INFORMATION-TRANSMISSION FUNCTION OF VOCATIONAL AGRICULTURE STUDENTS' ACTIVITIES AND THE EXPOSURE OF THEIR PARENTS TO AGRICULTURAL INFORMATION THROUGH SUCH ACTIVITIES

Thesis for the Degree of Ph. D.
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Mohammad Ansar Ahmed Shami

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This is to certify that the

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AN ABSTRACT OF THE THESIS

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ABSTRACT

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Purpose:

To determine the "information-transmission potential" of student activities in numerical figures (referred as ITPS) through a panel of judges; parent's rating regarding value of student activities for their farming business; relationship between"judges" and "parents'" rating; relationship between ITPS and frequencies of parent's attendance in activities (referred as Attendance Frequencies); frequencies with which activities were conducted (referred as Frequencies Activities conducted); relationship between ITPS and "Frequencies Activities Conducted"; relationship between "Frequencies Activities Conducted" and "Attendance Frequencies"; and relationship of parents' characteristics with their "Exposure Scores" and "Attendance Frequencies".

Procedure:

A panel of twelve judges rated 26 student activities with regard to their information-transmission potential in terms of numerical figures. As a result of this each activity was assigned an ITPS.

Thirty schools where vocational agriculture departments were at least ten years old, where the agriculture teachers had been working for the preceding four years and which were lying within 100 mile radius of Lansing were included in the study. The researcher visited all the schools personally.

A questionnaire was prepared and given to the teachers to gather information regarding the "frequencies with which different activities were carried on by the students."

A separate questionnaire was designed to secure information from the parents regarding their characteristics, their opinions about the value of student activities for their farming business and their "Attendance Frequencies". The students were requested to give the questionnaires to their parents and bring the completed questionnaires back to school.

The strength of the relationship between parents' characteristics and the extent of their exposure to agricultural information (determined according to "Attendance Frequencies" and "Exposure Scores") was calculated by "Omega Square" test.

Exposure scores were calculated by multiplying "Attendance Frequencies" with the respective ITPS's of the activities.

Other correlations were calculated by rank order correlation.

Findings:

(1) The activities were well differentiated on the basis of their ITPS by the judges. The range of scores varied from 2.56 to 0.67. The interjudge reliability coefficient was .8898.

(2) Parents also differentiated the student activities according to the value they saw in these activities for their farming business. The range of parents' rating about the activities varied from 2.26 to 1.30.

(3) The relationship between parents' rating and judges' rating was significant (P = .7190).

(4) The relationship between ITPS of activities and "Attendance Frequencies" of parents was significant (P = .5775).

(5) "FFA meetings", "Demonstration plots", "Radio and TV Shows put up by students" were the activities most frequently undertaken by the students whereas, "Seed judging contests", "Forestry contests", and "Meat Judging Contests" were the activities least frequently undertaken by students.

(6) The relationship between ITPS of activities and the Frequencies Activities Conducted was non-significant.

(7) The relationship between "Attendance Frequencies" of parents and the "Frequencies Activities Conducted" was statistically significant (P = .6449).

(8) The parents' characteristics of "education", "farm size" and "net income" were positively related with both their "Exposure Scores" and "Attendance Frequencies". The parents' characteristics of "family size" (According to number of children in the family) had a curvilinear relationship with both "Exposure Scores" and "Attendance Frequencies".

Whereas "age" had curvilinear relationship with "Exposure Scores".

If it is desired that student activities may be used for disseminating agricultural information among farmers, then it is recommended that the activities with high information-transmission potential may be conducted more frequently, the activities with less potential may be modified to enhance their potential, and necessary coordination may be secured between agriculture teachers and cooperative extension agents.

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Chapter I.

INTRODUCTION

Problem

The authors of several textbooks on teaching of vocational agriculture suggests that besides classroom activities, the vocational agriculture students should be encouraged to engage or can engage in the following major activities, i.e. supervised farming programs, FFA activities (judging contests, public speaking contests, cooperative projects, putting up exhibits at fairs, setting up demonstration plots, etc.), developing school farms and working on another farm for gaining practical experience. Although the major aim of these activities is to develop certain abilities and skills among the students, yet an implicit function of most of these activities is also to disseminate agricultural information to others. For example, "setting up demonstration plots" and "putting up FFA exhibits at local fairs" are the activities which seem to be undertaken mainly for disseminating agricultural information to others. This assertion can further be justified on the ground that functions of a community school are not limited to serving the students' needs and interests but also to serving the community

as well. By organizing such activities of vocational agriculture students that may also help in dissemination of agricultural information to the people, schools contribute towards fulfilling this task.

For a long time, in the history of American vocational agriculture programs, these activities have been organized and performed by vocational agriculture students. But, so far no research has been found dealing with information-dissemination function of these activities. It was considered worthwhile that this important aspect (diffusion through vocational students' activities) of agricultural education discipline be studied. The generalizations arrived at would be useful in developing functional vocational agriculture programs around the world and in establishing coordination of school activities with extension activities of other agencies.

To effectively diffuse agricultural information through the vocational agriculture students' activities, the question "Who is more likely to be exposed to agricultural information through the activities of vocational agriculture students?" should be answered. An easy answer to the question is "The one who remains in close contact with the students and who has interest in agriculture." On the basis of this assumption it was considered that parents of vocational agriculture students who are farmers would most likely be exposed to agricultural information. The exposure of these parents to agricultural information through the activities

of vocational agriculture students might occur in two types of situations. One type of situation can be where the parents have to make no effort to be exposed to agricultural information (i.e. student initiates discussion about his farming programs), while the other type of situation would be where the parents have to make an effort for their exposure (i.e. attending parent-son banquet, attending public speaking contests). In both types of situations parental characteristics can be hypothesized to have great bearing on the extent of their exposure. In the last type of situation it is conceivable that parental characteristics would have some relationship with extent of their exposure but in the former type of situation, where the parents do not have to make efforts for their exposure, it needs to be pointed out that here, too, parents' characteristics would play a significant role. For example, children of parents who are less authoritarian, could be expected to talk freely and often with parents, consequently exposing their parents to agricultural information.

It was, therefore, considered important that the extent to which farming parents were exposed to agricultural information through the activities of their children as vocational agriculture students and the relationship of parental characteristics to the extent of their exposure may be determined.

Rationale for the Study

This study is based on the following contentions:

1. Human behavior is learned through the process of socialization. The process of socialization involves interaction of new-born with other human beings. Although the interaction between the child and his immediate family is very frequent in early childhood, yet the family as a reference group maintains a significant position even to those days when the boys and girls are in high school.

2. In the United States the public school is supported by local taxation. For this reason, and for the interest that parents have in the education of their children, they do want and try to know what their children learn in school.

These two contentions are supported by the findings of a study conducted by Brookover and others about self-concept of ability and school achievement. They found that:[1]

> Parents, more than any other category of persons, were identified on open-ended questions administered in a school setting as both "important in their lives" and "concerned about how well they (the students) do in school." Although we have no data on the relative influence of particular significant others, the consistent naming of parents by nearly all the students gives no support to the hypothesis that parents' influence decline in adolescent years.

They also state[2]

> The almost universal identification of parents and the high proportions of students naming other

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[1]Wilbur B. Brookover, Edsel L. Erickson, and Lee M. Joiner, Self-Concept of Ability and School Achievement (Educational Publication Services, College of Education, Michigan State University, East Lansing, Michigan, 1967), p. 82.

[2]Ibid., p. 83.

> relatives as significant others emphasizes the importance of the family as a reference group for both school performance and other areas of behavior.

3. The rural family, in the U.S.A., is more cohesive as compared with the urban family. The relationships between children and parents in rural areas are more likely to be primary, intense, and close. This would facilitate exchange of ideas between parents and their children.

4. Exchange of ideas between the students and their parents would be more frequent if the subject of discussion were of mutual concern as compared with the subjects which concern only one side or neither. Agricultural topics are considered to be of mutual concern to the vocational agriculture students and their farming parents.

5. The organization of vocational agriculture programs in the United States is very conducive to the exposure of parents to agricultural information through the activities of the vocational agriculture students. "Supervised practice" which is the back-bone of vocational agriculture is usually conducted at the home farms of students. Parents' involvement is necessary for the selection, initiation, and financial support of the supervised practice programs. Phipps states[3] "The most satisfactory supervised farming programs are developed as a result of proper instructor-parent-son relationships."

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[3]Lloyd J. Phipps and Glen Charles Cook, Handbook on Teaching Vocational Agriculture (Danville, Ill.: The Interstate, 1956,) p. 263.

With regard to the effects of supervised practice programs on the community practices (which involve exposure of farmer to students' activities), Phipps states[4] "The programs of supervised farming if carried out effectively may be a factor in the improvement of the practices used in the community." At another place Phipps states[5] "Supervised farming programs are attractive, interesting and educational to farmers and their sons."

Class-room instruction is very closely related to the home farm of the students. The students bring in the problem faced on the home farm and discuss it in the class. Phipps states[6] "The supervised farming programs should be used as a basis for the instruction." At another place he writes[7] "The instruction in vocational agriculture should be closely related to a pupil's farming program." Such kinds of situations would imply a greater interaction between son and parents. Parents and sons would be expected to talk about the problems faced on the farm and about the discussions held in the school about these problems.

Some of the FFA activities are not only educational for the students but for other people too. With regard to FFA demonstrations Phipps states[8]

> FFA demonstrations may be of considerable educational value to boys who participate in the

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[4] Ibid., p. 236.

[5] Ibid., p. 237.

[6] Ibid., p. 238.

[7] Ibid., p. 239.

[8] Ibid., p. 398.

demonstrations and to the audiences who observe the demonstration.

The agruments cited above support the contention that organization of vocational agriculture programs in the United States is very conducive for the exposure of parents to agricultural information through the activities of vocational agriculture students.

Purposes of the Study

The primary purpose of the study was to determine the relative information-transmission potential of various activities of vocational agriculture students, the extent to which such activities were carried on by the students, the relationship of some selected characteristics of farming parents to the extent of their exposure to agricultural information through the activities of their vocational agriculture student children, and to determine the opinions of parents about the value of experiencing these activities for their farming business. An additional purpose of the study was to determine relationships between (1) "information-transmission potential of selected activities" and "the frequency with which they (activities) had been conducted," (2) "the frequency with which activities had been conducted" and "the frequency of parents' exposure to those activities," (3) "the information-transmission potential of activities" and "the frequency of parents' exposure to these activities," and (4) "values assigned by judges to certain activities of vocational agriculture students with regard to their

information-transmission potential" and "the value of these activities perceived by the parents for their farming business."

Specific Objectives

The study was conducted to answer the following specific questions:

1. What is the relative value of certain activities of vocational agriculture students with regard to their information-transmission potential as determined from the judgments of a panel of judges?

2. What is the relative value of experiencing certain activities of vocational agriculture students as perceived by their parents for their farming business?

3. What is the relationship of "values assigned by judges to certain activities of vocational agriculture students with regard to their information-transmission potential" with "the value of these activities perceived by parents of vocational agriculture students for their farming business" as determined by rank order correlation.

4. What is the relationship between "the information-transmission potential of activities" and the "frequency of parents' exposure to these activities" as determined by rank order correlation?

5. To what extent are these activities being carried on by vocational agriculture students as reported by respective agriculture teachers according to scales pertinent to each activity?

6. What is the relationship between "information-transmission potential of activities" and "the frequency with which these (activities) have been conducted" as determined by rank order correlation?

7. What is the relationship between "the frequency with which the activities have been carried out" and "the frequency of parents' exposure to activities" as determined by rank order correlation?

8. What is the relationship of the following selected characteristics of farming parents with the extent of their exposure to agricultural information through the activities of their vocational agriculture student children?

   a. Education
   b. Age
   c. Family size
   d. Farm size
   e. Type of farming (full time/part time)
   f. Number of farm enterprises
   g. Income

Definition of Terms

Exposure: The formal definition of exposure will be "the condition in which a receiver receives messages in awareness through

any of his senses."

For the purposes of this study exposure will be defined in terms of frequency with which an individual attends or participates in activities, or visits places, organized by vocational agriculture students. The frequency will be measured by self-reports by the farming parents. It may be pointed out that exposure and influence are different terms. Exposure precedes influence. This research does not intend to study the influence.

Information-transmission potential: Information-transmission potential will be defined in terms of the following three dimensions:

1. Amount of the agricultural information transmitted.
2. Value of the agricultural information transmitted.
3. Clarity with which the agricultural information is transmitted.

Scientific agricultural knowledge: That agricultural information which has come out of research by scientists.

Part-time farmer: A farmer with a value of sales of farm products of $50 to $2,499 were classified as "part-time" if,

(1) the operator was under 65 years of age and
(2) he either worked off the farm 100 or more days during 1959 or the income he and members of his household received from the off-the-farm-operated sources was greater than the total value of farm products sold.[9]

Net income: Net income is defined as whatever remains from earnings and profits after all costs, expenses and allowance for

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[9]United States Bureau of the Census, Farm Mortgage Debt and Farm Taxes, U.S. Census of Agriculture, 1959, Final Report, Vol. V. Part 4--Special Reports (Washington, D. C.: U.S. Government Printing Office, 1961), p. xviii.

depreciation and probable losses have been deducted.[10]

Assumptions

The study was based on the following assumptions:

1. One of the purposes of vocational agriculture students' activities is to diffuse agricultural knowledge among the people.
2. Agricultural knowledge, through the activities of vocational agriculture students, is diffused among the people.
3. Farming parents of vocational agriculture students are more likely than other farmers to be exposed to agricultural information through the activities of vocational agriculture students.
4. The parents may not be able to isolate the value of the vocational agriculture students' activities for their farming business from other variables manifest in these activities. It was also expected that parents may hesitate to assign proper value to the students' activities for egoistic reasons. (They may consider that they do not learn from student activities, rather students learn from them). For these reasons it was assumed that parents' opinions about the value of

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[10] Harold S. Sloan and Arnold F. Zurcher, A Dictionary of Economics (New York: Barnes and Noble, Inc., 1964), p. 233.

experiencing activities of vocational agriculture students may not be objective and valid. On the contrary, a panel of judges comprising unbiased and knowledgeable persons (most of them having farmed, being in close contact with all activities of the students, and more likely to be sophisticated in their judgment of student activities) would provide more objective and valid judgment about the information-transmission potential of students' activities.

However, correlation between the judgments of the panel of judges and that of the parents' was calculated to determine the similarities and differences in judgment of these two groups, if any.

Limitations of the Study

Due to the limited financial sources and the paucity of time available with the investigator, the study was confined only to the schools located within a 100 mile radius of Lansing.

In the United States, agricultural information is transmitted to the farmers through multiple channels by various sources. In such a situation it becomes hard to isolate the impact or influence created by a particular source among the farmers. In view of this difficulty, the study was confined to determination of the extent of exposure of farming parents to agricultural information through the activities of vocational agriculture students and not the influence of such activities.

In a communication situation the variables that affect the end product (effects) are manifest in the source (who transmits messages), in the message (contents), in the channel (through which the message is transmitted), and in the receiver. In view of the investigator's limitations mentioned earlier the study incorporated some selected variables manifest in the receiver (the parents) only.

Since those parents of vocational agriculture students who are farmers would be more liable to get exposed to agricultural information through the activities of their children, therefore only those parents who were farmers were included in the study.

Chapter II.

RELATED RESEARCH

Before reporting the related research a question may be answered--Why do the farming parents attend or participate in the activities of vocational agriculture students? The two major reasons for the participation (or attendance) of parents can most probably be (a) they have interest in the activities of their children, (b) they feel that such experiences might provide valuable information about the farming profession. With these points in mind search for pertinent literature was made. Unfortunately, no study was found which was directly related to these areas. It was found that area of change agent contact (where farmers make efforts to get themselves exposed to agricultural knowledge) would be closest to the problem raised in this paper. The studies in this area were reviewed and the findings with regard to the relationships of various farmer characteristics with the change agent contact are presented under each characteristic separately.

