

Factors Associated with and the Status of Supervised
Occupational Experience Programs in Utah
Vocational Agriculture Programs

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Vocational agriculture programs are vocational to the extent that they provide students with opportunities to learn and develop the knowledge and skills necessary to succeed in an agricultural career. A well executed Supervised Occupational Experience Program (SOEP) offers the vocational agriculture student an opportunity to apply classroom theory, make practical decisions (Binkley and Hammonds, 1970), and develop appropriate interpersonal skills.

Supervised occupational experience has much to offer in making high school vocational agriculture a valid and effective program. Vocational agriculture teachers might be expected to utilize this experience to its fullest extent. This does not, however, appear to be the case. Instead, the numbers of vocational agriculture students participating in SOEPs are declining (McMillion and Auville, 1976, Iverson and Brown, 1979).

Agricultural educators in the Western Region including representatives from Arizona, California, Colorado, Idaho, Montana, Washington, and Utah met in Bozeman, Montana, and Davis, California, under the chairmanship of Orville Thompson to plan a Western Regional Project to study the status and quality of occupational experience programs in vocational agriculture. A Farm Foundation Grant supported travel for this Regional Research Steering Committee planning effort.

A questionnaire was developed for use in each participating state to study the status of SOEP. This article reports on part of that effort.

Objectives

The specific objectives of this study were to:

1. Determine the number of students in Utah vocational agriculture programs who had SOEPs.
2. Identify the number of Utah's vocational agriculture programs in which more than 75% of the students had a SOEP.
3. Identify factors that characterize vocational agriculture programs having greater than 75% of the students participating in SOEPs.

4. Identify factors that characterize students who have SOEPs.

Methods

Data were collected with a teacher questionnaire and a student questionnaire. These instruments were developed by the Regional SOEP Research Steering Committee. A select group of agricultural educators from the Western Region reviewed the instruments, validated the contents in terms of the objectives of the study, and established a sample size of 20 schools or 40% of the schools in the state. The researchers refined six of the items contained on these instruments and completed a field test before the questionnaire was distributed among the selected schools.

The random sample of 20 high schools represented 39.1% of Utah's vocational agriculture programs. The questionnaires were personally delivered and picked up from each selected school to insure a 100% return. At each school, if the researcher could not administer the questionnaires personally, specific instructions for their administration were given to either the vocational agriculture teacher, a student teacher, or a substitute teacher. All second-, third-, and fourth-year vocational agriculture students in attendance on the day of the survey administration completed the questionnaires as did their vocational agriculture teacher(s).

Nonparametric statistics were used to evaluate the data in this study. The statistics used included percentages, frequencies, Chi square, Kendall's tau, Cramer's V, and Rao's V in a discriminant analysis. Each independent variable was tested against the dependent variable (SOEP participation) to determine if a relationship existed. Ordinal variables were tested with Kendall's tau to determine both the level of significance and the strength of the relationship. Nominal variables were tested first with a Chi square to determine the level of significance of the relationship and then a Cramer's V to determine the strength of the relationship between independent and dependent variables.

Data Sources

Participants in this study included 717 vocational agriculture students and 26 vocational agriculture teachers. The majority of students were in their second (51%) and third (37%) years of vocational agriculture. Over half of the surveyed students (66.1%) lived in a rural area (less than 5,000 population), while 26.5% lived in towns (5,000 to 25,000) and 7.4% resided in a city (over 25,000 population). Parents of the students earned a living in either production agriculture (20.4%), part-time agriculture (25.5%), agribusiness (8.5%), or nonagriculture (45.6%).

Of the teachers surveyed, 11.5% had less than five years of teaching experience, 30.8% had five to 10 years experience, 7.7% had 11 to 15 years of teaching experience, and 50% had over 16 years of experience.

