AGE OF EXTENSION FARM AGENTS (4-H)

<table>
<thead>
<tr>
<th>Age of Agent</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 - 35 years</td>
<td>229</td>
<td>54</td>
<td>3.76</td>
</tr>
<tr>
<td>36 - 52 years</td>
<td>193</td>
<td>46</td>
<td>3.63</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
</tr>
</tbody>
</table>

*F = .236, 1 and 420 df. - not significant at .10

**F = .456, 1 and 420 df. - not significant at .10

Tenure

Two categories for length of service were set up: (1) 1 to 9 years, and (2) 10 or more years. Almost two thirds (62 per cent) were in the 1 to 9 year category (Table XIV). The change in knowledge score for both series of tests (1 and 2, 2 and 3) was slightly higher for the younger age group of agents.
The "F" value of .684 for the mean change in the first series of
tests indicated there was no significant association between
tenure and change in 4-H members at the .10 level of probability.
However, the "F" value of 3.930 for the mean change for the
second series of tests indicated there was a significant
association between tenure and change in 4-H Club members at
the .05 probability level. This indicates that the members
taught by agents in the 1-9 year tenure group tended to retain
less knowledge in the final test.

TABLE XIV

A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB
MEMBERS AS RELATED TO THE YEARS OF SERVICE
OF THE EXTENSION FARM AGENT (4-H)

<table>
<thead>
<tr>
<th>Years of Service</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Test 1 &amp; 2</td>
</tr>
<tr>
<td>1-9 years</td>
<td>263</td>
<td>62</td>
<td>3.79</td>
</tr>
<tr>
<td>10 or more years</td>
<td>159</td>
<td>38</td>
<td>3.56</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
</tr>
</tbody>
</table>

*F = .684, 1 and 420 df. - not significant at .10

**F = 3.930, 1 and 420 df. - significant at .05
II. Farm Background

Farm characteristics that were studied included place of residence prior to attending college and whether or not the Extension Farm Agents had past experience as a 4-H Club member.

Each individual was asked to indicate if he lived on a full-time farm, part-time farm, in a rural non-farm area or urban area.

Residence Prior to College

After information was gathered concerning the farm status, the respondents were divided into two groups - full-time farm and part-time farm. None of the respondents were reared in a rural non-farm or urban area. As indicated in Table XV, 60 per cent of the Extension Farm Agents grew up on a full-time farm. Further examination of the table reveals that the change in knowledge score for the first series of tests (tests 1 and 2) and also the second series of tests (tests 2 and 3) was slightly higher for the part-time farm group. The "F" value of 1.546 and 2.185 indicated there was no significant relationship between place of residence prior to entering college and the change in knowledge score of the respondents.
TABLE XV

A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS AS RELATED TO THE PLACE OF RESIDENCE OF THE EXTENSION FARM AGENT (4-H) DURING THE AGENTS PRE-TEEN AND TEEN YEARS

<table>
<thead>
<tr>
<th>Place of Residence</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge Test 1 &amp; 2</th>
<th>Test 2 &amp; 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-Time Farm</td>
<td>254</td>
<td>60</td>
<td>3.57</td>
<td>2.41</td>
</tr>
<tr>
<td>Part-Time Farm</td>
<td>168</td>
<td>40</td>
<td>3.91</td>
<td>2.76</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
<td>2.55**</td>
</tr>
</tbody>
</table>

*F = 1.546, 1 and 420 df. - not significant at .10

**F = 2.185, 1 and 420 df. - not significant at .10

4-H Experience of Extension Farm Agents (4-H)

The Extension Farm Agents (4-H) were asked to indicate whether or not they had been 4-H Club members. The Agents were divided into those who had been 4-H members and those who never had been enrolled. As indicated in Table XVI, 83 per cent of the agents had been 4-H members. This left only 17 per cent who never were members. There was a slight difference in the change in knowledge.
on the first series of tests with those who had not been a
4-H member experiencing a slightly higher change than those
who had been 4-H members. However, the "F" value of 1.484
indicated there was no association at the .10 level of
probability. Further analysis of Table XVI reveals that there
was a higher change in knowledge on the second series of tests
(tests 2 and 3) and the "F" value of 4.292 indicated there was
a significant relationship between change in 4-H members and
agents belonging to a 4-H Club. This relationship was
significant at the .05 level of probability. Club members
instructed by agents who had been 4-H members had on the average,
less knowledge retention in the final analysis.

TABLE XVI
A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB
MEMBERS AS RELATED TO THE 4-H EXPERIENCE
OF THE EXTENSION FARM AGENT (4-H)

<table>
<thead>
<tr>
<th>4-H Member</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>351</td>
<td>83</td>
<td>3.63</td>
</tr>
<tr>
<td>No</td>
<td>71</td>
<td>17</td>
<td>4.07</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
</tr>
</tbody>
</table>