Education

Slocum and others interviewed 314 farm families to determine whether families having little or no contact with the Extension

Service have different characteristics, attitudes, and/or patterns of living from the high contact families.

With regard to education of operators[1]

> The educational level of operators was found to be associated with the level of Extension contacts. This means that there was some tendency for the better educated operators to use Extension Service facilities more.

In a similar study Scantland and others reported that[2]

> The more schooling people had completed, the more Extension contacts they reported, though the difference was not marked.

In other studies Rogers and Havens,[3] Rogers and Capener,[4]

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[1]Walter J. Slocum, Owen L. Brough, Murray A. Straus, "Extension Contacts, Selected Characteristics, Practices and Attitudes of Washington Farm Families," Bulletin 584, Washington Agricultural Experiment Stations, Institute of Agricultural Sciences, State College of Washington, April 1958, p. 4.

[2]Lois Scantland, C. A. Svinlh, and Marvin J. Taves, "A Square Look at Extension Work in Spokane County, Washington," Extension Bulletin No. 463, Extension Service, Institute of Agricultural Sciences, The State College of Washington, Pullman, Washington, June 1952, p. 32.

[3]Everett M. Rogers and A. Eugene Havens, "Extension Contact of Ohio Farm Housewives," Research Bulletin 890, Ohio Agricultural Experimental Station, Wooster, Ohio, November 1961, p. 8.

[4]Everett M. Rogers and Harold R. Capener, "The County Extension Agent and His Constituents," Research Bulletin 858, Ohio Agricultural Experiment Station, Wooster, Ohio, June 1960, p. 15.

Coleman and Marsh,[5] Parish,[6] Coughenour,[7] and Louisiana Agricultural Extension Service[8] report that generally there is a positive relationship between education of farmers and the extent of their change agent contact.

For his Master's thesis study White hypothesized that farmers with a high level of formal education will tend to have more contact with the county agent than will farmers with a low level of formal education. But he found that[9]

> While there was some relation between education and agent contact (c = .204), it was not significant. This would indicate that degree of formal education for all dairymen in this study is not closely associated with agent contact.

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[5]A. Lee Coleman and C. Paul Marsh, "Differential Communication Among Farmers in a Kentucky County," Rural Sociology, XX, No. 2 (June 1955), pp. 93-101.

[6]Ross Parish, Extension Services and the Grazier on the South-West Slope, Review of Marketing and Agricultural Economics, No. 4 , Vol. 24, 1956, pp. 228.

[7]C. Milton Coughenour, "Who Uses the County Extension Agent?", Kentucky Farm and Home Science, IV, No. 3 (Summer), 1958, pp. 4-8.

[8]Louisiana Agricultural Extension Service, "Extension at Work in Lafouche," Loyisiana Agricultural Extension Service Publication 1054, Baton Rouge, Dec. 1950, p. 18.

[9]Donald J. White, "Relationship of Education, Agent Contact and Adoption of Dairy Practices at Recommended Levels For DHIA and NON-DHIA Dairymen" (unpublished M.S. thesis, Institute for Extension Personnel Development, Michigan State University, East Lansing, 1965), p. 38.

Although the relationship of educational level of the farmers with the degree of their extension contact is not reported to be significantly positive in all the studies reported above, yet it is evident that the tendency of this relationship in all the cases seems to be in the positive direction.

Age

Lionberger after interviewing 279 farm operators classified them into three categories, viz. those who received information from the county agent irrespective of other sources, those who got information from institutionalized sources of information, and those who had received no farm information from an institutionalized source.

He found that the non-user group was most distinct with respect to their characteristics. He says[10] "They were much older than users of county agent services and users of other institutionalized sources."

Coughenour[11] found that proportionately more farmers who were "never" or "irregularly" helped were 60 or more years old and, thus, perhaps less interested in and able to seek the agent's help.

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[10]Herbert F. Lionberger, "Information Seeking Habits and Characteristics of Farm Operators," Research Bulletin 581, University of Missouri, College of Agriculture, Agricultural Experiment State, Columbia, Missouri, April, 1955, p. 42.

[11]Op. cit., pp. 4-8.

Scantland and others in the study cited above[12] report that

> Extension reached more older people by group and individual methods and in more ways than younger people. Of the age categories "under 35," "35 to 44," "45 to 54," and "55 and over" both the male heads and homemakers lying within age group of 45 to 54 had maximum extension contacts.

But Rogers and Capener,[13] Rogers and Havens,[14] Photiadis,[15] and Parish[16] report that no significant relationship was found between age and change agent contact of the farmers.

In view of the conflicting findings reported above it is safe to suggest that as yet it cannot be stated conclusively that age of the farmers has any relationship with their change agent or extension contacts.

Family Size

With regard to the variables of "number of children" and "stage in family cycle" Slocum and others found that the operators[17] "who had reached the stage of the 'empty nest' reported the

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[12] Op. cit., p. 33.

[13] Op. cit., p. 16.

[14] Op. cit., p. 8.

[15] John D. Photiadis, "Contacts with Agricultural Agents," Bulletin 493, Rural Sociology Department, Agricultural Experiment Station, South Dakota State College, Brookings, 1961, p. 24.

[16] Op. cit., p. 231.

[17] Op. cit., p. 7.

lowest level of Extension contacts of operator." They also found that "couples who had never had any children reported the highest level of Extension contacts" and "The lowest level of Extension contacts of wives was reported by home-makers whose children were all less than fourteen years of age, possibly because of greater home responsibilities and the problem of getting a baby sitter."

But quite conflicting findings have been reported by Photiadis.[18] Recognizing the point that size of family has often been found negatively related to extension contacts, he reports that in his study the relationship was positive and statistically significant.

The researcher could not find sufficient number of studies dealing with the relationship of family size with extension contacts. However, on the basis of the findings of studies it can be said that findings in this respect are conflicting.

Farm Size

Slocum and others also studied the relationship of "size of farm" and the "Extension Contacts" of the operators. They state,[19]

> Size of farm, as indicated by the number of acres operated, did not prove to be significantly related to the level of Extension service contacts. However, the farmers who owned more land tended to have a higher level of contact with the Extension service.

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[18] Op. cit., p. 25.

[19] Op. cit., p. 4.

Similar findings have been reported by Coleman and Marsh,[20] Rogers and Capener,[21] and Lionberger.[22]

But Photiadis[23] and Parish[24] did not find any relationship between farm size and the extension contacts of the farmers. Photiadis stated that this lack of relationship (in his study) could possibly be because a number of landowners lease some of their land to other operators.

From the studies reviewed above it seems that the evidence is mostly in favor of a positive relationship between the "size of farm" and the extension contacts of the owner.

Type of Farming (Full-time/Part-time)

Scantland[25] and others found that "the full-time farm heads and home-makers reported the greater number of contacts, and the non-farm ones the least contacts with Extension." The average number of kinds of contacts with Extension for the part-time farming male heads and home-makers were less than those of full-time farming male heads and home-makers but were more than those of the non-farming male heads and home-makers, respectively.

Slocum and others have similar findings[26] to report. They state,

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[20] Op. cit., pp. 93-101

[21] Op. cit., p. 17.

[22] Op. cit., p. 42.

[23] Op. cit., p. 24.

[24] Op. cit., p. 28.

[25] Op. cit., p. 5.

[26] Op. cit., p. 5.

> The degree of dependence upon agriculture as a primary source of support was related to the level of Extension contacts although the relationship was not strong. A considerably higher percentage of full-time farmers reported a high level of Extension contacts than was the case for those whose dependence upon agriculture was secondary in character.

The evidence, although meager, suggests that full-time farmers have more extension contacts than the part-time farmers.

Number of Farm Enterprises

The researcher could not find any study investigating the relationship of "number of farm enterprises" with the change agent contact. However, the rationale for including this variable in the study is that as the number of enterprises on the farm will increase so will the interests of the parents in the activities of vocational agriculture students. It may be noted that the potential number of student activities tend to increase with the increase in the number of farm enterprises possible in the area.

Income

Slocum and others report[27]

> Gross farm income, farm income, farm expenses and total family income had a significant association with the level of Extension contacts.
>
> On the average, operators with a high level of contact had higher gross incomes.

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[27] Op. cit., p. 8.

In other studies Scantland and others,[28] Rogers and Capener,[29] Photiadis,[30] Lionberger,[31] and Coughenour,[32] also report similar relationships between income and extension contacts of the farmers. All of these studies support that income of the farm owner is positively related to their extension contacts.

Summary

In the foregoing research studies regarding the relationship of six farmer characteristics with the change agent or extension service contacts have been reviewed. Only two characteristics, i.e. income and type of farming (full-time/part-time), have been consistently found to be positively related to change agent contacts. "Education of farmers" has mostly been found to positively related to change agent contacts. The findings with regard to the relationships of "family-size", "farm size," and "age" to change agent contacts are conflicting.

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[28] Op. cit., p. 35.

[29] Op. cit., pp.

[30] Op. cit., p. 3.

[31] Op. cit., p. 42.

[32] Op. cit., pp. 93-101.

Chapter III.

STUDY PROCEDURES

It may be recalled that in Chapter I a rationale was presented as a base for the contention that through the activities of the vocational agriculture students, agricultural information would be disseminated among their parents. The researcher adopted the following procedures to test the validity of this rationale.

Selection of Student Activities

Three separate questionnaires, one for the parents, the second for judges, and the third for the agriculture teachers were prepared. The major part of each of the questionnaires was the vocational agriculture student activities. In order to select the activities the researcher reviewed books, magazines, and several pamphlets about vocational agriculture in the United States. Special publications issued by the State Office of Vocational Education, Vocational Agriculture Division, State of Michigan, were thoroughly reviewed and were very useful in preparing a tentative list of student activities.

After preparing the first draft of the thesis proposal and the questionnaires, the researcher presented the thesis proposal twice before a seminar group (constituting graduate students in

agricultural education) and once before the staff of agricultural education at M.S.U. During these sessions some valuable suggestions regarding the student activities listed in the questionnaires were given by the participants which were welcomed and incorporated in the questionnaires. However, it was considered necessary that the state supervisory staff for vocational agriculture, who are closer to the field, be consulted. The director of the study and the researcher approached the chief state supervisor for vocational agriculture, who suggested deletion of some activities and addition of others.

Instruments of the Study

Keeping in view the objectives of the study, the three questionnaires referred to earlier were prepared. The details of each questionnaire are given below.

Questionnaire for the Judges

One of the requirements of the study was to calculate the exposure scores of the parents (to the student activities) in terms of numerical figures. This necessitated that the information-transmission potential scores of student activities be determined numerically. For this the judges had to categorize each activity, in view of its importance to the farming parents for their farming business, according to four levels on each of the following dimensions separately.

1. Amount of agricultural information transmitted.
2. Value of agricultural information transmitted.
3. Clarity with which agricultural information is transmitted.

For calculating the information-transmission potential score of the activities each level on a specific dimension had to be assigned a numerical weight.

Consequently, three separate sheets, one for each dimension stated earlier, having four levels for each dimension were prepared. For the convenience of judges in categorizing the activities, each activity was typed on equal size slips of paper. The directions for the judges also accompanied the questionnaire.

Questionnaire for the Parents

The questionnaire for the parents comprised two parts. The first part was designed to collect data regarding the selected characteristics of the respondents, whereas the second part (a scale) was constructed to learn the frequency of exposure of farming parents to student activities and to determine the opinions of parents about the value of experiencing student activities for their farming business.

Questionnaire for the Agriculture Teachers

The questionnaire for the agriculture teachers was designed to determine the extent to which specified activities were carried on by the students. The questionnaire also requested information

from the respondents regarding the ways through which people were exposed to student activities.

Pre-testing of the Questionnaires

The questionnaire for the agriculture teachers was pre-tested on some of the agriculture teachers who came to the university campus in connection with the State FFA Convention. These teachers were not among the population of the study. The questionnaire for the judges was pretested on the graduate assistants in agricultural education. For pre-testing the questionnaire for the parents the researcher wrote to two schools (not eligible for the study) describing briefly the purpose of the study, the nature of cooperation needed from the teacher, students, and parents, and requesting weekday times when the researcher could visit the school. On reply from one school (Webberville), the researcher visited the school. After describing the purposes of the study to the agriculture teacher, the researcher talked to the students. The questionnaires for their parents were given to them. The use of the questionnaire was explained in detail. All the questions by the students were answered. In order to keep the information provided by the parents confidential, each student was supplied with a blank envelope and the students were requested to bring the questionnaire back to the agriculture teacher under sealed cover, after completion by both of their parents. It was explained to the students that their parents need not answer any question which they preferred not to.

The agriculture teacher was also given a questionnaire for his response. To facilitate the return of the questionnaires a stamped, self-addressed envelope was left with the agriculture teacher. Out of fourteen students to whom the questionnaires were given, ten returned the questionnaires to the teacher. Two out of the ten questionnaires were unusable; one was completely blank--indicating that either the student did not take it to the parents or the parents refused to reply, the other questionnaire was replied to by parents who were not qualified for the study.

Selection of Schools

A newly developed vocational agriculture department might not have developed its program of student activities up to its potential. Also the agriculture department with less than four years duration at the same school may not be able to provide required information. Therefore, the schools where vocational agriculture departments were at least ten years old and where the agriculture teachers had been serving at least for the four preceding years were considered as eligible for the study. Due to the limitations specified earlier the schools were selected from the area lying within a 100-mile radius of Lansing. The list of qualified schools was secured through the cooperation of the chief state supervisor of vocational agriculture for the State of Michigan. In all, fifty schools qualified, according to the requirements of the study.

Population of the Study

Teachers and Parents:--The agriculture teachers of the schools who were willing to cooperate and the farming parents of the senior vocational agriculture students who study in these schools comprised the population of the study. For the comprehension and greater uniformity of results, the study was restricted to the parents of senior vocational agriculture students.

Judges:--A panel of judges comprising twelve individuals (i.e. three teacher educators in agriculture, three persons from state supervisory staff, three experienced teachers of agriculture, and three persons with vast and recent experience in the field of vocational agriculture) was utilized to determine the information-transmission potential score of the students' activities. It is probable that the nature of students' activities might differ from state to state. Therefore, to facilitate reliability among the ratings of judges, the judges were selected from the State of Michigan.

Collection of Data

A letter briefly describing the purpose of the study, the kind of data required from the agriculture teachers, the kind of data required from the parents, seeking cooperation of agriculture teachers and their permission to speak to senior vocational agriculture students was mailed to all agriculture teachers of the selected schools (See Appendix I). The teachers were also requested

to reply as to whether they would be willing to cooperate with the study. Those who were willing to cooperate were further requested to provide information regarding the days of the week and the time at which the senior vocational agriculture class met. The residence and office telephone numbers of the teachers were also requested to make quick contacts in case of emergencies. In order to insure maximum returns a self-addressed, stamped card was mailed with the letter (See Appendix I). Out of the fifty teachers, 24 replied to the first letter. Two weeks after the posting of the first letter, a reminder--along with the copy of original letter and self-addressed, stamped card--was mailed to the 26 non-responding teachers. As a result of this mailing, ten more replies were received. Two weeks after the first reminder was mailed, a third reminder--along with a copy of the original letter and a self-addressed, stamped card--was mailed to the non-responding teachers. In reply to the third reminder, only two more teachers responded. Two teachers who were quite close to Lansing were contacted by telephone. At a later stage, when the number of schools surveyed was considered to be inadequate, two more teachers who did not reply to the letters and reminders were contacted by telephone. In both cases, on the telephone, the teachers expressed their willingness to cooperate with the study.