Results

Findings

Analysis of the student responses indicated that 80.3% had been involved in SOEPs. According to the data gathered, 66.3% of the students participating in SOEPs indicated that they had a production-type program (growing livestock or crops), 41.7% had off-farm projects, and an additional 11.3% reported owning some type of an agriculture-related business themselves. The remaining 6.8% indicated participation in some other type of SOEP. Of the 19.7% (141 students) who reported not engaging in a SOEP, 58.3% (82) also had no agricultural career goal.

Over one half (53.8%) of the Utah vocational agriculture teachers sampled said that more than 75% of their students were engaged in SOEPs; while 19.3% had fewer than 50% of their students in SOEPs, and the remaining 26.9% reported having between 51% and 75% of their students in SOEPs.

Four of the 22 identified variables on the teacher questionnaire were significantly related ($p < .05$) to whether a teacher had a high percentage of his/her students engaged in SOEPs. These variables were: (a) number of years of teaching experience, (b) the portion of each student's grade dependent on their SOEP, (c) percent of students in the FFA, and (d) whether or not the students were informed that they must have a SOEP before they enrolled in vocational agriculture (note Table 1).

A discriminant analysis was performed on the data to determine whether four significant variables (when combined) could discriminate between programs with 75% or more students having SOEPs and those with less than 50% of the students with a SOEP. A stepwise selection method was used where independent variables were selected for entry into the analysis on the basis of their discriminating power. The criterion for selection was Rao's V , a generalized distance measure. Using this technique, the variable selected was the one that contributed the largest increase in V when added to the previous variables.

Three of the discriminating variables produced a strong degree of separation as indicated by the canonical correlation of .85, the eigen-value of 2.5 and the Wilks' Lambda of .29 for the discriminant function (Table 2). The standardized canonical discriminant function coefficients indicated that the variable of number of years of teaching experience had the most discriminating power within the function. The order of discriminating power for the other variables in the

Table 1

*Relationship Between Selected Teacher Variables and Whether a High Percent
(at least 75%) of Students had a SOEP*
(n = 26)

Variable	Coefficient of correlation	Variable	Coefficient of correlation
Type of program		Students informed of required SOEP	.56*
Production agriculture	.16	Enrollment of high school	.11
Agriculture business	.24	Distance teacher lived from school	-.09
Horticulture	.16	Condition of school facilities	.15
Agriculture mechanics	.12	Class time spent on SOEP instruction	.14
Years of teaching experience	.51*	Other class taught	.31
Provision of a school vehicle ⁺	.23	Number of vo-ag teachers per school	.21
Release time for SOEP visits ⁺	.22	Enrollment in vo-ag program	.04
Reimbursed for expenses ⁺	.42	Percent of students in FFA	.42*
Length of contract	.97	Provision of facilities for SOEP use ⁺	.42
Average number of visits per student	.80	Cooperative project for SOEP use ⁺	.17
Removal of students without SOEP [*]	.31	Students entering ag. careers	.25
Portion of grade dependent on SOEP	.38*		

Note. For ordinal data, the coefficient is Kendall's tau; for nominal data, the coefficient is Cramer's V.

⁺Indicates nominal data.

* $p < .05$

function was: (2) if students were informed they must have a SOEP before they enrolled in vocational agriculture, and (3) the portion of a student's grade dependent on his/her experience program. The remaining individual teacher variables were not significantly related to the percent of students enrolled in SOEPs.

Further testing of these variables was accomplished by combining similar variables and then testing the group of selected variables against the dependent variable (percent SOEP participation). Selected variables were combined into three groups. These groups were as follows:

1. Variables that indicated direct support given (by the administration) to teachers. This group included positive responses to: (a) vehicle provided for SOEP visits, (b) reimbursement for expenses, and (c) length of the teaching contract.
2. Variables that indicated direct support given by the administration and vo-ag teacher to students. This group was computed by summing responses to questions regarding facilities and services provided for students. These included: (a) school facilities for SOEP use (includes greenhouses, land labs, etc.), and (b) cooperative projects for students SOEP use (including animal chains, cooperative purchasing projects, etc.).
3. Variables that indicated indirect support to both students and teachers. This category was constructed to reflect policy and attitudinal factors. Positive responses to the following were summed for each case: (a) required SOEP in vo-ag classes, (b) making a portion of the student's grade dependent on his/her SOEP, (c) administrative permission to remove students without a SOEP, (d) number of SOEP visits per student made per year, (e) amount of time spent on SOEP visits, (f) classroom time spent on SOEP, and (g) classes other than vo-ag taught by the vo-ag teachers.