*F = 1.484, 1 and 420 df. - not significant at .10

**F = 4.292, 1 and 420 df. - significant at .05
Major Field of Study in Which Bachelors Degree Was Earned

The respondents were asked to indicate the major field of study for their bachelor's degree. The choices were (1) education, (2) social sciences, (3) technical agriculture, (4) humanities, (5) vocational education, and (6) other. All respondents had either received a degree in technical agriculture or vocational education. Table XVII reveals that exactly 50 per cent had received their degrees in each area. Further analysis reveals that the change in knowledge of 4-H members was considerably higher for those Extension Farm Agents (4-H) who had received degrees in vocational education than those agents who had received degrees in technical agriculture. The "F" value of 5.423 indicated there was a significant association at the .05 level of probability between knowledge change in 4-H members and major field of study of Extension Farm Agents (4-H). This significance did not hold true for the second series of tests (test 2 and 3). There was a slight difference in the change score, although the "F" value of .884 indicated there was no significance at the .10 level of probability.
### TABLE XVII

A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS AS RELATED TO THE MAJOR FIELD OF STUDY OF THE EXTENSION FARM AGENTS (4-H)

<table>
<thead>
<tr>
<th>Major Field of Study</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge Test 1 &amp; 2</th>
<th>Test 2 &amp; 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Agriculture</td>
<td>210</td>
<td>50</td>
<td>3.39</td>
<td>2.44</td>
</tr>
<tr>
<td>Vocational Education</td>
<td>212</td>
<td>50</td>
<td>4.01</td>
<td>2.66</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>422</strong></td>
<td><strong>100</strong></td>
<td><strong>3.70</strong>*</td>
<td><strong>2.55</strong>**</td>
</tr>
</tbody>
</table>

*F = 5.423, 1 and 420 df. - significant at .05

**F = .884, 1 and 420 df. - not significant at .10

**Undergraduate Scholastic Record**

For the purposes of analysis, the grade-point averages in the undergraduate curriculum for all Extension Farm Agents (4-H) were divided into two groups, namely: (1) 1.00 to 1.99 and (2) 2.00 to 3.00 (1.00 represents C, 2.00 represents B and 3.00 represents A). As indicated in Table SVIII, 65 per cent of the respondents had an overall grade-point average from 1.00 to 1.99. There was very little change in the test scores of both series of tests. In the first series of tests the 1.00 to 1.99 group of agents had a slightly higher change, while in the second series of tests (tests 2 and 3) the 2.00 to 3.00 group had a slightly higher change. The "F" value in both series of
tests indicated there was no significant relationship between change in knowledge of 4-H members and the grade point average of the Extension Farm Agents (4-H).

TABLE XVIII
A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS AS RELATED TO THE COLLEGE GRADE POINT AVERAGE OF THE EXTENSION FARM AGENT (4-H)

<table>
<thead>
<tr>
<th>Grade Point Average</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge Test 1 &amp; 2</th>
<th>Mean Change in Knowledge Test 2 &amp; 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00 - 1.99</td>
<td>273</td>
<td>65</td>
<td>3.77</td>
<td>2.53</td>
</tr>
<tr>
<td>2.00 - 3.00</td>
<td>149</td>
<td>35</td>
<td>3.58</td>
<td>2.58</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
<td>2.55**</td>
</tr>
</tbody>
</table>

*F = .427, 1 and 420 df. - not significant at .10
**F = .317, 1 and 420 df. - not significant at .10

Participation in College Organization

The respondents were asked to indicate their participation in social fraternities, professional fraternities, honorary fraternities, student councils, agricultural clubs, church organizations and service clubs. For each of these organizations, the agents indicated if they had been a member, and an officer.
A total score was calculated for each individual by allowing one point for being a member and two points for being an officer. In each case, the highest point was used for calculating the total college participation score for the individual.

After totaling the points for each individual, the 4-H agents were grouped into categories according to the following breakdown: (1) 0 points, (2) 1 to 3 points, and (3) 4 or more points. Ninety-one per cent of the respondents had participated in at least one college activity (Table XIX). Further observation of the data reveals that there was only a slight difference in change for all categories. The "F" value for both series of tests indicated there was no significant relationship between change in 4-H members and agents participation in organization while in college at the .10 level.

**Present Participation in Community Activities**

Extension Farm Agents (4-H) were asked to indicate their participation at the present time in community activities. The agents were asked to indicate their participation in PTA, Civic Clubs, Veterans Organizations, Boy Scouts, Little League Sports, Church Organizations, and Fraternal organizations.
TABLE XIX
A COMPARISON OF THE CHANGE IN KNOWLEDGE OF 4-H CLUB MEMBERS AS RELATED TO THE PARTICIPATION IN COLLEGE ACTIVITIES OF THE EXTENSION FARM AGENTS (4-H)

<table>
<thead>
<tr>
<th>College Participation Score</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge Test 1 &amp; 2</th>
<th>Mean Change in Knowledge Test 2 &amp; 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Participation</td>
<td>36</td>
<td>9</td>
<td>4.22</td>
<td>2.44</td>
</tr>
<tr>
<td>1-3 Points</td>
<td>183</td>
<td>43</td>
<td>3.82</td>
<td>2.56</td>
</tr>
<tr>
<td>4 or more Points</td>
<td>203</td>
<td>48</td>
<td>3.51</td>
<td>2.56</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
<td>2.55**</td>
</tr>
</tbody>
</table>

*F = 1.291, 2 and 419 df. - not significant at .10
**F = .401, 2 and 419 df. - not significant at .10

Here again, as in college participation the agents were given one point for being a member and two points for being an officer. In each case, the highest point was used for calculating the total community participation score for the individual. Only 6 per cent (Table XX) did not participate in any community activities, while 94 per cent participated in one or more community activities. As can be seen in the table, 4-H members whose agents did not participate in any community activities had a higher change score than those who did participate in community activities. The "F" value of 0.089
indicated that there was a significant relationship between community participation and change in 4-H Club members at the .05 level. This significance did not hold true in the second series of tests (tests 2 and 3) because the "F" value of 1.902 indicates there is no association at the .10 level of probability.

