

INFLUENCE OF ENROLLMENT IN VOCATIONAL AGRICULTURE ON ADMISSION TO A COLLEGE OF AGRICULTURE

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A commonality of the educational reform reports of the 1980s is the recommendation of a core curriculum for all high school students (Adler, 1982; Boyer, 1983; Goodland, 1984). Missing from the proposed core curriculum is vocational education courses. In addition to reform in high schools, these reports advocate increased admission requirements for institutions of higher education (The National Commission on Excellence in Education, 1983). McCurdy (1982) contended it is the inability of students to do college level work that prompts many colleges and universities to tighten admission requirements. These increased admission requirements stress college preparatory courses and usually exclude vocational courses taken in high school.

The trustees at The Ohio State University approved and announced in April, 1982, a policy requiring entering freshmen to complete a college preparatory curriculum in high school in order to be admitted unconditionally to the university. The policy took effect autumn quarter, 1984. The college preparatory requirements include four units of English, three units of math, two units of social science, two units of science, two units of foreign language, one unit of visual/performing arts, and one additional unit in any of the required subjects except visual/performing arts. A student not meeting the requirements is admitted on a "conditional" basis, the condition being to take courses in deficient subjects that do not count toward graduation or to show competence in the deficient area by placement tests.

The use of selective admission policies by colleges and universities raises a number of issues of concern in regard to agricultural education in the secondary schools. Of particular concern is the impact of the importance placed on a college preparatory curriculum in high school and the impact of increased entrance requirements may have on enrollment in vocational agriculture in high school and on enrollment of vocational agriculture students in colleges of agriculture. There is evidence of a negative relationship between the number of units of vocational agriculture completed in high school and the number of college preparatory courses completed (Warmbrod & Doerfert, 1987); however, there is also evidence that enrollment in vocational agriculture in high school does not necessarily prevent students from completing a college preparatory curriculum (Newman & Warmbrod, 1986). Research indicates students who study vocational agriculture in high school perform academically just as well in college as students who do not study vocational agriculture, and that a higher proportion of college students who are former vocational agriculture students graduate than do college students who have not studied vocational agriculture in high school (Carpenter & Rogers, 1970; Newcomb, 1978; Warmbrod & Doerfert, 1987).

Purpose and Objectives

The purpose of this research was to describe how a conditional/unconditional admissions policy influences the academic qualifications and credential of students entering the College of Agriculture at The Ohio State University and to explore the extent to which enrollment in vocational agriculture in high school impedes or enhances the ability of students to complete the required college preparatory curriculum. For the six years, 1982-83 to 1987-88, the following research questions were studied:

1. What percent of the freshman entering the College of Agriculture at The Ohio State University complete the college preparatory curriculum required for unconditional admission?
2. To what extent does enrollment in vocational agriculture in high school influence the percentage of entering freshman who complete the college preparatory curriculum required for unconditional admission?

Method

The design of the study was descriptive research. The academic characteristics and high school course patterns of freshman entering the College of Agriculture at The Ohio State University were

studied before and after the implementation of the conditional/unconditional admissions policy. Data were collected from the population of new first quarter freshman entering in autumn quarter in 1982 ($n = 169$), 1983 ($n = 143$), 1984 ($n = 177$), 1985 ($n = 161$), 1986 ($n = 160$), and 1987 ($n = 161$). Almost all of the students, except for a couple, graduated from comprehensive high schools. The data were obtained from high school transcripts submitted by high schools as part of a student's application for admission to the university. Descriptive statistics were used in data analysis.

Results

Unconditional Admission: The percentage of entering freshman who completed the college preparatory curriculum required for unconditional admission has increased consistently since 1982. In 1982, 12% of all freshman would have been admitted unconditionally; in 1987, three years after the implementation of the admission standards, 69% were admitted unconditionally (Table 1).

Table 1
Conditional/Unconditional Admission Status of New First Quarter Freshman in Percent

| Admission Status | 1982 ($n = 169$) | 1983 ($n = 143$) | 1984 ($n = 177$) | 1985 ($n = 161$) | 1986 ($n = 160$) | 1987 ($n = 161$) |
|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| All Students | | | | | | |
| Conditional | 88 | 77 | 70 | 44 | 36 | 31 |
| Unconditional | 12 | 23 | 30 | 56 | 64 | 69 |
| 0 years of Vo Ag | | | | | | |
| Conditional | 83 | 64 | 62 | 23 | 17 | 20 |
| Unconditional | 17 | 36 | 38 | 77 | 83 | 80 |
| 1+ years of Vo Ag | | | | | | |
| Conditional | 94 | 88 | 78 | 57 | 53 | 40 |
| Unconditional | 6 | 12 | 22 | 43 | 47 | 60 |

