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A STUDY TO DETERMINE THE GUIDELINES USED BY BUSINESS AND INDUSTRY TO IDENTIFY THE COMPUTER LITERACY OF BUSINESS GRADUATES EMPLOYED IN ENTRY-LEVEL POSITIONS THAT DO NOT REQUIRE A DEGREE IN COMPUTER SCIENCE

Indiana University PH.D. 1986

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BY

CHARLETTA BRACY CLARK

Submitted to the faculty of the Graduate School
in partial fulfillment of the requirements
of the degree
Doctor of Philosophy
Indiana University
December, 1986

Accepted by the faculty of the Graduate School, Indiana University, in partial fulfillment of the requirements for the Doctor of Philosophy degree.

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Date of Oral examination: September 24, 1985

Date of Dissertation Defense: December 10, 1986

DEDICATION

This dissertation is dedicated to my deceased father, Edward L. Bracy. Because of his love and support for his children throughout his lifetime and his insistence on academic excellence, this educational accomplishment has become a reality.

C.B.C.

ACKNOWLEDGMENTS

The author wishes to express her sincere appreciation to Dr. George Maccia for accepting directorship for the writing of this dissertation. His time, expertise, and encouragement were invaluable throughout this experience. Special thanks are also extended to the other members of my research committee: Dr. Eugene Wyllie, Chairman; Dr. T. James Crawford; and Dr. Earl Dvorak. They, too, have supported my educational endeavors throughout my graduate studies at Indiana University.

A special debt of gratitude is extended to Ms. Wainona Collins for typing my thesis and for her encouraging words throughout this undertaking.

Many thanks to Dr. Clinton Chase, Dr. Gary Ingersoll, Luk Hing-Kwan, Clet Niyikiza, and Theo Addo for their statistical consultation and computer expertise. Thanks to Dr. Lucy Jacobs for her assistance during the development of my research instruments. Also, my appreciation to Dr. Karen Webb for her assistance in editing portions of this report.

My sincere thanks are offered to my family for their love and support during the writing of my dissertation. Special thanks to my sister Ernestine; my nephews, Darryl and Damian; my little niece and namesake, Charletta; and my uncle

Calvin for their many telephone calls, visits, letters, and cards. Many thanks to all of my friends that have given me their support and friendship during the completion of this study.

Finally, my sincere thanks to all of the company representatives, government officials, and school administrators that participated in this study. Without their frankness and openness, this study would not have been possible.

C.B.C.

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CHAPTER 1

INTRODUCTION

Historically, changes in curriculum offerings in post-secondary business programs have been brought about as a result of changes in the American business system. Through the years, practices in business and industry have become more complex. The process of evolution in corporate America has transformed individual entrepreneurships into large corporations. These corporations began engaging in international trade. Consequently, the need for office workers with more sophisticated skills to meet these demands became evident (Johnson, 1975).

During the mid-1970's, the "Office of the Future" concept surfaced in business and industry and became a pervasive factor in education as well. Businesses recognized that most employees, directly or indirectly, interfaced with computer systems on a daily basis. In addition, the need for more information and more rapid acquisition of it created a heavy reliance on computer usage. Companies were expanding by both product and geographical location. This meant that employees had to intelligently communicate their computer needs to computer experts, and employees had to be able to analyze computer output data in order to perform their jobs

effectively. Out of these changes, emerged the onset of the "Age of Automation" in the world of business.

With business operations becoming more automated, reactions in education became apparent. Business educators nationwide began to hear loud cries from school administrators to ensure the computer literacy of all students. Schools began to secure as many electronic-input devices as budgets would allow, faculty members had to become familiar with computer concepts and terminology, and curricula were redesigned to include computer course offerings.

The Southern Business Education Association in 1981, recognized the need to address computer literacy training in the schools it served and issued a position statement on this subject at its Annual Convention held in Charlotte, North Carolina. This statement pointed out that it was computer technology that has been the dominant change underlying America's move from a predominantly industrial society to an information-oriented one, citing computer literacy as a prerequisite for an individual to effectively participate in society. In addition, it was noted that computer literacy had become as much of a social obligation as reading literacy (SBEA Newsletter, 1982).

At this same convention, the members resolved to incorporate computer-related education in business curricula by

urging state boards of education, college administrators, and university officials to include computer literacy training as an intricate component to a well-balanced curriculum. In-service training for faculty was also mandated. Similar professional organizations had taken the same steps to ensure the computer literacy of its students, faculty, and staff personnel. It was clear computer literacy had made its debut in the academic community.

Problem Statement

The problem of this study was to determine the guidelines used by business and industry to identify the computer literacy of business graduates employed in entry-level positions that do not require a degree in computer science.

Post-secondary school officials responsible for planning curricula course offerings for business students depend upon input from business and industry to effectively develop these programs. This study investigated computer literacy as viewed by the corporate world and compared those data with computer literacy course offerings that business graduates in the Atlanta metropolitan area were actually taught.

Too often, the change from an academic environment to a business setting has been very traumatic for business

graduates. This trauma was generally caused by training received in educational institutions that was out of sync with the operational practices in business establishments (Missimer, 1984). Effective business programs in schools simulate business functions through laboratory exercises, case studies, and other problem-solving techniques. Computer literacy training should be no different.

Companies are experiencing major costs associated with employee training. There are direct costs (instructor's fees for out-of-state consultants, meals, lodging, travel expenses, etc.) as well as indirect costs (wages and salaries of employees away from their jobs) that businesses must take into consideration when providing training for their workers (Novit, 1979). Therefore, in a predominantly computerized business environment, the cost necessary for this type of training is staggering. If the schools provided the kind of computer training that business and industry expect from business graduates, both the educational community and the corporate world would benefit. For these reasons, this study was conducted.

Purposes of the Study

The purposes of the study were the following:

1. To identify the guidelines business and industry used to identify computer literacy competencies in business graduates.

2. To compare the data gathered from managerial personnel in business organizations with responses from school administrators that planned, directed, and implemented business programs at the post-secondary school level in the Atlanta metropolitan area with implications for curriculum change or redesign in computer literacy training.

Computer literacy has been the topic of much discussion in academe for the past decade; however, very little research had been compiled from major employers (companies or governmental agencies with a work force of 1,000 or more employees) regarding their interpretation of the computer literacy competencies needed by entry-level employees with a degree or a certificate in business hired in their organizations.

Schools have been debating what computer competencies are necessary to produce computer literate business graduates and whether or not this exposure should be merely conceptual training or if it should be hands-on-experience. A comparison of data gathered from business and industry and data collected from post-secondary educational institutions in the Atlanta metropolitan area was the basis for this study.

The researcher's intention was to provide information to post-secondary school administrators that offer business

programs to enhance their future curriculum planning and development so that the gap between what business students are taught and what is expected of them once they are employed in business and industry could be bridged.

Elements of the Problem

Two bodies of information were needed in order to find a solution to this problem. Data were collected from managerial personnel in business and industry who supervised business graduates employed in entry-level positions that did not require a degree in computer science. Data were also gathered from school administrators who directed, planned, and implemented business programs at the post-secondary school level.

The following research questions formed the basis for this study:

1. What guidelines were used by business and industry to identify a computer literate business graduate?
2. What computer literacy competencies were taught in post-secondary schools in the Atlanta metropolitan area that offered business programs?
3. To what extent do the computer literacy competencies taught in the post-secondary schools offering business programs in the Atlanta metropolitan area compare to the computer literacy competencies expected of business graduates employed in entry-level positions that do not require a degree in computer science in business and industry?