<table>
<thead>
<tr>
<th>Community Participation Score</th>
<th>Number</th>
<th>Per Cent</th>
<th>Mean Change in Knowledge Test 1 &amp; 2</th>
<th>Mean Change in Knowledge Test 2 &amp; 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Participation</td>
<td>24</td>
<td>6</td>
<td>5.17</td>
<td>2.71</td>
</tr>
<tr>
<td>1 to 3 Points</td>
<td>188</td>
<td>45</td>
<td>3.14</td>
<td>2.30</td>
</tr>
<tr>
<td>4 or More Points</td>
<td>210</td>
<td>40</td>
<td>4.04</td>
<td>2.75</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>100</td>
<td>3.70*</td>
<td>2.55**</td>
</tr>
</tbody>
</table>

*F = 9.089, 2 and 410 df. - significant at .05

**F = 1.902, 2 and 410 df. - not significant at .10
CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The major problem in this study was to determine if there were factors that were associated with change in knowledge of 4-H Club members as a result of exposure to a specific learning experience. The sample consisted of 422 4-H Club members located in 26 Alabama counties and the Extension Farm Agents (4-H) responsible for 4-H Club work in those counties.

Four major objectives were involved:

1. To obtain information from Extension Farm Agents doing 4-H Club work in regards to:
   a. 4-H experience
   b. Personal characteristics
   c. Farm background
   d. College experience
   e. Levels of education or educational background
   f. Present community involvement

2. To determine specific personal and background characteristics of a representative group of 4-H Club boys.
3. To determine the degree of change in a representative group of 4-H members as a result of exposure to a specific learning experience.

4. To determine the association between degree of change in club members and characteristics of the 4-H Club members and the Extension Farm Agents (4-H).

To obtain data, prepared questionnaires were administered to the 4-H Club members in a group situation by their respective Extension Farm Agents (4-H). These questionnaires were administered to the members immediately before the demonstration was given on drugs and again immediately after the demonstration. This is referred to throughout this research report as the first series of tests. This represents the mean change score for test 1 and 2. Approximately one month after the information was presented to the club members a third test was given to the respondents. The difference between the second and third test score represents the mean change score for the second test series.

To facilitate presentation and analysis, the data were divided into three categories - characteristics of respondents, participation in 4-H Club work, and participation in school and church activities.

Mailed questionnaires were used to obtain data from the Extension Farm Agents (4-H).
I. SUMMARY

4-H Members

A. Characteristics of the 4-H Members

1. Race

Although the relationship between race and change in knowledge was not statistically significant, it was noted that in both series of test scores the change was slightly higher for white 4-H members. Race was not statistically associated, however, with change in knowledge.

2. Age

Age was a significant variable associated with change. The respondents between the ages of 13 and 15 had a higher change in knowledge score on the first series of tests than did the respondents between the ages of 16 and 18. At the .10 level of probability this change was significant.

3. Classwork grades

There was no statistically significant relationship between classwork grades and change in knowledge. There have been other studies on change that showed that those respondents who made primarily A's also had the highest change score, but for this study it was just the reverse. In both series of tests, those 4-H members who made primarily D's had the highest mean change score.
4. Place of residence

The percentage of respondents was fairly well distributed between farm, country not farm and town or city. The mean change scores for both series of tests were relatively equal and there was no statistically significant relationship between change in knowledge and place of residence.

B. Participation in 4-H Club Work

1. Years as a 4-H member

Years of 4-H Club membership was not statistically significant in relationship to change in knowledge as a result of the learning experience. In the three age categories, however, the respondents who had been members for four to five years had a slightly higher mean score on both series of tests than did the other two age categories.

2. Number of projects carried

The number of projects carried by 4-H members was not significantly associated with change in knowledge.

3. Number of 4-H offices held

The number of 4-H offices held was significantly associated with the change in knowledge for the second series of tests. This did not hold true for the first series of tests. The members who had held two or more offices had a change score of 3.02 as compared to a mean change score of 2.13 for one office and 2.58 for no office held.
4. Participation in 4-H activities

Participation in 4-H activities was significantly associated with change at the .10 level of probability. Forty-five per cent of the members had participated in various activities while fifty-five per cent had never participated in any activities.

5. Number of 4-H awards received

The number of awards received was not significant at the .10 level of probability. Here again approximately 50 per cent of the respondents had received no awards as a result of their 4-H Club work.

C. Participation in School and Church Activities

1. Participation in school activities

Participation in school activities other than varsity sports by the 4-H members was not significantly associated with the change score, although it was noted that the members who participated in not more than two activities had a slightly higher change score on both series of tests.

2. Participation in school athletics

Approximately 50 per cent of the respondents did not participate in varsity school athletics. There was no significant relationship between athletic participation and change in knowledge.
3. Participation in church activities

Almost one-half of the respondents did not participate in church activities such as Sunday School, youth organizations and choir. Further analysis of the data indicated that there was no significant relationship between church activity participation and change in knowledge.

