Teacher Influence on the Quality of Supervised Occupational Experience Programs

Larry D. Case
Senior Program Specialist
Agricultural Education
United States Department of Education

Bob R. Stewart
Professor
Agricultural Education
University of Missouri-Columbia

Supervised occupational experience programs have proven to be of positive benefit for students enrolled in vocational agriculture. However, it is a part of the vocational agriculture program that requires a large amount of teacher time, is sometimes difficult to arrange, and requires funding for the teacher to conduct supervisory visits. With educational funds becoming harder to secure, data are needed to aid school administrators and vocational agriculture teachers to effectively plan, conduct, and evaluate supervised occupational experience activities.

Related Literature

Dillingham (1981) examined the association of selected characteristics with average net income from SOEPs. One of his recommendations was that, "Criteria should be developed and validated by which supervised project programs can be evaluated to enable the vocational agriculture teachers and other personnel to improve supervised project programs," (p. 40).

Other studies have identified SOEPs as being beneficial. Williams (1979) found that students perceived SOEPs as beneficial. In a study of parental perceptions of benefits of SOEP, Rawls (1980) identified three questions by factor-analyzing 40 benefit variables. Morton (1978) was able to establish a positive relationship between achievement of students in vocational agriculture and the quality of SOEPs. Information from these studies aided in the development of the formula for calculating the SOEP quality score.

In identifying factors affecting the SOEP, the literature indicated that the teacher has the greatest influence on SOEP quality. To paraphrase Phipps (1980), the teacher is responsible for: (a) developing quality relationships, (b) providing instruction, and (c) providing on-site supervision and assistance in SOEP development. Other studies were examined which provided a basis for identifying teacher activity variables influencing SOEP. Williams (1980) identified five ways teachers provide the greatest assistance in SOEP. Arrington (1981) identified relationships between the scope of SOEP and major activity variables, and McMillion and Auville (1976) found similar relationships between scope and SOEP. From examining these and other studies, 56 activity variables were identified which were perceived as being influential on the quality of SOEP.

Journal of the American Association of Teacher Educators in Agriculture
Volume 26, Number 2, pp.2-8
DOI: 10.5032/jaatea.1985.02002

Additional studies have focused on other aspects of the SOEP of students. Long and Dunham (1982) examined factors associated with the status of SOEPs in Utah and Leising and Zilbert (1983) reported on the status of SOEPs in California. Harris and Newcomb (1983) proposed a quality score for SOEP. They then related this score to teacher characteristics and attitudes toward SOEP. Agricultural educators continue to focus on the importance of SOEPs to programs of vocational agriculture.

Purpose of the Study

The primary purpose of this study (Case, 1983) was to gather data from Missouri programs of vocational agriculture to ascertain if there were specific indicators of the quality of SOEPs and to identify teacher activities that influenced the quality of SOEPs. The research hypothesis was that program characteristics would be rated higher in programs with high SOEP scores than in programs with low SOEP scores. To aid in the analysis of the data the following null hypothesis was formulated and tested at the .05 alpha level.

Null hypothesis: There is no significant relationship between supervised occupational experience program (SOEP) scores classified as high or low and a set of SOEP activity variables.

Methods

The population for this study was 239 secondary vocational agriculture departments in Missouri. Since the data for this study were based on the 1981-82 school year, only those schools which retained the instructor who taught during the 1981-82 school year were included in the population from which the sample was drawn. A total of 185 schools met the conditions necessary to be a part of the study. A random sample of 94 departments was drawn from this group. Due to the differences in agriculture by geographic areas and the influence this might have on SOEPs, the sample was selected on a stratified random basis by the six districts in the state.

The dependent variable was a calculated SOEP quality score for each department. The score was calculated by using a formula which was reviewed by a panel of experts composed of supervisors and teacher educators of agriculture education in Missouri. The formula contained six factors which were deemed to be significant indicators of high quality SOEPs. The factors included: a) the percent of 1982 vocational agriculture graduates placed in employment related to agriculture, b) the percent of the vocational agriculture students in the school completing a SOEP, c) the percent of FFA proficiency awards earned for which members were eligible, e) the percent of the departmental average SOEP labor income when compared to the highest departmental average in the sample, and f) the percent of the departmental average scope score (based on a point system) when compared to the highest departmental average in the sample. A de-

partment score could range from 0 to 600 points, with the higher value representing a higher quality SOEP. The agricultural education supervisors were asked to classify the SOEP programs for departments in their districts as high, medium, or low. When the lists were compared to the groupings provided by the formula, the judgement was made that the calculated SOEP score was an appropriate indicator of quality. The information used in the score calculation was the combined student SOEP outcome data of those students enrolled during the 1981-82 school year.

