

THE DEVELOPMENT AND TESTING OF A FACILITY EVALUATION AND PLANNING TECHNIQUE FOR PROGRAMS OF VOCATIONAL AGRICULTURE

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Adequate facilities are needed to develop and maintain quality vocational agriculture programs. Key (1977) stated that "An effective program (of vocational agriculture) makes maximum utilization of the facilities and keeps them in top shape. This leads to the conclusion that utmost care should be taken in planning, securing, using, maintaining and improving local facilities."

To provide the best facilities possible, teachers of vocational agriculture must be involved in evaluating existing facilities for the purpose of making improvements or in planning new facilities. Further, teachers must have available up-to-date standards or specifications for facilities.

Current standards or specifications and procedures for evaluating existing or planned facilities against recognized standards are needed. The purpose of this study (1978) was to develop and test a facility evaluation and planning technique for agricultural production programs of vocational agriculture.

Null Hypotheses

1. No significant difference exists between the mean total facility evaluation scores of the evaluators.
2. No significant difference exists between the researcher's mean evaluation scores for facilities located in separate buildings and those integrated into the main building.
3. No significant difference exists between the researcher's mean evaluation score for shared facilities and those not shared with other school programs.
4. No significant difference exists between the mean hours of use of the facilities located in separate buildings and those integrated into the main building.

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5. No relationship exists between years of age of the facility and the total facility evaluation score.
6. No relationship exists between the hours of use and the total facility evaluation score.

Procedures

A panel of eleven teacher educators who were primarily responsible for teaching and consulting regarding vocational agriculture facilities were asked to provide specific facility specifications to be used in developing the evaluation and planning instrument. The panel members independently provided minimum recommendations for facility items identified through a review of the literature. The specifications provided were averaged to establish the "Minimum Recommendations" for each facility item. Also, the panel responded to the question: How important do you feel each facility item is in contributing to and supporting the objectives of agricultural production programs of vocational agriculture? A 1-9 scale was used for this response with 1 indicating no importance and 9 indicating utmost importance. The panel's responses were averaged to determine the "Rating of Importance" of each facility item. These "Ratings of Importance" were used as weights in determining the facility evaluation scores after the evaluation instruments were completed by local teachers and the researcher-evaluator.

A scale was developed to score each facility item upon being measured or observed by the evaluators and compared to the "Minimum Recommendation." The scale was defined as: 0--does not exist, 1--does not meet minimum recommendations, 2--meets minimum recommendations and 3--exceeds minimum recommendations. The final instrument for this study included facility items, minimum recommendations and the 0-3 response scale for nine facility areas.

Testing of the evaluation technique was completed with the cooperation of 25 randomly selected Iowa Departments of Vocational Agriculture. The 25 departments made up a 37.5 percent sample of the population of departments with facilities ten years of age or less.

The departments were personally visited by the researcher during a nine-day period at which time the local vocational agriculture teacher and the researcher independently rated the facility using the facility evaluation and planning instrument. The teacher at each school was also interviewed to collect information concerning the program and use of the facility.

Evaluation scores were calculated by multiplying the evaluators' rating (0, 1, 2 or 3) for facility items by the weights (calculated from the panel's responses) for the items. Scores for individual facility items were then totaled to give facility area scores and a total facility score.

Findings

Characteristics of Departments

All 25 departments emphasized production agriculture as the primary area of study. Three of these departments had two teachers of vocational agriculture and 22 had one teacher. The single-teacher departments averaged 64 students and the two-teacher departments averaged 128 students.

All 25 departments had a classroom and an agricultural mechanics laboratory; 11 were housed in separate buildings and 13 were a part of the main high school building. In 14 of the 25 schools, the vocational agriculture facility was shared with another department. The mean size of these facilities was somewhat less than the minimum recommended by the teacher educator panel. Classrooms averaged 759 square feet compared with a minimum recommendation of 910 square feet by the panel. Agricultural mechanics laboratories average 2800 square feet, 200 square feet less than the 3000 square feet recommended. A separate office area was provided in 20 of the 25 departments. Supply storage adjacent to the agricultural mechanics laboratory was included in 21 of the departments while 22 provided an adjacent outdoor area. Classroom storage, tool storage and locker areas were observed with considerably less frequency than the aforementioned areas.

