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WHO SHOULD DESIGN THE CURRICULUM?
A COMPARISON OF TEACHERS AND
MANAGERS AS DATA-SOURCES

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Introduction

Curriculum may be viewed from many vantage points and at several levels of generality or specificity. Historically, one of the major problems has been the lack of a clear, succinct line of communication. The answer one gets depends on the question asked and the

one who answers. Wilhelms (1973:14) evaluated the comprehensive high school as succeeding only reasonably well, however "Vocational education works with moderate success". The students, as seen by Wilhelms, were purposeful, happy, got jobs, and have a better-than-average job success. A special task force (O'Toole, 1973:134) in a report to the Secretary of Health, Education, and Welfare related that "Vocational education in the high schools has failed to give students useful skills or place them in satisfying jobs" and that "the schools themselves are a workplace . . . (and) would benefit from a redesign of their work".

The thrust of this investigation deals with the design of occupational interest programs and the development of the technical competencies to assure positive placement in a cluster of prespecified occupations. The basic principles which predicate our outcomes are (1) flexibility for the student, (2) relevancy for the occupation, and (3) accountability to the public.

At this point, we define "curriculum" as a field of study focusing on the activities involved in identifying, selecting, and justifying the educational objectives which are meaningful for occupational placement. Knowing which of the data-sources to consult when faced with a design problem is primary knowledge for curriculum construction (Goodlad, 1966).

Objectives

The principal objective of the investigation was to discern the technical competence appropriate for employment in nursery operations (O. E. Code 01. 0505) and to establish priorities for each of those competencies. Collaterally, the investigation sought to identify the differences which exist (1) between vocational agriculture teachers and personnel managers of nursery operations; (2) among the geographic locations, business functions, sizes, and selection methods used to identify personnel managers, and (3) among the workshop assignments, departmental sizes, teaching loads, teaching assignments, cooperative programs, advisory committees, and geographic locations of vocational agriculture teachers.

Populations

The comparative populations of this study included (1) a frame of 833 certified horticultural businesses with two or more acres of grounds and nursery materials as one of their categories listed in the state department of agriculture directory and, (2) a frame of 67 current vocational agriculture teachers who applied for and were selected to participate in three state-side curriculum development workshops in Florida.

A simple random sample with replacements was drawn from the frame of nursery operations ($S_{mr}=20$) as one subgroup and an individually selected sample was identified ($S_{mn}=10$) as a second subgroup.

The composite sample representing the nursery operations sector was 30. Each business was contacted by telephone and an interview date was established with the personnel manager as a part of the identification process. The teachers consisted of the three intact groups involved with the development of prevocational ($S_{tp}=20$), secondary ($S_{ts}=32$), and ornamental horticulture ($S_{to}=13$), curriculum guides. The composite population of vocational agriculture teachers was 67.

Instrumentation

A catalog of 215 precise behavioral objectives was prepared which contained an array of possible competencies. Each subject read the objective and was asked if it was a knowledge, ability, or skill used to secure and maintain entry-level employment. If the objective was judged as appropriate, the subject rated the expected level of performance. All data were transformed to numeric values with a range of zero to four with four being very much competency required for securing and maintaining employment. Each of the S_{mr} was individually interviewed at their business and the S_{mn} was interviewed either individually or as a small group of less than three. The teacher groups were interviewed in each of the three workshop settings.

Method

Mean scores for each of the 215 items were computed using weights of zero through four by group. The items were ranked using the mean scores. The Kruskal-Wallis One-Way Analysis of Variance by Ranks (Siegel, 1956) was used to determine if the independent samples are from populations which have the same distribution with respect to averages. The NAK1 statistical subroutine (IMSL, 1972) was used to derive the H' corrected-for-tied-ranks and the H uncorrected statistic. Probabilities were computed of exceeding these H statistics if the null hypothesis of identical populations were true. In all comparisons, the number in each group was larger than five and was referenced to the Chi square distribution.

