

Factors Associated with Supervised Occupational
Experience in California Vocational
Agriculture Programs

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The primary goal of vocational education in agriculture has traditionally been to prepare youth and adults for entry level employment in the agricultural industry. To achieve this goal, agricultural educators have used a teaching strategy consisting of three major components: classroom instruction, supervised occupational experience (SOE), and Future Farmers of America (FFA) activities. The importance of SOE is summarized by Peterson and McCreight (1973), "one of the first requirements of an agricultural educator, is to have a real dedication and commitment to a supervised occupational experience program for every student. The 'heart and backbone' of a vocational agriculture curriculum is the supervised occupational experienced program." (pp. 245-246) Other researchers who have written about the importance of SOE include Williams (1978), Long and Dunham (1982).

Although SOE has been recognized as important in the educational process, Binkley (1977) asked, "Has the profession really accepted that part of the basic pattern of instruction in vocational agriculture today?..." (pp. 219-220) Research by Iverson and Brown (1979), in the southern part of the United States, found that nearly two-thirds of the vocational agriculture program graduates did not have SOE programs. In addition, studies by Vaughn and Cono (1982), in New Mexico and Long and Dunham (1982), in Utah revealed that less than 100% of the students enrolled in vocational agriculture had SOE programs.

If SOE is an essential component of the vocational agriculture programs, but not all students enrolled have SOE's, the question naturally raised is, why? Some of the factors which Tulloch (1979) identified included: limited funding for supervision, too large a student-teacher ratio, enrollment of students with weaker agricultural backgrounds, and competing school activities. McCracken (1975), stated, "The success or failure of an occupational experience program for a student depends, to a large degree, upon the effectiveness of the supervision by the teacher." (pp. 182-183) Williams (1978), noted that some students were not receiving adequate assistance with their SOE programs. Seefeldt as quoted by Harris (1980), charged

that more realistic and meaningful ways need to be developed to provide all students with occupational experience programs. Binkley (1977), in the *Agricultural Education Magazine* warns: "The profession must develop a strong offense for the experience programs of our students. We had them at one time; we need them now. If we don't use the experience programs we will lose them and end up teaching general agriculture." (pp. 237-238).

Although agricultural educators have, in the main, been committed to involving all students in SOE, many educators in California and throughout the United States have begun to question the quality, quantity, and integral nature of the experiential component of vocational agriculture programs. In response to this need, teacher educators in the Western Region developed a regional study to determine the status of supervised occupational experience programs.

Purpose

This study was designed to ascertain the perceptions of teachers and students relative to the participation of students in SOEP experiences in California. A secondary purpose was to identify factors associated with students participating in SOEPs.

The specific objectives of the study were:

1. Determine teachers' perceptions of the percentage of students in California vocational agriculture programs who are involved in SOEPs.
2. Determine the factors associated with those students who perceived that they were involved in SOEPs.
3. Identify vocational agriculture programs where 75% or more of the students have SOEPs, as reported by the teacher.
4. Determine the factors associated with teachers/programs with 75% or more student participation in SOEP.
5. Determine those teacher related factors associated with participation in SOEP while controlling for student related factors.

Methodology

The population for this study consisted of all California schools having vocational agriculture programs as listed in the *1981-82 California Vocational Agriculture Directory*. A stratified random sampling procedure was used to ensure that schools from all areas of the state were represented in the sample. The seven supervisory regions of California served as the units for stratification. The sample for the survey, as determined by the Western Region Research Committee,

consisted of 20% of the population of schools. The number of schools selected in each region was based on the proportion of schools and students in the region. Schools selected had a minimum of 40 agricultural students, and at least 10 students who had completed one or more years of vocational agriculture. The total sample comprised 20% of the population of schools producing a sample of 80 schools. In each school, 20% of the students (or a minimum of 10) having completed one or more years of vocational agriculture were selected at random to complete the survey. This resulted in the surveying of 1,047 students. Teacher information was based on surveys administered to the head teacher in each department for a total of 80 teachers.

Data were collected using a student and a teacher questionnaire. These instruments were developed by the Western Regional SOE Research Committee. However, an advisory committee of state staff was convened for the purpose of reviewing and validating the questionnaires. Under the direction of Paul Vaughn at New Mexico State University, a coefficient of reliability was determined for each item on both instruments using a test-retest procedure. Both instruments were deemed reliable with coefficients ranging from .63 to 1.00. While the California questionnaire differed slightly from the one used in New Mexico, both were field tested at schools not included in the sample. Results of the field test indicated comparable reliability.