The percentage of students completing the required number of units in English, mathematics, science, and foreign language has also increased steadily since 1982 (Table 2). There has been an especially marked increase in the percentage of students completing the foreign language requirement. In 1982, only 43% of entering freshman had completed two or more units of foreign language; in 1987, 83% had completed the required number of units. There has been a moderate increase in the percentage of students meeting the visual/performing arts requirement through completion of courses such as art, drama, band, and chorus. However, enrollment in vocational agriculture can be used to meet the requirement for visual/performing arts; therefore, all students completing at least one year of vocational agriculture meet this requirement. For example, 54% of the students who had completed one or more years of vocational agriculture entering in the fall of 1987 fulfill the visual/performing arts requirement through this provision. The percentage of students completing two or more units of social science has not changed noticeably since 1982, varying from 97% to 100%.

Since the implementation of the admissions policy in 1984 entering freshman have improved in rank in high school graduating class and in the total number of high school credits earned (Table 3). The percentage of entering freshman who were in the highest quartile of their graduating class was 52% in 1982 and 54% in 1983. Since 1984, the percentage of entering freshman who were in the highest quartile of their class was 62% except for 1986 when it was 57%.

The total number of high school credits earned by entering freshman has shown a consistent increase from a mean of 22 in 1982 to more than 23 in 1987. The mean ACT composite score of entering freshman has increased slightly since 1982 to an average of slightly over 21 (Table 4).

Table 2
Percent of Entering Freshman Completing Courses Required for Unconditional Admission

| Course and # of units | 1982 (n = 169) | 1983 (n = 143) | 1984 (n = 177) | 1985 (n = 161) | 1986 (n = 160) | 1987 (n = 161) |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <u>English</u> | | | | | | |
| All Students | | | | | | |
| Less than 4 | 48 | 30 | 25 | 5 | 5 | 5 |
| 4 or more | 52 | 70 | 75 | 95 | 95 | 95 |
| 0 years of VoAg | | | | | | |
| Less than 4 | 40 | 18 | 19 | 0 | 0 | 6 |
| 4 or more | 60 | 82 | 81 | 100 | 100 | 94 |
| 1+ years of VoAg | | | | | | |
| Less than 4 | 56 | 40 | 31 | 8 | 10 | 4 |
| 4 or more | 44 | 60 | 69 | 92 | 90 | 96 |
| <u>Math</u> | | | | | | |
| All Students | | | | | | |
| Less than 3 | 28 | 17 | 8 | 11 | 10 | 6 |
| 3 or more | 72 | 83 | 92 | 89 | 90 | 94 |
| 0 years of VoAg | | | | | | |
| Less than 3 | 20 | 8 | 3 | 10 | 3 | 4 |
| 3 or more | 80 | 92 | 97 | 90 | 97 | 96 |
| 1+ years of VoAg | | | | | | |
| Less than 3 | 38 | 25 | 14 | 11 | 16 | 6 |
| 3 or more | 62 | 75 | 86 | 89 | 84 | 94 |
| <u>Social Science</u> | | | | | | |
| All Students | | | | | | |
| Less than 2 | 3 | 0 | 2 | 0 | 0 | 0 |
| 2 or more | 97 | 100 | 98 | 100 | 100 | 100 |
| 0 years of VoAg | | | | | | |
| Less than 2 | 4 | 0 | 1 | 0 | 0 | 0 |
| 2 or more | 96 | 100 | 99 | 100 | 100 | 100 |
| 1+ years of VoAg | | | | | | |
| Less than 2 | 2 | 0 | 3 | 0 | 0 | 0 |
| More than 2 | 98 | 100 | 97 | 100 | 100 | 100 |
| <u>Science</u> | | | | | | |
| All Students | | | | | | |
| Less than 2 | 18 | 13 | 11 | 6 | 2 | 1 |
| 2 or more | 82 | 87 | 89 | 94 | 97 | 99 |
| 0 years of VoAg | | | | | | |
| Less than 2 | 13 | 9 | 3 | 0 | 0 | 1 |
| 2 or more | 87 | 91 | 97 | 100 | 100 | 99 |
| 1+ years of VoAg | | | | | | |
| Less than 2 | 23 | 17 | 18 | 9 | 5 | 1 |
| 2 or more | 77 | 83 | 82 | 91 | 95 | 99 |
| <u>Foreign Language</u> | | | | | | |
| All Students | | | | | | |
| Less than 2 | 59 | 57 | 42 | 35 | 24 | 17 |
| 2 or more | 41 | 43 | 58 | 65 | 76 | 83 |
| 0 years of VoAg | | | | | | |
| Less than 2 | 39 | 30 | 24 | 11 | 7 | 0 |
| 2 or more | 61 | 70 | 76 | 89 | 93 | 100 |
| 1+ years of VoAg | | | | | | |
| Less than 2 | 80 | 80 | 61 | 50 | 41 | 30 |
| 2 or more | 20 | 20 | 39 | 50 | 59 | 70 |