In all cases, where the schools were qualified for the study and the agriculture teachers expressed their willingness to cooperate,

the researcher personally went to collect data. In most of the cases the teachers were informed ahead of time regarding the researcher's visits. Every effort was made to reach the school before or during the time the senior vocational agriculture class was in session. While at the schools, the researcher adopted the same procedure for securing data needed from parents which has been detailed in describing the pre-testing of questionnaire for the parents, i.e. explaining the use of the questionnaire to the students, giving blank envelopes to students to insure confidential treatment of data, answering questions of the students, etc. In those cases where the agriculture teachers had sufficient time, they were requested to fill in their questionnaires in the presence of the researcher. In other cases, the teachers were requested to go through the questionnaires and to ask for clarification if they needed any. In every case the teachers were requested to collect all the questionnaires from their students and then mail to the researcher.

Treatment of Data

From the data collected from the judges the information-transmission potential scores of student activities were to be computed. For this, the four levels of importance on each dimension of activities were assigned numerical values in their desending order, i.e. value of 3 for the highest level and value of 0 for the lowest level. To compute the information-transmission potential

score (from here on referred to as ITPS) of an activity assigned by a judge, the three numerical values representing the levels of importance checked by a judge on the three dimensions of an activity were summed and divided by three. This may be stated in the form of the following mathematical formula:

$$ITPS = \frac{v_1 + v_2 + v_3}{3}$$

where:

v_1 = Numerical value representing the level of importance assigned by a judge to an activity on dimension number 1.

v_2 = Numerical value representing the level of importance assigned by a judge to an activity on dimension number 2.

v_3 = Numerical value representing the level of importance assigned by a judge to an activity on dimension number 3.

To determine the final ITPS assigned by the panel of judges to an activity, the mathematical average of the ITPS's assigned by all the judges to an activity was calculated. By this procedure the final scores for all the activities were calculated.

Determining Reliability Among Judges

The final scores for all the twenty-six activities were to be used for the study as a set. Therefore, it was considered that reliability among the judges may be calculated on the basis of the final set of twenty-six scores. In other words, the reliability coefficient would indicate the probability with which this set of

twenty-six scores will occur again, if the judges rate the activities at another time. The following formula, suggested by Guilford, for calculating reliability coefficient was used.[1]

$$rkk = \frac{V_r - V_e}{V_r}$$ (Intraclass correlation of a sum or average)

where:

V_r = Variance between rows, where each row stands for a person.

V_e = Variance for residuals (or error).

The variances were calculated by "analysis of variance" procedure.

Determining Rank Order Correlation

In order to see the relationships between certain variables, it was necessary to compute rank order correlations. The activities in each case were ranked on the basis of two variables to be studied. Then the correlation coefficient was calculated by the following formula.[2]

$$P = 1 - \frac{6\Sigma D^2}{N(N^2-1)}$$ (Rank-difference coefficient of correlation)

where:

ΣD^2 = sum of squared difference between ranks.

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[1] J. P. Guilford, Fundamental Statistics in Psychology and Education (McGraw-Hill Book Company, New York, 1965), p. 300.

[2] Ibid., p. 306.

and:

N = number of pairs of measurement.

Standard Error for Correlation Coefficient

The standard error for correlation coefficient was calculated by the formula[3]:

$$a_p = \frac{1.05\ (1-p^2)}{\sqrt{n-1}}$$

Testing Significance of Correlation Coefficient

Significance of correlation coefficient was tested by t test. In this respect Ferguson states:

> When N = 10 or greater we may test the significance of P by using a t given by
>
> $$t = P\ \sqrt{\frac{n-2}{1-p^2}}$$
>
> This quantity has a t distribution with N-2 degrees of freedom.[4]

Determining Importance of Student Activities to the Parents

The parents provided information with regard to the relative

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[3]Henry E. Garrett, Statistics in Psychology and Education (New York: Langman, Green and Co., 1949), p. 346.

[4]George A. Ferguson, Statistical Analysis in Psychology and Education (New York: McGraw-Hill Book Company, Inc., 1959), p. 183.

value of experiencing student activities for their farming business on a four-point scale. The scale varied from a value of 3 to 0, with values of 2 and 1 lying in between. The value of 3 indicated high value and 0 indicated no value. To determine the final value of an activity (indicating the importance all the parents would assign to that student activity for their farming business) the average of all the values assigned by the parents to that activity was calculated. The student activities were ranked on the basis of the final values. This was done to show the perception of parents with regard to the relative value of experiencing student activities for their farming business and to work out rank-order correlations.

Determining Relationships of Selected Characteristics of Parents with the Extent of their Exposure to Agricultural Information Through Student Activities

It may be recalled that the panel of judges, who rated the student activities to determine the ITPS's of activities, were requested to take the role of farming parents and then to rate the student activities on different dimensions. It would mean that the ITPS of an activity would indicate the extent of parents' exposure to agricultural information through exposure to that activity. If a parent is exposed to an activity twice, then the ITPS multiplied by 2 would indicate his total exposure to agricultural information through the student activities in numerical figures. Likewise, for each parent, the number of times they attended any activity was

multiplied by the ITPS of the respective activity. Such products for all the activities attended by parents were summed and the final figure was indicative of parents' total extent of exposure (or total exposure score) to agricultural information through the student activities. Such scores were calculated for all the parents separately.

Although one of the purposes of the study was to study the relationship of some selected characteristics of the parents with the extent of their exposure (calculated as exposure scores) to agricultural information through student activities, yet in addition to studying these relationships, the relationships of the parents' characteristics with the number of times they experienced student activities were also calculated. This was done because the researcher considered that these relationships would be easily comprehendable, by the vocational agricultural teachers (one of the benefactors of the study) and by other readers, more so than the former relationship.

In order to calculate the relationships, the parents were classified into different categories based on each characteristic separately. The significance of difference between the categories (classified on a specific characteristic) were tested by analysis of variance procedure on the basis of the exposure scores and on the basis of the frequencies with which the parents attended student activities. After the "F" ratio showed a significance of difference among the means of different categories, the relationships of parents' characteristic with the "extent of parent's exposure,"

and the "frequencies with which parents attended student activities" were calculated by the following formula.[5]

$$\text{est } w^2 = \frac{\text{SS between - (J-1) MS within}}{\text{SS total + MS within}}$$

J = number of groups.

SS = Sum of Squares

MS = Mean Square

W^2 = Omega Square

On the basis of the data gathered from the teachers regarding the number of times different student activities were carried on, the activities were ranked. This ranking was also used to calculate the necessary rank-order correlations. The data gathered from the teachers concerning the extent of invitation to the parent to join student activities were used to interpret the reasons for the parents' attendance or lack of attendance in the student's activities.

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[5]William L. Hays, Statistics for Psychologists (New York: Holt, Rinehart & Winston, 1965), p. 382.

Chapter IV.

PRESENTATION AND ANALYSIS OF DATA

Through the cooperation of the State Office of Vocational Education, Division of Vocational Agriculture, a list of fifty qualified schools lying within a 100-mile radius of Lansing was secured. All fifty schools were approached to seek their cooperation for the study. The pattern of responses from the schools is presented in Table 1.

TABLE I.--PATTERN OF SCHOOLS' RESPONSES CONCERNING THEIR COOPERATION WITH THE STUDY

Response	Number of Schools	Percentage
Willing to cooperate	33	66
Willing to cooperate but not included in the study*	6	12
Not willing to cooperate	5	10
No response	7	14
Total. . .	50	100

*These schools were not included in the study for the reasons unique to each school. For example, three schools replied that they had only horticulture and gardening programs. One school replied that there was only one senior vocational agriculture student who lived on a farm. Other schools had similar reasons.

All the thirty-three schools willing to cooperate were visited by the researcher. To each agriculture teacher a teacher's questionnaire was given and in each school, depending upon the number of qualified senior vocational agriculture students, the questionnaires for the parents were distributed among the students. A total of 384 parents' questionnaires were distributed to the students in all the 33 schools. Out of 33 schools contacted by the researcher, questionnaires (both of the teacher and those of the parents) were not returned by three schools. On telephone contact, the teachers of these three schools reported that they had mailed the questionnaires to the researcher. Apparently the questionnaires were lost enroute.

A total of thirty teacher's questionnaires and 199 parents' questionnaires were received. All of the thirty questionnaires returned by the teachers were usable. On the other hand, only 165 questionnaires returned by the parents were usable. Those questionnaires of the parents which could not be used were either mistakenly taken by the students whose parents would not qualify for the study or were incompletely responded to by the parents.

It may be stated that while giving instructions to the students it was always made clear to them that if their parents had any objection to any question, they could freely skip that question and yet respond to the remaining part. Response to all the questions was optional. In spite of this, two teachers who reported the return of less parents' questionnaires than were distributed in their classes stated that those parents who did not respond to the questionnaire objected to the question inquiring about their income.

The data collected for the study are presented and analyzed in this chapter according to the order in which the specific objectives have been previously stated.

Information Transmission Potential Scores of Student Activities

The first specific objective of the study was to know "what is the relative value of certain activities of vocational agriculture students with regard to their information-transmission potential as determined from the judgments of a panel of judges."

Twelve judges rated the students' activities on four levels for each of the three dimensions. For example, for the dimension "Amount of agricultural information transmitted" each activity was to be rated according to the following four levels, viz, large amount, medium amount, small amount, and none. Similarly, for the other two dimensions the activities were to be rated on four levels. For all three dimensions, the highest level was assigned a numerical weight of 3, the next level a weight of 2, the next level a weight on 1, and the last level a weight of 0. For example in case of dimension "Amount of agricultural information transmitted" the level "large amount" had a weight of 3, the level "medium amount" had a weight of 2, the level "small amount" had a weight of 1, and the level "none" had a weight of 0. For each activity, the ratings of each judge (on four levels) for the three dimensions were assigned numerical values, summed and divided

by three to determine the information-transmission potential score (ITPS) assigned by the judge to an activity. For example if a judge considers that an activity transmits "large amount" of agricultural information (highest level on dimension No. 1), that the information transmitted through the same activity is "of some value" (the second highest level on dimension No. 2), and the same activity is "vague or obscure" in transmitting agricultural information (third level on dimension No. 3), then the activity will receive the score of 3, 2, and 1 for each of the dimensions respectively. To determine the ITPS of this activity as determined through the ratings of a single judge, these numerical values will have to be summed and divided by 3. In case of this example, the ITPS of the activity as determined by the ratings of one judge will be as follows:

$$3+2+1 = 6 \qquad 6 \div 3 = 2.$$

For determining the final ITPS's of activities, the ITPS's determined from the judgments of each judge for each activity were summed and divided by 12. The value thus derived was considered as the final ITPS of an activity. The details of the data in this respect are presented in Table II.

A look at Table II would reveal that the ratings of judges seem to be fairly consistent. For example the activities of "FFA parliamentary procedure contest at local level" and "FFA meetings" have been consistently rated low by the judges. On the other hand, the activities of "Teacher-son-parent discussion about students'

TABLE II

INFORMATION-TRANSMISSION POTENTIAL SCORE OF 26 ACTIVITIES OF VOCATIONAL AGRICULTURE STUDENTS DETERMINED FROM THE JUDGMENT OF A PANEL OF 12 JUDGES

Activities	Information-transmission potential score determined from the judgment of Judge number:												Total	Average or Final Information transmission potential score	Rank
	1	2	3	4	5	6	7	8	9	10	11	12			
FFA Exhibits at local or county fair	3.00	1.00	1.33	1.33	1.33	2.00	2.67	2.00	1.67	1.33	1.33	1.33	20.32	1.69	18
FFA fairs at local level	2.67	1.00	0	0.67	1.33	2.00	2.67	1.67	1.33	1.33	1.00	1.33	17.00	1.42	23
FFA demonstration plots	3.00	1.67	2.67	2.00	2.00	3.00	2.67	2.67	2.00	2.33	2.00	1.67	27.68	2.30	6
Individual or small group demonstration plots	3.00	2.33	2.67	2.33	1.67	3.00	1.67	2.33	2.00	2.33	2.00	1.67	27.00	2.25	8
Student demonstrations to public	2.67	2.00	2.00	2.00	2.00	2.00	2.33	2.67	1.67	1.67	1.00	1.67	23.68	1.97	13.5
FFA parent-son banquets	1.67	1.00	0	1.67	1.00	1.67	1.00	1.67	1.00	1.67	1.00	1.33	14.68	1.22	24
Students' discussion with parents about his supervised practice program	2.67	1.33	3.00	2.67	2.33	2.67	2.67	2.33	3.00	2.67	2.00	2.33	29.67	2.47	2
Parents' visit to students' supervised practice projects	3.00	2.00	2.33	1.67	2.33	2.67	1.33	2.00	2.67	3.00	2.00	2.33	27.33	2.28	7
Teacher-com-parent discussion about students' supervised practice program	2.33	1.67	3.00	2.67	2.67	2.67	2.67	3.00	2.67	2.33	2.00	3.00	30.68	2.56	1
School farm as a demonstration center	3.00	1.33	2.33	2.67	2.33	3.00	2.33	2.67	2.00	2.67	2.33	1.33	27.99	2.33	5
FFA public speaking contest at local level	3.00	2.67	1.67	1.00	1.00	1.33	1.00	2.67	1.67	1.67	0	1.33	19.01	1.58	20
FFA parliamentary procedure contest at local level	1.67	3.00	0	0	0	0	0	1.33	1.00	1.00	0	0	8.00	0.67	26
FFA demonstration contest at local level	2.67	2.00	2.33	0	2.33	1.67	2.67	2.67	2.00	2.00	1.00	1.67	23.01	1.92	15
FFA farm forum contest at local level	3.00	2.00	1.33	0.67	1.67	1.33	2.33	2.67	1.33	1.67	1.33	0	19.33	1.61	19
FFA judging contests	3.00	3.00	0.67	1.00	0	0	1.67	2.67	2.00	1.33	1.33	1.67	18.34	1.53	21.5
FFA contests (other than judging)	3.00	2.67	1.33	1.00	1.00	1.67	1.67	2.00	0	1.33	1.33	1.33	18.33	1.53	21.5
FFA poultry improvement program (broiler project)	3.00	2.00	2.33	2.00	1.33	2.00	2.67	1.67	1.33	2.33	1.33	2.00	23.99	2.00	12
FFA market livestock show and sale	2.33	2.33	1.33	2.67	1.67	1.00	2.67	2.33	2.00	1.33	1.33	1.67	22.66	1.89	16
FFA farm safety program	2.33	1.67	2.67	2.00	2.33	3.00	2.33	2.00	2.67	1.67	1.33	2.67	26.67	2.22	9
FFA pest control program	2.67	2.67	2.00	2.33	2.00	3.00	2.33	2.33	2.67	1.33	1.00	1.33	25.66	2.14	11
FFA tractor operation program	2.67	2.00	2.33	1.67	2.00	3.00	2.00	2.00	2.33	1.33	0.67	1.67	23.67	1.97	13.5
FFA chemical safety program	2.67	2.67	2.00	2.00	2.00	3.00	2.00	2.67	2.67	1.33	1.33	1.67	26.01	2.17	10
FFA meetings	1.67	1.00	1.00	0	0	1.33	1.00	1.00	1.67	1.67	0	0.67	10.01	0.83	25
Project tours arranged by FFA for parents	3.00	1.33	3.00	2.67	2.33	2.33	2.67	2.67	1.67	2.67	2.00	2.33	28.67	2.39	3
Parents' discussion with their son/ daughter on agricultural topics	2.67	1.00	2.33	2.67	2.33	3.00	2.33	2.67	3.00	2.33	1.67	2.33	28.33	2.36	4
Radio and TV shows presented by students of vocational agriculture	2.67	1.00	2.00	1.67	2.00	2.67	2.67	2.33	1.90	1.33	1.00	1.67	22.01	1.83	17

supervised practice programs" and "Student's discussion with parents about his/her supervised practice programs" were consistently rated high by the judges. In very few cases was there a big difference between the ratings of judges. However, the reliability coefficient for determining the consistency among the judges was also worked out statistically by the formula given on page 32. The reliability coefficient came to be .89.

