

EXPERIMENTAL EVALUATION OF AN INSTRUCTIONAL PACKET
ON LEADERSHIP AND FFA FOR
BEGINNING VOCATIONAL AGRICULTURE STUDENTS IN IOWA

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The Future Farmers of America (FFA) has been instrumental in fulfilling the objectives of vocational education in agriculture. FFA can serve as one of a number of teaching techniques used by an instructor to motivate, guide, and discipline the overall education of vocational agriculture students.

Leadership training should start early in students' vocational agriculture programs to enable them to take full advantage of the opportunities available. The question arises, how can instruction on leadership development and FFA be effectively provided to beginning students with minimal preparation time?

To assist teachers with this problem, an instructional packet, containing subject matter content and instructional aids, was designed to reduce preparation time needed by the instructor, help insure appropriate content, and help students "discover" opportunities and responsibilities associated with FFA membership. The packet was developed by the researcher and Dr. Richard I. Carter of the Agricultural Education Department at Iowa State University, with the assistance of vocational agriculture instructors, vocational agriculture students, and Agricultural Education undergraduate and graduate students (Townsend and Carter, 1981).

The need for evaluation of curriculum materials has been documented in the literature (Ridenour, 1965; Briers, 1978). It is necessary to determine if instructional materials lead to desired behavioral changes in students. With this question in mind, a study of the leadership/FFA instructional packet was the main thrust of research completed at Iowa State University (Townsend, 1981).

Purpose of the Study

The central problem was to evaluate the effectiveness of an instructional packet developed for teaching beginning vocational agriculture students about leadership and the FFA. Effectiveness was determined according to (a) student knowledge of FFA, and (b) student attitude toward the FFA.

Methodology

Sample and Design

Beginning vocational agriculture classes in Iowa during the 1980-81 school year served as the population for this research. A random sample of 60 schools (classes) was selected to participate in the study and were randomly assigned to two experimental groups and a control group. The research procedure employed a posttest control group experimental research design.

Independent Variable

The independent variable manipulated by the researcher was the degree to which teachers had access to an instructional packet on leadership and FFA. Three levels of the experimental variable were used: (1) teachers in schools who were provided the instructional packet with inservice on its use; (2) teachers in schools who were provided the instructional packet with no inservice on its use; and (3) teachers in schools who were instructed to teach what they normally would teach to their beginning vocational agriculture students on leadership and FFA (control group). The experimental units consisted of the beginning vocational agriculture classes while the individual students comprised the sampling units.

Dependent Variable and Instrumentation

Four instruments were developed to measure the dependent variables. Two were designed to be completed by students with the guidance of their vocational agriculture teacher and two were used to collect data from the teachers involved in the research.

An objective test of 50 multiple choice items was used to assess each student's knowledge of FFA. The FFA Knowledge Inventory was administered as a posttest with the items and the alternatives for each item randomly arranged. The individual

items were based on research and tests developed at the University of Arizona and the University of Minnesota. The researcher combined the standardized tests from Minnesota and Arizona, eliminating questions on parliamentary procedure. Also eliminated were the questions that had a discrimination index of below 15 percent (Kim, 1979). The remaining questions were field tested using two groups of beginning vocational agriculture students in two different departments. To insure face validity, the test was typed and reproduced similar in design to a common teacher-made test. The knowledge inventory yielded a reliability coefficient of .86 and was scored and reported on a percentage basis.

To measure each student's attitude toward leadership and FFA, a 30 item FFA Attitude Inventory was developed by the project team. Based on a review of literature and objectives from the affective domain in the instructional materials, each statement was designed to elicit a response of agreement or disagreement from the students using the following scale.

1	2	3	4	5	6	7
/-----/-----/-----/-----/-----/-----/						
strongly disagree		slightly disagree	neither agree or disagree	slightly agree	agree	strongly agree

The instrument was reproduced to resemble a teacher-constructed measure and was field tested. The reliability coefficient (coefficient alpha) for the attitude inventory was .95. Again, the values reported in the findings were based on percentages of the total possible score.

A 15 item teacher questionnaire was designed to gather teacher personal data, school and vocational agriculture department data, and other data associated with the FFA. The instrument was completed by each vocational agriculture teacher at the conclusion of the experiment.

The 16 question FFA Chapter Activity Inventory was designed to assess relative activity of an FFA chapter. Previous research by Welton (1971), Swanson (1979), and Kim (1979) was used to identify variables included on the chapter activity inventory.

Collection of Data

Instruments were mailed shortly before teachers completed their leadership/FFA units. Teachers administered the measures and returned them to the researcher. Usable data were obtained from 17 schools in Group 1 (packet and inservice), 19 schools

in Group 2 (packet only) and 18 of the control group schools. A total of 790 student responses were received.

Data Analysis

Teacher/school characteristics were summarized using descriptive statistics. Pearson Product Moment coefficients of correlation were used to determine relationships of the dependent variables and the teacher/school characteristics. The effectiveness of the instructional packet was tested using analysis of variance and covariance.