Each of these three groups of variables was tested against the dependent variable to determine if a significant relationship existed. The results showed no significant relationship between any of these groups and the percent of students who were participating in SOEPs.

Data gathered from students indicated that all 14 variables identified on the student questionnaire (Table 3) were significantly related to whether or not a student had a SOEP. The same statistical treatment given teacher data was used for student data.

A discriminant analysis of the 14 variables revealed that nine had significant power to discriminate between students who had SOEPs and those who had not (note Table 4). These nine variables produced only a moderate degree of separation as indicated by the canonical correlation of .49, the eigenvalue of .32, and the Wilks'

Table 2

*Summary of Discriminant Analysis of Teacher Variables on
SOEP Participation*

(n = 26)

Variable	Rao's V	Change in V	Signifi- cance	Standardized canonical discriminant function coefficient
Number of years teaching experience	19.97	19.97	0.001	.85
Students informed of required SOEP	35.29	15.59	0.001	-.51
Portion of students grade dependent on SOEP	42.54	7.25	0.070	.44

Note. Canonical correlation = .85 Wilk's Lambda = .29 Significance = .001

Lambda of .76. The standardized canonical discriminant function coefficients indicated that the variable with the most power to discriminate between the two groups (with experience programs and without) was the number of times a student was visited by his/her teacher. The remaining order of discriminating power for the variables in the function was: (2) level of activity in the FFA, (3) whether or not students were informed before they enrolled in vocational agriculture that they must have a project, (4) plans to have an agriculturally related career, (5) the size of the area in which the student lived, (6) the amount of assistance provided by the teacher in regard to each student's SOEP, (7) the student's grade point average, (8) whether or not a record book was required, and (9) the way in which the student's parents earned a living.

Reasons given by students for not having a SOEP were: (a) already have a job that is not agriculturally related (41 students), (b) have no facilities (34 students), (c) planning on a future SOEP (34 students), (d) unable to obtain financing (21 students), (e) have to work at home (18 students), (f) did not understand how to set one up (17 students), and (g) parents would not allow a project (7 students).

Analysis of the data showed the percentage of students with SOEPs increased with each incremental increase in the following variables: (1) population of student's home area, (2) grade point average, (3) way in which parents earned a living, and (4) year in vocational agriculture. For example, of those students living in cities, 60.4% had SOEPs. Of those living in towns, 76.8% had an experience program and of the rural students, 83.9% had a SOEP.

Table 3

Relationship Between Selected Student Variables and Participation in a SOEP
(n = 636)

Variable	Coefficient ^a of correlation	Variable	Coefficient ^a of correlation
Size of area in which student lived	.13*	Amount of assistance provided by teacher with SOEP	-.26*
Year in vo-ag	-.11*	FFA membership ⁺	.11*
How parents earn a living	.10*	Level of activity in FFA	-.27*
If student was informed of required SOEP ⁺	.22*	Level of activity in school activities other than FFA	-.07*
Required record books ⁺	.26*	Plans to attend college ⁺	.13*
Amount of classroom instruction received on SOEP	-.20*	Plans to enter an ag-related career ⁺	.25*
Number of SOEP visits made by teacher	-.30*	Grade point average	-.17*

Note. For ordinal data, the coefficient is Kendall's tau; for nominal data, the coefficient is Cramer's V.

⁺Indicates nominal data.

