

THE EFFECTIVENESS OF PILOT PROGRAMS COMPARED TO OTHER
PROGRAMS OF VOCATIONAL AGRICULTURE IN TENNESSEE

Otto Legg, University of Tennessee

A Preface - It would be gratifying to know definitely whether or not this research report as Dr. Woodin suggests in Vol. II, No. 2, should gather dust as many have. We proceeded to structure the following study to meet some of the primary objectives of education as described in the Handbook of Research on Teaching. "In every age the school has been expected to provide, first of all linguistic skills, the basic tool of learning in any well-developed culture. . . Next in the order of expectation was a stock of knowledge. . . Finally, it was expected that instruction would build into pupils habits of using his acquired skill and knowledge. . . as tradesmen, workers and citizens."

Purpose. The purpose of this causal-comparative study was to compare the effectiveness of programs of vocational agriculture, mainly the Pilot program, according to four school categories. The four categories were designated as Pilot, Like-Pilot, Student Teaching Center and Negro. To minimize the within deviation, four grade levels were designated which were Grade 9, Grade 10, Grade 11, and Grade 12. To further minimize the within deviation, grade level was examined for differences in vocational agriculture and nonagriculture students. (Socrates advised, begin with a casual question which seemed beyond question--even the casual question creates anxiety awaiting the outcome.) The study was designed to test the following hypotheses:

1. There is no significant difference between two groups of students as measured by a knowledge of agriculture test.
2. There are no significant differences among the four school categories as measured by a knowledge of agriculture test.
3. There were no significant differences among four grade levels, among four school categories, and between two groups of students as measured by knowledge of agriculture at the time of the test.
4. There are no significant differences among vocational agriculture students by four school categories as measured by five subject matter areas of the knowledge of agriculture test.
5. There are no significant differences among four grade levels and of vocational agriculture students by four school categories as measured by five subject matter areas of the knowledge of agriculture test.
6. There is no significant difference between two groups of students as measured by reading level.
7. There are no significant differences among four school categories as measured by reading level.
8. There are no significant differences among four grade levels, among four school categories, and between two groups of students as measured by reading level at the time of the test.

Procedure. Twenty schools and two alternates were randomly selected from four designated school categories for comparison. Students by school within each category were randomly divided by vocational agriculture and nonagriculture. Five students from vocational agriculture and five nonagriculture students from each grade level were randomly selected for a total of 100 students in each student group in each grade level. There was a total of 800 students involved in the multivariate analysis of the major hypotheses. A total of 1,749 students participated in the study of reading level.

An achievement test was developed by subject matter areas for use as the criterion measure. Test items were checked for validity and reliability, for consistency with what is true about agriculture and for consistent measurement of several administrations of the test. The areas selected were animal science, crop science, agricultural mechanics, agricultural economics, and leadership. The Knowledge of Agriculture test had a coefficient of determination of 42 per cent when correlated with the raw level reading scores of students on a national norm test. The achievement test level sought was that of a senior student after four years of vocational agriculture and after having the necessary experience centered activities. Emphasis was placed on a representative sample of information a vocational agriculture student should possess as terminal to the high school course of vocational agriculture. The statistical procedure used was multiple classification analysis of covariance. The hypotheses were tested at the .05 level of significance.

Summary. Vocational agriculture students achieved a significant amount of learning about agriculture. The reading level for vocational agriculture students was below that for nonagriculture students in the same schools. Vocational agriculture student differences are attributed to the instructional program, facilities provided for learning, continuation by students in the vocational agriculture curriculum, teacher preparation and teacher attitudes. The major results of this study are presented in the form of data relative to the hypotheses tested.

1. There was a significant difference between vocational students 30.14 and nonagriculture students, 25.77, for the Knowledge of Agriculture Test.
2. There were significant differences among school categories. In order of mean test scores of students they were: Student Teaching Centers, Pilot Schools, Like-Pilot Schools and Negro Schools.
3. There were significant differences among grade levels, showing progression from 9th through 12th.
4. There were significant differences among school categories, after adjustment was made to equalize student ability, in teaching subject matter areas of vocational agriculture; however, no difference existed between grade levels for agricultural mechanics and agricultural economics.
5. There were significant differences in reading level of randomly selected vocational agriculture and nonagriculture students within the same schools.
6. There were significant differences in reading level among the four school categories.
7. There were significant differences between grade levels as expected; however, nonagriculture students were significantly higher.

Conclusions.

1. Significant differences among school categories according to the Knowledge of Agriculture mean test scores indicate considerable variation in teaching-learning situations. No significant progression between classes for agriculture mechanics and agricultural economics indicated two areas of weakness in planning and teaching definite course content.
2. Vocational agriculture students were much lower for reading level than nonagriculture students, thereby increasing the problem of adjusting instruction to a wider range of diverse abilities. It was evident in some schools that few adjustments had been made for individual differences as shown by low student scores.
3. Most of the Negro students tested, both vocational agriculture and nonagriculture students, made very low scores.

4. Knowledge of Agriculture mean test scores in order were: Student Teaching Centers, Pilot Schools, Like-Pilot Schools and Negro Schools.

Supplementary data showed average hours of graduate credit for Student Teaching Center Teacher, 47; Pilot teacher, 24; Like-Pilot teacher, 16; and Negro teacher, 15.

Table 1. MEAN SCORES FOR KNOWLEDGE OF AGRICULTURE AND READING LEVEL FOR 400 VOCATIONAL AGRICULTURE STUDENTS BY FOUR SCHOOL CATEGORIES AND FOUR GRADE LEVELS

<u>School</u>	<u>Mean Scores</u>	
	<u>Reading Level</u>	<u>Knowledge of Agriculture</u>
	<u>Vocational Agriculture 9</u>	
Pilot	18.88	28.70
Like-Pilot	17.88	29.97
Student Teaching Center	17.60	28.99
Negro	7.04	23.68
	<u>Vocational Agriculture 10</u>	
Pilot	20.56	29.30
Like-Pilot	16.60	26.78
Student Teaching Center	18.84	30.04
Negro	8.56	21.48
	<u>Vocational Agriculture 11</u>	
Pilot	21.36	31.05
Like-Pilot	21.64	32.51
Student Teaching Center	18.80	36.70
Negro	8.20	23.25
	<u>Vocational Agriculture 12</u>	
Pilot	22.16	32.87
Like-Pilot	22.08	29.90
Student Teaching Center	20.44	36.88
Negro	11.16	25.41

Table 2. MEAN SCORES FOR READING LEVEL OF 800 STUDENTS, 400 VOCATIONAL AGRICULTURE AND 400 NONAGRICULTURE BY GRADE LEVEL

<u>Grade</u>	<u>Total</u>	<u>Mean Scores</u>	
		<u>Vocational Agriculture</u>	<u>Nonagriculture</u>
9	17.54	15.35	19.73
10	18.64	16.14	21.13
11	19.38	17.50	21.26
12	21.11	18.96	23.26