Extension Farm Agents

A. Information Obtained from Extension Farm Agents (4-H)

1. Age

Fifty four per cent of the agents were under 35 years of age. Age of agents was not significantly associated with the change in knowledge of 4-H Club members.

2. Years of service

Analysis of the data on years of service of agents revealed that tenure was significantly associated with change in knowledge of 4-H members at the .05 level of probability for the second series of tests. There was no significant relationship on the first series of tests.

3. Farm background

Sixty per cent of the respondents grew up on full time farms and 40 per cent grew up on part-time farms. There was no significant relationship between change in knowledge of 4-H'ers and place of residence of agents prior to entering college.
4. 4-H experience

Eighty three per cent of the agents had been 4-H members and there was a significant relationship between change in knowledge of 4-H'ers and this characteristic. This significance was positive only in the second series of tests.

5. Major field of study

Major field of study of Extension Farm Agents (4-H) was significantly associated with change in knowledge of 4-H members at the .05 level of probability on the first series of tests. There was no association on the second series of tests.

6. Grade point average in college

Sixty five per cent of the respondents had undergraduate grade point averages from 1.00 to 1.99. Statistically, grade point average of agents was not significantly associated with change in knowledge of 4-H members.

7. Participation in college activities

Most of the agents had participated in one or more college activities. However, their participation was not significantly related to change in knowledge of 4-H members.

8. Present community participation

There was a significant association at the .05 level of probability between present community participation by agents and change in knowledge of 4-H members. This applies only to the first series of tests. There was no significant association in the second series of tests.
II. CONCLUSIONS

It was hypothesized that there is no association between change in knowledge of 4-H Club members and their (1) race, (2) age, (3) place of residence, (4) tenure in club work, (5) projects carried, (6) participation in school activities, (7) participation in school athletics, (8) grade point averages, (9) participation in church activities, (10) participation in club activities, (11) 4-H awards received, (12) age of Extension Agent, (13) marital status of agent (14) tenure of agent, (15) former 4-H membership status of agent, (16) agents major field of study, (17) college grade point average of agent, (18) college participation of agent and (19) present community participation of agent.

Conclusions based on interpretations of the data presented in the study are as follows:

1. Thirteen of the variables tested were not significantly related to change in knowledge of 4-H Club members.

These findings suggest that change in knowledge of 4-H Club members who are presented specific information is not associated with variables such as race, tenure in 4-H, 4-H project and activity participation, place of residence of Extension Farm Agent (4-H) during pre-teen and teen years and etc.
2. Seven of the variables tested were significantly related to change in knowledge of 4-H Club members.

The number of significantly related variables were too few to justify drawing any pattern of variables that might be associated with change. In no case was the significance found in the mean change in knowledge score for both sets of test scores.

3. Age of 4-H Club members was significantly related to change in knowledge. It was found that the younger age group had a higher change in knowledge score than did the older age group. This may be due to the fact that the younger age group had not been exposed formally to as much education on drugs as had the older age group and therefore were more interested in the material being presented.

4. It was found that a relationship existed between the number of offices held in 4-H and change in knowledge. This relationship was in the knowledge change between test two and three. Four-H members who held two or more offices had a higher change score than those who held one office or no office. This test score is a negative score and it perhaps means that those 4-H members who had held two or more offices in 4-H may also have been heavily involved in church and school activities and consequently tended to use their time in other areas thereby having a tendency to forget knowledge that had been acquired.
5. Participation in 4-H, church and school activities was not significantly associated with change in knowledge of the 4-H'ers. It might be pointed out that those 4-H members who made primarily D's had a higher change score on both the first and second series of test. This may be attributed to the fact that these young people are not properly motivated or do not have the recall ability of those 4-H'ers who make higher scholastic grades.

6. Several factors tested that dealt with the Extension Farm Agents (4-H) tended to have a significant relationship to change in knowledge of 4-H'ers. Significance existed between tenure of agents and change in knowledge of 4-H Club members. From this finding it might be concluded that younger agents are able to motivate or relate to 4-H Club members to a higher degree than older agents in terms of service. It would seem that agents with more years of service would be more experienced in educational procedures and would therefore be able to master the job at hand with more expertise than younger agents.

7. There was a positive relationship between change in knowledge of 4-H'ers and the 4-H background of the Extension Farm agents (4-H). This relationship was not found in the first series of test but on the second series of test. The scores of the 4-H members who agents who had been 4-H'ers were significantly higher than the change score of the 4-H'ers who agents had not been members.
It might be reasonable to assume that a high percentage of the agents who had been 4-H members were also the same agents who tended to bring about greater change in knowledge of 4-H'ers when tenure was considered.

8. A significant relationship existed between change in knowledge of 4-H members and the major field of the agent's undergraduate study. Four-H members whose agents received an undergraduate degree in Vocational Education had a higher change score than 4-H'ers whose agents received a degree in Technical Agriculture. This significant relationship was found only in the first series of test. A reasonable assumption could be that the Vocational Education curriculum contains more formal training in the social sciences such as sociology and psychology and educational methods than does the curriculum for technical agriculture thus better equipping the agent to bring about change in his audience.

9. There was also a significant relationship between change in 4-H members and the Extension Farm Agents (4-H) participation in community activities. This significant relationship was for the first series of test only.