Hypothesis

It was hypothesized that business and industry and post-secondary schools in the Atlanta metropolitan area offering business programs used the same guidelines to identify the computer literacy of business graduates employed in entry-level positions that do not require a degree in computer science.

Delimitations

This study was delimited to businesses located in the Atlanta metropolitan area with a work force of 1,000 or more full-time employees that are either headquartered in this locale or have regional offices in this geographical area. In addition, only school administrators from post-secondary educational institutions in the Atlanta metropolitan area offering business programs were used in this study.

Limitations of the Study

The study was limited by the amount of data gathered and the nature of the responses received.

Definition of Terms

The following words are standard terms used throughout the literature related to business and industry and were used

frequently in the study. For the purpose of providing consistency of meaning, these words are specifically defined by the writer for the study as follows:

Atlanta metropolitan area -- That area in the State of Georgia that includes Fulton, Dekalb, Gwinnett, Cobb, and Clayton Counties.

Business graduate -- Any student that has completed the requirements for a bachelor's degree, an associate degree, or a certificate in business from a post-secondary educational institution in the Atlanta metropolitan area offering a business program as a major course of study.

Computer competencies -- The knowledge, skills, and proficiences of a business student that has been exposed to computer course offerings.

Data input skills -- Ability to feed information into a computer.

Data output skills -- Ability to operate a printer and interpret printed information.

Entry-level positions -- Those jobs at the lower end of a professional career path in business and industry requiring a bachelor's degree, an associate degree, or a certificate in business from a post-secondary educational institution offering a business program as a criterion for employment.

Major employers -- Businesses or governmental agencies employing 1,000 or more employees with regional offices or headquarters located in the Atlanta metropolitan area.

Microcomputer -- An electronic device that is self-contained--does not have to be connected to a mainframe computer.

Personal computer -- An electronic device that must be used with hard disks or floppy diskettes in order to operate.

Organization of the Study

The remaining chapters of this report were organized as follows:

-- Chapter II reviewed the existing literature relative to this problem.

-- Chapter III detailed the research design and methodology followed in the study.

-- Chapter IV presented the results of the findings.

-- Chapter V summarized the report and discussed the significance for future business curriculum planning and the need for additional research.

CHAPTER II

REVIEW OF THE LITERATURE

The literature germane to the problem in this study was limited; however, those references having some general association to this problem were reviewed.

Computer Literacy Defined

The term computer literacy is so new to the literature most references do not include it among their entries of words. Defined separately, the word computer refers to a programmable electronic device that can store, retrieve, and process data. Literacy relates to the quality or state of being literate (Webster, 1980). Presumably, if one can perform these functions electronically, that individual should be considered computer literate.

A review of the literature as it related to definitions of computer literacy revealed wide and varied notions of what constitutes a computer literate individual. An understanding of hardware used in the information process, an understanding of the effects of computers in our day-to-day lives, and an understanding of the capabilities of computers to be used as problem-solving tools was one meaning given to the word computer literacy (Horn and Poirot, 1981). On the other

hand, Gabriel (1983) stressed the idea that minimal exposure to and the use of computers constitutes computer literacy.

A view of the term from a more comprehensive perspective (Anderson, Klassen, and Johnson, 1982) indicated that the total integration of these electronic devices in business functions to be used as tools to increase productivity was computer literacy. Consequently, knowledge of several tasks or mastery of several skills did not mean that an individual was computer literate.

Supporting the definition of computer literacy from a comprehensive point of view, Haigh (1985) suggested that programming skills may not be essential for computer literacy. This technical training may best be taught in a general education curriculum.

While supporting the comprehensive definition of computer literacy, Self (1983) extended its meaning to include having knowledge of the social, political, and economic impact of computers on society. He also believed that possessing an abstract concept of the overall operations of a computer was essential as well.

A review of the literature failed to give a universal definition for the term computer literacy. There were as many definitions as there were authors on this subject matter. While some writers agreed on some aspects of the

meaning, Geisert and Futrell (1984) summed it up best when they acknowledged that the specific skills and knowledge necessary for computer literacy remain undefined.

Concepts of Computer Literacy in Education

Concepts of what a computer literacy curriculum should include were just as broad and varied in a review of the literature as finding a common, operational definition for the term itself.

Curriculum development is a major component of any educational system. Many factors have to be taken into consideration when this task is undertaken. Social, economic cultural, political, legal, government, structural, content, organizational, and methodological factors merely scratch the surface of those things that influence curriculum development (Trump and Miller, 1979).

Curriculum developers in post-secondary educational institutions that had the responsibility for planning computer literacy programs felt those same pressures when educators began reacting to the demands from business and industry to produce computer literate business graduates (Pepperdine University, 1982).

Tenner (1984) parallels the advent of computer literacy training in education to the printing revolution. Everyone had to be trained, conceptually or operationally. Initially, school officials believed that computers in the classroom would be short lived; however, its tenure in the American culture is not a fad that will soon pass away (Naron and Nolan, 1985).

Computer Literacy Competencies Defined

The literature reports many conflicting viewpoints regarding what computer competencies business graduates should possess and what equipment and applications should be included but not limited to in a computer literacy program.

The majority of authors (Vilmar, 1983; Ebersole, 1982; Self, 1983; Samojeden and Rauch, 1982; Reed and Reed, 1984; Burrows and Dubitsky, 1984) agreed that the primary components in a computer literacy program for business graduates should include, but not limited to: (1) drill and practice or hands-on-experience; (2) programming; (3) knowledge of computer language and techniques; (4) word and data processing; and (5) basic awareness of computer capabilities and limitations. These writers also agreed that microcomputers and personal computers were the two primary types of electronic devices to be used for training business

students. The rationale behind their computer equipment selections was that employees in business and industry used these machines more often than they did any others.

Conceptual computer literacy training (Wenz, 1983; Masat, 1981; Haigh, 1985; Louisiana State Department of Education, 1985) was but another direction taken to ensure the computer literacy of business graduates. The competencies needed for this type of training included the following: (1) understanding the impact of computers on society today and in the future; (2) being able to intelligently communicate computer needs to a computer specialist; (3) familiarity with computer terminology; and (4) understanding the capabilities and limitations of a computer. Vorbeck (1983) warns that too much specialization may prove to be a liability to business graduates seeking employment in business and industry.

Evaluating a Computer Literacy Program

Developing and validating an evaluation instrument to measure the effectiveness of a computer literacy program varied according to the literature. Several writers (Oregon State University, 1983; Lai, 1984; Kurshan, 1976; Anderson, 1983) agreed that there was no consistency in determining a set of criteria to evaluate a computer literacy program.

Some factors that influenced the criteria used in an evaluation were size of school, kind of educational institution, and the discipline evaluated. The evaluation process was controlled by the school and showed no continuity from one school to the next.

Teacher Preparation and Training

Because teacher preparation and training is a vital component to the success or failure of a computer literacy program, literature was reviewed in this area to explore the different approaches that have been used to facilitate this training. Teacher workshops, in-serve meetings, and classroom instruction were the primary methods of providing computer-related training (Rodrigues, 1984).

