

# FACTORS ASSOCIATED WITH VOCATIONAL USE OF ADULT INSTRUCTION IN HORTICULTURE

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The passage of the Vocational Education Act of 1963 and the Amendments of 1968 and 1976 resulted in mass changes in the vocational agriculture programs. Legislation concerning vocational education programs stated that Federal funds should be used for vocational training (U. S. Congress, 1963). Specialized programs in vocational agriculture have emerged, and with this has come an increase in the educational needs of adults engaged in agribusiness occupations (Cheek, 1976). A lack of information about the extent of vocational use made of the instruction by adult students enrolled in horticultural programs was of concern. Vocational use and selected teacher, school-community, and adult student factors thought to be associated with vocational use were studied to determine ways of increasing vocational use.

Vocational use is defined as the use of horticultural skills and knowledge received in the adult horticulture program in present full-time employment, part-time employment or non-employment which contributes to the economic well-being of self or others.

This study analyzed the extent of vocational use made of the instruction by adult students enrolled in adult horticulture programs in Kentucky, Ohio, and Virginia. The study also assessed the extent to which selected teacher, school-community, and adult student factors were associated with vocational use made of the instruction.

## *Research Problems*

The problems researched in this study were twofold. Do adults in horticulture make vocational use of the instruction? To what extent are selected teacher, school-community, and adult student factors associated with classes in which students make vocational use of the instruction in horticulture?

## *Methodology*

### Population and Sample

The population for the study consisted of 57 secondary horticulture teachers in Kentucky, Ohio, and Virginia, who had an approved program to teach adults in horticulture in 1977-1978 and 1978-1979. Fifty-four teachers (94%) were included in the sample. In order to ensure proper representation in each of the states (Kentucky, Ohio, and Virginia), each state was considered as a

stratified population, and within each strata (state) a simple random sampling procedure was utilized in the selection of the adult horticulture teachers included in the study. The adult programs (721 adult students) selected for this study were determined automatically when the adult teachers were randomly selected for each strata (state). Fifty-four teachers and 721 adults responded for a response rate of 100 percent.

### Instrumentation

Two questionnaires were used to collect the data. The adult horticulture teacher questionnaire and the adult student questionnaire were developed based on a review of related literature.

Clarification and accuracy of the questionnaires were established through content validation by a panel of experts made up of agricultural educators. The content validity of the teacher questionnaire and adult questionnaire was further checked through a field test.

The reliability of the teacher questionnaire was assessed by the test-retest technique. The reliability coefficient of the teacher questionnaire was .95 and that of the adult student questionnaire was .96. The items measuring "vocational use" were further evaluated by determining the correlation coefficient among the five items, with a resulting correlation coefficient of .90.

A teacher questionnaire and the adult student questionnaires were mailed to each of the 54 randomly selected teachers of adult horticulture during the 1978-1979 school year. A total of 54 teachers and 721 adult students responded in Kentucky, Ohio, and Virginia.

### Analysis

*The Statistical Package for the Social Sciences* (SPSS) (Nie and associates, 1975) and the *Statistical Analysis System* (SAS) (Barr and associates, 1976) were used to analyze the data.

To determine which independent variables were most significantly associated with the dependent variable "vocational use," the Product-Moment Correlation (Pearson r), the t-test, the F-test (analysis of variance), and chi square statistical methodologies were used in this study. Decisions were made using an alpha level of .05.

The product-moment correlation (Pearson r) was used to test hypotheses concerning the following independent variables:

1. Years of industry experience of the teacher
2. Years of experience of the teacher in teaching adult horticulture classes
3. Number and quality of facilities
4. Years of education attained by the adult students

The t-test was used to test hypotheses concerning the following independent variables:

1. Type of teacher certification (industry, educational)
2. Type of program (comprehensive high school, vocational center)

The F-test (analysis of variance) was used to test hypotheses concerning the following independent variables:

1. Size of the school (secondary student enrollment)
2. Age of the adult students

Chi square was used to test hypotheses concerning the following independent variables:

1. Number of horticultural businesses in the community
2. Sex of the adult students

### *Findings*

Although 717 of the 721 adult students (99.44%) claimed some vocational use of the instruction, only 151 (20.94%) used the instruction in a horticultural or related occupation either part-time or full-time (Table 1).