This finding might be related to the earlier finding on tenure of the 4-H agents. The Alabama Cooperative Extension Service encourages its employees to participate in community
activities and it is probable that the agents with fewer years of service are more active in community activities such as PTA and Civic Clubs.

In general the findings of this study reveal that only a very few of the variables considered seem to have any bearing on the extent of knowledge change in 4-H'ers as a result of exposure to a specific learning experience.

III. RECOMMENDATIONS

This study fails to provide a conclusive basis for determining a definite group of factors that could be considered as guidelines for Extension Farm Agents (4-H) administrating the Cooperative Extension Service when attempting to bring about knowledge change in 4-H members.

Based on past research it is known that change or learning comes about when there is motivation on the part of the learner. This motivation can be produced by an external force such as an Extension Agent. Retention of knowledge is highest when the learner makes frequent use of the knowledge learned. In the case of the learning experience provided for this study it could be expected that the 4-H member's would not retain or the change would not be permanent because of the nature of the learning experience.
One of the most significant findings of this research was the field of undergraduate study of the Extension Farm Agents (4-H). Additional study should be directed to this area to try to determine the kinds of curricula that are associated with club member changes in knowledge, and this information should be used as a criteria for the selection of Extension employees who will be responsible for 4-H Club work.
SELECTED BIBLIOGRAPHY

A. BOOKS


B. PUBLICATIONS


C. UNPUBLISHED MATERIAL


APPENDIX
APPENDIX A

QUESTIONNAIRE FOR OBTAINING INFORMATION
FROM EXTENSION FARM AGENTS (4-H)

Schedule Number ______

1. Indicate your age at nearest birthday ______

2. Marital status (check one)
   ___ a. Married
   ___ b. Single

3. In which county are you employed? ________________________

4. Race (check one)
   ___ a. Negro
   ___ b. White

5. How long have you been employed by the Alabama Cooperative Extension Service? (To the nearest year) ______ Year(s)

6. What was your place of residence most of the time prior to enrolling in college? (check one)
   ___ a. Full-time farm
   ___ b. Part-time farm
   ___ c. Rural non-farm
   ___ d. Urban

7. What was the approximate size of the student body in the high school which you completed? ________________

8. Were you a 4-H Club member? (check one)
   ___ a. Yes
   ___ b. No

9. If the answer to the above question is yes, how many years were you a member? _______ Years
10. Please indicate the college or university from which you received your bachelor's degree. (check one)

   ____ a. Auburn University
   ____ b. Tuskegee Institute
   ____ c. Alabama A & M
   ____ d. University of Alabama
   ____ e. Other (specify) ________________________________

11. What was the major field of study for your bachelor's degree?

   ____ a. Education
   ____ b. Social Sciences
   ____ c. Technical Agriculture
   ____ d. Humanities
   ____ e. Vocational Education
   ____ f. Other (specify) ________________________________

12. What was your grade point average for your undergraduate education? (A = 3.00, B = 2.00, C = 1.00)
Grade point average ____________________

13. If you are presently working toward a graduate degree, what is your major field of study? __________________

14. Have you earned a graduate degree?

   ____ a. Yes
   ____ b. No

15. If your answer to question 14 is yes, what was your:

   a. Major field of study ________________________________
   b. Minor field of study ________________________________

16. What was your grade point average for your graduate education? (A = 3.00, B = 2.00, C = 1.00)
Grade point average ________
17. Please check the appropriate squares with reference to your participation in organizations while in college.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Never a Member</th>
<th>Was a Member</th>
<th>Officer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletics (Varsity)</td>
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<td></td>
</tr>
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<td>Social Fraternities</td>
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<td>Professional Fraternities</td>
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<tr>
<td>Honorary Fraternities</td>
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<td>Agriculture Clubs</td>
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<tr>
<td>Service Clubs</td>
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<td></td>
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<tr>
<td>Other</td>
<td></td>
<td></td>
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</table>

18. Please check the appropriate squares with reference to your participation in community activities at the present time.

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<thead>
<tr>
<th>Community Activity</th>
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<th>Officer or Committee Chairman</th>
</tr>
</thead>
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<td>PTA</td>
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<td>Civic Club</td>
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<td>Veterans Organization</td>
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<tr>
<td>Boy Scout Leader</td>
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<tr>
<td>Little League Sports</td>
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<td>Church Organization</td>
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<tr>
<td>Fraternal Organization</td>
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<tr>
<td>Other (specify)</td>
<td></td>
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</tbody>
</table>
APPENDIX B

QUESTIONNAIRE FOR SENIOR 4-H CLUB BOYS

1. Name ____________________________.

2. County ____________________________.

3. Race (check one)
   ____ a. White
   ____ b. Negro

4. How old were you on your last birthday? ________

5. What grade are you in at school? ________

6. Where do you live? (check one)
   ____ a. On a farm
   ____ b. In the country, but not on a farm
   ____ c. Town or city

7. How many years have you been a 4-H Club member? (Include this year) ________ Years

8. How many projects are you carrying in 4-H Club work this year? ________ Projects

9. With reference to the following school activities, check the appropriate squares:

<table>
<thead>
<tr>
<th></th>
<th>Never a Member</th>
<th>Was Once Member</th>
<th>Now a Member</th>
<th>Present or Past Officer Other Than President</th>
<th>Present or Past President</th>
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<td>FFA</td>
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<tr>
<td>Student Council</td>
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<tr>
<td>Newspaper</td>
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<td>Annual Staff</td>
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<td>Key Club</td>
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<td>National Honor Society</td>
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</tr>
</tbody>
</table>