The reliability coefficient of .89 seems to be quite high. This indicates the judgments of judges are reliable enough to be used for the study.

Parent's Perceptions About The Value of Student Activities for Their Farming Business

The second objective of the study was to determine the relative value of experiencing certain activities of vocational agriculture students as perceived by their parents for their farming business.

The parents were requested to value each activity on a four-point scale ranging from 0 to 3 (0 indicating no value and 3 indicating very high value). To calculate the overall value assigned to an activity by the parents, simple mathematical average of the values assigned by the responding parents to an activity was worked out. The data gathered in this respect are presented in Table III.

TABLE III.--VALUES ASSIGNED BY PARENTS TO STUDENT ACTIVITIES ON THE BASIS OF THEIR IMPORTANCE FOR THE FARMING BUSINESS

Activities	Number of Respondents	Average Value	Rank
FFA Exhibits at local or county fair	112	1.75	25
FFA fairs at local level	33	1.85	21.5
FFA demonstration plots	55	1.96	17
Individual or small group demonstration plots	48	2.08	14
Student demonstrations to public	53	1.87	20
FFA parent-son banquets	112	2.08	14
Students' discussion with parents about his supervised practice program	95	2.23	7
Parents' visit to students' supervised practice projects	90	2.24	5.5
Teacher-son-parent discussion about students' supervised practice program	76	2.25	4
School farm as a demonstration center	40	2.18	8
FFA public speaking contest at local level	13	1.85	21.5
FFA parliamentary procedure contest at local level	10	1.30	26
FFA demonstration contest at local level	16	2.13	11
FFA farm forum contest at local level	7	2.14	10

TABLE III.--continued

Activities	Number of Respondents	Average Value	Rank
FFA judging contests	17	2.00	16
FFA contests (other than judging)	13	1.92	18.5
FFA poultry improvement program (broiler project)	11	1.82	24
FFA market livestock show and sale	13	1.92	18.5
FFA farm safety program	46	2.26	3
FFA pest control program	25	2.16	9
FFA tractor operation program	26	2.08	14
FFA chemical safety program	8	2.38	1
FFA meetings	38	1.84	23
Project tours arranged by FFA for parents	12	2.33	2
Parents' discussion with their son/daughter on agricultural topics	71	2.24	5.5
Radio and TV shows presented by students of vocational agriculture	48	2.08	14

An inspection of Table III reveals that the activities of "FFA chemical safety program" "Project tours arranged by FFA for parents" and "FFA farm safety program" gained the three highest respective scores from the parents. On the other hand,

the activities of "FFA parliamentary procedure contests," "FFA exhibits at local or county fair" and "FFA public speaking contest at local level" gained the three lowest scores from the parents. The range of scores assigned to the activities was from 2.38 to 1.30 (The possible range was from 3 to 0). Parents assigned scores of two or more than two to sixteen activities, and the remaining ten activities were assigned a score of more than one. The notable thing about the data is that no activity gained a score of less than one. Also, the number of respondents varied widely from activity to activity, indicating that all the respondents were not exposed to all activities.

Relationship Between Parent's Ratings and ITPS of Student Activities

The third objective of the study was to determine the relationship of "values assigned by judges to activities of vocational agriculture students with regard to their information-transmission potential" with the "value of these activities perceived by parents of vocational agriculture students for their farming business" by rank order correlation.

To work out such a correlation, it was necessary first to rank the activities on the basis of score assigned by parents and judges and then to calculate correlation coefficient. In Table IV activities have been ranked according to the values assigned by parents and judges. The same table was also used to calculate the correlation coefficient.

TABLE IV

RANKING STUDENT ACTIVITIES ON THE BASIS OF SCORES ASSIGNED BY PARENTS AND BY JUDGES

Activities	Score Assigned By Parents	Rank On Parent's Rating	Score Assigned By Judges	Rank On Judges Ratings	Differences Between Ranks
FFA exhibits at local or county fair	1.75	25	1.69	18	7
FFA fairs at local level	1.85	21.5	1.42	23	1.5
FFA demonstration plots	1.96	17	2.30	6	11
Individual or small group demonstration plots	2.08	14	2.25	8	6
Student demonstrations to public	1.87	20	1.97	13.5	6.5
FFA parent-son banquets	2.08	14	1.22	24	10
Student's discussion with parents about his supervised practice program	2.23	7	2.47	2	5
Parents' visit to students supervised practice projects	2.24	5.5	2.28	7	1.5
Teacher-son-parent discussion about students' supervised practice program	2.25	4	2.56	1	3
School farm as a demonstration center	2.18	8	2.33	5	3
FFA public speaking contest at local level	1.85	21.5	1.58	20	1.5
FFA parliamentary procedure contest at local level	1.30	26	0.67	26	0
FFA demonstration contest at local level	2.13	11	1.91	15	4
FFA farm forum contest at local level	2.14	10	1.61	19	9
FFA judging contests	2.00	16	1.53	21.5	5.5
FFA contests (other than judging)	1.92	18.5	1.53	21.5	3
FFA poultry improvement program (broiler project)	1.82	24	2.00	12	12
FFA marked livestock show and sale	1.92	18.5	1.89	16	2.5
FFA farm safety program	2.26	3	2.22	9	6
FFA pest control program	2.16	9	2.14	11	2
FFA tractor operation program	2.08	14	1.97	13.5	.5
FFA chemical safety program	2.38	1	2.17	10	9
FFA meetings	1.84	23	0.83	25	2
Project tours arranged by FFA for parents	2.33	2	2.39	3	1
Parents' discussion with their son/daughter on agricultural topics	2.24	5.5	2.36	4	1.5
Radio and TV shows presented by students of vocational agriculture	2.08	14	1.83	17	3

Rank order correlation was calculated by the formula given in Chapter III (p. 32) as follows:

$$P = 1 - \frac{6(822.00)}{26(26^2 - 1)} = .7190$$

Standard error for the correlation coefficient was also calculated by the formula given in Chapter III (p. 33).

$$SE = \frac{1.05(1-.7190^2)}{\sqrt{26-1}} = .0846$$

So the coefficient of correlation is

$.7190 \pm .0846$ 68 percent of cases

For listing the significance of correlation coefficient a "t" value was worked out by the formula given in Chapter III (p. 33). Calculations proceeded as follows:

$$t = .7190\sqrt{\frac{26-2}{1-(.7190^2)}} = 5.0677$$

This value of t is significant at both .05 and .01 levels. This indicates that correlation coefficient is highly significant and there exists a strong relationship between the ratings of judges and ratings of parents.

Relationship Between ITPS of Activities and Frequencies of Parent's Exposure to Student Activities

The fourth objective of the study was to find out the relationship between "information-transmission potential of

activities" and "the frequency of parents' exposure to these activities" by rank order correlation.

The parents were requested to report how many times during the past four years (including the current year) they were able to visit/participate or attend each of the twenty-six student activities. For this they had to check in one of the six columns labeled "Never," "Once in the last four years," "Twice in the last four years," "Thrice in the last four years," "Once a year," and "More than once a year" for each activity. With the exception of the column labeled "more than once a year" each column checked by the parents would read the number of times the respondent had experienced an activity. In case of the respondents who checked the column "more than once a year" the researcher considered that these respondents had experienced the checked activity at least five times during the last four years. Although by assuming this, some data would have been lost, yet this was considered to be the safest assumption. For example, "more than once a year" can be five times during the last four years. This assumption would therefore lead to include the possible minimum data.

The reported frequencies with which the parents attended each activity were added and on the basis of resultant scores the 26 student activities were ranked. Rankings on this basis were correlated with rankings of the same activities on the basis of their ITPS's (which have already been reported). The data indicating ranks of activities on the basis of "frequency of parents'

exposure to these activities" and their "information-transmission potential score" are presented in Table V.

Rank order correlation was calculated by the same formula referred to earlier. The calculations proceeded:

$$P = 1 - \frac{6(1235.96)}{26(676-1)} = .5775$$

The standard error for the coefficient of correlation calculated by the same formula used earlier came to be as follows:

$$SE = \frac{1.05(1-.5775^2)}{\sqrt{26-1}} = .1397$$

So the correlation of correlation is

$.5775 \pm .1397$ 68 percent of cases

For testing the significance of correlation coefficient "t" value was worked out by the formula used earlier. The calculations were as follows:

$$t = .5775 \sqrt{\frac{26-2}{1-.5775^2}} = 3.4654$$

This t value is significant as both .05 and .01 levels. This indicates that the correlation coefficient is highly significant and that parents have usually attended those activities which have high potential for transmitting agricultural information.

TABLE V

RANKINGS OF STUDENT ACTIVITIES ON THE BASIS OF "THE FREQUENCIES WITH WHICH PARENTS WERE EXPOSED TO EACH ACTIVITY" AND "THEIR INFORMATION-TRANSMISSION POTENTIAL SCORES"

Activities	Frequencies of Parents' Exposure To	Rank On Frequencies Of Parents' Exposure	Rank On The Basis Of ITPS	Difference Between The Ranks
FFA exhibits at local or county fair	476	3	18	15
FFA fairs at local level	161	12.5	23	10.5
FFA demonstration plots	210	9	6	3
Individual or small group demonstration plots	226	8	8	0
Student demonstrations to public	208	10	13.5	3.5
FFA parent-son banquets	464	4	24	20
Students discussion with parents about his supervised practice program	486	2	2	0
Parents' visit to students' supervised practice projects	490	1	7	6
Teacher-son-parent discussion about students' supervised practice program	373	6	1	5
School farm as a demonstration center	161	12.5	5	7.5
FFA public speaking contest at local level	36	24	20	4
FFA parliamentary procedure contest at local level	42	22.5	26	3.5
FFA demonstration contest at local level	53	19.5	15	4.5
FFA farm forum contest at local level	26	25	19	6
FFA judging contests	53	19.5	21.5	2.0
FFA contests (other than judging)	57	18	21.5	3.5
FFA poultry improvement program (broiler project)	20	26	12	14
FFA market livestock show and sale	51	21	16	5
FFA farm safety program	186	11	9	2
FFA pest control program	105	15	11	4
FFA tractor operation program	97	16	13.5	2.5
FFA chemical safety program	42	22.5	10	12.5
FFA meetings	142	14	25	11
Project tours arranged by FFA for parents	70	17	3	14
Parents' discussion with their son/daughter on agricultural topics	414	5	4	1
Radio and TV shows presented by students of vocational agriculture	273	7	17	10

Frequencies With Which Student Activities Were Carried On

The fifth objective of the study was to find out to "what extent the specified activities were carried on by vocational agriculture students as reported by their agriculture teachers."

In this case it was necessary to determine the frequencies with which the activities were carried on by the students. However, in the case of a few activities it was not possible. For example, in the case of "school farm as a demonstration center" the teachers could report only whether they had a school farm or not, and if yes, whether it was used as a demonstration center for the public or not. In this case, it was not possible to find out how many times during the last four years students carried on "School farm as a demonstration center." Other activities of this nature were "poultry improvement programs (broiler projects)," "Farm safety program," "Pest control program," "Tractor operation program," and "chemical safety program."

Therefore, the following list of student activities will be different from the previous lists. In Table VI the frequencies with which the student activities were carried on during the last four years have been presented.

A look at Table VI will reveal that among the activities studied "FFA meetings" were conducted more frequently, followed by "Demonstration plots by FFA and individual students" and "Radio and TV shows presented by students," whereas the activity of "Seed judging contests" was very rarely undertaken by the students.

TABLE VI.--THE FREQUENCIES WITH WHICH THE STUDENT ACTIVITIES WERE CARRIED ON DURING THE LAST FOUR YEARS AS REPORTED BY THE AGRICULTURE TEACHERS

Activities	Frequency	Rank
FFA exhibits at local or county fair	173	5
FFA fairs at local level	24	20
Demonstration plots by FFA and individual students	580	2
Student demonstrations to public	156	6
Parent-son banquets arranged by FFA	132	7
Teacher's visit to students' homes	322	4
FFA public speaking contest at local level	79	10
FFA parliamentary procedure contest at local level	100	8
FFA demonstration contest at local level	78	11
FFA farm forum contest at local level	76	12
Project tours arranged for parents	42	17
FFA participation in market livestock shows and sale	52	15
FFA meetings	1844	1
Radio and TV shows presented by students of vocational agriculture	428	3
Dairy cattle judging contest	59	14
Dairy product judging contest	22	21
Poultry judging contests	20	22

TABLE VI.--continued

Activities	Frequency	Rank
Livestock judging contests	71	13
Meat judging contests	39	18
Crop judging contests	18	23
Seed judging contests	9	25
Forestry contests	44	16
Horticulture contests	11	24
Land conservation contests	81	9
Agriculture mechanic contests	25	19

Other activities conducted quite rarely by the students were reported to be "Horticulture contests" and "crop judging contests."

Relationship Between ITPS of Activities and the Frequencies With Which Activities Were Conducted

The sixth objective of the study was to determine the relationship between "information-transmission potential score of activities" and "the frequencies with which they (activities) had been conducted" by rank order correlation.

It may be seen from the previous table and from the questionnaire of the teachers (Appendix I) that the teachers were requested to provide necessary information with regard to specific judging contests and also concerning specific contests other than judging. But the case of the questionnaire for judges and the questionnaire for parents was different. It was considered that the questionnaires for parents and judges should be made as brief and easy to answer as possible. Therefore, in both cases the specific judging contests and the specific FFA contests other than judging were not included. Rather, both the judges and parents were requested to respond to "FFA judging contests" as one category and the "FFA contests (other than judging)" as another category of such student activities. For example, the judgment of the panel of judges regarding the "information-transmission potential score" of "FFA judging contests" and "FFA contests (other than judging)" would be the average score of the different contests lying within each category. Likewise, the opinion of parents with regard to the value of the "FFA judging contests" and "FFA contests (other than judging)" would be the average value of the different contests lying within each category.

In view of the above, to calculate the correlation for the objective on hand it was necessary that the information transmission potential scores of "FFA judging contests" and "FFA contests (other than judging)" be correlated with the means of the frequencies with which all the judging contests and all the FFA contests other than judging were carried on.

Also, as has been indicated earlier, in case of a few activities (i.e. school farm as demonstration centers, etc.) it was not possible to determine the frequencies with which these were carried on. Therefore, these activities had to be excluded for the purpose of calculating rank order correlation. Exclusion of these activities from the list of 26 activities rated by the judges necessitated a change in their previous rank order. The mean of the frequencies with which different judging contests were carried on was 34 and the mean of the frequencies with which different FFA contests (other than judging) were carried on was 40.25.

A final modification in the form of activities was made in case of "Demonstration plots by FFA and by individual or small groups of students." It may be recalled that in the preceding pages "Demonstration plots by FFA" and "Demonstration plots by individual students" were regarded as separate activities, but in case of the questionnaire for the teachers information regarding the frequencies with which the demonstration plots were conducted could not be gathered separately. It happened because, during the pretesting of questionnaires for teachers, some teachers indicated that FFA was so involved in the carrying out of demonstration plots both for individual students and for FFA that they could not state specifically where FFA was involved and where it was not. These teachers reported that they could only tell the number of "Demonstration plots" conducted by their students during the last four years.