Most writers agreed that the subject matter content to be covered in teacher computer-related training courses should include knowledge of computer terminology, meeting computer experts to exchange ideas and concerns, engaging in hands-on-experience with electronic devices, reading as much about computers and their functions as possible, being knowledgeable of the capabilities and limitations of a computer, developing ways to overcome resistance to computer usage, using instructional aids effectively, and planning ways to integrate computer technology into the classroom

(Forcheri and Molfino, 1986; Durbak and Sadnytzky, 1984; Diem, 1984; Cloutier, 1985; Roth, 1986).

Concepts of Computer Literacy in Business and Industry

A review of the literature regarding views of computer literacy concepts in business and industry was essential to the problem in this study in that the investigation was to determine the guidelines used by the corporate world to identify computer literacy in business graduates.

Several authors (Hawkins, 1982; Carroll, 1982; Davis, 1985) agreed that many entry-level employees hired in business and industry directly having completed a business program in a post-secondary educational institution did not possess the necessary skills in computer training to successfully become productive individuals in the work force. Consequently, companies are experiencing high costs associated with the training of these employees (Dertouzos and Moses, 1980).

While research studies related to business and industry computer literacy expectations of business graduates are limited, three studies were reviewed that had some general association to this study.

The Adam's Study. This study investigated the computer competencies needed by post-secondary vocational-technical

school business education students in the State of Georgia to become computer literate. Personnel managers from twenty-nine companies throughout the State ranked a list of computer competencies developed by the researcher. Vocational school administrators throughout the State also ranked the same list of computer literacy competencies.

According to the above study, seven computer competencies ranked highest in terms of need for post-secondary vocational-technical school business education students. They were the following:

-- Attitudes: Values and Motivations
-- Computer capabilities and limitations
-- Computer anatomy and configuration
-- Computer careers
-- Social implications
-- Use of the computer
-- Computer terms and Concepts

Both vocational-technical teachers and personnel managers ranked technological advances, scientific method of problem solving, computer programming, flow charting, and data base as the least important computer competencies vocational-technical students enrolled in business education programs in the State of Georgia should possess.

In this same study, an additional 33 personnel managers were asked to participate in this study but declined to rank these computer competencies, citing company training as being more important to their employees than any computer training these business education students could receive in the classroom.

This study differs from the Adam's study in several ways. The sample populations were different. The Adam's study surveyed just personnel managers in businesses across the entire State of Georgia. This study solicited information from supervisory personnel that directly monitored the day-to-day performance of business graduates in business organizations employing 1,000 or more workers and were either headquartered in the Atlanta metropolitan area or had a regional office in this locale. The Adam's study was interested only in computer literacy curriculum course offerings of business education students in vocational-technical schools across the State of Georgia. This study investigated computer literacy curriculum offerings of all post-secondary schools with business programs (business education and business administration) located in the Atlanta metropolitan area. The Adam's study focused on the ranking of computer literacy competencies by personnel managers

across the State of Georgia. This study was not interested in the ranking of computer literacy competencies by business and industry. The main focus of this study was to determine the guidelines used by businesses to determine a computer literate business graduate.

The Parish Study. The purposes of the Parish study were to conduct a follow-up survey of departmental graduates, to evaluate present course offerings, and to determine the future directions of the Industrial Technology Department at Southeastern Louisiana University.

Two sample populations were used for this study: 148 departmental graduates and 60 Southeastern Louisiana area industries. Data were gathered by using two separate questionnaires.

The results of data analysis indicated that: (1) the majority of the department graduates had been successful in their careers; (2) they were utilizing their education; (3) they held a wide variety of jobs; (4) the majority of the department's courses were meeting the needs of both students and industry. The data revealed that some courses should be revised or replaced; (5) prospects for industrial technology graduates from Southeastern Louisiana University appeared to be good; (6) and that there was a need for more

group research, guest speakers, field trips, and the use of computers.

This study differs from the Parish study in that information was gathered from supervisory personnel in business and industry to determine the guidelines used in the corporate world to identify a computer literate business graduate. This study did not investigate the entire range of courses in a business program. Only computer literacy course offerings were studied. The Parish study conducted a follow-up investigation on the effectiveness of the Industrial Technology Department's overall curriculum course offerings.

The Oswalt Study. This study investigated the knowledge, skills, and attitudes necessary to achieve computer literacy and to determine the degree of emphasis placed on each competency in introduction to data processing courses at the high school level. A panel of 32 experts in data processing rated the relative importance of 221 competencies compiled by the researcher to identify the knowledge, skills, and attitudes necessary for computer literacy.

The Oswalt study employed the Delphi technique of research gathering. On three separate occasions, these experts generated a list of competencies that they had determined to be "necessary," "of importance," and

"unimportant" for computer literacy. One hundred and eighty-two introduction to data processing teachers in 33 states were asked to report the emphasis they placed on the original 221 competencies during the teaching of their course.

The results showed that a significant difference existed between the importance and emphasis placed on competencies found to be necessary for computer literacy in categories dealing with Computer Capabilities and Limitations, Data Base, Management Information Systems, Data Communications, Social Implications, Scientific Method of Problem Solving, and Computer Careers. A significant difference existed between the importance and emphasis placed on competencies found to be of some importance in developing computer literacy in categories dealing with Technological Advances, Computer Terms and Concepts, Computer Anatomy and Configuration, Computer Careers, and Computer Programming. Competencies found to be unimportant showed that a significant difference existed between the importance and emphasis placed on computer literacy in categories dealing with Computer Terms and Concepts, Data Base, Management Information Systems, Data Communications, and Flow Charting.

This study differs from the Oswalt study in that the investigator was not interested in the relative importance of

computer competencies but was surveying the business community to determine what guidelines they used to identify computer literacy in business graduates.

Summary

A review of the related literature having some relationship to this study was presented in six major categories: (1) Computer Literacy Defined; (2) Concepts of Computer Literacy in Education; (3) Computer Literacy Competencies Defined; (4) Evaluating a Computer Literacy Program; (5) Teacher Preparation and Training; and (6) Concepts of Computer Literacy in Business and Industry.

Searching the literature to find a universal definition of the term computer literacy revealed many broad and varied meanings associated with this term. Inasmuch as this concept is relatively new, most reference sources did not include it among its entries.

The literature reviewed regarding concepts in computer literacy in education showed just as broad and just as varied viewpoints of curriculum construction for a computer literacy program in most post-secondary schools as did the search for a universal definition of computer literacy. While writers on the subject agreed that computer literacy is needed,

different approaches regarding content and delivery systems were proposed.

A review of the literature to determine the computer literacy competencies that should be included in a business program ranged from learning specialized skills on a computer to a more comprehensive perspective of the impact of computers in today's society and the future of automation in business and industry.

According to the literature review on evaluating computer literacy programs, it was pointed out that there was no consistency in determining a set of criteria for measuring the success or failure of these course offerings. The evaluation process was controlled by the school and varied from one educational institution to the next.

Related literature reviewed regarding teacher preparation and training stressed the need for intensive training for instructors that teach computer literacy. Most authors agreed that this training should be taught in teacher workshops, in-service meetings, and classroom settings; however, content of the course and philosophy of computer literacy exposure yielded conflicting viewpoints.

A review of the literature and research relative to concepts of computer literacy in business and industry failed

to uncover a duplicate study. Three studies, however, conducted on computer literacy competencies and the necessary computer knowledge and skills needed in business and industry from business graduates were considered germane to the problem in this study.