81
10. Are you a member of an Athletic Team?
   ____ a. Yes
   ____ b. No

11. If you answered "yes", list the ones you belong to and position held.
   __________________________________________
   __________________________________________
   __________________________________________

12. What would be your average grade for last semester considering all subjects? (check one)
   ____ Mostly A's  ____ Some C's and D's
   ____ Some A's and B's  ____ Mostly D's
   ____ Mostly B's  ____ Some D's and F's
   ____ Some B's and C's  ____ Mostly F's
   ____ Mostly C's

13. List the church activities you participated in and any position of leadership you had in these activities.
   __________________________________________
   __________________________________________
   __________________________________________

14. Have you ever served as a 4-H Club officer?
   ____ Yes
   ____ No

   If yes, indicate the 4-H office held and the number of times including this year.

   Check all that apply
   __________________________________________
   Number of times
   President of local club
   Vice-president of local club
   Treasurer of local club
   Reporter of local club
   County Council member
   County Council office

15. Check the following 4-H activities you have participated in and number of times including this year. (check all that apply)
   __________________________________________
   Number of times
   a. State Fair
   b. District Livestock Show
   c. State Livestock Show
   d. Chick-N-Que Contest
      (County, District, State)
16. List the awards you have received as a result of your 4-H Club project work.

____________________________________________________________________

____________________________________________________________________
APPENDIX C

QUESTIONNAIRE FOR SENIOR 4-H BOYS

Name ____________________________
County __________________________
Race _____________________________
Name of Club ______________________

The following statements are either true or false. Please answer by placing (T) for true or an (F) for false in the line to the left of the number.

_____ 1. A drug is a substance that has an effect upon the body or mind.

_____ 2. Drug abuse may be defined as a state of psychological or physical dependence on drugs which results from chronic or continuous use.

_____ 3. Drug addiction is physical dependence upon a drug.

_____ 4. Drugs taken as directed by a doctor will not harm you.

_____ 5. Drug abuse may cause blindness, deterioration of muscles and nerves, but never causes death.

_____ 6. Many drug "abusers" say they take drugs because they don't have strength to face life's responsibilities.

_____ 7. Drugs are classified into four major groups.

_____ 8. These groups are: (1) Narcotics, (2) Tranquilizers, (3) Asprins, (4) Barbiturates.

_____ 9. The oldest known drugs are asprins.
10. Opium is a narcotic that comes from a flower.

11. Medical doctors prescribe narcotics for pain relief.

12. Morphine is a drug made from opium.

13. When an individual abuses the use of morphine, he may develop chills, his bones ache and his back muscles become painful.

14. When a person becomes "hooked" on morphine, he craves it three days after his last injection.

15. Paragoric and Codeine - once available over drug counters without prescriptions - are now restricted to prescriptions only.

16. Heroin can be obtained from the drug store with a prescription from a doctor.

17. Children begin drug abuse with DELIRIANTS.

18. This drug (deliriants) includes lighter fluid, cleaning fluid, glue, and hair spray.

19. Sniffing glue is not harmful to an individual.

20. Sniffing cleaning fluid may result in death.

21. Amphetamines stimulate you or give you pep.

22. Medically, Amphetamines are designed to help underweight people gain weight.

23. Barbiturates are basically depressants.

24. Barbiturates are the most potent and most commonly abused drug.

25. Medical doctors prescribe barbiturates mainly to ease pain.

26. Tranquilizers are a relatively new group of drugs.
27. Doctors prescribe tranquilizers to treat emotional disorders.

28. LSD is grown mainly in Mexico.

29. LSD causes chills, flushing, and trembling.

30. LSD is one of the drugs found in the Hallucinogen group.

31. LSD users may wear dark glasses at night to protect their eyes from the light.

32. There are no harmful after effects from the use of LSD.

33. All drugs are harmful and should never be used by an individual.
"Drugs and You," the subject of today's program, is perhaps one of the most important you will have in a 4-H meeting or any other group in a long time. For the use and misuse of drugs is so widespread that one can become a part of the drug scene without knowing what is happening. You as an individual, however, will make a decision about the use and misuse of drugs. In order to make the decision, let's take a look at some of the facts. First of all, you as an individual are an important person. God has made nothing better than the human individual. He made us in His own image with a powerful brain to use for the good of our own bodies and help those who need help. You must decide whether or not you will use your brain wisely.

I know you have heard of many who did not use their brains as they should. They let someone else lead them. Just think about it - more than 8 million people have tried marijuana and about 4 per cent of college people have used LSD. Approximately 10 billion amphetamine pills are acceptably manufactured each year, but many of these 10 billion pills are used in the wrong way. Then just think how many people use sedatives and
tranquilizers. Yes, the doctor prescribes these drugs when he sees that a patient can benefit from their use. The trouble comes when people do not get the advice of a doctor and become dependent upon drugs. Would you believe it? There are reports that drug users have taken as many as 50 sleeping pills a day! Would your body function in a healthy manner under this condition? There are the narcotic users. In 1968 there were 64,011 narcotic users in the U.S. These are sometimes called the hard drugs. Then there's a class of substances called deliriants. They include airplane glue, gasoline, paint thinners, etc. They contain substances which were never meant to be taken by man.