| Course and # of units | 1982 (<u>n</u> = 169) | 1983 (<u>n</u> = 143) | 1984 (<u>n</u> = 177) | 1985 (<u>n</u> = 161) | 1986 (<u>n</u> = 160) | 1987 (<u>n</u> = 161) |
|---|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Visual/Performing Arts^a | | | | | | |
| All Students | | | | | | |
| Less than 1 | 49 | 54 | 51 | 42 | 44 | 37 |
| 1 or more | 51 | 46 | 49 | 58 | 56 | 63 |
| 0 years of VoAg | | | | | | |
| Less than 1 | 44 | 45 | 45 | 16 | 22 | 14 |
| 1 or more | 56 | 55 | 55 | 84 | 78 | 86 |
| 1+ years of VoAg | | | | | | |
| Less than 1 | 54 | 61 | 58 | 58 | 65 | 54 |
| 1 or more | 46 | 39 | 42 | 42 | 35 | 46 |
| Visual/Performing Arts^b | | | | | | |
| All Students | | | | | | |
| Less than 1 | 14 | 14 | 15 | 4 | 6 | 5 |
| 1 or more | 86 | 86 | 85 | 96 | 94 | 95 |
| 0 years of VoAg | | | | | | |
| Less than 1 | 26 | 30 | 30 | 10 | 12 | 11 |
| 1 or more | 74 | 70 | 70 | 90 | 88 | 89 |
| 1+ years of VoAg | | | | | | |
| Less than 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 or more | 100 | 100 | 100 | 100 | 100 | 100 |

^aIncludes courses in art, drama, band, chorus, and speech only. ^bIncludes courses in vocational agriculture and industrial arts in addition to art, drama, band, chorus, and speech.

Table 3
High School Class Rank of Entering Freshman in Percent

| Percentile | 1982 (<u>n</u> = 169) | 1983 (<u>n</u> = 143) | 1984 (<u>n</u> = 177) | 1985 (<u>n</u> = 161) | 1986 (<u>n</u> = 160) | 1987 (<u>n</u> = 161) |
|------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Upper Quartile | | | | | | |
| All Students | | | | | | |
| 0 years of VoAg | 49 | 51 | 63 | 61 | 55 | 70 |
| 1+ years of VoAg | 60 | 57 | 60 | 64 | 60 | 57 |
| Second Quartile | | | | | | |
| All Students | | | | | | |
| 0 years of VoAg | 29 | 38 | 25 | 18 | 30 | 20 |
| 1+ years of VoAg | 29 | 32 | 26 | 29 | 29 | 33 |
| Third Quartile | | | | | | |
| All Students | | | | | | |
| 0 years of VoAg | 18 | 11 | 10 | 16 | 13 | 7 |
| 1+ years of VoAg | 9 | 7 | 13 | 6 | 10 | 10 |
| Lowest Quartile | | | | | | |
| All Students | | | | | | |
| 0 years of VoAg | 8 | 0 | 2 | 5 | 2 | 3 |
| 1+ years of VoAg | 2 | 4 | 0 | 1 | 1 | 0 |

Influence of Enrollment in High School Vocational Agriculture: The percentage of new first quarter freshman entering the College of Agriculture who studied vocational agriculture in high school has ranged from a low of 49% in 1982 to a high of 61% in 1985 (Table 5). Since 1984 over half of the entering freshman have studied vocational agriculture in high school. The vast majority of students who have studied vocational agriculture in high school completed three or four years of vocational agriculture.