CHAPTER III

THE DESIGN OF THE STUDY

This study investigated computer literacy from the viewpoint of managerial personnel in business, industry, and governmental agencies that had direct responsibility for supervising business graduates employed in entry-level positions that did not require a computer science degree in order to perform their jobs effectively. In addition, chairpersons, coordinators, and directors of post-secondary schools having a business program in the Atlanta metropolitan area were surveyed to determine what they considered computer literate students once they had completed a course of study in business.

Initial contact was made with the Atlanta Chamber of Commerce to verify the employee population of the companies used in the study and to determine if these firms were headquartered in this geographical locale or if they had regional offices in this area. The criteria for participation in this study were: (1) only companies or governmental agencies that either had regional offices or headquarters in the Atlanta metropolitan area were used; (2) these businesses had to have had a work force of 1,000 or more employees; (3) data were gathered only from managerial

personnel that supervised business graduates employed in entry-level positions that did not require a degree in computer science; and (4) only school officials from post-secondary educational institutions in the Atlanta metropolitan area were surveyed.

Target Population from Business and Industry

Initial contact was made with the corporate executive in charge of the business firm that had met the criteria for participation in the study. Permission was requested to survey the managerial staff that was directly responsible for supervising business graduates that were employed in entry-level positions that did not require a degree in computer science and to be given the number of supervisors that would be participating from each organization. (See Appendix A)

Upon receiving permission to survey these select business personnel and securing the number of participants from each organization, questionnaires were mailed to a person designated by the top administrator in the company. Future correspondence and contacts (telephone, written, personal) were made with this company representative. A self-addressed, stamped envelope was included with the questionnaires to ensure minimal inconvenience and cost to

the participating companies. Care was taken to ensure the confidentiality of data received from each respondent.

Thirty-seven (37) companies out of the sixty (60) firms that met the criteria set forth, representing approximately 300,000 employees, participated in the study. Two hundred ten questionnaires (210) were returned of the 230 mailed. This represented a 91 percent rate of returned surveys.

Target Population from Post-Secondary Schools

School administrators who were directly responsible for organizing, planning, and implementing the curriculum course offerings of students enrolled in business programs in post-secondary educational institutions in the Atlanta metropolitan area were asked to complete a questionnaire regarding the computer literacy course offerings afforded to students in their schools. (See Appendix C)

Lists of post-secondary schools offering business programs as a major course of study were obtained from the State Department of Education and the Southern Association of Colleges and Schools in Atlanta, Georgia. Upon receiving these lists, questionnaires were mailed to chairpersons, coordinators, and directors of business programs in eleven (11) post-secondary schools in the Atlanta metropolitan area.

A self-addressed, stamped envelope was included to ensure a speedy response as well as minimal inconvenience and cost to the participants. Out of the twenty-one (21) questionnaires mailed, seventeen (17) were returned. This represented an 81 percent rate of return. Confidentiality of the responses received from this group was also a priority.

Format of Questionnaire

The final questionnaires (one for business and industry personnel and one for school administrators) were prepared after many consultations and evaluations with education researchers, computer specialists, books, and articles addressing the topic of survey designs.

The company or organization questionnaire consisted of 27 items. Demographic information, short answer questions, and open-ended responses were solicited. (See Appendix D)

The questionnaire administered to school personnel consisted of 25 items and took the same format as the one used to collect data from company or organization representatives participating in the study to ensure that the information gathered could be correlated. (See Appendix E)

Analysis of Data

Data collected from the two groups (supervisory personnel in business and industry and school administrators) were compiled to set up a data base. Frequency distributions for each variable on both questionnaires were displayed in percentages. Short-answer questions and open-ended responses were grouped and coded in ten categories for consistency in interpretation.

Content analysis of these data consisted of crosstabulations (Chi Square), the Phi Coefficient Method of correlating dichotomous data, and the Cramer's V Test. These were the primary statistical treatments used to interpret and analyze these data. Results were tested at the $<.05$ level of confidence.

The reasons behind the use of these statistical analyses and not others were the following: (1) the data gathered in this study were nominal, mutually exclusive categories or classes; (2) the Pearson Product-Moment Coefficient Method of correlation shows best statistical measurements when used with ratio and interval data; (3) the T-Test and Analysis of Variance (ANOVA) were not used in this study to analyze these data because the data gathered were not ordinal, ratio, or interval data; (4) frequency distributions were reported in percentages to show the best relationships, if any, between

the two groups; and (5) the Cramer's V Test was used to show the strength of the relationship between variables and to adjust the Phi calculations inasmuch as most of the tables used in the study were larger than the usual 2 x 2 tables used with Chi Square.

Measures of central tendency would not have been meaningful in this data analysis. These statistical measurements lend more meaning to ratio and interval data. The results of the tests used in the study were reported in narrative form.

CHAPTER IV

FINDINGS

The primary purpose of this study was to investigate the guidelines used by business and industry to identify the computer literacy of business graduates employed in entry-level positions that did not require a degree in computer science.

The secondary purpose of this study was to compare those data generated from business and industry with data collected from school administrators who planned, directed, and implemented business programs at the post-secondary school level in the Atlanta metropolitan area with implications for curriculum change or redesign in computer literacy training.

The results of the study were based on data received from 210 representatives from business and industry that directly supervised business graduates employed in entry-level positions and from 17 school administrators from post-secondary schools in the Atlanta metropolitan area offering a business program as a major course of study. Upon the satisfactory completion of one of these business programs, graduates received a bachelor's degree, an associate degree, or a certificate.

The findings were presented in five major sections: demographic results, findings from schools, findings from

business and industry, crosstabulated data from schools and business and industry, and a summary. Tables, graphs, and figures were used to display data results.

Demographic Results

The results of the demographic data analyses were reported by the frequency distribution for each variable. These findings revealed a professional and personal profile of school administrators who participated in the study as well as a profile of respondents from business and industry.

The majority of the school administrators surveyed in the study held the job title of Chairperson of Economics, or Vocational-Technical Education, or Real Estate, or Hotel, Restaurant, and Travel. This group represented 41.2% of the school sample (see Figure 1). In addition, these respondents had been working in their present job capacity from one to five years, representing 41.2% of the total responses as shown in Table 1; were male (52.9%) (see Figure 2); and held either a Doctor of Philosophy degree or a Doctor of Education degree (43.8%) as displayed in Figure 3.

Out of the 210 respondents from business and industry, the majority (31.1%) of the corporate personnel held the job title of Department Head, Director, Group Head, Chief, Vice President, or Executive Head (see Figure 4). Similar to

