

**Teacher and Employer Perceptions of Computer Skills Needed by Secondary Agribusiness Students**

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There is a need for students to understand the uses of computers in their lives (Bork, 1982; Kling, 1982). Computers are serving the needs of society in many ways, including financial management, payrolls, recordkeeping and data processing (Harris, 1985; Leising & Wilkins, 1981). Many businesses are totally reliant on computer systems, and more are becoming so each day. As the agribusiness world becomes increasingly dependent upon new technology, students entering agribusiness occupations may need competence in using computers. One of vocational education's main purposes should be helping students develop the technical skills required to make use of computer technology as an occupational tool (Camp, 1983).

Although the number of computers used in high schools has increased dramatically in recent years (Komoski, 1984), little information exists about specific computer skills which students need for entry-level employment in agribusiness occupations. A specific set of goals and objectives should be identified for computer education needed by students. These goals and objectives should be based on job entry skills required by agricultural industry.

While many studies have been conducted on the uses of computers, little research has been conducted to determine computer skills which should be incorporated into an agribusiness curriculum to help students become more employable. A list of these computer skills and employers' and teachers' ratings of their importance will help teachers plan and implement effective programs to help students become more competent in using computers.

**Purpose and Research Questions**

The purpose of this study was to determine what computer skills are needed by students for entry level employment in an agribusiness occupation. The following research questions were studied:

1. What are employers' perceptions of the importance of selected computer skills for entry-level employees in agribusiness occupations?
2. How frequently are selected computer tasks performed in agribusinesses?
3. What are teachers' perceptions of the importance of selected computer skills for entry-level employees in agribusiness occupations?
4. What computer skills are agribusiness teachers presently teaching students?

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5. What is the difference between employers' and teachers' perceptions of the importance of selected computer skills for entry-level agribusiness occupations?

#### Methodology

The design for the study was descriptive survey. The investigators studied the perceptions of the target population on certain pre-chosen items. Cause and effect were not determined.

Teachers of vocational agribusiness and employers of vocational agribusiness students during the 1985-86 school year were the target populations for the study. To develop a frame, agribusiness teachers were identified using the 1985-86 Ohio Agricultural Education Directory. The number of agribusiness teachers identified in the directory was 36. The teachers were asked to list the names and addresses of the agribusinesses that employed their students. After a follow-up letter and telephone calls to all those who had not responded, 25 of the teachers agreed to assist with the study. The main reason cited for not assisting with the study was a school policy which would not allow the teachers to release the names of the employers. The number of employers identified by the 25 teachers was 265. The list of employers was reviewed by the researchers to eliminate non-agribusiness job stations (e.g., fast food restaurants, car dealers, hotels, dry cleaners and service stations), on-farm job placement, and job stations which had insufficient mailing addresses. This review resulted in the elimination of 170 job stations identified by the agribusiness teachers and left a purposive sample of 95 employers.

The instrument used in the study was designed by the investigators based on instruments found in related literature (Bowen & Cheatham, 1986; Sherman, 1986). Content validity was determined by a panel of experts consisting of teacher educators and computer education experts. An initial pilot test was conducted using a group of 20 educators and former vocational employers. Two weeks later, test/retest reliability percentages were calculated using ten of the subjects from the initial pilot test. Percent agreement for individual questions on the instrument ranged from 50% to 80% agreement on the retest (50% agreement--one question; 60% agreement--two questions; 70% agreement--three questions; 80% agreement--four questions).

The instrument consisted of 10 computer skills to be rated by the employers and teachers on a four-point Likert-type scale ranging from not important to very important. The 10 selected skills were: basic skills (turning the computer on and off, inserting a diskette); use a word processing program for tasks such as letters and reports; use an electronic mail program; use a data base manager for tasks such as maintaining inventory; use a spreadsheet for tasks such as keeping financial records and payrolls; use an integrated software for tasks involving word processing, data base managers, and spreadsheets; make minor changes in an existing program; use mailing list software for tasks such as billing customers; use programming languages such as BASIC, PASCAL or PILOT to write programs; and use statistical packages for data analysis. The teachers were asked to indicate the amount of time they spent teaching the skills, and the employers were asked to indicate the amount of time their employees spent performing the skills.

The instrument was mailed to the 95 employers and to the 36 agribusiness teachers in April, 1986. A follow-up letter and instrument were mailed to the employers and teachers in May, 1986. By the cutoff date, 31 of the 36 teachers had returned usable questionnaires for a response rate of 86%, and 59 of the 95 employers had returned usable

questionnaires for a response rate of 62%. The returns were dichotomized into two groups, those responding before and those responding after the follow-up letter, and the two groups were compared statistically to investigate non-response error (Miller & Smith, 1983). Chi-square test for independence showed no statistically significant differences between early and late respondents for employers or teachers on the variables included in the study. Based on this test, non-respondents appeared to be no different than respondents on the variables included in the study.