The independent variables were selected SOEP activities found in the literature and identified as having some affect on SOEPs. A survey instrument was developed through consultation with a panel of experts and two statistical consultants and field-tested. The instrument contained 22 activity variables which were deemed to be influenced by the vocational agriculture teacher in conducting the supervised occupational experience program. The following variables were included: student teacher ratio, percent students with ownership SOEP, percent students with placement and ownership SOEP, percent students with placement SOEP, years of teaching experience, number of SOEP visits, hours of teacher outside employment, distance teacher drove to work, days spent at fairs, class hours of instruction on SOEP, number of SOEP meetings for parents, use of SOEP illustrations in class, teacher aid in locating SOEPs, review of SOEP records, recommendations made on visits, supervisors contacted on visits, teacher use of supervision period, supervisors assist students with SOEP, students develop written plans, students receive SOEP information before enrolling, SOEP records adequate for tax use, and adequate travel funds provided.

Analysis of Data

The study utilized the discriminant function analysis procedure to analyze the data. The stepwise inclusion of variables was used in testing the null hypothesis. Klecka (1980, pp. 52-53) stated:

> Researchers often encounter situations in which they have several potential discriminating variables but they are uncertain whether all of them are valuable and necessary . . . . One way to eliminate unnecessary variables is by using a stepwise procedure to select the most useful discriminating variables.

The SAS User's Guide (Ray, 1982, p. 405) stated:

> In most applications all variables considered have some discriminating power, however small. If you want to choose the model that provides the best discrimination using the sampled estimate, you need only guard against estimating more parameters than can be reliably estimated with the given sample size. In this case, you should use a moderate significance level, perhaps in the range of 10% to 20%.

Therefore, an alpha level of .15 was used in the stepwise procedure for the selection of SOEP activity variables to be included in or eliminated from the selection. The test used for significant relationships between the set of selected SOEP activity variables and the SOEP score Wilks' Lambda. The alpha level for the Wilks' Lambda was .05.

Findings

The sample for the study included 94 vocational agriculture departments. Supervised occupational experience scores were calculated and survey instruments were collected from all departments for a 100% return. However, since the study centered around the response patterns of high and low scoring departments, data from the 30 high scoring departments and 30 low scoring departments were used for the analysis. The high group included all departments with a calculated SOEP score of 310.0 or greater; the low group included all departments with a score of 250.0 or less. The range of scores for the high group was from 310 to 428 and for the low group was from 161 to 250.

The null hypothesis of no significant relationship between supervised occupational experience programs (SOEP) scores classified as

Table 1

Stepwise Selection Summary of SOEP Activity Variables

Step	Variable entered	Number in	*F*	Probability
1	SOEP visits per F.T.E.	1	12.460	0.0008
2	Percent students with placement and ownership	2	9.005	0.0040
3	Adequate travel funds for SOEP supervision	3	5.915	0.0182
4	Days of fair supervision per F.T.E.	4	3.719	0.0590
5	Use of SOEP in lesson illustrations	5	2.710	0.1055
6	Teacher utilization of SOEP supervision hour	6	3.685	0.0603
7	Assistance of parents/employers in upgrading SOEP scope	7	3.122	0.0831

high or low, and a set of SOEP activity variables was rejected. The alpha level of 0.15 was used in the stepwise procedure for the selection of the SOEP activity variables. The Wilks' Lambda was used to test the significance of the relationship of the selected set of SOEP activity variables with the SOEP score groupings. The set of SOEP activities selected by the stepwise procedure was significantly related to the SOEP score with an overall probability value of less than 0.0001. The selected set of SOEP activity variables are presented in Table 1.

The stepwise procedure yielded seven SOEP activity variables as being significantly related to high/low SOEP score categories. Vocational agriculture departments which were classified in the high SOEP score group had higher values on all of the identified set of seven variables.

The data presented for the high and low groups are summarized in Table 2. Data are reported for each of the seven activities that were found to be a part of the set of seven variables.