Table 1

#### FREQUENCIES OF ADULT STUDENTS' VOCATIONAL USE OF THE INSTRUCTION

Adult Student Vocational Use/Non-Vocational Use*	State			All States
	Kentucky	Ohio	Virginia	
Employed Full-Time	10	22	11	43
Self-Employed Full-Time	14	13	8	35
Employed Part-Time	14	22	5	41
Self-Employed Part-Time	18	9	5	32
Utilize Knowledge and Skills for Self	260	174	158	592
Utilize Knowledge and Skills for Others	76	46	31	153
Hobby Use (no economic value)	100	170	11	281
Do Not Use Knowledge and Skills	1	2	1	4

\*The adult student had the opportunity to respond to more than one category.

The independent variables--years of industry experience, type of certification (education, industry), size of the school (secondary student enrollment), type of program (comprehensive high school, vocational center), and years of education--were not associated with the dependent variable "vocational use" in Kentucky, Ohio, or Virginia.

Experience of the teacher in teaching adults in horticulture was associated with the vocational use made of the instruction by the adult students in Virginia. The greater the number of years of experience of the teacher in teaching adult horticulture the greater the vocational use made of the instruction in Virginia ( $r=.73$ ). In Kentucky and Ohio, the years of experience of the teacher in teaching adults in horticulture was very low and was not associated with the vocational use made of the instruction.

The number and quality of facilities were associated with the vocational use made of the instruction by adult students in Ohio ( $r=.50$ ). Teachers in Ohio who were satisfied with the number and quality of facilities had adult students who made greater vocational use of the instruction. In Kentucky and Virginia the number and quality of facilities was not associated with the vocational use made of the instruction.

The number of horticultural businesses in the community was associated with the vocational use made of the instruction by the adult students in Kentucky, Ohio, and Virginia (Table 2). The adult students located in communities having greater numbers of horticultural businesses made greater vocational use of the instruction in horticulture.

Sex of the adult students was associated with the vocational use made of the instruction by the adult students in Kentucky, Ohio, and Virginia (Table 3). Males made greater vocational use of the instruction than did females. A greater percentage of males were using the instruction received in adult horticulture programs on the job while more females were utilizing the instruction primarily for home use.

The age of the adult students in Ohio was associated with the vocational use of the instruction (Table 4). Greater vocational use was made of the instruction in Ohio by younger adult students. The age of the adult students was not associated with vocational use made of the instruction by the adult students in Kentucky and Virginia.

### *Implications*

Results of this study can be used by adult teachers of horticulture, teacher educators, and state supervisors of agricultural education in developing ways of increasing the vocational use made of the instruction by adults. The data can be used by teachers in planning more vocationally oriented programs; teacher

Table 2

CHI SQUARE FOR THE VOCATIONAL USE SCORES OF STUDENTS BY THE NUMBER OF HORTICULTURAL BUSINESSES IN COMMUNITY

State	Number of Responses	Chi Square*
Kentucky	276	52.419
Ohio	275	29.543
Virginia	170	46.969
All States	721	106.411

\*X<sup>2</sup> of 16.919 is the critical value at the .05 alpha level for this analysis

Table 3

CHI SQUARE FOR THE VOCATIONAL USE SCORES OF STUDENTS BY THE SEX OF THE ADULT STUDENTS

State	Number of Responses	Chi Square*
Kentucky	276	18.559
Ohio	275	20.240
Virginia	170	13.167
All States	721	50.337

\*X<sup>2</sup> of 7.815 is the critical value of the .05 alpha level for this analysis

Table 4

ANALYSIS OF VARIANCE OF VOCATIONAL USE SCORES OF STUDENTS AMONG VARIOUS AGES OF ADULT STUDENTS IN OHIO\*

Source	Degrees of Freedom	Sum of Squares	Mean Squares	F-ratio**
Between groups	4	18.2184	4.5546	5.733
Within groups	270	214.5076	0.7945	
Total	274	232.7259		

\*Age Groups: 19 and under, 20-29, 30-39, 40-49, 50 and over.

\*\*F of 2.40 is the critical value at the .05 alpha level for this analysis.

educators can use the data in better preparing future teachers of vocational horticulture to teach adults; and state supervisors of agricultural education can use the data in the improvement of the total program.

### *Recommendations*

The problem of low vocational use of the instruction received in adult horticulture classes may be remedied, based on what the researcher found, by the following:

1. Offer adult programs that appeal to men
2. Offer adult programs that appeal to younger persons
3. Design adult programs to meet the occupational needs of persons employed in a horticultural or related business
4. Offer adult programs in localities where the most job opportunities in horticulture exist
5. Concentrate on keeping experienced teachers on the job
6. Provide an adequate number and quality of facilities

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