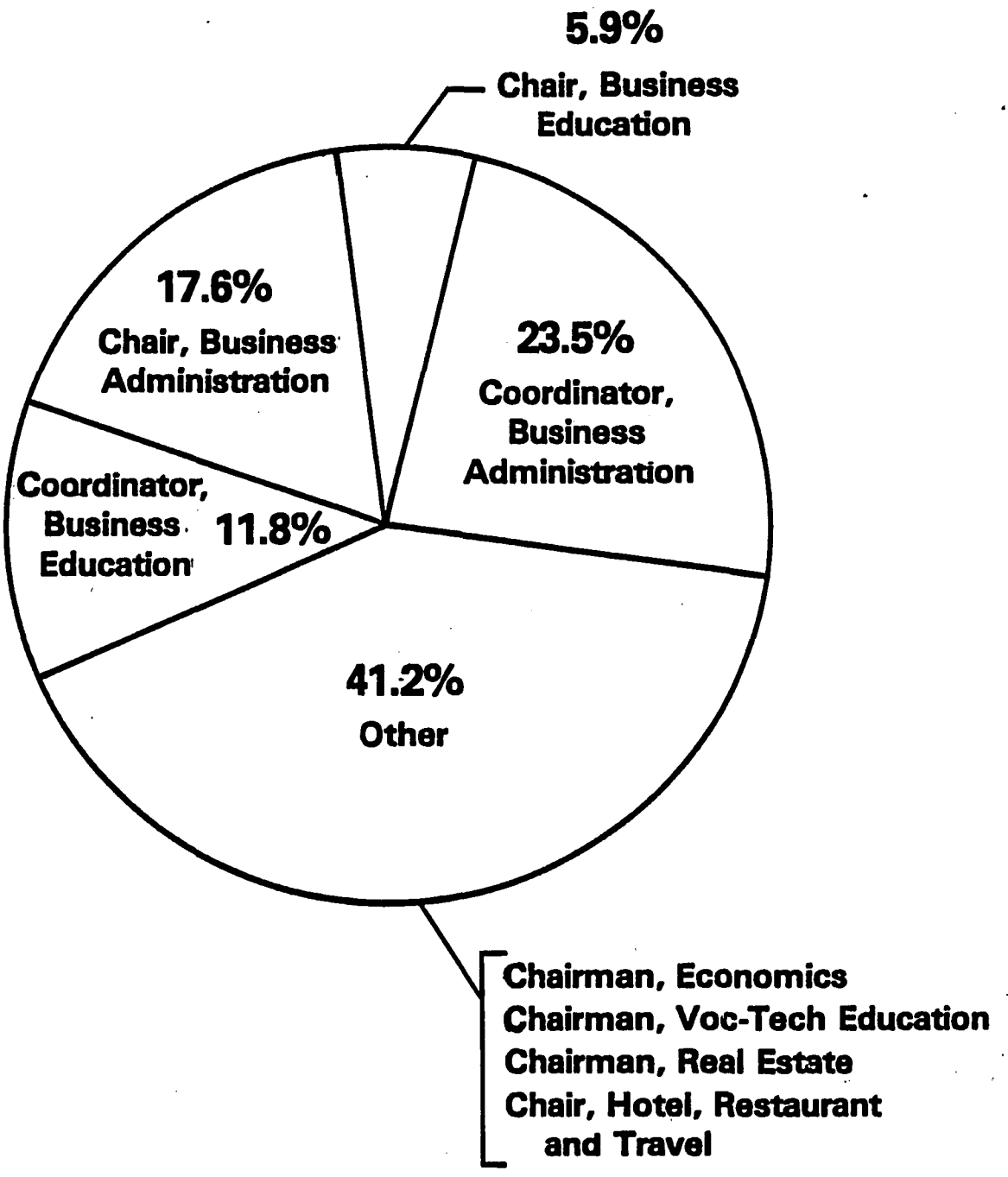


Figure 1. Percentage distribution of school administrators by job title

TABLE 1

PERCENTAGE DISTRIBUTION OF YEARS EMPLOYED IN PRESENT JOB CAPACITY IN THE SCHOOLS

Length of Employment	Percent	Frequency
1-5 Years	41.2%	7
6-10 Years	35.3%	6
11-15 Years	5.9%	1
16-20 Years	11.8%	2
Over 20 Years	5.9%	1

school administrators, these business and industry respondents had been working in their present job capacity from one to five years (55.7%). Figure 5 exhibited the frequency distribution of these respondents by length of employment. One hundred and forty-five of the business respondents (69%) were male (see Table 2); and 50.5% of these respondents held a Bachelor of Arts or a Bachelor of Science degree. Table 3 displayed highest degree held in business and industry.

The combined demographic data of business and industry respondents and school administrators revealed that no

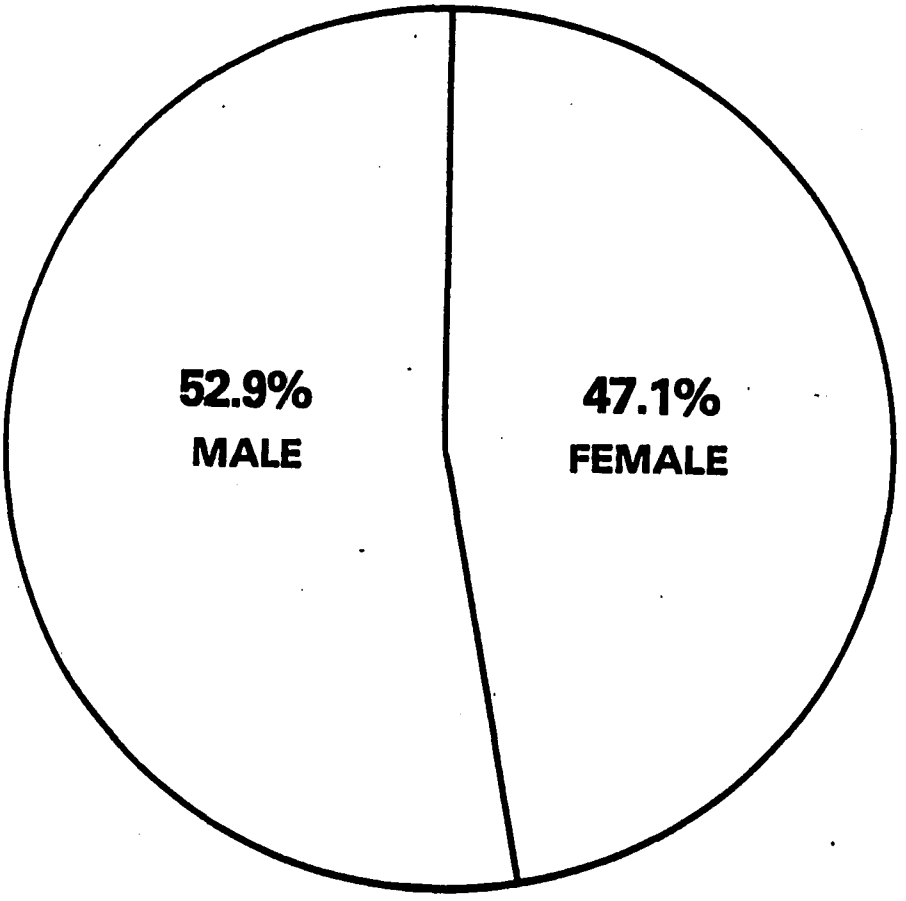
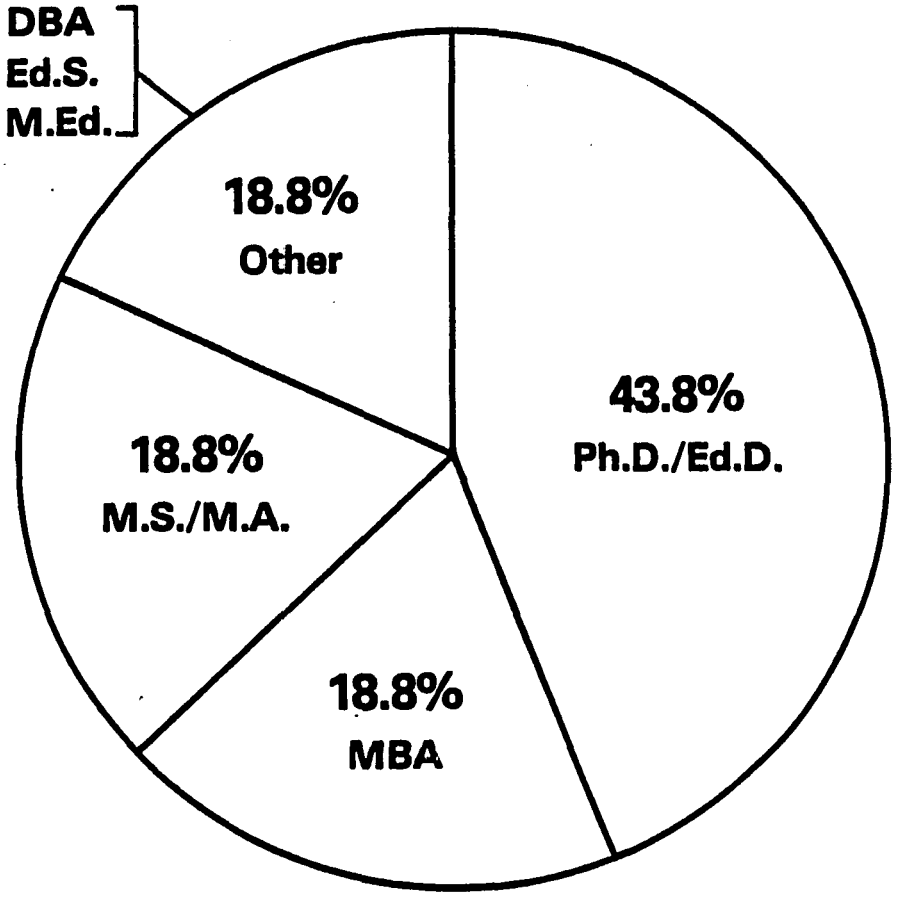


