

ILLINOIS VOCATIONAL AGRICULTURE TEACHERS' ACCEPTANCE OF AN INSTRUCTIONAL UNIT ON INTERNATIONAL AGRICULTURE

H. Gene Peuse
and
Burton E. Swanson

Vocational Education
University of Illinois
Urbana-Champaign

In February, 1978, a study was undertaken to determine how agriculture teachers responded to a new Vocational Agriculture Service (VAS) study unit entitled, "Helping Provide Food for the World's Growing Population." It was distributed to 340 vocational agriculture departments in Illinois. The unit describes the effects of population growth on economic development in low-income countries; it raises pragmatic and moral issues regarding population control; and in its conclusion, the study unit describes the World Food Program as one exemplary means of providing needed food to starving populations and simultaneously bringing about agricultural and economic development in poor nations.

Objectives of the Study

The primary objective of the study was to examine factors affecting teacher acceptance of the instructional unit on international agriculture. It was the first VAS unit of its kind released in the state, and it was assumed that few materials of this type were available in Illinois vocational agriculture departments.

A second objective of the study was to seek teachers' approval or disapproval of Vocational Agriculture Service publishing a series of units on international agricultural topics.

Review of Related Literature

Most research studies dealing with the topic of instructional materials in agricultural education (such as Legg, 1962; Drawbaugh, 1963; Shontz, 1963; Hull and McClay, 1965; and Hensel and Johnson, 1967) focus on the effect of these materials on the learning behavior of students. Ehresman (1966) examined the specific problem of teacher acceptance of instructional materials and found several factors directly associated with this phenomenon.

First, Ehresman found that four out of five teachers who declined to incorporate an experimental source unit in their teaching plans did so because the unit did not relate to previously scheduled (agricultural mechanics laboratory) exercises. His observations suggest that the timing of the receipt of programmed materials may determine teacher utilization of such materials.

Second, agricultural teachers at the secondary school level are often heavily committed in their instructional duties. The number of instructional periods per day, number of class preparations per day, and previous teaching experience may determine the amount of time available to prepare for instruction in a new content area.

Third, Ehresman observed (1966, pp. 23-24) that personal bias toward specific subject matter can act as an intervening factor in the decision-making process. A negative bias on the part of the teacher was associated with a failure to use the designated material and to participate in the experiment. Conversely, in the research study reported here, it was hypothesized at the outset that favorable teacher interest in international development might result in teacher acceptance of the unit.

Research Method

A one-page questionnaire was developed and pretested among former vocational agriculture teachers who were enrolled as graduate students in agricultural education at the University of Illinois. After revisions, the questionnaire was sent to the entire population of 340 secondary school vocational agriculture departments in Illinois which had received single or multiple copies of the new VAS unit. One hundred seventy-nine (53%) of the questionnaires were returned after one follow-up attempt.

As the statistical data involved in this study were nominal, non-parametric tests were used. Specifically, the Chi Square test was used to measure the strength of various factors hypothesized to affect teacher acceptance of the new VAS unit.

Results

Teachers were asked to approve or disapprove of Vocational Agriculture Service publishing a series of international agriculture study units. One hundred thirty-nine approved of an international agriculture series, 26 teachers disapproved, and 13 teachers failed to provide an opinion. One hundred eight teachers expressed interest in a unit on international trade, 102 teachers responded favorably to proposed units on animals in world agriculture, and 101 teachers endorsed units on world food crops.

In response to open-ended questions concerning the pilot VAS unit, a majority of the teachers expressed appreciation for having received such contemporary and up-to-date material. They did not express doubts about the subject matter fitting into regular course objectives or in meeting general vocational program goals. Teacher remarks revealed more concern about the lack of student awareness of worldwide agricultural relationships than about the level of student interest in this type of subject matter.

The three groups of teachers involved in this investigation were:

- (A) those who had taught the VAS unit
- (B) those who had not taught the VAS unit but planned to do so
- (C) those who had not taught the unit and did not plan to do so

Teachers in Groups A and B were considered as having accepted the unit; those in Group C were designated as not having accepted the new VAS material.

Statistical analyses determined that a significant tendency existed for those in Group B to cite scheduling difficulties as the main reason for not having taught the unit. This appeared to be a reasonable explanation as teachers received the unit after the start of the second semester and were given only two months between distribution of the new unit and distribution of the questionnaire. This finding was also consistent with Ehresman's study.

The major finding of the study resulted from an analysis of the international experience and/or education variable. An international experience/education scale was generated from responses to five items on the questionnaire.¹ This scale provided a basis for determining whether the observed frequencies above and below the joint median score of the groups departed significantly from expectation. Tables 1, 2, 3, and 4 present data used to test the independence of teacher acceptance of the unit from teacher experience/education in international affairs.

The calculated value of X^2 (12.56) exceeded the value of X^2 required for significance (9.21) at the .01 level. It appeared that the medians for the three groups differed significantly from the joint median scores. Therefore, a subsequent comparison was made between Groups A and B in Table 2, as well as between B and C in Table 3, and between A and C in Table 4.