Table 4
Characteristics of Entering Freshman at the Time of Admission

| Variable | X | SD | X | SD | X | SD | X | SD | X | SD | X | SD |
|------------------------------------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|
| High School Rank Percentile | | | | | | | | | | | | |
| All Students | 71.6 | 23.48 | 75.0 | 19.97 | 76.2 | 20.15 | 76.8 | 20.81 | 74.6 | 20.22 | 76.5 | 18.49 |
| 0 years VoAg | 67.3 | 25.96 | 74.4 | 19.84 | 75.7 | 20.86 | 74.8 | 25.83 | 74.4 | 21.60 | 79.1 | 20.25 |
| 1+ years VoAg | 76.2 | 19.59 | 75.4 | 20.20 | 76.7 | 19.49 | 78.1 | 16.89 | 74.7 | 19.00 | 74.6 | 16.87 |
| Total High School Credits | | | | | | | | | | | | |
| All Students | 22.0 | 1.90 | 22.2 | 1.84 | 22.4 | 1.89 | 22.8 | 1.79 | 22.9 | 2.10 | 23.3 | 2.23 |
| 0 years VoAg | 21.9 | 2.07 | 22.0 | 2.09 | 22.3 | 1.89 | 22.7 | 2.06 | 22.9 | 2.22 | 22.7 | 2.32 |
| 1+ years VoAg | 22.1 | 1.71 | 22.3 | 1.60 | 22.6 | 1.90 | 22.9 | 1.60 | 22.8 | 1.98 | 23.8 | 2.05 |
| ACT Composite Score | | | | | | | | | | | | |
| All Students | 20.8 | 5.21 | 21.7 | 5.48 | 21.8 | 5.17 | 21.7 | 4.61 | 21.4 | 4.71 | 21.7 | 4.56 |
| 0 years VoAg | 21.3 | 5.12 | 22.3 | 5.48 | 21.9 | 5.20 | 22.5 | 5.31 | 22.6 | 4.92 | 23.0 | 4.73 |
| 1+ years VoAg | 20.2 | 5.28 | 21.2 | 5.45 | 21.7 | 5.16 | 21.2 | 4.06 | 20.4 | 4.30 | 20.8 | 4.20 |
| Cumulative High School GPA | | | | | | | | | | | | |
| All Students | 3.13 | 0.57 | 3.16 | 0.69 | 3.20 | 0.49 | 3.23 | 0.54 | 3.13 | 0.56 | 3.17 | 0.53 |
| 0 years VoAg | 3.20 | 0.62 | 3.19 | 0.83 | 3.18 | 0.48 | 3.24 | 0.66 | 3.16 | 0.59 | 3.26 | 0.58 |
| 1+ years VoAg | 3.20 | 0.51 | 3.13 | 0.53 | 3.22 | 0.51 | 3.23 | 0.46 | 3.11 | 0.54 | 3.10 | 0.49 |

Table 5
Percent of Entering Freshman Who Enrolled in Vocational Agriculture in High School

| Admission Status | 1982 (n = 169) | 1983 (n = 143) | 1984 (n = 177) | 1985 (n = 161) | 1986 (n = 160) | 1987 (n = 161) |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 0 years of Vo Ag | 52 | 46 | 50 | 39 | 48 | 44 |
| 1-2 yrs of Vo Ag | 5 | 6 | 7 | 8 | 11 | 9 |
| 3-4 yrs of Vo Ag | <u>43</u> | <u>48</u> | <u>43</u> | <u>53</u> | <u>41</u> | <u>48</u> |
| 1+ years of Vo Ag | 48 | 54 | 50 | 61 | 52 | 57 |

Data reported in Table 2 indicate that trends described for the percentage of all entering freshmen who meet the required admission standards for English, mathematics, science, visual and performing arts, and social science hold for students who have studied vocational agriculture in high school as well as for students who have not studied vocational agriculture. There are differences, however, between the vocational agriculture and no vocational agriculture groups in the percentage of students who were admitted unconditionally and the percentage who met the admission standard for foreign language. Consistently since 1984, a higher percentage of students who had not studied vocational agriculture in high school have entered the College of Agriculture with an unconditional status than entering students who had studied vocational agriculture in high school. In 1987, 80% of the entering freshman who had not studied vocational agriculture in high school were admitted unconditionally compared to 60% of the entering freshman who had studied vocational agriculture in high school. Additionally, a higher percentage of students who had not studied vocational agriculture in high school met the foreign language requirements than those entering students who had studied vocational agriculture in high school. In 1987, 100% of the entering freshman who had not studied vocational agriculture in high school met the foreign language requirements, while 70% of the entering freshman who had studied vocational agriculture in high school had met the foreign language requirement (Tables 1 and 2).

There were also differences between the two groups in the type of courses used to meet the visual and performing arts requirement. A higher percentage of entering freshman who had not taken vocational agriculture in high school met the visual and performing arts requirement with courses in art, drama, chorus, and band than students who had studied vocational agriculture in high school. The majority of the entering freshman who had studied vocational agriculture in high school met the visual and performing arts requirement with vocational agriculture courses in combination with or in the absence of courses in the usual visual and performing arts subjects. The percentage of entering freshman who had studied vocational agriculture in high school in the highest quartile of their graduating class has been fairly consistent since 1982, ranging from a low of 57% in 1987 to a high of 64% in 1985 (Table 3). However, the percentage of entering students who had not studied vocational agriculture in high school in the highest quartile of their graduating class has increased from 45% in 1982 to 70% in 1987. There are no appreciable differences in mean ACT composite scores or cumulative high school grade point averages for students who had and had not studied vocational agriculture in high school.