One important point to remember as we continue the discussion of today's program, "Drugs and You," is that drugs taken as directed by a doctor will not harm you. But trouble comes when we take things into our own hands that is not advice from the doctor. The abuse of drugs may cause blindness; body muscles and nerves may be impaired, and some drug abuse may even cause death.

Well, you think that's a sorry state of affairs. Let's look a bit further, for you must decide to keep your body and your mind healthy. The all important you may become that most needed doctor, lawyer, teacher, engineer, businessman, homemaker or whatever you want to become to help yourself and others to a
better life. You must make the right decision. Let's discuss the first class of the drugs which are included in the set of slides.

You and your body make up the finest living machine on Mother Earth. Your body is that part of the machine that has shape and is seen. But the "You" is the most important part of this machine. The "You" is the brain and nervous system that operates your body and makes you do things. In fact, your brain sets you apart from all other human beings because there is no one in the world exactly like you. And most important of all, the human brain is the only one that can reason or think. Your brain is better than those of lower animals because in one part of your brain is the mind which you use to live a happy, fruitful life. With minds that can invent, create, or discover things that are good for use, we have learned about materials we can take to stop pain, to make us sleep and to cure certain ills. Our medical doctors prescribe these materials for us. But we have learned, too, that many of these materials give us unnatural pleasures or feelings. Suddenly we may find, as we take more of them, that we begin to crave them.

What happens when we abuse drugs - that is, when we take drugs that are not prescribed? Or if we take drugs on a dare, or to experiment? Or if we take drugs "to escape." Many drug
"abusers" say they take drugs because they - the abusers -
don't have strength to face life's responsibilities.

Let's look at the facts.

We place drugs in 6 groups:

The first group includes the oldest known drugs - the
narcotics, or "hard" drugs.

NARCOTICS

Opium was mentioned as far back as the third century, B.C.
It comes from the opium poppy grown in India, Iran, Yugoslavia,
and Turkey. It is a powder taken from the unripened capsule
of the poppy and is prepared as gum opium.

Medical doctors use narcotics for analgesia - to ease pain.
Narcotics are used in pain perception - finding the area or
organ where pain is located. They are used in anti-cough
medicines and in treatment of diarrhea - liquid discharge from
the intestines.

From opium, MORPHINE is made. Too much morphine causes
nausea, vomiting, constipation, intestinal cramps. It makes
eye pupils constrict or become pinpoints.

When a person abuses the use of morphine, he suffers terribly.
Within two or three days after he stops taking morphine, he
develops chills and flushes; his bones ache and his back muscles
become painful. He develops muscular spasms - Tachycardia
(tak-y-cardia), which is rapid heart beating. Withdrawal causes hypertension, or high blood pressure. Rapid respiration - rapid breathing - develops.

The habitual morphine abuser becomes "hooked" - he craves morphine within seven to ten days after his last injection.

Paragoric and Codeine - once available over drug counters without prescription - are now restricted to prescription only. Codeine comes from opium.

One widely abused narcotic is HEROIN - made from morphine - and remember, morphine is made from opium. Heroin is banned and cannot legally be imported into this country. The heroin user suffers the same effects as the morphine user.

A bottle cap with water, a match flame, and a hypodermic syringe are the gadgets used by the morphine abuser. The "cooked" material is injected directly into a vein for quick effect. This is called "Mainlining."

The abuser injects the drug directly into the blood-stream. Results of habitual injections vary, but all abusers show results of needle marks and infection. Some needle-users wear long-sleeved shirts even in hot weather to conceal needle marks!

Another hard narcotic is COCAINE, made from coco leaves.

Children begin drug abuse with DELIRIANTS. This drug group includes model airplane glue, lighter fluid, cleaning fluid,
paint thinner, gasoline, and hair spray. Sniffing may produce a pleasant feeling, followed by dizziness, drowsiness and slurring of speech. Some abusers also lose consciousness for a short period of time.

This may result in death - the abuser puts a plastic bag over his head so he can breathe the deliriant better, but he may lose consciousness and suffocate.

If you sniff deliriants, you may permanently damage your liver, kidneys, bone marrow, and nervous system. This has been proven experimentally.

Symptoms of chronic glue-sniffers are blood-shot eyes, inflamed nostrils, and constant licking of the lips.

Medically, some AMPHETAMINES are designed to help overweight people slim down. Amphetamines stimulate you or give you pep. However, amphetamine abuse causes talkativeness, restlessness, dizziness, and a false feeling of confidence.

They also cause abdominal pain, backache, trembling, and loss of appetite.

Chronic use of amphetamines could cause highway accidents, particularly in long-distance driving, because amphetamines produce secondary effects like depression and fatigue. The amphetamine abuser then takes larger and larger doses to get desired effects.
Medical doctors use amphetamines in treatment of nasal congestion - stopped-up nose; as appetite suppressants - which means they dull the desire to eat; and for psychic stimulation - stimulation of the psyche, or mind, for people who have difficulty staying awake at all hours.