This created a little problem. The frequencies with which "Demonstration plots" were conducted, were actually the sum of the frequencies of two activities and for each of these two activities separate information-transmission scores were available. To work out the correlation the only solution was to take the average of the ITPS's of these activities and the average of the frequencies with which these two activities were conducted. This was done and the information-transmission potential score for "Student Demonstration Plots" (representing FFA Demonstration plots and individual or small group Demonstration plots) came to be 2.28. The average of the frequencies with which "Student Demonstration Plots" were conducted came to be 290. (It may be recalled that in previous correlations, the scores on which ranks were assigned belonged to the individual activities. In this case the score (indicating the frequencies with which "Students' Demonstration Plots" were conducted) represented the sum of two scores. In order to unify the pattern this score was divided by two.)

After making all of these adjustments the rank order correlations were calculated. Data in this respect are presented in Table VII.

Rank order correlation was calculated by the formula referred to earlier. The calculations were:

$$P = 1 - \frac{6(566.50)}{16(16^2-1)} = .1670$$

TABLE VII.

RANKING OF STUDENT ACTIVITIES ACCORDING TO THE "FREQUENCY WITH WHICH THEY WERE CONDUCTED" AND ACCORDING TO THEIR ITPS'S.

Activities	Frequencies Activities Conducted	Rank On Frequencies	ITPS	Rank On ITPS	Difference Between Ranks
1. FFA exhibits at local or county fairs	173	5	1.89	8	3
2. FFA fairs at local level	24	16	1.42	13	3
3. Demonstration plots by FFA and individual students	290	4	2.28	3	1
4. Student demonstrations to public	156	6	1.97	4	2
5. Parent-son banquets arranged by FFA	132	7	1.22	14	7
6. Teacher's visit to student's home	322	3	2.56	1	2
7. FFA public speaking contest	79	9	1.58	10	1
8. FFA parliamentary procedure contest at local level	100	8	0.67	16	8
9. FFA demonstration contest at local level	78	10	1.91	5	5
10. FFA farm forum contest at local level	76	11	1.61	9	2
11. Project tours arranged for parents by FFA	42	13	2.39	2	11
12. FFA participation in market livestock shows and sale	52	12	1.89	6	6
13. FFA meetings	1844	1	0.83	15	14
14. Radio and TV shows presented by students of vocational agriculture	428	2	1.83	7	5
15. FFA judging contests (not covered above)	34	15	1.53	11.5	3.5
16. FFA contests other than judging (not covered above)	40.25	14	1.53	11.5	2.5

The value of .1670 indicates a nonsignificant correlation between the ITPS's of the activities with the respective frequencies with which the activities have been carried on. This means that the activities most often carried on by the students are not necessarily those which have high information-transmission potential.

Relationship Between Frequencies With Which Student Activities Were Carried On and Frequencies With Which Parents Were Exposed To These Activities

The seventh objective of the study was to find the relationship between the "frequency with which the activities had been conducted" and "the frequency of parents' exposure to these activities" as determined by rank order correlation.

The correlation, in this case, as well, was limited to those activities about which teachers could provide the information in terms of the frequency with which those activities were carried on. But in this case the total frequencies with which FFA judging contests and FFA contest (other than judging and not presented separately in the preceding or following tables) were kept as such. Also the frequencies with which FFA demonstration plots and demonstration plots conducted by individual or small groups of students were kept as such. The aforesaid frequencies were kept as such because their correlation was to be made with the total of the frequencies with which the parents attended all the FFA judging contests, all FFA contests (other than judging and not presented

separately in the preceding or the following table) and the total of the frequencies with which parents attended the FFA demonstration plots and individual or small group demonstration plots. These data are presented in Table VIII.

The correlation coefficient was calculated by the same formula referred to earlier and the calculations were:

$$P = 1 - \frac{6(320.50)}{16\ (16^2-1)} = .5287$$

Standard error for the correlation coefficient was calculated by the formula used earlier, as follows:

$$SE = \frac{1.05(1 - .5287^2)}{\sqrt{16 - 1}} = .1953$$

The coefficient of the correlation is then

$.5287 \pm .1953$ 68 percent of cases

The significance of correlation coefficient was tested by determining "t" value as suggested on page 33. The "t" value was calculated as follows:

$$t = .5287 \sqrt{\frac{16-2}{1 - .5287^2}} = 2.3305$$

This "t" value is significant at .05 level.

This relationship was studied on the assumption that people tend to attend (voluntarily) those activities in which there is some attraction for them. For example, a significant negative correlation coefficient between "the frequencies with which parents attended student activities" and "the frequencies with

TABLE VIII.

RANKING OF ACTIVITIES ON THE BASIS OF THE "FREQUENCIES WITH WHICH ACTIVITIES WERE CARRIED ON" AND "THE FREQUENCIES WITH WHICH PARENTS WERE EXPOSED TO THESE ACTIVITIES."

Activities	Frequencies Activities Carried On	Rank On Frequencies Carried On	Frequencies Attended By Parents	Rank On Frequencies Attended	Difference Between Ranks
1. FFA exhibits at local or county fairs	173	5	476	1	4
2. FFA fairs at local level	24	16	161	7	9
3. Demonstration Plots by FFA and individual students	580	2	436	3	1
4. Student demonstrations to public	156	6	208	6	0
5. Parent-Son Banquets arranged by FFA	132	7	464	2	5
6. Teacher's visit to student home	322	4	373	4	0
7. FFA public speaking contests	79	9	36	15	6
8. FFA parliamentary procedure contest at local level	100	8	42	14	6
9. FFA demonstration contest at local level	78	10	53	11.5	1.5
10. FFA farm forum contest at local level	76	11	26	16	5
11. Project tours arranged for parents by FFA	42	13	70	9	4
12. FFA participation in market livestock shows and sales	52	12	51	13	1
13. FFA meeting	1844	1	142	8	7
14. Radio and TV shows presented by students of vocational agriculture	428	3	273	5	2
15. FFA judging contests (not covered above)	34	15	53	11.5	3.5
16. FFA contests (other than judging) not covered above	40.25	14	57	10	4

which activities were conducted" would have led to the conclusion that those activities conducted rarely were attended often by the parents because parents found some attraction in them, and conversely activities conducted often, were attended rarely because parents did not find any attraction in them.

The significance of t value at both .05 and .01 levels, and the positive direction of the correlation leads to conclude that the activities conducted often were the activities which were attended frequently by the parents and vice versa. On the basis of the assumption just presented it is further concluded that the probable reason for the parents' frequent attendance in the activities conducted often is not only that these activities were conducted often but also that there was some attraction for the parents in these activities.

Relationships of Selected Characteristics of Parents With Their Exposure Scores and Attendance Frequencies

The eighth and the final objective of the study was to determine the relationship of the following characteristics of the parents with the extent of their exposure to agricultural information through the activities of vocational agriculture students. The characteristics studied were:

a. Education
b. Age
c. Family Size
d. Farm Size
e. Type of farming (full-time/part-time)
f. Number of farm enterprises
g. Income

As described earlier the "extent of exposure" of the parents to agricultural information through the activities of vocational agriculture students was determined in terms of their "exposure scores." To find out the relationship of the above stated characteristics with the"extent of exposure" (translated into exposure scores), parents were divided into several categories on each characteristic and the means of exposure scores of the parents lying within each category were tested for the significance of their differences by "analysis of variance" method. After the differences between the means turned out to be significant the relationship of the parents' characteristics with the extent of their exposure scores was calculated by the formula given in Chapter III, page 36. Although it was not the objective of the study, but considering that it will also be useful to the readers, similar calculations were also made to find out the relationship of the "parents' characteristics" with the "frequencies with which they experienced student activities" (from here on referred to as "Attendance frequencies").

The data gathered and analyzed in these respects are presented in the following pages. First, the categorization of parents on each characteristic and the means on"Exposure Score" and means on"Attendance frequencies"of each category of parents are being presented.

Education

Out of the 165 parents whose questionnaires were usable, only 156 provided information regarding their educational level.

Out of the 156 responses, four did not fit into any category and the remaining 151 respondents were classified into seven categories according to their educational levels. The number of parents lying in each category and means on "Exposure Scores" and on the "attendance frequencies" are presented in Table IX.

TABLE IX.--CLASSIFICATION OF PARENTS ON EDUCATIONAL LEVEL AND MEANS OF EACH CATEGORY ON EXPOSURE SCORES AND ON "ATTENDANCE FREQUENCIES".

	Categories	Number of Parents	Mean on Exposure Scores	Mean On Attendance Frequencies
I.	Both parents having education up to 8th grade	14	34.800	20.071
II.	Either both or one of parents have education up to 13th grade (other up to 8th grade)	26	47.202	26.576
III.	Only one of the parents completed high school	41	56.126	30.439
IV.	Both of parents completed high school	47	51.736	29.319
V.	One of the parents completed high school (other had higher education)	18	74.992	41.444
VI.	Both of the parents had higher education	5	71.432	40.400

A look at Table IX will reveal that the parents were classified into six categories according to their educational level. The number of parents in different categories were not

equal. A careful study of the Table will also reveal that the means on "Exposure Scores" and means on"Attendance Frequencies" tend to increase with the increase in the educational levels of the parents.

Age

Out of 165 respondents whose questionnaires were usable, 160 reported their age. Ten respondents did not fit into any category and the remaining 150 respondents were classified into six different categories. The categorization of parents according to age, number of parents lying within each category and means on "Exposure Scores" and means on "Attendance frequencies" with respect to each category are given in Table X.

TABLE X.--CLASSIFICATION OF PARENTS ACCORDING TO AGE AND MEANS FOR EACH CATEGORY ON"EXPOSURE SCORES" AND ON "ATTENDANCE FREQUENCIES."

	Categories	Number of Parents	Mean on Exposure Scores	Mean On Attendance Frequencies
I.	Those below 45	75	52.005	29.240
II.	One of the parents between 35 to 45; other between 46 to 50	29	53.902	29.758
III.	Both of the parents between 46 to 50	15	72.954	41.533
IV.	One of the parents between 46 to 50 other between 51 to 55	12	52.406	29.083

TABLE X.--continued

	Categories	Number of Parents	Mean on Exposure Scores	Mean On Attendance Frequencies
V.	Both of the parents between 51 to 55	9	50.936	27.222
VI.	One of the parents between 51 to 55; other between 56 to 60 and those who are over 60	10	88.884	23.800

An inspection of Table X will reveal that the means on Attendance Frequencies rise with the increase in the ages of the parents up to the third category. However, after that, as the ages of the parents increase the means on Attendance Frequencies decrease consistently. In case of "Exposure Score" means, with the exception of the last category, similar trends can be noticed. No ready answer comes to mind for the deviancy of the last category from the general pattern.

Family Size

This characteristic was studied in terms of "total number of children the families had" and in terms of "number of children living with them." The total number of the respondents who provided information to these effects and whose questionnaires were usable were 163 and 161 respectively.

A. Family Size (in terms of number of children the families had)

The presentation and analysis of data with regard to size of family in terms of "total number of children families had "is produced in Table XI. In this table the categorization of parents according to the size of family (in terms of the total number of children), number of parents falling within each category, and means on "Exposure Scores" and means on "Attendance Frequencies" with respect to each category have been detailed.

TABLE XI.--CLASSIFICATION OF PARENTS ACCORDING TO THE SIZE OF THEIR FAMILIES (IN TERMS OF NUMBER OF CHILDREN IN THE FAMILY) AND MEANS FOR EACH CATEGORY ON "EXPOSURE SCORES" AND ON ATTENDANCE FREQUENCIES

Categories	Number of Parents	Mean on Exposure Scores	Mean On Attendance Frequencies
I. Parents having 1 child	4	49.185	28.250
II. Parents having 2 children	19	62.353	35.052
III. Parents having 3 children	33	70.991	38.878
IV. Parents having 4 children	43	49.443	27.395
V. Parents having 5 children	22	46.446	27.045
VI. Parents having 6 children	17	39.517	23.294
VII. Parents having 7 children	7	35.230	20.000
VIII. Parents having more than 7 children	18	52.433	28.444

A look at Table XI will reveal that the "Exposure Score" means and means on "Attendance Frequencies" increase with the increase in the family size only up to the third category. After this, with the exception of the last category, as the size of family increases the "Exposure Score" means and "Attendance Frequencies" decrease consistently.

B. Family Size (in terms of number of children living with their parents)

The family size was considered in another way too i.e., in terms of number of children living with the parents. According to this variable the parents were classified into seven categories. For each category the means on "Exposure Scores" and the means on "Attendance Frequencies" are presented in Table XII.

TABLE XII.--CLASSIFICATION OF PARENTS ACCORDING TO THE SIZE OF THEIR FAMILIES (IN TERMS OF NUMBER OF CHILDREN AT HOME) AND MEANS FOR EACH CATEGORY ON "EXPOSURE SCORES AND ON "ATTENDANCE FREQUENCIES."

	Categories	Number of Parents	Mean on Exposure Scores	Mean On Attendance Frequencies
I.	Parents having 1 child	24	48.040	27.250
II.	Parents having 2 children	35	57.222	31.628
III.	Parents having 3 children	41	62.805	34.780
IV.	Parents having 4 children	26	51.896	28.576

TABLE XII.--continued

Categories	Number of Parents	Mean on Exposure Scores	Mean On Attendance Frequencies
V. Parents having 5 children	12	35.959	21.166
VI. Parents having 6 children	11	57.031	31.545
VII. Parents having 7 children or more	12	50.704	28.083

A study of Table XII will indicate that the means on "Exposure Scores" and means on "Attendance Frequencies" do not vary in any pattern which may be related with the variation in the family size. Only up to the third category, as the size of family increases, the means on "Exposure Scores" and means on Attendance Frequencies' increase consistently. After the third category, the means on "Exposure Score" and means on "Attendance Frequencies" vary irrespective of the variations in the family size.

Farm Size

Out of the 165 parents whose questionnaires were usable, 161 parents supplied information concerning the size of their farms. These parents were classified into seven categories. The categories of the parents, number of parents within each category, and means on "Exposure Scores" and on "Attendance Frequencies" for each category are presented in the following table.

TABLE XIII.--CLASSIFICATION OF PARENTS ACCORDING TO SIZE OF THEIR FARMS, NUMBER OF PARENTS IN EACH CATEGORY, AND MEANS FOR EACH CATEGORY ON "EXPOSURE SCORES" AND ON "ATTENDANCE FREQUENCIES"

	Categories	Number of Parents	Mean On Exposure Scores	Mean On Attendance Frequencies
I.	One acre to 39 acres	19	30.248	16.631
II.	40 acres to 100 acres	57	46.917	26.947
III.	101 acres to 150 acres	22	48.642	27.272
IV.	151 acres to 200 acres	23	62.425	34.521
V.	201 acres to 250 acres	11	72.802	40.545
VI.	251 acres to 300 acres	10	88.257	47.9
VII.	Over 300 acres	19	65.484	35.947

An inspection of Table XIII will reveal that, with the exception of the last category, as the size of the farm increases the means on "Exposure Scores" and means on "Attendance Frequencies" also increase consistently.

Type of Farming(Full-time/Part-time)

Of the 165 parents whose questionnaires were usable 163 provided information that whether they were full-time farmers or part-time farmers. The number of parents within each category, means on "Exposure Scores" and means "Attendance Frequencies" for each category are presented in Table XIV.

TABLE XIV.--CLASSIFICATION OF PARENTS ACCORDING TO TYPE OF FARMING NUMBER OF PARENTS IN EACH CATEGORY, AND MEANS FOR EACH CATEGORY ON "EXPOSURE SCORES" AND "ATTENDANCE FREQUENCIES"

Categories	Number of Parents	Mean on Exposure Scores	Mean On Attendance Frequencies
Full-time farmers	79	58.112	33.138
Part-time farmers	84	50.159	27.809

A brief look at Table XIV will reveal that the means on "Exposure Scores" and means on "Attendance Frequencies" of full-time farmers are higher than those of part-time farmers.