Conclusions

The data indicate that the unconditional/conditional admissions policy announced in 1982 and implemented in 1984 has influenced the high school courses completed by students entering The Ohio State University College of Agriculture. Since 1984, a higher percentage of entering freshman have completed the requirements for English, mathematics, social science, science, visual and performing arts, and foreign language. Additionally, students ranked higher in their high school graduating class and scored higher on the ACT composite test.

Implementation of the admissions policy has not negatively influenced the percentage of freshman entering the College of Agriculture who had studied vocational agriculture in high school. Since 1984, the percentage of entering freshman who are former vocational agriculture students varied from 50% to 60%. The vast majority of entering freshman who studied vocational agriculture in high school have completed three to four years of vocational agriculture. Enrollment in vocational agriculture in high school does not have a negative impact on the ability of students to meet the admissions requirements for English, mathematics, social science, science, or visual and performing

arts. Enrollment in vocational agriculture in high school does seem to have a negative impact on the ability of students to fulfill the admissions requirement for foreign language, and as a result, for students to meet the requirements for unconditional admission. However, the data clearly indicate that students who enroll in vocational agriculture in high school can complete college preparatory courses required for unconditional admission.

A majority of entering freshmen who had studied vocational agriculture in high school met the requirement for courses in visual/performing arts through a combination of traditional courses in visual and performing arts and vocational agriculture courses or by substituting vocational agriculture courses for courses in art, music, drama, or chorus.

Implications

For the particular state and university to which the data pertain a major implication is that vocational agriculture teachers, state supervisors, teacher educators, vocational agriculture students and their parents, school administrators, and school guidance counselors need to be aware that enrollment in vocational agriculture in high school does not necessarily prevent students from completing a college preparatory curriculum. Current vocational agriculture students, as well as prospective vocational agriculture students, need to know that enrollment in vocational agriculture in high school does not prohibit them from completing the requirements needed for unconditional admission to The Ohio State University. Counselors and teachers need to advise vocational agriculture students to plan their high school course of study in order to maximize the students' chances of meeting admission requirements. This is especially true in the case of the foreign language requirement. Counselors and vocational agriculture teachers need to be aware that vocational agriculture students tend to depend on enrollment in vocational agriculture to satisfy the visual and performing arts requirement. A majority of entering freshman who presently are unconditionally admitted would fall in the conditional admission category, if the university chose not to accept vocational agriculture as meeting the visual and performing arts requirement.

Implications of this study also are applicable beyond one particular state, since educational reform is being implemented across the country. Generally these reforms reflect an increased emphasis on a college preparatory curriculum in high school and on higher admission standards to universities and colleges, including colleges of agriculture. Agricultural educators need to inform students and their parents, school administrators, and school guidance counselors that enrollment in vocational agriculture in high school does not necessarily prevent students from completing a college preparatory curriculum. Another implication is that research is needed to assess the relationship between the extent to which entering students complete a required college preparatory curriculum in high school and their achievement in college, including achievement in colleges of agriculture.

References

- Adler, M. (1982). The paideia proposal: An educational manifesto. New York: Macmillan.
- Boyer, E.L. (1982). High school. New York: Harper and Row.
- Carpenter, E.T., & Rogers, J.H. (1970). Review and synthesis of research in agricultural education. (2nd ed.). Columbus: The Ohio State University, The Center for Voc. and Tech. Education.
- Goodlad, J.I. (1984). A place called school. New York: McGraw Hill.
- McCurdy, J. (1982). Sending the message: New admissions standards for a new decade. Phi Delta Kappan, 63(8), 547-550.
- Newcomb, L.H. (1978). Agricultural education: review and synthesis of the research. Columbus: The Ohio State University, The National Center for Research in Vocational Education.
- Newman, M.E. & Warmbrod, R.J. (1986). Educational reform: The influence of enrollment in vocational agriculture on admission to a college of agriculture. Paper presented at the 13th Annual National Agricultural Education Research Meeting, Dallas, TX.
- Warmbrod, J.R., & Doerfert, D.L. (1987). The college preparatory curriculum and academic performance in college: How does vocational agriculture fit into the picture? Paper presented at the 14th Annual National Agricultural Education Research Meeting, Las Vegas, NV.