

A COMPARISON OF DATA COLLECTION TECHNIQUES FOR TASK ANALYSIS IN AGRIBUSINESS

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In recent years, vocational agriculture curriculum development has become more systematic. The use of task analysis as the basis for teaching materials has increased the emphasis on competency-based vocational education (CBVE). As the move to competency-based education continues, it is important that the process used to determine which competency to teach provides valid information.

Purpose

A review of past and current CBVE projects indicates the use of two methods of collecting job information. These were (1) mailed questionnaires and (2) personal interviews. There is a plethora of information available concerning the use, advantages, and limitations of these alternative methods. Sources available span the past five decades and include Koos (1928) to Carithers (1973) and an extensive bibliography on the subject by Spaeth (1977). However, there has been little work undertaken which compares the product of the two methods.

Following an exhaustive search of past education research, only one study comparing data collection methods was located. Jackson and Rothney (1961) reported a comparison study of mailed questionnaire and personal interview while performing a follow-up of high school graduates. Results indicated that the interview provided more complete responses. Studies outside the field of education which have compared these methods include Hochstim's (1967) cervical cytology survey, McDonaugh's and Rosenblum's (1965) opinionaire study, Ellis' (1947) study of human love relationships and Homes' (1966) neighborhood attitude survey. Of the studies cited above, Ellis and Homes reported data differences due to the method while Hochstim and McDonaugh and Rosenblum reported no such difference.

Perhaps the reason for method difference is related to the topic of the research or the amount of detail required. If so, vocational education curriculum developers should have evidence to support the use of mailed questionnaire and/or personal interviews as methods which produce valid work performance data.

Results of this study should provide a better basis for deciding which method to use.

Objective

If vocational education instruction is to be effective, it must be based on valid information. The question considered by this research was "Would there be any difference in the task analysis data collected by personal interviews and a mailed questionnaire?"

This study was made under the assumption that personal interviews provided valid task analysis data. Based upon this assumption, the following hypothesis was generated.

Ho: There are no differences between task data reported by mailed questionnaires and personal interviews.

Methodology

This research was developed as a supplement to a purposive study (Legacy, et. al., 1978) which was being conducted to validate tasks performed by retail floral businesses. A preliminary list of tasks performed in the industry was compiled by using data gathered by Legacy (1971) and Connell (1975). A tentative survey instrument was prepared and pretested by interview and mailing. The final instrument was designed to gather task-specific information in two ways: (1) who performed the task?, 'B'-beginning workers, 'A'-advanced workers, 'M'-manager, 'O'-owner, or 'M/O'-manager/owner as the same person; and (2) how often was the task performed?, 'D'-daily, 'W'-weekly, 'M'-monthly or 'Y'-yearly.

The content and format of the mailed and interview instrument was identical. Both instruments included a listing of 97 floral shop tasks listed in five categories.

In addition to task specific information, each respondent was requested to indicate number of employees and employee salaries. The instruments were constructed to conform to the formats prerequisite to conducting interviews and mailed surveys (Spaeth, 1977). Pretest results supported the instrumentation design. Useful information was retrieved by each method.

Sample

A proportionate stratified sample of retail floral businesses was selected from Illinois counties which contained a minimum of five percent of the State's retail floral employees. Sample size was limited to 32 businesses.

Using the Dun and Bradstreet file, the number of floral business firms and employees in each Illinois county was determined. Since approximately one-half of the firms and employees were located in the Chicago area, one-half of the interviews and mailings were conducted in the Chicago area. The remaining half were completed in downstate counties which met the five percent rule. (See Table 1.)

Table 1

LOCATION OF RETAIL FLORAL BUSINESS SAMPLE

County	Total Firms	Total Employees	Scheduled Interviews	Scheduled Mailings
Chicago Area				
Lake	26	157	1	1
Cook	353	2173	4	4
DuPage	45	330	1	1
Will	23	102	1	1
Kane	26	197	1	1
Downstate				
Winnebago	23	132	2	2
Peoria	27	149	2	2
Sangamon	26	140	2	2
Madison	26	117	2	2

Note: 16 interviews/16 mailings

Procedure

After final selection of the sample, telephone calls were made to precede both interviews and mailings. One interview selection declined to participate. Fifteen of the planned sixteen personal interviews were completed in one week by two project

interviewers. The average interview time was 75 minutes with a range of 45 to 120 minutes. The interviewer read the questionnaire to the respondent while the shop manager gave verbal responses.