Table 2

Raw Data for Significant SOEP Activity Variables

Variable	High group (n=30) $\bar{x}$	SD	Low group (n=30) $\bar{x}$	SD
Percent students - both placement and ownership	17.7	18.20	5.2	6.77
Number of SOEP visits per F.T.E. teacher	139.4	66.40	84.0	54.55
Number of fair days per F.T.E. teacher	11.5	10.88	5.5	4.84
Use of SOEP in class lesson illustration	4.7	0.60	4.3	0.65
Teacher use of SOEP supervision hour	3.9	1.27	3.8	1.85
Parents/employers assist students	4.8	0.50	4.5	0.73
Adequate travel funds	4.4	1.33	3.5	1.43

Note. Mean group ratings on a 6 point (1 = low; 6 = high) scale.

Conclusions

A supervised occupational experience score can be calculated which is an indicator of the quality of supervised occupational experience programs in vocational agriculture departments in Missouri.

Efforts to improve SOEP quality could deal with the following set of SOEP activities: number of supervisory visits per full time equivalent teacher, percent of students completing both placement and ownership SOEP, adequate travel funds for supervisory visits, number of days of supervision of students at fairs per teacher, the use of SOEP in lesson illustrations, the utilization of a SOEP supervision hour scheduled during the school day, and assistance from parents and employers for increasing SOEP scope.

Discussion

A desirable goal for any person in charge of an educational program is to be able to measure outcomes. This provides information to make decisions for adjusting certain activities to improve educational productivity. This study provided a method of measuring the supervised occupational experience component of vocational agriculture programs.

The formula for determining the SOEP score provided information on six factors which were deemed important in the SOEP. The factors were based on combined student outcomes which were judged to be desirable as a result of the supervised occupational experience portion of the vocational agriculture program. If the educational professionals in charge objectively evaluate the SOEP by means of this information, they should be better able to devise a plan to improve this phase of the educational program.

After evaluation of the outcomes of a program, the next logical step would be to determine the activities that can make a difference in and should be used to improve program quality. The identified set of SOEP activity variables were found to be related to the SOEP score. The high SOEP score group has higher values on the identified set than did the low SOEP score group. This would indicate that teachers in high SOEP score departments utilized this set of activities to a greater degree than teachers in low SOEP score departments. This would indicate that teachers in low SOEP score departments could increase the quality of the SOEP if they would increase the use of identified set of SOEP activity variables.

References

Arrington, L. R. (1981). *Relationship of length of vocational agriculture teachers contract to supervised occupational experience program scope and FFA chapter activities level*. Paper presented at the Eighth Annual Agricultural Education Research Meeting, Atlanta, GA.

Case, L. D. (1983). *Factors affecting the supervised occupational experience program in vocational agriculture*. Unpublished doctoral dissertation, University of Missouri-Columbia.

Dillingham, J. M. (1981). *The association of selected characteristics with the average net income from supervised project programs of production agriculture students in Texas high schools*. Unpublished doctoral dissertation, Texas A&M University.

Harris, D., & Newcomb, L. H. (1983). *Vocational agriculture teacher characteristics and their relationship to perceptions of soe importance, attitudes toward supervision, and quality of supervised occupational experience programs*. Paper presented at the Tenth Annual National Agricultural Education Research Meeting, Anaheim, CA.

Klecka, W. R. (1980). *Discriminant analysis*. Beverly Hills and London: Sage Publications.

Leising, J. G., & Zilbert, E. E. (1983). *Factors associated with soe in California vocational agriculture programs*. Paper presented at the Tenth Annual National Agricultural Research Meeting, Anaheim, CA.

Long, G. A., & Dunham, K. (1982). *Factors associated with the success of supervised occupational experience programs in Utah programs of vocational agriculture*. Paper presented at the Ninth Annual National Agricultural Education Research Meeting, St. Louis, MO.

McMillion, M. B., & Auville, M. K. (1976). Factors associated with the success of supervised farming programs of Virginia high school graduates. *The Journal of the American Association of Teacher Educators in Agriculture*, 17(3), 9-13.

Morton, R. H. (1978). *The relationship between the quality of supervised occupational experience programs and achievement of students in vocational agriculture*. Paper presented at the Fifth Annual Agricultural Education Research Meeting, Dallas, TX.

Phipps, L. J. (1980). *Handbook on agricultural education in public schools*. Danville: The Interstate Printers and Publishers, Inc.

(Continued on page 15)