Descriptive statistics were used to describe the teachers' and employers' ratings of the importance of each computer skill for entry-level employment in an agribusiness occupation, to describe the frequency with which selected tasks are performed in an agribusiness, and to describe the amount of time teachers spent teaching selected computer skills. Inferential statistics were used to determine the differences between teachers' and employers' ratings of the importance of each skill.

## Results

### Employers

Of the 59 employers who returned the questionnaire, 26 (44%) owned or leased a computer and six planned to buy a computer within the next year. Only four of the 59 employers reported that the agribusiness student employee used the computer. The students who used the computer in their job placement performed such tasks as keeping budgets, maintaining employee files, finding parts, spreadsheet operation, database operation, mail lists and checking groceries.

Employees were asked to rate the importance of selected computer skills for entry-level employees. The top five skills as rated by the employers are illustrated in Table 1. Using programming languages had the lowest mean score for importance (1.61).

Table 1

### Employers' Perceptions of the Importance of Computer Skills for Entry-Level Employment (Top Five Skills)

Rank	Skill	Mean	S.D.
1	Use data base manager	2.31	1.24
2	Basic skills such as turning computer on/off and inserting a diskette	2.26	1.31
3	Use a spreadsheet	2.10	1.25
4	Use a word processing program	2.07	1.16
5	Use an integrated software package	1.95	1.12

Note. Scale: 1 = Not Important; 4 = Very Important.

The 26 employers who owned a computer were asked to identify the frequency with which selected computer skills were performed by someone

in their agribusinesses. The most frequently performed skills were, in rank order: basic skills, use a data base manager, use a spreadsheet, use integrated software package, and use mailing list software.

### Teachers

Of the 31 teachers who returned the questionnaire, 22 (71%) replied that they teach a unit on using computers to their agribusiness students while 27 (87%) responded that they had at least one computer available for instruction.

Teachers were asked to rate the importance of selected computer skills for entry-level employment in an agribusiness occupation. The top five skills as rated by the teachers are shown in Table 2. The skill with the lowest mean score was using programming languages (1.92).

Table 2

#### Teachers' Perceptions of the Importance of Computer Skills for Entry-Level Employment (Top Five Skills)

Rank	Skill	Mean	S.D.
1	Basic skills such as turning computer on/off and inserting a diskette	3.67	.78
2	Use a word processing program	3.26	.71
3	Use a data base manager	3.12	.82
4	Use a spreadsheet	3.08	.94
5	Use mailing list software	2.85	.77
5	Use an integrated software package	2.85	.83

Note. Scale: 1 = Not Important; 4 = Very Important.

The teachers who taught a unit on using computers specified the number of days they spent teaching selected computer skills. The five skills which teachers spent the most time (days) teaching were (in rank order): word processing, use of spreadsheet, basic skills, use of data base manager, and use of programming languages.

Teachers and employers generally agreed on the most important and least important computer skills for entry-level employment, with negligible differences in rank order (Spearman rho = .93). However, there were differences between teachers and employers with regard to the value of perceived importance. The teachers rated all of the skills higher than the employers. For eight of the 10 computer skills, teachers' perceptions of importance were statistically higher than the employers' perceptions of importance (alpha = .05). Both groups perceived the application of software as more important than programming skills.

## Conclusions and Recommendations

The following conclusions were drawn as a result of the findings of the study:

1. Less than one-half of the responding employees owned a computer.
2. Few agribusiness students used the computer at their job placement stations.
3. The employees perceive the selected computer skills as slightly important or not important for entry-level employment.
4. Agribusiness teachers were providing instruction on the use of microcomputers, and over three-fourths of the responding teachers had access to a computer.
5. The teachers perceive the selected computer skills as moderately important to very important for entry level employment.
6. The teachers and employers ranked knowledge of basic skills and using a database manager, spreadsheet and word processing programs as the most important skills for entry-level employment.

Because a purposive sample was taken, the data are not generalizable to all employers of agribusiness students in the state. Therefore, the researchers recommended that agribusiness teachers analyze individual job stations, including interviews with employers, to determine specific computer skills needed for entry-level employment in agribusiness occupations in their area.

Additional research should be conducted to determine the sources of variance between teachers' perceptions of importance skills needed and employers' perceptions of important skills needed by entry-level employees in an agribusiness occupation. Agribusiness teachers should determine if their perceived importance of computer skills is justified, or if the current trend toward computer literacy has influenced their perceptions of the importance of computer skills for entry-level employment.

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