Results

There were significant differences ($p < .001$) in the perceptions of personnel managers of nursery operations and vocational agriculture teachers attending curriculum development workshops as to the priority of competencies for entry employment as a nursery worker using a Kruskal-Wallis One-Way Analysis of Variance by Ranks test of significance. The probability of exceeding the H' statistic if the null hypothesis was true is 0.27E-04.

An analysis of the variance of item means of the managers revealed significant differences in three of the four independent variables. There were significant differences ($p < .001$) in the perceptions of managers located in the five geographic areas of Florida. There were significant differences ($p < .001$) in the perceptions of managers of whole-sale, wholesale and retail, and retail types of operations. Managers of nursery operations with less than five full-time employees, five to

ten employees, and more than ten employees were significantly different ($p < .01$) in their perceptions of high priority competencies. There were no significant differences ($p > .05$) in the priority of technical competencies required for entry employment in nursery operations between randomly selected and individually selected nursery managers.

An analysis of the variance of item means of the vocational agriculture teachers revealed significant differences in six of the seven independent variables under investigation. There were significant differences ($p > .001$) in the perceptions of teachers involved in the pre-vocational, horticultural, and secondary curriculum development workshops. There were significant differences ($p > .001$) in the perceptions of teachers with less than 50 students, 50-100 students, and more than 100 students in their instructional program. Ornamental horticulture teachers were significantly different ($p > .001$) from nonhorticulture teachers in their perceptions of high priority competencies for entry employment. Teachers with cooperative placement programs were significantly different ($p > .001$) in their perceptions of competencies from teachers who did not have cooperative placement. Likewise, teachers who had advisory committees were significantly different ($p > .001$) from their counterparts in the identification of high priority competencies. There were significant differences ($p > .001$) among the perceptions of teachers from the five geographic areas in the state. There were no significant differences in the perceptions of technical competencies required for entry employment in nursery operations between single teacher and multiple teacher vocational agriculture departments.

There were significant differences ($p > .001$) in the priority of technical competencies between managers of nursery operations in Area One and the vocational agriculture teachers from the same geographic area. Likewise, there were significant differences ($p > .001$) in the priorities of nursery managers from Area Four and vocational agriculture teachers from the same area. Finally, there were significant differences ($p > .001$) in the perceptions of managers of nursery operations and vocational agriculture teachers who taught ornamental horticulture, had ongoing cooperative placement programs, and who had local advisory committees in their program of instruction.

Discussion

The findings of this study led to the following conclusions:

1. There are differences in the technical competencies that are expected by industry personnel and those that are selected by teachers of vocational agriculture.
2. There are differences in expected competencies by horticultural firms from different geographic locations, business functions, and sizes but that a common core can be identified.
3. Randomization is not as important a criterion for the selection of data sources as originally thought as long as selection is made using commonly used procedures.

One of the primary criticisms of vocational education is the lack of "useful skills" (O'Toole, 1973). Although historically vocational agriculture has had an admirable success record in production agriculture, one may infer that in general, the lack of useful skills may be attributable to the differences data sources placed on the priorities of those skills. I suspect those differences are much greater in our non-production areas such as horticulture than in the traditional production programs of which we are all a product.

The results of this study suggest a need for comprehensive and systematic research to test the concentricity of the curriculum with the workplace. Such research has potential significance in educational decision making and the placement of graduates with the useful skills so many of our critics have demanded.

Statewide curricula must have inherent strategies which will enable the local teacher to field test competencies and add those which are unique to his geographic area or for students with specific occupational objectives. Some provisions must be made for the local teacher to collect competency data from the employers of his graduates. Clearly this is a time consuming activity but with the support of the school system, catalogs of training objectives, and other resources, it will improve the validity of the instructional program. Possibly our greatest need is to return to the basic principles outlined by Hammonds (1950) and other early teacher educators in developing a sound community-based program sensitive to the needs of both agriculture and the student.

M. C. Whittrock (1973) reminds us that the ideas and generalizations of researchers must be subjected to the replicable, empirical tests before they can have scientific credence and respectability. I recommend we put these findings to the tests!

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