Figure 2. Percentage distribution of school administrators by sex



Note: 0.0% B.S./B.A.

Figure 3. Percentage distribution of school administrators by highest degree held

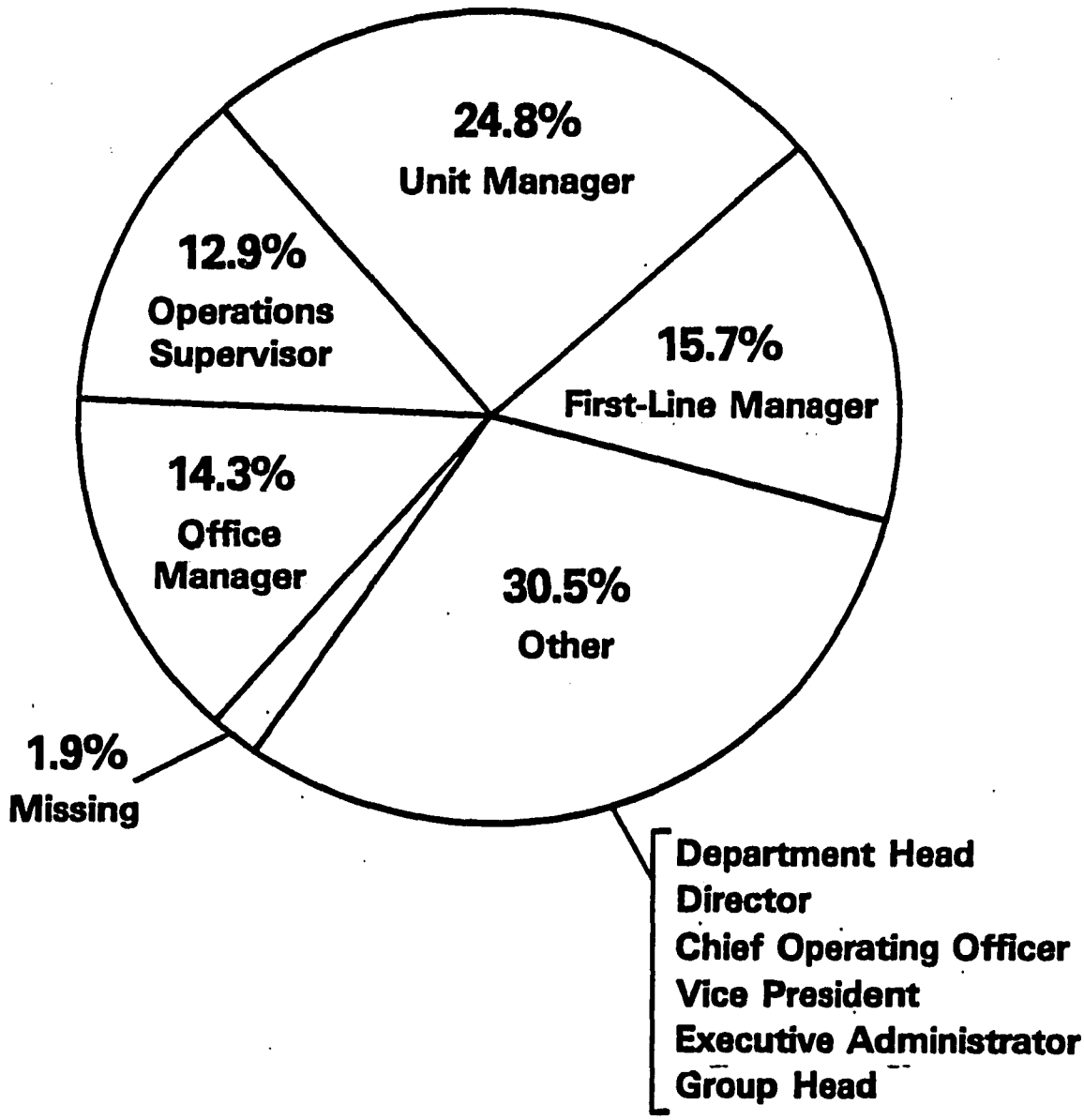


Figure 4. Percentage distribution of business and industry respondents by job title

Figure 5. Percentage distribution of company respondents employed in present job capacity

TABLE 2

PERCENTAGE DISTRIBUTION OF RESPONDENTS IN BUSINESS AND INDUSTRY BY SEX

Sex	Percent	Frequency
Male	69%	145
Female	31%	65
Difference	38%	80

significant difference existed between the two groups relative to the length of employment and the sex of the individuals participating in the study. Figure 6 and Table 4 showed the combined percentage distribution results.

Table 5 showed the percentage difference between the two groups relative to highest degree held by respondents in the schools as well as in business and industry.

TABLE 3

PERCENTAGE DISTRIBUTION OF BUSINESS AND INDUSTRY RESPONDENTS BY HIGHEST DEGREE HELD

Degree	Percent	Frequency
B.S./B.A.	50.5%	106
M.S./M.A.	11.4%	24
M.B.A.	9.0%	19
Ed.D./Ph.D.	6.7%	14
Other	19.0%	40
No Response	3.3%	7

Findings from Schools

Initially, surveys were sent to all post-secondary school administrators in the Atlanta metropolitan area who had the responsibility for planning, developing, and directing business programs. Out of the 21 questionnaires sent to these select school personnel, 17 individuals responded.