*p < .05

Table 4

*Summary of Discriminant Analysis of Student Variables on
SOEP Participation*

(n = 636)

Variable	Rao's V	Change in V	Significance	Standardized canonical discriminant function correlation
Times visited	61.97	61.97	*	-.24
Level of activity in FFA	92.59	30.62	*	-.26
Informed of required SOEP before enrolling in vo-ag	117.00	24.36	*	.28
Plans to have ag-related career	137.80	20.83	*	.30
Population of home area	154.40	16.44	*	.29
Assistance provided by teacher with SOEP	170.80	16.44	*	-.33
Grade point average	181.20	10.42	*	-.26
Required record books	191.30	10.06	*	.24
Parents occupation	197.00	5.66	*	.17

*p < .05

Canonical correlation = .49 Wilk's Lambda = .76 Significance = .001

Summary and Discussion

Of 717 Utah vocational agriculture students surveyed in the study, 80.3% had engaged in a SOEP. Of the 19.7% without a SOEP, 58.3% reported having no agricultural career goal. The Utah State Board of Education vocational staff has stated that a career goal is to be a program standard in all Utah vocational education programs. Enforcement of this standard would probably be at the cost of eliminating some total programs, unless teacher motivation could maintain student numbers.

Of the 26 Utah vocational agriculture teachers surveyed in the study 53.8% reported that more than 75% of their students had participated in SOEPs. Another 19.3% of the teachers stated that fewer than 50% of their students had engaged in SOEPs. Since experiential learning (or SOEPs) is said to be of value to the educational and vocational success of vocational students, many Utah students are deprived--or fail to take advantage--of the opportunity to participate in a SOEP.

Four of 22 factors identified on the teacher questionnaire were significantly related to whether a program had 75% or more of its students participating in a SOEP. These variables were: (1) years of teaching experience, (2) making a portion of the student's grade dependent on his/her experience program, (3) informing students before they enroll in vocational agriculture that they must have a SOEP, and (4) percent of students belonging to the FFA. Three of these four variables had significant power to discriminate between the two groups of teachers (those with more than 75% of their students in SOEPs and those with fewer than 50% in SOEPs). Teacher experience had the most discriminating power. Because only a part of the variance was explained by this study of 22 factors, apparently one or more variable or variables other than those studied were important.

All 14 factors predicted to be associated with students who have participated in SOEPs proved to be significant. Only nine, however, had any significant power to discriminate between students with SOEPs and those without. Of these nine factors, the following four are within the control of the teacher: (a) number of times each student is visited by the teacher, (b) whether or not students are informed before they enroll in vocational agriculture that they must have an experience program, (c) the amount of assistance provided by the teacher to a student's SOEP, and (d) whether or not students are required to keep record books in their vocational agriculture class. By concentrating on these specific teaching practices, the teacher could increase the probability that more of his/her students would participate in SOEPs.

Implications

The findings of this study place the responsibility for the level of student participation in SOEP on the teacher, not on whether the

district provided school facilities for SOEP, nor whether animal chains, cooperative purchasing projects, a vehicle for project visits, or an extended teaching contract was provided. Three factors, in addition to teaching experience, that discriminated between students who had projects and those who did not were: if the students were informed they must have a SOEP before they enrolled, that a portion of a student's grade depended on his/her experience program, and that record books were kept and graded. This implies that teacher commitment in requiring, planning, helping, and evaluating (grading) supervised occupational experience programs is related to the SOEP participation level of students. Also, as teachers gain experience in their profession, they will become more effective in motivating students to participate.

Two-thirds (66.3%) of the students surveyed had production-type projects. State and national manpower demand studies indicate approximately a 3 to 1 ratio of agribusiness to farming opportunities. At the same time, some 20% fewer urban students (60.3%) had projects of any kind compared to rural youth (83.9%). The implication is that Utah vocational agriculture teachers can make better use of data about available jobs when planning SOEPs, and increase their use of off-farm experience programs and subsequent placement of students. There are probably too few farming jobs for all who want such employment, particularly if the teachers emphasize production SOEPs to the exclusion of appropriate off-farm SOEPs. This implication is particularly relevant to urban programs and students.

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