The mailed instrument, while identical in content and format, was on color-coded paper to increase the response rate. Color codes were used to distinguish each task category. In addition to colored paper, a personalized cover letter, pre-addressed with postage-paid return envelope, a token gift, and a low work-day-of-the-week arrival time was used for the questionnaire. These efforts were used to help increase the response rate. The package was mailed on June 2. Three responses were received within one week. Non-respondents were called, one decided not to participate and the remaining twelve agreed to return their questionnaires soon. By early July, three additional instruments had been received. Two additional mailings and telephone calls during July and August produced the tenth response on August 23, 82 days after the initial mailing.

Fifteen of sixteen interviews were completed while ten of sixteen mailings were returned. Responses had been received from 78% of the sample, which included job information for 193 employees.

Results

A comparison of salary, number of employees and location of firms was made for the interview sample and mailing sample.

There were no significant differences in location of firms, number of employees or beginning employee salaries.

The major hypothesis of no difference in task information reported was divided into five sub-hypotheses for testing. The sub-hypotheses consisted of a null hypothesis for each of the five task categories.

No significant difference was found in the frequency of task performance or in the number of tasks performed in any of the five sub-category areas. The one area of difference was in reporting who performed the task. In four of the five sub-category areas, the interviewed business reported a significantly greater number of tasks as performed by beginning employees when compared to the mailed respondents. (See Tables 2 and 3.)

In the personal interview sample, 27 percent of the 97 retail floral tasks were identified as beginning employee tasks. Only 14.4 percent of the mailed questionnaire tasks were identi-

Table 2

A COMPARISON OF TASK IMPORTANCE

Type Employee	Beginning Employee	Advanced Employee	Manager/ Owner	x ²
Designer	190/51	216/135	22/44	63.3*
Sales	137/37	136/127	81/75	49.5*
Bookkeeping	45/6	78/99	70/41	61.4*
Delivery	64/29	15/22	5/6	21.9*
Manager	2/0	14/17	295/225	2.8
TOTAL	347/123	459/400	473.391	

Note: 15 Personal interviews/10 mailed questionnaires, Illinois Retail Florists, 1978. Chi square was calculated using an adjusted frequency count.

*Significant at the .01 level.

Table 3

A COMPARISON OF THE NUMBER OF ENTRY LEVEL TASKS

No. of Tasks	Task Area	No. of Interview Entry Tasks*	No. of Mailed Entry Tasks*
24	Design	7	6
25	Sales	11	3
6	Bookkeeping	6	5
16	Delivery	2	0
26	Manager	0	0
97	TOTAL	26	14

*x² = 8.13 - Significant .01 with 4df.

Note: 15 Personal interviews/10 mailed questionnaires, Illinois Retail Florists, 1978.

fied as beginning employee tasks. Further comparisons in each sub-category reported the same difference. For designer tasks, 31 percent of the total personal interview responses were beginning employee tasks, compared with 22 percent for the mailed questionnaire. Sales tasks were 37 percent versus 15 percent; bookkeeping, 23 percent versus four percent; and delivery, 76 percent versus 51 percent. Comparing tasks individually, a significant difference existed in 25 of the 97 tasks. Clearly, the personal interview respondents reported a different work description for beginning workers. If vocational retail floral programs were to prepare beginning workers, a curriculum based on the personal interview data was needed.

Educational Importance of the Study

A recent rapid growth in the development of vocational agriculture curriculum from task analysis data has created a need for valid worker-reported information. The results of this study indicated that the personal interview method reported a different set of beginning worker tasks as compared to a mailed survey. Another conclusion from the study concerning the use of mailed and interview methods for collection of task analysis data was that despite extensive follow-up procedures, a high response rate is difficult to achieve with mailed returns. This study achieved only a 62.5 percent response.

The following recommendations are suggested for consideration and further study:

1. Whenever possible, the personal interview method of data collection should be used to identify and classify task analysis information. Enough difference was shown by this study to question the validity of beginning work performance information gathered by mailings.
2. Curriculum guides and instructional materials developed from mailed task analysis information should be validated by personal interviews.
3. Similar studies involving larger samples and other areas of vocational agriculture should be conducted to determine if the findings of this study are universal.

These recommendations rely on the assumption that preparing students to perform the competencies of a beginning worker is the function of vocational agriculture. If we are to be effective in this endeavor, we must go in person to the work place as we develop teaching materials and strategies.

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programs. SOE program agreements and training or calendarized plans are educational tools that can be used to help activate parental assistance. These tools are included in most vocational agriculture student record books.

5. The teacher education curriculum should include instruction on how to perform teacher activities that will assist students in developing quality SOE programs.

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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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