Testing of Hypotheses

In testing for differences between the researcher's facility evaluation scores and those of the local teachers, null hypothesis one, the t-test was used. The results are summarized in Table 1. A significant difference was observed between the total facility scores of the researcher-evaluator and the teachers. Further analysis identified significant differences between evaluators' scores for the classroom and agricultural mechanics laboratory facility areas. Therefore, null hypothesis one was rejected at the .05 level. Teachers of vocational agriculture tended to rate their facilities higher than did the external evaluator. Such observations were made for the following facility areas and items:

1. Classroom--electrical outlet interval, number of entrance doors, ceiling height, storage space, entrance door width and window distance above the floor.
2. Agricultural mechanics laboratory--electrical outlet interval, exhaust system, width to length ratio, sump type drain, electrical overhead bus ways, tool storage space and safety zoning.

TABLE 1

MEAN FACILITY EVALUATION SCORES AND T-VALUES
BY EVALUATORS

Facility Area	Facility Evaluation Score		T-value
	Evaluators		
	Teacher	Researcher	
Classroom	196.9	185.5	2.93*
Classroom storage area	30.1	25.9	1.98
Classroom laboratory area	33.0	27.4	1.40
Office area	100.7	94.2	1.88
Agricultural mechanics lab	288.0	272.4	2.09*
Tool storage area	49.4	47.3	0.62
Supply storage area	59.5	60.2	-0.24
Locker area	50.0	47.6	1.34
Outdoor areas	57.7	57.9	-0.05
Additional areas	2.2	2.2	
TOTAL FACILITY	867.5	820.5	2.46*

*Significant value at .05, $t = 2.064$.

The t-test was used to test null hypothesis two. No significant difference was observed in the evaluation scores for facilities located in separate buildings and those integrated into the main building. Therefore, null hypothesis two was not rejected.

The t-test was used to test for significant difference between the researcher's evaluation score for shared facilities and those not shared, null hypothesis three. Nonsignificant t-values were observed for eight of the nine facility areas and the total facility. Therefore, the null hypothesis was not rejected. Classroom storage was the one facility area where a significant difference was observed in mean evaluation scores.

The t-test revealed that no significant difference existed between the mean hours of use of the facilities located in separate buildings and those integrated into the main building. Therefore, null hypothesis four was supported.

The correlation coefficient calculated for testing hypothesis five was $r = .18$, which was not significant at the .05 level. The correlation coefficient calculated for testing hypothesis six was $r = .42$, which was significant at the .05 level. This positive relationship indicated the facilities with higher evaluation scores were used more hours per day. Null hypothesis five was supported while null hypothesis six was rejected.

Conclusions

1. Teachers interpreted some of the facility items, minimum recommendations and/or the rating scale differently than the researcher, resulting in significantly different evaluation scores for vocational agriculture facilities.
2. Sharing of facilities did not affect the ratings of quality of facilities provided for vocational agriculture.
3. Location did not affect the ratings of quality of facilities provided for vocational agriculture.
4. Location did not affect the amount of time that the vocational agriculture facilities were used.
5. Older facilities have been maintained or improved to remain on par with those that were newer. All facilities studied, though, were ten years of age or less.
6. Departments with higher quality facilities used their facilities more hours per day.

Recommendations

1. Evaluation of facilities should be an integral part of vocational agriculture program evaluation.
2. Additional research is needed to further develop and refine the technique used in this study so external evaluators and local personnel are in agreement on the evaluation of facilities for vocational agriculture programs that emphasize production agriculture.

3. Local teachers should be trained to use evaluation instruments. When evaluating facilities they use on a regular basis, teachers may have a tendency to approach evaluation from a functional basis in lieu of comparing existing facilities with predetermined standards or requirements.
4. Research is needed to develop facility evaluation techniques for other specialized programs of vocational agriculture.

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