Findings

Based on the strength of relationships of the coefficients of correlation, the following conclusions were drawn.

1. The advisor's rating of chapter activeness and the FFA Chapter Activity Inventory variables were highly correlated. The advisor's rating was determined to be a good indicator of the activeness of the FFA chapter.
2. The chapter activity score was significantly related with the "total years the teacher had taught vocational agriculture" and "total vocational agriculture enrollment." As enrollment in vocational agriculture increased, the activeness of the FFA chapter increased; advisors who had taught the longest considered their chapters more active.
3. The FFA knowledge score and FFA attitude score, primary measures of the dependent variables, were highly correlated.
4. Students who belong to active FFA chapters had a better attitude toward FFA than those students from less active chapters.
5. There was no significant relationship between students' scores on the knowledge test and the activeness of their FFA chapter.
6. The variable "teachers who had taken vocational agriculture in high school were FFA members" correlated significantly with students' FFA knowledge scores. The teachers' personal experiences in vocational agriculture/FFA perhaps served as an asset in passing that knowledge along to their students.

7. Students from chapters that had written guidelines for FFA participation had a higher attitude score toward FFA than did students from chapters operating without guidelines.

The assessment of the instructional packet involved tests of hypotheses comparing the FFA knowledge scores and the FFA attitude scores of the experimental and control groups. Hypotheses tested were:

Ho₁: There is no significant difference between the FFA knowledge scores for the experimental and control groups.

Ho₂: There is no difference between the FFA attitude scores for the experimental and control groups.

As shown in Table 1, there was no significant difference ($\alpha=.05$) in FFA knowledge scores among groups.

Table 1

ANALYSIS OF VARIANCE OF FFA KNOWLEDGE SCORE BY GROUP

Experimental group	N	Mean	S.D.	F value	F prob.
Group 1 (packet and inservice)	17	66.62	7.29		
Group 2 (packet only)	19	63.45	8.23		
Group 3 (control)	18	62.32	9.37	1.242	0.2972
Total	54	64.07	8.30		

Students in schools whose teachers were in Group 1 (packet and inservice) had significantly higher attitude scores ($\alpha=.05$) on the FFA attitude scale than students included in the control group (Table 2). Therefore, students whose teachers were provided the packet and inservice on its use, had a better attitude toward FFA than students in the control group. Data in Tables 3 and 4 reveal that a significant difference ($\alpha=.05$) continued to exist between the groups when the effects of the variables "teaching days spent on FFA this year" and "FFA

Table 2

ANALYSIS OF VARIANCE OF FFA ATTITUDE SCORE BY GROUP

Experimental group	N	Mean	S.D.	F value	F prob.
Group 1 (packet and inservice)	17	82.97	3.17		
Group 2 (packet only)	19	80.40	5.16	3.789	0.0293* (1&3)
Group 3 (control)	18	78.31	6.19		
Total	54	80.52	5.27		

*Significant at .05.

Table 3

ANALYSIS OF VARIANCE OF FFA ATTITUDE SCORE BY GROUP WITH TOTAL DAYS TEACHING LEADERSHIP AND FFA AS A COVARIANT

Source of variation	df	F value	Significance of F
Main effect (group)	2	4.172	0.021*
Covariate total days	1	0.007	0.932
Explained	3	2.783	0.050*
Residual	50		
Total	53		

*Significant at .05.

Table 4

ANALYSIS OF VARIANCE OF FFA ATTITUDE SCORE BY GROUP WITH
FFA CHAPTER ACTIVITIES SCORE AS A COVARIANT

Source of variation	df	F value	Significance of F
Main effect (group)	2	5.518	0.007**
Covariate FFA activities score	1	5.945	0.018*
Explained	3	5.660	0.002**
Residual	50		
Total	53		

*Significant at .05.

**Significant at .01.

chapter activity score" were used as covariants. A significant difference ($\alpha=.01$) occurred between Group 1 (packet and inservice) and Group 3 (control). Furthermore, there was a significant difference ($\alpha=.05$) between Group 2 (packet only) and Group 3 (control). Results indicated that inservice training on the use of the instructional packet should be provided to teachers in order to realize the maximum benefits of the materials.

Recommendations

The findings of this research determined differences between experimental and control groups, and revealed relationships among selected variables. The following recommendations, based on these findings, should be given consideration by those responsible for the administration, supervision, and operation of vocational agriculture programs.

1. Instruction on leadership/FFA to beginning vocational agriculture students should continue to be provided.
2. The instructional packet on leadership/FFA should be used by vocational agriculture teachers to help improve their students' attitude toward FFA.

3. Inservice education on the use of the leadership/FFA instructional packet should be given to vocational agriculture teachers. Similarly, prospective teachers should be instructed on its use during their pre-service education.
4. Teachers who have not experienced vocational agriculture/FFA in high school should be provided additional opportunities in their pre-service program to learn the concepts of FFA and gain experience with FFA activities.
5. FFA chapters should have written guidelines for member participation.

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