The questionnaires were administered in person by either project staff members or regional supervisors at each of the 80 selected schools. All schools were visited during the period March 5 to April 12, 1982. The presence of project personnel insured proper student sampling and aided in correct completion of the survey instruments. All of the surveyors were given written instructions for administering the questionnaires which included the method of selecting students, questions to explain, and other procedures to be followed while at the school. Each surveyor also received on-site training by project staff at a school in their area.

Teacher and student questionnaires were coded and keypunched in preparation for analysis. Frequency, cross-tabulation, discriminant analysis, Canonical correlation, Rao's V, Wilk's lamda, Kendall's tau, Cromer's V, and multiple regression used with the Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steenbrenner, & Bent, 1975) to analyze the data.

Results

Teacher Perceptions

Table 1 presents student and teacher perceptions of participation in supervised occupational experience programs. On the average, teachers reported that 57.1% of the students enrolled in their programs had a SOEP. From the student sample, it was found that 68.2% perceived they had a SOEP. Identified in Table 1, are the

Table 1

Student and Teacher Perception of SOEP

	Teacher perception (n=80)	Student perception (n=80)
Percentage of students with SOEP	57.1	68.2
No. of programs with 75% SOEP	27.0	--
No. of programs with < 75% SOEP	53.0	--

number of programs with greater or less than 75% SOEP, based on teacher data.

Student Factors

To determine student factors associated with student participation in SOEP, a discriminant analysis was performed on the student data. The number of students indicating they had a SOEP were contrasted with the number who said they did not. Both a direct and stepwise discriminant analysis were used to analyze the data. Table 2 summarizes the results of the direct discriminant analysis in which student variables were entered in a single step. The table lists these variables and the correlation with the single discriminant function which emerged. The canonical correlation coefficient was .74. This discriminant function was later used in the multiple regression analysis of the teacher data to act as a covariate, correcting for student influence on a program's level of SOEP participation.

Results of the stepwise discriminant analysis showed nine of the variables made significant additions to Rao's V. The nine variables produced good separation as indicated by the canonical correlation coefficient of .51 (Wilk's lamda of .74). The four most significant variables in this set were identical to those in the direct analysis: (a) level of FFA participation, (b) application for FFA awards or degrees, (c) FFA membership, and (d) perception of a record book required.

Teacher and Program Factors

Identification and analysis of teacher and program factors were first made by separating the teachers into two groups for analysis; those who reported more than 75% of their students with a SOEP, and those with less than 75% participation. Tests of association and significance were made between this variable and selected independent

Table 2

Discriminant Analysis of Selected Student Variables (n=1,047)

Variable	Correlation between variable & the discriminant function
Level of FFA participation	.74
Application for FFA awards or degrees	.72
Membership in FFA	.61
Record book requirement	.48
Ethnicity	.26
Average grades in school	.20
Is SOEP required	.18
Family source of income	.16
Place of residence	.14

¹N = 1,047

variables from the teacher survey. Statistical treatment was Kendall's tau for ordinal data, and Cramer's V in association with a Chi square for determining strength of association and significance for nominal data. Of the 16 variables tested, only three were significant at the .05 level. These were: SOEP required ($r = .49$), portion of grade from SOEP ($r = .34$), and class projects provided for SOEP ($r = .23$) note Table 3.

To further analyze teacher factors and composite variables, a multiple regression analysis was performed using the full range of values for percentage of students conducting SOEP as the dependent variable. Two of the original independent variables, course pattern and years of teaching experience, were used in the analysis. Three composite variables were also formed for the regression model: direct support to teachers, direct support to students, and indirect support to teachers and students. Direct support to teachers was determined by summing for each case positive responses to: Vehicle for SOEP visits, released time, extra duty pay, extended contract, and length of contract greater than 10 months. This variable was constructed to reflect direct (monetary) support from the district for supervising SOEP. Direct support to students was computed by summing responses to questions pertaining to facilities and services provided to students for SOEP. This included: land laboratory, greenhouse, agriculture shop, animal facility, other facilities, FFA student loan, animal breeding chain, tools provided, equipment co-op, feed purchase and distribution, and service club, bank, or community organization assistance. The third composite variable, indirect support to teachers and students was constructed to reflect policy and attitudinal factors. Positive responses to the following were summed for