An analysis of the data collected from these respondents indicated that the personal computer (30.8%) was the type of computer business students learned to operate most often

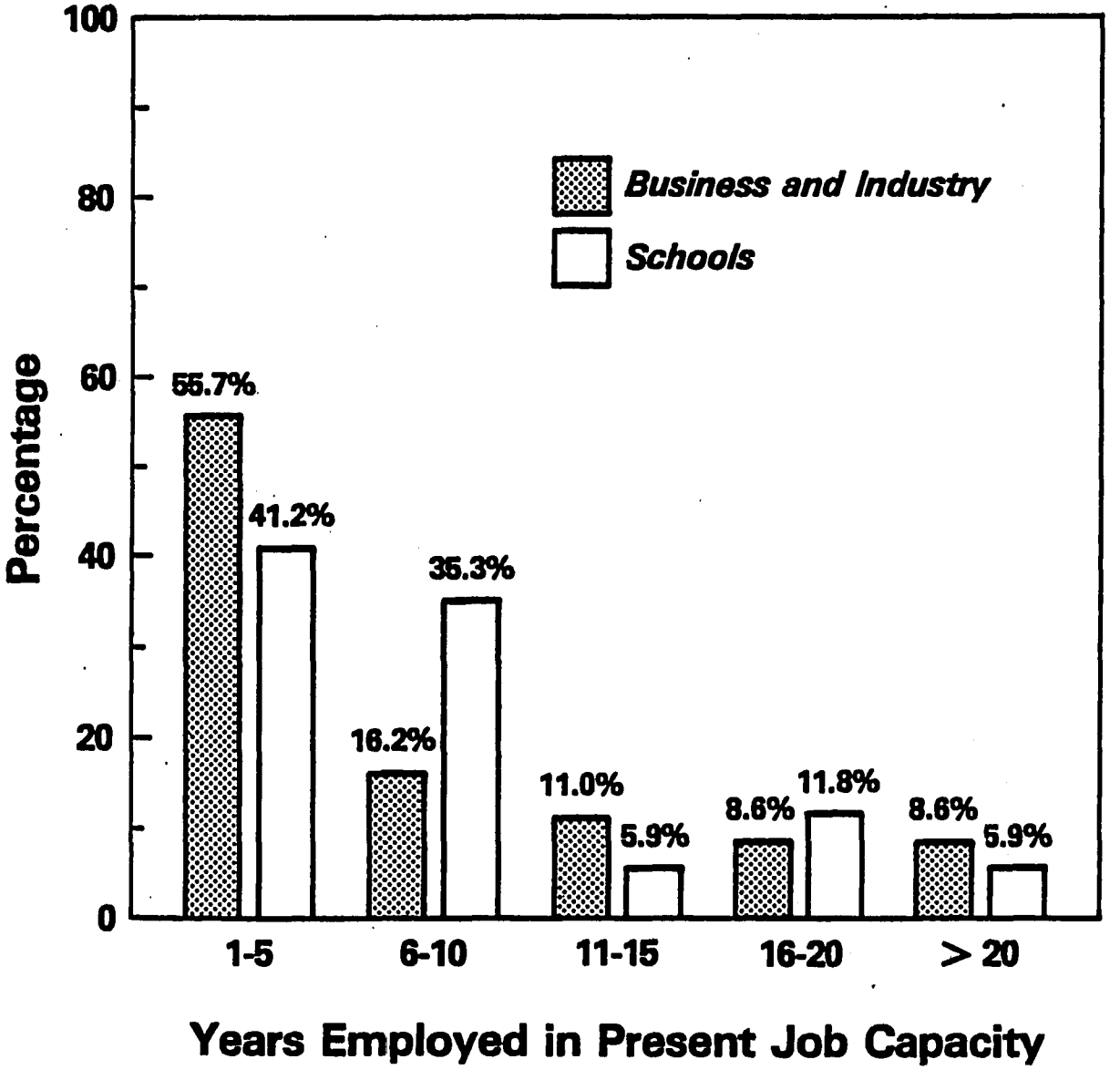


Figure 6. Percentage distribution of years in present job capacity for school administrators and business and industry respondents

TABLE 4

PERCENTAGE DISTRIBUTION OF SCHOOL ADMINISTRATORS AND BUSINESS AND INDUSTRY BY SEX

Sex	Male	Female
Schools	52.9% (9)	47.1% (8)
Business and Industry	69.0% (145)	31.0% (65)
Percentage Difference	16.1%	16.1%

while matriculating at these educational institutions. These respondents suggested that the microcomputer and the mainframe computer (23.1% respectively) ranked second in terms of electronic devices business students learned to operate in school. Word processors (15.4%) ranked third in the frequency distribution for this category and one school respondent reported that business students did not learn to operate any type of computer at that school (see Table 6).

TABLE 5

PERCENTAGE DISTRIBUTION OF HIGHEST DEGREE HELD BY RESPONDENTS IN SCHOOLS AND BUSINESS AND INDUSTRY

Degree	B.S./B.A.	M.S./M.A.	M.B.A.	Ed.D./Ph.D.	Other	Missing Cases
Schools	000% (0)	18.8% (3)	18.8% (3)	43.8% (7)	18.8% (3)	5.9% (1)
Business and Industry	50.5% (106)	11.4% (24)	9.0% (19)	6.7% (14)	19.0% (40)	3.3% (7)
Percentage Difference	50.5%	7.4%	9.8%	37.1%	.2%	2.6%

Table 7 indicated that 16 out of 17 school respondents required hands-on-experience for business students. In addition, the school data suggested that 37.5% or six school respondents required one semester of hands-on-experience for business graduates; four respondents (25%) required two semesters; three respondents (18.8%) required three

TABLE 6

PERCENTAGE DISTRIBUTION OF KIND OF COMPUTER BUSINESS STUDENTS LEARN TO OPERATE IN SCHOOLS

Kind of Computer	Percent	Frequency
Word Processor	15.4%	2
Microcomputer	23.1%	3
Personal	30.8%	4
None	7.7%	1
Other	23.1%	3
Missing Cases	23.5%	4

semesters; one respondent (6.3%) required four semesters; and two respondents (12.5%) reported that business students were required to take over four semesters of hands-on-experience (see Figure 7).

The range of major areas of study that students enrolled in post-secondary business programs could pursue in the Atlanta metropolitan area and upon successful completion

TABLE 7

PERCENTAGE DISTRIBUTION OF REQUIRED HANDS-ON-EXPERIENCE IN THE SCHOOLS

Required Hands-On-Experience	Percent	Frequency
Yes	94.1%	16
No	5.9%	1

of the program would receive a bachelor's degree, an associate degree, or a certificate was broad. These major areas of study included real estate, finance, economics, business education, marketing, office management, office administration, accounting, management, hotel, restaurant, and travel, and office technology.