Number of Farm Enterprises

The number of respondents whose questionnaires were usable and who provided information with regard to the number of farm enterprises on their farms was 151. These respondents were classified into four categories on the basis of "number of farm enterprises" on their farms. The categories of parents, number of parents within each category, and means on Exposure Scores and means on "Attendance Frequencies" for each category are presented in Table XV.

An inspection of Table XV will reveal that, with the exception of the last category, as the number of farm enterprises increase the means on "Exposure Scores" and means on "Attendance Frequencies" also increase consistently.

TABLE XV.--CLASSIFICATION OF PARENTS ACCORDING TO NUMBER OF FARM ENTERPRISES, NUMBER OF PARENTS IN EACH CATEGORY AND MEANS FOR EACH CATEGORY ON "EXPOSURE SCORES" AND "ATTENDANCE FREQUENCIES."

Categories	Number of Parents	Mean on Exposure Scores	Mean On Attendance Frequencies
One enterprise only	38	41.80	23.55
Two enterprises	73	55.76	30.87
Three enterprises	32	62.57	33.46
Four or more enterprises	8	39.97	23.50

Income

The characteristic of income was studied in terms of A) net income and B) percentage of income from farming.

A. Net Income

The relationship of "net income" with the "Exposure Scores" and "Attendance Frequencies" was studied. The total number of parents whose questionnaires were usable and who provided information regarding their "net income" was 153. These parents were classified into five categories. The categories of parents, number of parents in each category, and means on "Exposure Scores" and means on "Attendance Frequencies" of parents with respect to each category are given in Table XVI.

TABLE XVI.--CLASSIFICATION OF PARENTS ACCORDING TO THEIR "NET INCOMES", NUMBER OF PARENTS IN EACH CATEGORY, MEANS ON "EXPOSURE SCORES" AND MEANS ON "ATTENDANCE FREQUENCIES FOR EACH CATEGORY.

Income Categories	Number of Parents	Mean on Exposure Scores	Mean On Attendance Frequencies
Below $3,000	50	44.32	24.66
From $3,000 to $6,000	49	59.87	32.93
From $6,000 to $9,000	36	48.10	26.722
From $9,000 to $12,000	9	59.40	30.666
Above $12,000	9	97.83	53.55

A look at Table XVI will indicate that although the means on "Exposure Scores" and means on "Attendance Frequencies" vary in range from 44.32 to 97.83 and 24.66 to 53.55 respectively, but there does not seem to be an apparent trend in the variation of means.

B. Percentage of Income from Farming

Those parents whose questionnaires were usable and who provided information as to the "percentage of their income from farming" were 139 in number. These parents were classified into four categories with respect to the percentage of their income from farming. The categories of parents, number of parents in each category, means on "Exposure Scores" and means on "Attendance Frequencies" with respect to each category are given in Table XVII.

TABLE XVII.--CLASSIFICATION OF PARENTS ACCORDING TO "PERCENTAGE OF THEIR INCOME FROM FARMING," NUMBER OF PARENTS IN EACH CATEGORY AND MEANS ON "EXPOSURE SCORES" AND MEANS ON "ATTENDANCE FREQUENCIES" FOR EACH CATEGORY.

Categories	Number of Parents	Mean on Exposure Scores	Mean On Attendance Frequencies
Up to 25 percent	51	45.757	25.235
From 26 to 50 percent	21	61.429	34.190
From 51 to 75 percent	10	61.284	35.4
From 76 to 100 percent	57	60.631	33.57

An inspection of Table XVII will reveal that with the exception of the first category, the means on "Exposure Scores" and means on "Attendance Frequencies" for the remaining three categories of parents are very close to one another.

Test For Determining Statistical Differences Among The Means

The means on "Exposure Scores" and means on "Attendance Frequencies" for different categories of parents, classified according to each characteristics, were tested for significance of their difference by the analysis of variance procedure. The results obtained are presented in Table XVIII.

A careful study of Table XVIII will reveal that both the means on "Exposure Scores" and means on "Attendance Frequencies" of the

different categories of parents classified according to "Family Size" (in terms of children living with them), "Type of Farming", and "Percentage of Income From Farming" do not differ significantly from one another. This means their differences are not big enough

TABLE XVIII.--STATISTICAL DIFFERENCES AMONG MEANS ON "EXPOSURE SCORES" AND MEANS ON ATTENDANCE FREQUENCIES OF DIFFERENT CATEGORIES OF PARENTS FOR EACH OF THE SEVEN CHARACTERISTICS

Characteristics	Number of Categories	F Ratio Indicating Level of Differences Among Means On	
		Exposure Scores	Attendance Frequencies
Education	6	2.780*	2.662*
Age	6	17.852***	1.4388
Family Size			
A. Family Size (Number of children family had)	8	2.539*	2.173*
B. Family Size (Number of children living with the parents)	7	1.220	1.068
Farm Size	7	5.724*	5.347**
Type of Farming (Full-time/part-time)	2	2.235	3.439
Number of farm enterprises	4	2.791*	2.302
Income			
A. Income (Net Income)	5	5.563**	5.605**
B. Percentage of income from farming	4	1.654	2.228

No star - statistically non-significant
* significant at .05 level
** significant at both .05 and .01 levels
*** significant at .05, .01 and .001 level.

to be considered as significant. It will also be noted that the means on "Attendance Frequencies" of the different categories of parents classified according to "Age" and "Number of Farm Enterprises" do not vary significantly from one another as well.

The study of Table XVIII will also indicate that the differences among the means on "Exposure Scores" and means on "Attendance Frequencies" of the different categories of parents classified according to "Education" and "Family Size" (in terms of number of children families had), the differences among means on "Exposure Scores" of the categories of parents classified according to "Number of Farm Enterprises" are significant at .05 level. It will further be noted that the differences among the means on "Exposure Scores" and means on "Attendance Frequencies" of the different categories of parents classified according to "Farm Size" and "Net Income" are significant at .01 level. The study of Table XVIII will also reveal that the differences among means on "Exposure Scores" of the categories of parents classified according to "age" are significant at .001 level.

Relationship of Parents' Characteristics With Their Exposure Scores And Attendance Frequencies

A statistically non-significant difference among the means would indicate a greater probability that the existing differences among means are because of chance. On the basis of this rationale,

in those cases where differences among means were non-significant, the strength of relationships between parents' characteristics and "Exposure Scores" and/or "Attendance Frequencies" were not calculated. However, in those cases where differences among means were significant the strength of relationship between parents' characteristics and "Exposure Scores" and/or "Attendance Frequencies" were calculated by the formula given on page 36. The results obtained are presented in Table XIX.

TABLE XIX.--STRENGTH AND INTERPRETATION OF RELATIONSHIPS BETWEEN CHARACTERISTICS OF PARENTS AND THEIR "EXPOSURE SCORES" AND " ATTENDANCE FREQUENCIES".

Variables Related	Value Indicating Strength Of Relationship	Interpretation Of Relationship
Education and Exposure Scores	.1182	weak, positive
Education and Attendance Frequencies	.0521	weak, positive
Age and Exposure Scores	.3581	moderate, curvilinear
Family Size(in terms of number of children the families had)		
A. Family size and Exposure Score	.0620	weak, curvilinear
B. Family size and Attendance Frequencies	.0479	weak, curvilinear
Farm size and Exposure Scores	.1497	weak, positive
Farm size and Attendance Frequencies	.1394	weak, positive
Number of farm enterprises and Exposure Scores	.0343	weak, positive
Net income and Exposure Scores	.1065	weak, positive
Net income and Attendance Frequencies	.107	weak, positive

An inspection of Table XIX will show that the relationship between "Education and Exposure Scores", "Education and Attendance Frequencies," "Farm Size and Exposure Scores", "Farm Size and Attendance Frequencies," "Number of farm enterprises and Exposure Scores," "Number of farm enterprises and Attendance Frequencies," "Net income and Exposure Scores" and "Net income and Attendance Frequencies" are weak and positive. It will also be evident that the relationships between "Family Size (in terms of number of children families had) and Exposure Scores" and "Family Size (in terms of number of children families had) and Attendance Frequencies" are weak and curvilinear. The relationship between "Age and Exposure Scores" is moderate and curvilinear.

PARENT'S REPORTS ABOUT THE AVAILABILITY OF STUDENT ACTIVITIES

It may be recalled that the parent's questionnaires were distributed among the students and they were instructed to help interpret the questionnaire to the parents. Students were told to convey to their parents that an activity would be considered "available" to them (parents) if the activity was carried on by the vocational agriculture students of their school and (a) if they were invited to attend that activity or (b) the activity was open for anyone to attend. According to these criteria parents were requested to report whether the twenty-six student activities were available to them or not. The information provided by the parents has been presented in Table XX.

TABLE XX

PARENTS' REPORT REGARDING THE AVAILABILITY OF STUDENT ACTIVITIES

Activities	Parents Reporting Activities Were		No Response
	Available	Not Available	
FFA Exhibits at local or county fair	126	15	24
FFA fairs at local level	48	74	43
FFA demonstration plots	71	58	36
Individual or small group demonstration plots	70	58	37
Student demonstrations to public	77	53	35
FFA parent-son Banquets	139	17	9
Students' discussion with parents about his supervised practice program	118	26	21
Parents' visit to students' supervised practice projects	114	24	27
Teacher-son-parent discussion about students' supervised practice program	108	30	27
School farm as a demonstration center	68	59	38
FFA public speaking contest at local level	38	82	45
FFA parliamentary procedure contest at local level	44	78	43
FFA demonstration contest at local level	43	75	47
FFA farm forum contest at local level	34	83	48
FFA judging contests	40	81	44
FFA contests (other than judging)	29	78	58
FFA poultry improvement program (broiler project)	23	92	50
FFA market livestock show and sale	37	82	46
FFA farm safety program	65	57	43
FFA pest control program	37	77	51
FFA tractor operation program	40	71	54
FFA chemical safety program	14	96	55
FFA meetings	67	56	42
Project tours arranged by FFA for parents	29	89	47
Parents' discussion with their son/daughter on agricultural topics	106	26	33
Radio and TV shows presented by students of vocational agriculture	75	51	39

A look at Table XX will reveal that the activities of "FFA parent-son banquets", "FFA exhibits at local or county fair", "Student's discussion with parents about his supervised practice programs", "Parent's visits to student's supervised practice projects", "Teacher-son-parent's discussion about student's supervised practice programs", and "Parent's discussion with their son/daughter on agricultural topics" were reported "available" by most of the parents. On the other hand the activities of "FFA Chemical Safety Program", "FFA poultry improvement program (broiler)", "Project tours arranged by FFA for parents', "FFA farm forum contest", "FFA public speaking contests", and "FFA market livestock show and sale" were reported "not available" by half or more than half of the parents.

At the time of tabulating the data from the parent's questionnaires it was noticed that while some parents whose children go to a particular school reported that a specific activity was "available" to them, other parents whose children go to the same school reported that that activity was "not available" to them. The probable reasons for this discrepency can be that either some parents did not read the questionnaire carefully or that these parents were not aware about all the student activities.

METHODS THROUGH WHICH PARENTS WERE EXPOSED TO STUDENT ACTIVITIES

In case of those activities where the teachers could invite the parents to attend student activities, teachers were requested

to inform the investigator how often and through which way the parents were invited. It was considered that this information would help the reader to understand the reasons for attendance or lack of attendance of parents in the student activities. The information gathered in this respect is presented below.

Demonstration Plots by the Students

It was reported that demonstration plots were conducted by individual students, small groups, and by FFA. By referring to Table VIII in which sixteen student activities are compared, we see that the activity of "Demonstration plots by students" has a rank of 2 with regard to the "frequencies with which activities were conducted" and has a rank of 3 with respect to "frequencies with which parents attended student activities." This activity on both aspects ranks quite high. One of the reasons for this higher rank on the "Frequencies with which parents attended student activities" can be that in addition to parents' own initiative to visit student demonstrations, they were invited through several ways. The details of the procedures through which parents were exposed to student demonstration plots are given in Table XXI.

By looking at Table XXI it becomes clear that although usually people visited student demonstration plots at their own initiative, yet they were invited by FFA as well as individual students.

TABLE XXI.--PROCEDURES THROUGH WHICH PARENTS WERE EXPOSED TO STUDENT DEMONSTRATION PLOTS.

Procedures Adopted	Number of Schools Reporting
Invitation by FFA	16
Invitation by individual students	13
People visit at their own initiative	23

School Farm

Out of thirty teachers who participated in the study, twenty six reported that their schools had school farms. Six of these twenty-six teachers reported that their schools farms were not used as demonstration centers for the public. When asked, "How often did you invite people to visit school farms?" then the twenty teachers whose farms were used as demonstration centers gave the replies which are presented in Table XXII.

TABLE XXII.--NUMBER OF TIMES PEOPLE WERE INVITED BY SCHOOLS TO VISIT SCHOOL FARM.

Number of Times a Year	Teachers Reporting
Three or more times	7
Two times	3
Once	8
Never	2

A look at Table XXII reveals that the parents were usually invited either once or more than once a year by those schools who have school farms.

The teachers were also requested to report how often people visited the school farms on their own. Their replies are tabulated below.

TABLE XXIII.--DEGREE TO WHICH PEOPLE VISITED SCHOOL FARMS DURING THE LAST FOUR YEARS AT THEIR OWN INITIATIVE

Degree of Visit	Schools Reporting
Often	10
Rarely	10
Never	--

An inspection of Table XXIII indicates that in all schools where school farms were used as demonstration center, people did visit the school farms at their own initiative. The remarkable thing is that there was not a single school having school farm as a demonstration center where people did not go at their own initiative.

Teacher-Son-Parent Discussion About Students' Supervised Practice Programs

This activity was rated highest on the ITPS basis. It ranked third on the basis of "frequencies with which activities were conducted," and it ranked sixth on the basis of "frequencies of

parents' exposure to student activities."

Teachers were requested to state that during the preceding four years how many home visits on an average per year per student did they make. Their replies are tabulated below.

TABLE XXIV.--AVERAGE NUMBER OF HOME VISITS BY TEACHERS PER YEAR PER STUDENT

Annual Home Visits Per Student	Teachers Reporting
1	1
2	17
3	7
4	3
more than 4	2

A look at Table XXIV will reveal that most of the teachers made two to three home visits per student annually.

Teachers were also requested to state how often during the past four years parents came to see them in connection with their children's supervised practice programs. Their replies are presented in Table XXV.

TABLE XXV.--DEGREE TO WHICH PARENTS VISITED TEACHERS IN CONNECTION WITH THEIR CHILDREN'S SUPERVISED PRACTICE PROGRAMS.

Degree of Parent's Visits	Teachers Reporting
Often	2
Rarely	25
Never	2

By looking at Table XXV one can see that most of the parents rarely visited the teachers in connection with their children's supervised practice programs.

The teachers were also requested to report that during the home visits how often they discussed the student's supervised practice programs with the parents. Their replies are tabulated below.

TABLE XXVI.--DEGREE TO WHICH TEACHERS, DURING THE HOME VISITS, DISCUSSED STUDENTS' SUPERVISED PRACTICE PROGRAMS WITH THEIR PARENTS

Degree of Teacher's Discussion With Parents	Teachers Reporting
Always	5
Usually	23
Rarely	2
Never	-

A look at Table XXVI reveals that on the home visits teachers not only confined their attention to students exclusively, but usually involved the parents in the discussions about their children's supervised practice programs.