Table 3

Relationship Between Selected Teacher Variables and 75% or More of Students with SOEPs (n=27)

Variable	Coefficient of correlation
Course pattern	.06
No. of full time teachers	-.17
Vehicle for SOEP visits	.17
Release time for visits	.19
Reimbursement for expenses	.18
Extended contract	.13
Extra duty pay	.10
Length of contract	.13
Visits per year	.17
SOEP required	.49*
Portion of grade from SOEP	.34*
Ag. dept. policy on SOEP	.09
Ag. dept. guidelines for SOEP	.14
Class project provided	.23*
Facilities for SOEP	.05
Years Teaching vo ag	.25

Note. *Significant at $p < .05$.

each case: SOEP required, more than 10% of grade for SOEP, agriculture department policy on SOEP requirements, agricultural department year, and indication of SOEP being of great value to the program.

The discriminant function which was derived from the student data served as a control variable (or covariate) in the regression analysis. The student discriminant function made a significant contribution as indicated by a correlation coefficient of $-.34$, and was significant at the $p < .01$ level with $F(1,78) = 9.6$ and $F(6,71) = 6.57$. The regression analysis was run once with and once without this variable included. Both analysis indicated a strong positive relationship between percent of students with a SOEP and the variables direct teacher support and indirect support. Without the control variable, both were significant at the $p < .01$ level with $F(1,78) = 7.194$ for direct teacher support and $F(1,78) = 9.206$ for indirect

Table 4

Results of Multiple Regression, Percentage of SOEP with Selected Teacher Variables (n=80)

Variable	R	R ²	Correlation coefficient
Student covariate	.34	.11	-.34*
Direct support to teachers	.42	.18	.30*
Indirect support	.52	.27	.38*
Direct support to students	.32	.27	.14
Years teaching experience	.53	.29	-.07
Course pattern	.53	.29	-.09

Note. *Significant at $p < .05$ level.

support and zero-order correlation coefficients of .30 and .36 respectively. With the control variable, both factors were significant at the $p < .05$ level with $F(6,71) = 4.395$ for direct teacher support with a partial correlation coefficient of .30, and $F(6,71) = 6.498$ for indirect support, with a partial correlation coefficient of .38 (see Table 4). None of the other variables showed significant association. Very little correlation between independent variables was observed in the correlation matrix.

Conclusions

1. On the average, teachers reported that 57% of their students had a SOEP, and 68% of the students, in the sample, reported participation in a SOEP. These findings confirmed that not all students enrolled in vocational agriculture programs in California have a SOEP. Also, it raised the question as to the integral nature of SOEP in California vocational agriculture programs.
2. The student factors of level of FFA participation, application for FFA awards or degrees, membership in the FFA, and required record book were significantly associated with student participation in supervised occupational experience programs.
3. The major teacher factors found to be significantly associated with programs that had 75% or more students with SOEPs included: SOEP required by program, portion of grade from SOEP, and provision of a class project.

4. Composite teacher variables were developed by grouping specific factors in one of three categories. The teacher variables of indirect teacher support and direct teacher support were found to be significantly related to student participation in SOE. It was interesting to find that when some of the factors used to form the composite variables were analyzed individually, they were not found to be significantly associated with the dependent variable. Apparently provision of several forms of related support for SOEP can have greater impact on student participation than of any one form of support.

Recommendations

Based on the results and conclusions of this study the following recommendations were made:

1. Researchers in the western states conducting similar studies should be encouraged to analyze their data using composite variables that reflect major conceptual areas of supervised occupational experience rather than using variables that are too specific and by themselves appear to be of limited value.
2. Based on the significant association of the teacher variables, indirect and direct support, i.e. school policy on SOEP, vehicle, length of contract, and with student participation in SOEP, it is recommended that state leaders in agricultural education work with local teachers and administrators to develop policies that will encourage 100% SOEP participation by students enrollment in California vocational agriculture programs.
3. This research indicated a significant association between membership in the Future Farmers of America (FFA) and student participation in SOEP. This raises some interesting questions for further study regarding the nature of the relationship between FFA and SOEP. Does membership in the FFA lead to participation in SOEP? Or, does some other unidentified variable lead to greater participation in general. These and other similar causal relationships should be studied.

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