**BARBITURATES** are basically depressants. They reduce functional activities - cause muscles to relax. Such depressants are sedatives. They include alcohol, bromides, and paraldehyde (par-aldehyde). Barbiturates are the most potent and most commonly abused drugs. You'll find different brand names. They are medically prescribed as tablets, capsules, syrups, and liquids for injection. Slang terms for common barbiturates are shown here.

Medical doctors prescribe barbiturates for hypnosis - to put you in a sleep-like trance; as a sedative - to calm nerves; to reduce convulsions; and also as psychiatric aids.

Barbiturate abuse tends to make users want to commit suicide by taking over-doses of sleeping pills. Abusers often become hostile and develop paranoid tendencies. A paranoid is a person who thinks he is persecuted or else he develops a sense of grandeur.
In less than a day, the abuser withdrawing from barbiturates often develops weakness, insomnia, dizziness, or distorted visual perception, which means not seeing things through the eyes as they should be. Twitching, trembling hands, nausea or vomiting, and static hypotension - inability to stand erect from a prone or sitting position without dizziness - are also symptoms of withdrawal.

From four to seven days after withdrawal from these drugs, the abuser becomes delirious, anxious, has nightmares, and cannot sleep. Even two to three days after withdrawal, the abuser may have convulsions.

**TRANQUILIZERS** - A relative new group of drugs, the tranquilizers, are similar to barbiturates and may be abused. The person abusing tranquilizers show symptoms of drowsiness, listlessness, tremors or seizures. Physical dependence on tranquilizers may develop and the person abusing this drug will show the same withdrawal symptoms as the abusers of barbiturates. The danger in the abuse of these drugs is the withdrawal causing mental confusion and lack of coordination. This can lead to accidents. The medical profession uses tranquilizers to treat emotional disorders.

**HALLUCINOGENS** - That group of drugs which is now being abused most commonly is the hallucinogens. These provide a chemical effect on the brain. One of the newest of these drugs
which is highly abused is LSD, also known as lysergic acid, diethylmide.

The effect of LSD causes chills, flushing, sweating palms and trembling. The LSD user even wears dark glasses often at night to protect the widely dilated pupils from the light. Vision is most affected. Daydreams may be pleasant or horrible. LSD symptoms may occur as strongly as when the drug was first taken, even months after one dose. LSD users suffer depression, panic, anxieties, and tendencies to commit suicide.

Late studies report that LSD can produce chromosomic changes and malformation in animals - note stunted litters of rats, etc. There is a possibility that such similar results could happen in the offspring of mothers or fathers using this drug.

While marijuana is usually listed in a class by itself - it is also classified as a hallucinogen. It will grow almost anywhere in the world where other plants are found.

It can be grown legitimately in most nations of the world. The plant has an odd number of leaves. Marijuana is also known as Texas Tea, Pot, Weed, Mazz, Hamp, Grass, Griefo, Sweetlucy, Love Weed, Jave, Refers, Gage, Vipers, Rope, Maryjane and Hay.

Marijuana causes time changes, perception changes, distance changes, and magnifies sound.
In perception change an object or car that seems to be 100 feet away may be only 10 feet away.

The most common means of using marijuana is taking the dried female flowers and leaves and making them into cigarettes for smoking. The most concentrated form of marijuana is simply pressing the leaves and female flowers into bricks. The most concentrated form of the marijuana plant is the resin - in some countries call hashish. As a loyal 4-H Club member you pledge: Your head to clearer thinking, your heart to greater loyalty, your hands to larger service and your health to better living for your club, your community and your country. Your motto is to make the best better. This pledge and this motto also says you will never use drugs except under direct supervision of your doctor. You will also do your part in persuading other boys and girls not to take drugs. You will keep this the finest living machine - your body and its brain and nervous system - operating properly by keeping active in sports, constructive work, and wholesome activities.
APPENDIX E

Letter sent to Extension Farm Agents (4-H) who were involved in the study.

Dear Mr. Doe:

I am enclosing the questionnaire that I discussed with you recently. Please complete it as objectively as possible and return to me by May 1.

I sincerely appreciate your cooperation in this matter.

Sincerely,

Cecil Mayfield
State 4-H Leader
VITA

Morris Cecil Mayfield was born at Stewart, Alabama, August 22, 1929. He graduated from Akron High School in the spring of 1947. He enrolled at Auburn University (formerly Alabama Polytechnic Institute) in the fall of 1947, where he received the Bachelor of Science degree in June, 1951.

Shortly after receiving his Bachelor of Science degree, he accepted a position with an agricultural chemical company in Montgomery, Alabama, as a salesman.

In August 1955, he was appointed Assistant County Agent with the Auburn University Cooperative Extension Service in Mobile County, Alabama. He served in this capacity until January 1961, at which time he was appointed to the State Extension Staff as 4-H Club specialist. He immediately began a graduate program of study at Auburn University and received the Master of Agriculture degree in August 1970. At this time he was moved to the position of State 4-H Club Leader, the position he presently holds.

He is married to the former Margaret Christenberry of Marion and they have three children - Ricky, Robin and Russell.
EXAMINATION AND THESIS REPORT

Candidate: Morris Cecil Mayfield

Major Field: Extension Education

Title of Thesis: Factors Associated with Change in 4-H Youth as a Result of Exposure to Specific Learning Experiences

Approved:

[Signatures]

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination:

November 22, 1971