In order to explore the nature of parents' involvement in the discussions about students' supervised practice programs, a question was raised as to who asked more questions during the discussion. The replies of the teachers are presented in Table XXVII.

TABLE XXVII.--THE PATTERN OF QUESTIONS RAISED IN TEACHER-PARENT DISCUSSIONS ABOUT STUDENTS' SUPERVISED PRACTICE PROGRAMS.

Pattern of Question Raising	Teachers Reporting
Teacher asks questions to which parents reply	-
Parents ask questions to which teachers reply	-
Parents and teachers ask questions equally	30

A review of Table XXVII will reveal that the discussion between teachers and parents has not been one-way in any case. In all cases, teachers reported that they (teachers) and the parents asked questions equally, which indicates a mutual interaction between parents and teachers.

There is a possibility that in addition to agricultural topics (including supervised practice programs) other non-agricultural topics may come under discussion during teacher-son-parent conferences, A question to this effect was raised in the teacher's questionnaire. The replies of the teachers are tabulated here.

TABLE XXVIII.--AMOUNT OF TIME DEVOTED TO AGRICULTURAL TOPICS DURING PARENT-SON-TEACHER CONFERENCES.

Amount of Time	Teachers Reporting
Much	10
Medium	18
Little	2

A look at Table XXVIII will reveal that there is a tendency among the teachers to spend much to moderate amount of time discussing agricultural topics with the parents during the parent-son-teacher conferences.

Poultry-Improvement Program
(Broiler Projects)

This activity ranked lowest on the basis of "Frequencies of parents' exposure to student activities." It means that this activity was least attended by the parents. The reason for this poor attendance can be attributed, at least in part, to the fact that out of thirty teachers who participated in the study only ten reported that their chapter had organized the poultry improvement program. When asked how often they invited people to visit the poultry improvement program (broiler projects) these ten teachers gave the replies which are tabulated below.

TABLE XXIX.--FREQUENCIES WITH WHICH PEOPLE WERE INVITED TO VISIT POULTRY IMPROVEMENT PROGRAM.

Frequencies of Invitation	Teachers Reporting
Three or more times a year	3
Twice a year	2
Once a year	4
Never	1

Table XXIX indicates that in almost all cases, where poultry improvement programs were organized, the people were invited to visit these programs.

Teachers were also requested to state the degree to which people visited the poultry improvement programs at their own initiative. Their replies are tabulated here.

TABLE XXX.--DEGREE TO WHICH PEOPLE VISITED POULTRY IMPROVEMENT PROGRAM AT THEIR OWN INITIATIVE.

Degree of Visits	Teachers Reporting
Often	1
Rarely	7
Never	2

A look at Table XXX reveals that people rarely visited the poultry improvement programs organized by the students.

FFA Meetings

While ranking the twenty-six activities on the basis of "parents' exposure to student activities" it was found that "FFA meetings" ranked 14th, and while comparing the sixteen activities on the basis of "Frequencies with which activities were conducted," "FFA meetings" ranked the highest. In addition to the fact that there is not much attraction for the parents in the FFA meetings (which are usually business meetings), the lack of parents' attendance in such meetings

may be also attributed to the degree to which they were invited to attend these meetings. The replies of teachers with regard to the degree to which parents were invited to attend FFA meetings are presented in Table XXXI.

TABLE XXXI.--DEGREE TO WHICH PARENTS WERE INVITED TO ATTEND FFA MEETINGS.

Degree to Which Parents Were Invited	Teachers Reporting
Very often	-
Often	9
Rarely	17
Never	4

A reflection on Table XXXI reveals that to invite parents to attend FFA meetings is a rare phenomenon with most of the teachers.

Farm Safety Program

While ranking the twenty-six activities on the basis of "frequencies with which parents were exposed to student activities," the activity of "farm safety program" ranked 11th. However, not all school included in the study were undertaking this activity. Twenty-three teachers reported that this activity was undertaken by their students. Out of these twenty-three teachers two reported that this activity was started only a year ago, six teachers reported that it

was started two years ago, two reported that it was started three years ago, and twelve reported that the activity under consideration was started four or more than four years ago. This would make clear that in almost half the schools the farm safety programs were started less than four years ago. This could be a reason for the lack of parents' attendance in this activity.

Pest Control Program

This activity ranked 15th on the basis of "frequencies with which the parents were exposed to twenty-six student activities." This activity, like the one just described, was not carried on by all the schools under study. Only sixteen teachers reported that their students were engaged in this activity. Of these sixteen teachers, two reported that they started this activity one year ago, three reported that they started this activity two years ago and eleven stated that in their schools this activity was started either four or more than four years ago. Only half the schools were undertaking this activity and out of these, five schools starting the activity less than four years ago, could be one of the reasons for the low level of parents' attendance in this activity.

Tractor Operation Program

On the basis of "attendance frequencies," this activity, among the twenty-six student activities, received the rank of 16th. This

activity was also not carried on by all schools. Twenty-two teachers reported that the tractor operation program was carried on in their schools. Of these twenty-two teachers, three reported that in their schools this activity was started only one year ago, four reported it was started two years ago, three reported it was started three years ago, and twelve reported that it was started four or more than four years ago. The fact that in half of the schools tractor operation programs were started less than four years ago, can be one of the reasons for parents' poor attendance in the tractor operation program.

Chemical Safety Program

While ranking the twenty-six student activities on the basis of "attendance frequencies" it was found that the activity of "chemical safety program" had the rank of 22.5. This activity was reported to be undertaken by only fourteen schools. In five of these fourteen schools, this activity was started one year ago, in three schools it was started two years ago, in two schools it was started three years ago, and in four schools it was started four or more than four years ago. The reason for the poor attendance of parents in this activity can be that, firstly, it was not undertaken by half of the schools included in the study, and secondly, in ten schools it was started less than four years ago.

Student Demonstrations to Public

Teachers were requested to state on an open ended question, that what kinds of demonstrations, and number of times each kind of demonstration was given by their students during the last four years. Twenty-five teachers reported that their students gave demonstrations to the public. The other five stated that their students did not give any kind of demonstrations to the public. The twenty-five teachers whose students gave demonstrations to the public, provided the information with regard to the kinds of demonstrations and number of times each demonstration was given by their students during the last four years. The information provided by these teachers is tabulated below.

A look at Table XXXII reveals that a variety of demonstrations are given by the students.

The activity of "student demonstrations to public" received 10th rank among the twenty-six activities on the basis of "attendance frequencies." This rank is among the upper-middle ranks. The reason for relatively better attendance of parents in "student demonstration" can be, firstly, be that most of the schools undertake this activity, secondly, the demonstrations cover a variety of interests and, thirdly, they are specifically designed for the interest of the public.

TABLE XXXII.--KINDS OF DEMONSTRATIONS AND NUMBER OF TIMES EACH DEMONSTRATION WAS GIVEN BY THE STUDENTS DURING THE LAST FOUR YEARS.

Kind of Demonstration	Number of times Given to Public
Farm Safety	3
Minimum Tillage	2
Use of Farm Level	4
Farm Rat Control	4
Swine Producing	13
Corn Raising	13
Laying Cement Blocks	2
Farm Safety	20
Weed Control	4
Parliamentary Procedures	16
Soil Conservation	4
Tractor Safety	5
Feeding Cows	3
Livestock Selection	3
Electric Wiring on Farm	12
Milk Production	2
Producing Honey	2
Tractor Operation	2
Milking Methods	4
Others	38

Chapter V

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

On the basis of the findings reported in the previous chapter it is concluded that:

1. The activities carried on by the vocational agriculture students did have the potential to transmit agricultural information to the people.

2. Different activities had different potential of transmitting agriculture knowledge.

These conclusions are derived from the ratings of judges, ratings of parents about student activities, and a high degree of correlation between these two ratings.

3. There was a transfer of agricultural information through the mediation of vocational agriculture students to their parents.

This conclusion is derived from the information provided by the parents with regard to the frequencies of their exposure to student activities.

4. Parents had a tendency to attend more of those activities which had relatively high information-transmission potential and a tendency to attend less of those activities which had low information-transmission potential.

This conclusion was derived as a result of highly significant rank order correlation between ITPS of activities and "frequencies of the parents' exposure to student activities."

5. The activities conducted most often by students were not necessarily those which had either high or low potential for transmitting agricultural knowledge.

This conclusion is derived as a result of nonsignificant rank order correlation between ITPS of activities and the "frequencies with which activities were carried on."

6. Parents had a tendency to attend more of those activities which were conducted more often and a tendency to attend less of those activities which were conducted rarely.

This conclusion is derived as a result of highly significant rank order correlation between "frequencies with which activities were carried on" and "attendance frequencies" of parents.

7. a. The parents' characteristics of "education," "farm size," and "net income" were positively related with their Exposure Scores.

b. The parents' characteristics of "family size" (according to number of children in the family), and "age" had a curvilinear relationship with their Exposure Scores.

c. The parents' characteristics of "family size" (in terms of number of children at home), "type of farming" (fulltime/part time), and "percentage of income from farming" were not related with their Exposure Scores.

d. The parents' characteristics of "education," "farm size," and "net income" were positively related with their "attendance frequencies."

e. The parents' characteristics of "family size" (according to the number of children in the family) had a curvilinear relationship with their "attendance frequencies."

f. The parents' characteristics of "age," "family size," (according to number of children at home), "type of farming (full time/part time), "number of farm enterprises" and "percentage of income from farming" were not related with their "attendance frequencies."

Recommendations

Recommendations for U.S.A.

If it is desired that, in addition to the benefits of student activities to the students, these activities may be further

utilized to transmit agricultural information to the farmers, then

a. Those activities which have high information-transmission potential may be conducted most often.

b. Some modification or addition may be made in the nature of the activities with low information-transmission potential, which may enhance their potential of transmitting agricultural knowledge.

c. Necessary coordination may be secured between agriculture teachers and the cooperative extension service representative so that the student activities may effectively be used in transmitting agricultural knowledge regarding the current and immediate agricultural problems of farmers.

Recommendations for Developing Countries

In addition to the findings of this study, views of some educators have influenced the researcher to state the following recommendations.

Most of the developing countries have an agricultural economy. In almost all developing countries agriculture is traditional and backward. The governments of these countries are quite earnest about transforming their agriculture from traditional and conservative to modern and mechanized. One of the problems in transforming the traditional agriculture is difficulty in reaching the farmers and convincing them about the agricultural innovations. It

is felt that every channel through which farmers can be reached should be explored and developed.

The writer feels that agricultural education, if introduced properly, in public schools of the developing countries has the potential to contribute toward the transformation of traditional agriculture. It is considered that the rationale and the guidelines on which the agricultural education ought to be based will vary from country to country. However, the fact that through the mediation of school students agricultural information can be transmitted among the farmers (which has been shown by this study) can be used as one of the foundations for introducing agricultural education in the public schools of developing countries. If agricultural education in the public schools of the developing countries is to be introduced on this basis then the organization of student activities will have to be commensurate with this foundation. One cannot use the students to transmit agricultural information among the farmers if the student activities are cut off from the agricultural problems of the community, if the student activities are confined only to the classroom, and if teaching of agriculture is only bookish.

It is recommended that in view of the earnest need for agricultural revolution in the developing countries, agricultural education should be introduced in the public schools of the developing countries. Further, agricultural education should take place in the classroom, on school farm, on home farm of the students, and

in the community. In a nutshell the agricultural education program in the developing countries should be organized around the community school concept. In order to elaborate the concept of community school, reference is made to Byram and Wenrich who present five criteria which a school should meet to be properly designated a community school. The criteria are:[1]

1. The school is identified with community life.
2. The professional educators and the people of the community discuss and plan together for the development of school program which will be related to community needs.
3. Wise and extensive use is made of the resources of the community in the educational program.
4. The school, in coordinate relation with other community agencies, is of service to the entire community.
5. The school in its administration and teaching, exemplifies the principles of democracy. (This criteria has been slightly modified by the writer, to fit the recommendations for developing countries.)

If the school program, in general, and agricultural education programs, in particular, are organized around the five criteria listed above, it is quite probable that schools can become effective instruments to bring about social, economic, and agricultural changes in the developing countries.

Suggestions for Further Research

This study is a first attempt in the area of diffusion of agricultural information among the farmers through the mediation

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[1]Harold M. Byram and Ralph C. Wenrich, Vocational Education and Practical Arts in the Community School (New York: The MacMillan Company, 1956), pp. 5-8.

of vocational agriculture students. Much further research can be carried on to develop this aspect of agricultural education. In the following a few suggestions for further research in this area are presented.

1. From being aware of an idea to the adoption of that idea, there are distinct stages through which a person passes. This process of passing from first stage to the last stage is called adoption process. Usually this adoption process is broken down in the following five stages i.e., awareness, interest, evaluation, trial, and adoption. At every stage there are distinct sources of information which influence the people. It is suggested that further research may be carried on to know that for which adoption stage and for what kinds of decision "student activities" are more effective.

2. Research may be carried on to determine the patterns of relationship between agriculture teacher and extension agent which would enhance the effectiveness of efforts to innovate the agriculture.

3. The relationship of personality factors of the parents with the extent of their exposure to student activities may be studied.

4. The extent to which farmers (other than parents) are exposed to student activities may be studied.

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APPENDIX 1

FIRST LETTER TO TEACHERS

335 Erickson Hall
Michigan State University
East Lansing, Michigan 48823
October 4, 1967

Dear Mr.

I am a graduate student from Pakistan at Michigan State University and am engaged in a study which may help agriculture teachers to plan and execute more functional programs.

High school vocational agriculture programs of the United States are known to be the most comprehensive and functional. Credit for this is due the hard work of the vocational agriculture teachers and their willingness to use research and evaluation in program development. It is in this regard I am seeking your assistance and cooperation. For my study the data need to be collected primarily from agriculture teachers and those parents of senior vocational agriculture students who are farmers.

I plan to visit several schools and collect data from the agriculture teachers in person. The information desired from the agriculture teachers is primarily concerned with the frequency and the kinds of activities carried on by vocational agriculture students.

To secure maximum return from the parents, it has been decided that, the questionnaires, with the approval and help of agriculture teachers, will be handed to the students in the class-room. The students would deliver the questionnaires to their parents and after getting their response they would bring them back to school. The information requested from the parents is primarily concerned with the frequency with which they attended or observed various student activities and their opinions about such activities.

I assure you that the information provided by you and by the parents will be treated confidentially.

With your approval I would like to speak to senior vocational agriculture students for about five minutes to describe briefly the purpose of the study and give them instructions for getting the questionnaires completed.

Before I come to your school I would like to know whether you will be able to cooperate in this study. If you can, please indicate the hours of each day you hold the class for senior vocational agriculture students. This information will be very helpful in planning my trip to your school. Would you be kind enough to provide this information on the enclosed stamped card and mail it to me at your earliest convenience.

Thanking you, I am

Yours sincerely,

Mohammad Ansar A. Shami
Graduate Student
Agricultural Education Program

FORMAT OF SELF ADDRESSED STAMPED CARD ENCLOSED WITH FIRST LETTER

Teacher No:_____

Are you willing to cooperate in the study? Yes_____ No_____
If yes, please indicate on which days and at what time of each day you hold classes for senior vocational agriculture students

Day	Class Meets		Class is Held	
	Yes	No		
Monday	___	___	From_____	to_____
Tuesday	___	___	From_____	to_____
Wednesday	___	___	From_____	to_____
Thursday	___	___	From_____	to_____
Friday	___	___	From_____	to_____

Telephone: School_____
Residence_____

QUESTIONNAIRE FOR AGRICULTURE TEACHERS

Name of school_____

There are certain activities of vocational agriculture students which may transmit agricultural information to others. This questionnaire is designed to collect information regarding the extent to which such activities are being and have been carried on by your students. You are requested to provide the necessary information by responding to each question in the appropriate fashion.