The comparison in Table 2 provided probable reason to believe that more international exposure among teachers in Group A was related to the fact that these teachers taught the unit during the two-month period. The calculated phi coefficient of .12 suggested that one could take slight assurance in predicting that international experience/education affects teacher acceptance of the unit.

¹The construction of the international experience/education scale is described on p. 53 in Peuse, H. Gene and Burton E. Swanson, "Factors Affecting Illinois Vocational Agriculture Secondary School Teachers' Acceptance of an Instructional Unit on International Agriculture," *Research Series in Agricultural Education*, University of Illinois, Urbana, Illinois, April, 1979.

Table 1

NUMBER OF TEACHERS IN GROUPS A, B, AND C SCORING ABOVE AND BELOW JOINT MEDIAN SCORE ON THE INTERNATIONAL EXPERIENCE/EDUCATION SCALE

Score	Group A	Group B	Group C	Totals
Scored Above	13	60	13	86
Scored Below	6	58	21	85
Totals	19	118	34	171*

$p=.01$, $df=2$, X^2 test=9.210, $X^2=12.562$.

*Note: Six teachers failed to indicate whether they would teach the unit and two teachers in Group B failed to complete the International Experience/Education Scale.

Table 2

NUMBER OF TEACHERS IN GROUPS A AND B SCORING ABOVE AND BELOW JOINT MEDIAN SCORE ON THE INTERNATIONAL EXPERIENCE/EDUCATION SCALE

Score	Group A	Group B	Totals
Scored Above	13	60	73
Scored Below	6	58	64
Totals	19	118	137

$p=.01$, $df=1$, X^2 test=6.635, $X^2=37.425$.

Table 3

NUMBER OF TEACHERS IN GROUPS B AND C SCORING ABOVE AND BELOW JOINT MEDIAN SCORE ON THE INTERNATIONAL EXPERIENCE/EDUCATION SCALE

Score	Group B	Group C	Totals
Scored Above	85	15	100
Scored Below	33	19	52
Totals	118	34	152

$p=.01$, $df=1$, X^2 test=6.635, $X^2=271.669$.

Table 4

NUMBER OF TEACHERS IN GROUPS A AND C SCORING ABOVE AND BELOW JOINT MEDIAN SCORE ON THE INTERNATIONAL EXPERIENCE/EDUCATION SCALE

Score	Group A	Group C	Totals
Scored Above	17	15	32
Scored Below	2	19	21
Totals	19	34	53

$p=.01$, $df=1$, X^2 test=6.635, $X^2_{8.671}$.

The analysis in Table 3 provided probable reason to believe that the greater amount of international experience/education among teachers in Group B was related to the fact that these teachers planned to teach the unit. The strength of that relationship was measured by a calculated phi coefficient of .24. This indicated that one could have moderate confidence in predicting that international exposure affects teacher acceptance of the unit.

The last comparison, shown in Table 4, offered even greater reason to believe that teacher international exposure was related to acceptance of the new VAS unit. The calculated phi coefficient of .44 suggested that one might reasonably predict that teachers with greater differences in international experience/education would differ in their acceptance of the unit.

In comparing teachers who accepted the unit for classroom use and those who did not, no significant differences were discovered between groups for the following independent variables: (a) number of classes taught per day, (b) number of preparations per day, (c) years of teaching experience, (d) expressed teacher interest in subject matter, (e) teacher perceptions of student interest, and (f) the fact that the subject matter was unique to the curriculum. Yet, as the foregoing analysis shows, while expressed interest did not significantly differ among the groups of teachers, some type of previous international exposure (e.g., travel, education) did have a bearing upon their acceptance of the pilot unit.

A review of comments by respondents to the survey indicated widespread concern about the lack of student awareness of global agriculture and its relationship to U.S. agriculture. No teacher in Group B or Group C checked lack of student interest as the main factor in deterring them from teaching the new VAS unit, although comments from a few teachers in the latter group suggested some concern over perceived student disinterest. Still, teachers

in all three groups shared the predominant feeling that students should become more aware of the international dimensions of agriculture, particularly the economic aspects of world agriculture.

Conclusions

The following conclusions can be drawn from this study on Illinois vocational agriculture teachers' acceptance of instructional materials on international agriculture:

1. Vocational agriculture teachers were in significant agreement that the factor affecting teacher nonuse of the new VAS unit during the two-month period immediately following receipt of the unit was scheduling considerations. In other words, one might conclude that given sufficient advance notice of the availability of international study units, teachers will schedule these units into their instructional programs. Six other factors were found not to have a significant influence.
2. The majority of teachers endorse the publication of a series of international study units. They view these new instructional materials as a means of keeping students abreast of the complexities of modern agriculture.
3. However, teachers with previous international experience/education are more likely to use the international study units than those teachers with little or no previous exposure or involvement in international activities. While there is a core of agriculture teachers in the state with some degree of international background and interests, this study suggests that some type of in-service education on international agriculture topics might increase the use of these materials.

References

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