1. During the past four years how many times per year, on the average, has the FFA chapter put up exhibits at local or county fairs?

   (a) _____times per year
   (b) _____never

2. During the past four years how many times per year, on the average, has the FFA chapter put up its own fairs?

   (a) _____times per year
   (b) _____never

3. Have your students been conducting demonstration plots?

   Yes _____ No _____

   If yes:

   (a) Have the demonstration plots usually been conducted by:
   FFA chapter_____
   Individual students_____
   Both_____

   (b) During the past four years what has been the average (per year) number of demonstration plots conducted both by FFA and individual students?
   _____

   (c) Through which of the following procedures have people been exposed to demonstration plots?
   Invited by FFA for visit_____
   Invited by individual students for visit_____
   People visit on their own initiative_____
   Others(explain)_____

4. Do you have either a school farm or land laboratory? Yes__ No__

   If yes:

   (a) Is the school farm or land laboratory, or a part of it used as a demonstration place for the public? Yes___ No___

   If yes:

   (1) During the past four years how often did you invite people to visit the school farm or land laboratory?
   Three or more times a year___
   Twice a year___
   Once a year___
   Never___
   Specify other_____

   (2) How often in the past four years did people come on their own initiative to see the school farm or land laboratory?
   Often___
   Rarely___
   Never___

5. During the past four years how many home visits on an average per year per student did you make to students?

   _____per student per year

6. During the past four years how often have the students' parents come in to see you in connection with their child's supervised practice programs?

   Often_____ Rarely_____ Never_____

7. On your visits to students' homes and parents' visits to you, how often did you discuss the supervised practice programs of the students with their parents?

   Always_____ Usually_____ Rarely_____ Never_____

8. For your conference with the parents (either in school or students' home) which of the following statement is usually true?

   i. I ask a lot of questions which parents try to answer___
   ii. The parents ask a lot of questions which I try to answer___
   iii. The parents and I question and answer each other equally___

9. During the past four years how much time on an average was devoted to the discussion of agricultural topics (including supervised practice programs) in the parent-son-teacher conferences?

   Much_____ Medium_____ Little_____

10. During the past four years how many times per year, on the average, has the FFA arranged Parent-Son Banquets?

    (a) _____times a year
    (b) _____never

11. Has your FFA chapter participated in the poultry improvement (broiler projects) program?

    Yes___ No___

    If yes:

    i. During the past four years how often did you invite people to visit the FFA poultry improvement program?
    Three or more times a year___
    Twice a year___
    Once a year___
    Never___
    Specify other_____

    ii. How often in the past four years did people come on their own initiative to see the FFA poultry improvement program?

    Often_____ Rarely_____ Never_____

12. During the past four years how often, on an average per year, has your FFA arranged its meetings?

    _____meetings per year

13. During the past four years how often have you invited students' parents to attend FFA meetings?

    Very often_____ Often_____ Rarely_____ Never_____

14. During the past four years how many times has your FFA participated in market livestock shows and sales?

    i. _____times
    ii. Never

15. Has your FFA started the following programs?

		Yes	No
a.	Farm safety program	___	___
b.	Pest control program	___	___
c.	Tractor operation program	___	___
d.	Chemical safety program	___	___

16. For those of the above which have been started by your FFA, please indicate how many years ago each was started by your FFA.

    a. Farm safety program started_____years ago
    b. Pest control program started_____years ago
    c. Tractor operation program started_____years ago
    d. Chemical safety program started_____years ago

17. During the past four years how often has your FFA conducted project tours for the parents?

    i. _____times per year (in the past four years)
    ii. Never_____

18. During the past four years how often did your vocational agriculture students display shows on radio or television?

    i. _____times per year (in the past four years)
    ii. Never_____

19. During the past four years how many times have your vocational agriculture students participated in the following contests <u>at the local level</u> when they are open to the public?

Name of contest	Participation
(a) Public speaking contest	_____times
(b) Forestry contest	_____times
(c) Horticulture contest	_____times
(d) Land conservation contest	_____times
(e) Parliamentary procedure contest	_____times
(f) Demonstration contest	_____times
(g) Farm forum contest	_____times
(h) Dairy cattle judging contest	_____times
(i) Dairy products judging contest	_____times
(j) Poultry judging contests	_____times
(k) Livestock judging contests	_____times
(l) Meats judging contests	_____times
(m) Crop judging contests	_____times
(n) Seed judging contest	_____times
(o) Agricultural mechanics contest	_____times

20. Have your students given some kinds of demonstrations to the public?

    Yes_____ No_____

    If yes:

    Please specify the kinds of demonstrations given and the approximate number of times each kind of demonstration has been given in the <u>last four years</u>.

Kind of demonstration	Number of times in the last four years
1.	
2.	
3.	
4.	
5.	

21. Please list such activities and the extent to which they are carried on by your students, which this questionnaire does not include.

APPENDIX 2

COVER LETTER BY TEACHER TO PARENTS

Dear Parent:

It has been our sincere desire and effort to offer the most functional vocational agriculture program at your school. Consequently we have welcomed suggestions and have welcomed constructive criticism for the betterment of the program.

Mr. Shami, a graduate student at Michigan State University, is engaged in a study which, after its completion, should provide us information that will be helpful in further improving the program. We have been provided with an opportunity to cooperate in this study.

Enclosed are the questionnaires developed by Mr. Shami for the study. Would you kindly go through these and provide the necessary information at your earliest convenience.

Thanking you very much.

Yours sincerely,

Agriculture Teacher

_____

_____

_____

P.S. In order to treat the information provided by you as confidential, a blank envelope is also enclosed. After replying to the questionnaires please return them under sealed envelope.

COVER LETTER BY RESEARCHER TO PARENTS

335 Erickson Hall
Michigan State University
East Lansing, Michigan 48823

Dear Parent:

High school vocational agriculture programs of the United States are well known for their service to the students, community and the farming profession. One of the major reasons for the success of vocational agriculture activities has been the willingness of the people involved in these activities to evaluate them in order to improve vocational agriculture.

I am a graduate student from Pakistan at Michigan State University and am engaged in a study, which may help develop vocational agriculture programs, further valuable to the farmers for their farming career. Would you please go through the enclosed questionnaires and provide the necessary information. I assure you that the information provided by you will be treated confidentially.

I am hopeful that in the interests of the farming profession and vocational agriculture programs you will be able to spare a bit of your time and reply to the enclosed questionnaires.

Thanking you for your cooperation.

Yours sincerely,

Mohammad Ansar A. Shami

QUESTIONNAIRE FOR PARENTS

Family No:_____

What was the last grade of school you completed? (Father)

Grade: 0 to 1_____, 2 to 6_____, 7 to 8_____
High School: 1 to 3_____, 4 years_____
College: 1 to 3_____, B.S._____, Work beyond bachelor's_____

What was the last grade of school you completed? (Mother)

Grade: 0 to 1_____, 2 to 6_____, 7 to 8_____
High School: 1 to 3_____, 4 years_____
College: 1 to 3_____, B.S._____, Work beyond bachelor's_____

What is your age? (Father)

Under 35_____, 35 to 45_____, 46 to 50_____, 51 to 55_____,
56 to 60_____, 61 to 65_____, 66 to 70_____, Over 70_____

What is your age? (Mother)

Under 35_____, 35 to 45_____, 46 to 50_____, 51 to 55_____,
56 to 60_____, 61 to 65_____, 66 to 70_____, Over 70_____

How many children do you have?_____How many of them are living with you?_____

What kind of enterprises do you have on the farm you operate or manage? (Check those you have)

Crops (please specify major ones):_____
_____
Dairy_____
Livestock_____
Poultry_____
Horticulture (a) Fruit_____(b) Vegetables_____
Forestry_____
Others_____

What is the size of your farm(s)_____acres cultivated

Taking an average of the preceding four years, what has been your annual net income? (Net income defined as "What-ever remains from earnings and profits after all costs, expenses and allowance for depreciation and probable losses have been deducted").

Below $3,000_____, $3,000 to $6,000_____, $6,000 to $9,000_____
$9,000 to $12,000_____, $12,000 to $15,000_____, $15,000 to
$18,000_____, Above $18,000_____

What percentage of your total income comes from farming?_____percent

Census defines part-time farming as "Farms with a value of sales of farm products of $50 to $2,499 were classified as "part-time" if, (1) the operator was under 65 years of age and (2) he either worked off the farm 100 or more days during 1959 or the income he and members of his household received from the off-the-farm-operated sources was greater than the total value of farm products sold.

According to this definition are you a part-time farmer?

Yes_____ NO_____

Directions:

The following is a list of vocational agriculture students activities you might have visited/participated in during the last four years. You are requested to provide the necessary information under the following three categories (i.e. availability of activity, value of activity to you for your farming career, and frequency of your visits/participation in the activity) by checking the appropriate column under each category. Please check before each activity whether that was ever available to you during the last four years or not. If not, then move on to the next activity, and if yes, then before moving on to the next activity please indicate your opinion about the value of experiencing the activity to you for your farming career, by checking the appropriate column under the second category. The columns under the second category have been labelled in an ascending order - ranging from 0 to 3 - 0 indicates no value and 3 indicates very high value. If you feel that experiencing a particular activity had no value to you for your farming career then check the column of 0 and if you feel that the value was very high check the column of 3. Under the third category please check the appropriate column to indicate how often you have been able to visit/participate in the activities during the last four years.

ACTIVITIES	Was the activity available to you		Value of experiencing the activity for your farming business (0 indicates no value 3 indicates very high value)				Frequency of experiencing the activity					
	Yes	No	0	1	2	3	More than once a year	Once a year	Thrice in last 4 years	Twice in last 4 years	Once in last 4 years	Never
1. Visited FFA exhibits at local or county fairs												
2. Visited FFA fairs												
3. Visited FFA chapter demonstration plots												
4. Visited individual student's demonstration plots												
5. Observed and listened to demonstrations given by pupils in public												
6. Participated in Parent-Son banquets (arranged by FFA).												
7. Discussed with my son/daughter his/her supervised practice programs												
8. Visited my son's/daughter's supervised practice projects.												
9. Participated in discussion with agriculture teacher and my son/daughter about his/her supervised practice programs												
10. Visited school farm or land laboratory												
11. Attended FFA public speaking contests at local school												
12. Attended FFA parliamentary procedure contests at local school												
13. Attended FFA demonstration contests at local school												
14. Attended FFA farm forum contests at local school												
15. Attended FFA judging contests (i.e. livestock, poultry, meat judging, etc)												
16. Attended other FFA contests (not covered above)												
17. Observed FFA poultry improvement programs (broiler projects)												
18. Observed FFA market livestock show and sale (at St. Johns or Battle Creek).												
19. Observed FFA farm safety program												
20. Observed FFA pest control program												
21. Observed FFA tractor operation program												
22. Observed FFA chemical safety program												
23. Attended FFA chapter meeting												
24. Participated in project tours arranged by FFA for parents												
25. Discussed with my son/daughter general agricultural topics/problems												
26. Watched TV and/or radio shows presented by vocational agriculture students.												

APPENDIX 3

INSTRUCTIONS AND RATING SHEETS FOR THE JUDGES

One of the major objectives of vocational agriculture students' activities is to develop among them certain abilities and skills. The agricultural information identified in these activities may also be transmitted to others. This study is being conducted to explore the exposure of parents to agricultural information through the activities of vocational agriculture students. One of the basic requirements of the study is to assess the agricultural-information-transmission potential of the places/activities organized by vocational agriculture teachers and participation of students. A number of knowledgeable persons have been selected as judges to help in determining the agricultural information-transmission potential scores of each activity. We hope you can help us by serving as a judge. You are requested to go through the directions given below and give your judgment. Your cooperation is highly appreciated.

DIRECTIONS

The information-transmission potential of each activity is considered to have three dimensions, i.e.:

1. Amount of agricultural information transmitted.
2. Value of agricultural information transmitted.
3. Clarity with which agricultural information is transmitted.

Twenty-six separate activities of vocational agriculture students have been given on the enclosed slips of paper. Each slip is numbered. You are requested to classify every activity in one

of the four levels for each of the three dimensions. Please note that the level of every activity for each dimension is to be considered from the standpoint of the farming parents of vocational agriculture students.

On the Sheet Number 1 you will find four ascending levels under the dimension of "Amount of agricultural information transmitted". Place this sheet in front of you. Keeping in mind the four levels and the said dimension go through all the slips of student activities. Weigh each activity in your mind and place the slip in the level you consider appropriate. After you are finished with categorizing the slips, please go through each pile once again and feel free to shift any slip from one level to another if you feel so inclined. Please write the numbers of each slip on the sheet in the respective level where each was placed. This will be the record of your judgment. Total the number of activities you have listed in the 4 levels. You should have listed a total of 26 activities. If your total differs, check to see which item was omitted.

Repeat the same with Sheet Number 2 and 3 for the other dimensions.

Thank you.

LIST OF STUDENT ACTIVITIES GIVEN TO JUDGES FOR RATING

1
Student's discussion with parents about his supervised practice programs.

2
Parents' visit to students supervised practice projects.

3
School farms as a demonstration center.

4
Teacher-son-parent discussions about supervised program.

5
FFA public speaking contests at local level.

6
FFA judging contests.

7
FFA contests (other than judging contests).

8
FFA poultry improvement program (broiler project).

9
FFA parliamentary procedure contests at local level.

10
FFA demonstration contests at local level.

11
FFA farm forum contests at local level.

12
FFA market livestock show and sale.

13
Parents' discussion with his sons/ daughters on agriculture topics.

14
FFA farm safety program.

15
FFA pest control program.

16
FFA tractor operation program.

17
FFA chemical safety program.

18
FFA meetings.

19
Project tours arranged by FFA for the parents.

20
FFA exhibits at local/county fairs.

21
FFA fairs at local level.

22
FFA demonstration plots.

23
Individual or small group demonstration plots.

24
Student demonstrations to the public.

25
Parent-son banquets arranged by FFA.

26
Radio and T.V. shows presented by vocational agriculture students.

SHEET NUMBER I

DIMENSION: AMOUNT OF AGRICULTURAL INFORMATION TRANSMITTED

Large Amount	Medium Amount	Small Amount	None	Number of Activity
	1			1
	2			2
	3			3
	4			4
	5			5
	6			6
	7			7
	8			8
	9			9
	10			10
	11			11
	12			12
	13			13
	14			14
	15			15
	16			16
	17			17
	18			18
	19			19
	20			20
	21			21
	22			22
	23			23
	24			24
	25			25
	26			26

SHEET NUMBER II

DIMENSION: VALUE OF AGRICULTURAL INFORMATION TRANSMITTED

Of Great Value	Of Some Value	Of Little Value	Of No Value	Number of Activity
	1			1
	2			2
	3			3
	4			4
	5			5
	6			6
	7			7
	8			8
	9			9
	10			10
	11			11
	12			12
	13			13
	14			14
	15			15
	16			16
	17			17
	18			18
	19			19
	20			20
	21			21
	22			22
	23			23
	24			24
	25			25
	26			26

SHEET NUMBER III

DIMENSION: CLARITY WITH WHICH THE AGRICULTURAL INFORMATION IS TRANSMITTED

Perfectly Clear	Fairly Clear	Vague or Obscure	Not Clear	Number of Activities
	1			1
	2			2
	3			3
	4			4
	5			5
	6			6
	7			7
	8			8
	9			9
	10			10
	11			11
	12			12
	13			13
	14			14
	15			15
	16			16
	17			17
	18			18
	19			19
	20			20
	21			21
	22			22
	23			23
	24			24
	25			25
	26			26