Table 8 illustrated that 82.4% of the school respondents considered their business graduates computer literate immediately following their departure from school. Two respondents (11.8%) did not believe that their business graduates were computer literate and one respondent (5.9%) reported that business graduates were marginally computer

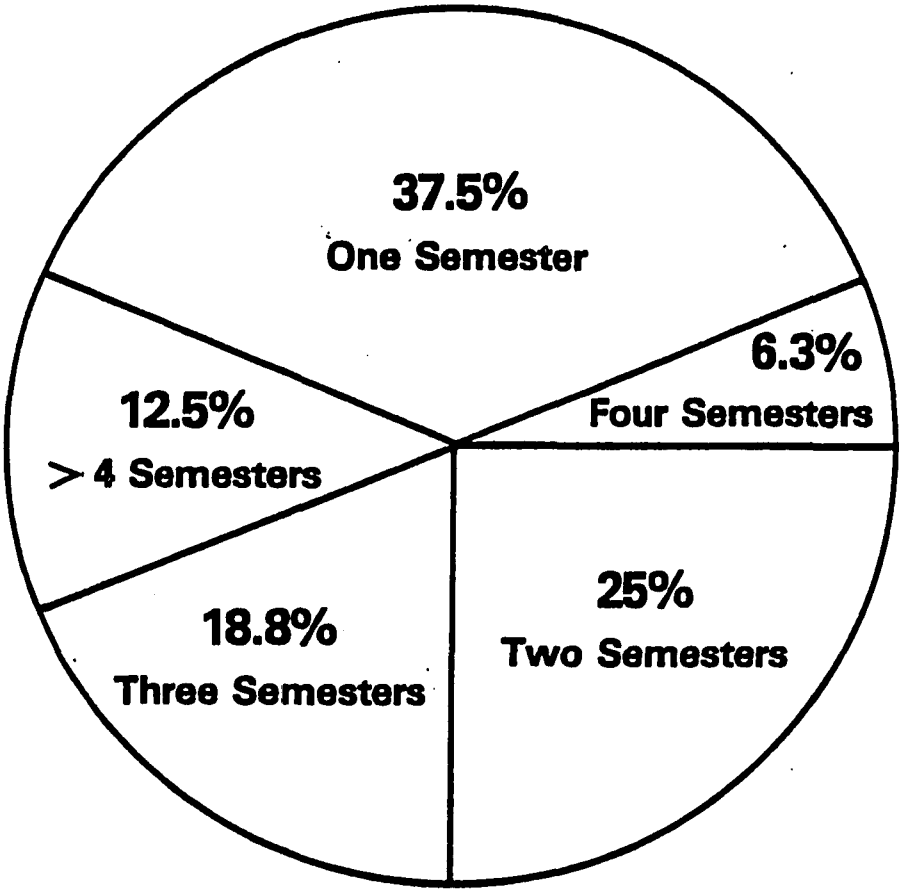


Figure 7. Percentage distribution of semesters required in schools for hands-on-experience in the schools

TABLE 8

PERCENTAGE DISTRIBUTION OF BUSINESS GRADUATES CONSIDERED COMPUTER LITERATE DIRECTLY OUT OF SCHOOL

Computer Literate?	Percent	Frequency
Yes	82.4%	14
No	11.8%	2
Marginal	5.9%	1

literate at graduation, some computer training but not enough to effectively function in business and industry.

In the category of what computer competencies business students should possess at the time of graduation is displayed in Table 9. Data input and output skills, transformation of data skills, and text editing skills (94.1%, respectively) were ranked highest in terms of computer competencies school administrators expected business students to possess at the completion of their business program. In addition, the data suggested that highly technical computer

TABLE 9

PERCENTAGE DISTRIBUTION OF COMPUTER COMPETENCIES SCHOOL ADMINISTRATORS EXPECT BUSINESS STUDENTS TO POSSESS AT GRADUATION

Computer Competency	Yes	No
Programming (Beginning)	64.7% (11)	35.3% (6)
Data Input Skills	94.1% (16)	5.9% (1)
Data Output Skills	94.1% (16)	5.9% (1)
Transformation of Data	94.1% (16)	5.9% (1)
System Design	11.8% (2)	88.2% (15)
System Planning	29.4% (5)	70.6% (12)
System Analysis	29.4% (5)	70.6% (12)
Implementation of New System	5.9% (1)	94.1% (16)
Program Modification	23.5% (4)	76.6% (13)
Punch Card Skills	23.5% (4)	76.5% (13)
Keyboarding Skills	88.2% (15)	11.8% (2)
Text Editing Skills	94.1% (16)	5.9% (1)

skills such as implementing a new system (5.9%) and system design (11.8%) were computer competencies business graduates were not expected to possess after the completion of a business program, according to these school administrators.

While data input and output skills, transformation of data skills, and text editing skills ranked highest among the computer competencies, post-secondary educators in charge of business programs indicated that business graduates should possess, keyboarding skills (88.2%) and beginning programming skills (64.7%) as well.

Table 10 showed a frequency distribution of the guidelines used by school respondents to determine the computer literacy of business graduates. The ten categories for these data were determined after a careful examination of the raw data of both school respondents and the respondents in business and industry. From both groups, the frequency of response patterns dictated the formulation of the ten categories. These same ten categories were used for responses reported by business and industry respondents. In order to rule out the formulation of bias categories by the investigator, several persons having no connection to the study reviewed the raw data and developed like categories.

An analysis of these data indicated that the schools considered understanding the basic functions of a computer

TABLE 10

PERCENTAGE DISTRIBUTION OF GUIDELINES SCHOOL ADMINISTRATORS USE TO DETERMINE COMPUTER LITERACY

Guideline for Determining Computer Literacy	Percent	Frequency
Basic Programing Skills	13.3%	2
Knowledge of Software Application	26.7%	4
Ability to Perform Tasks	13.3%	2
Ability to Solve Problems	13.3%	2
Understanding Computer Terminology	0.0%	0
Hands-On-Experience	0.0%	0
Ability to Interpret Data Output	0.0%	0
Understanding Basic Functions of a Computer	26.7%	4
Ability to Communicate Computer Needs to Computer Expert	6.7%	1
Ability to Learn Basic Computer Operations	0.0%	0

(26.7%) and having knowledge of software applications (26.7%) as the two guidelines school respondents used most often to determine the computer literacy of business graduates.

Understanding computer terminology, possessing hands-on-experience, the ability to interpret data output, and the ability to learn basic computer operations received no response from school respondents.

Two school respondents (13.3% respectively) felt that basic programming skills, the ability to perform tasks on a computer, and the ability to solve problems were guidelines to follow when determining the computer literacy of business graduates. One respondent (6.7%) in this category, reported that the ability to communicate computer needs to a computer expert was the guideline to use to determine the computer literacy of business graduates.

Findings from Respondents in Business and Industry

The majority of the respondents from business and industry (31.1%) held the position of Department Head, Director, Chief Operating Officer, Vice President of Operation, Executive Head or Group Head. Unit Manager (25.2%) was reported second most often as the job title that best described their present position. As reported in Figure 4, the least frequent response by respondents was the job title of Operations Supervisor. Twenty-seven business respondents (13.1%) reported that their present position could best be described in this job classification.

While 55.7% of the business and industry respondents had been employed in their present positions from one to five years, 16.2% of the respondents had been in the same job capacity from 6-10 years. Business respondents that had served in their present jobs from 11 to 15 years represented 11% of the total group. Figure 5 indicated that 8.6% of the respondents had worked in the same job capacity from 16 to 20 years and over 20 years respectively.

Figure 2 showed that 145 company respondents were male, representing 69% of the total responses. Females constituted 31% of this group.

The highest degree held by the majority of business and industry respondents was a Bachelor of Arts or Science, representing 50.5% of the total responses. Twenty-four respondents (11.4%) held a Master of Science or Master of Arts degree; 9% of the respondents held MBA degrees; 6.7% held a Doctor of Education or Doctor of Philosophy degree; and 40 respondents (19%) held an associate degree, a business certificate or a high school diploma. An illustration of these data was found in Table 3.

Business and industry respondents reported that entry-level employees in their organizations were required to use a personal computer (26.1%) and mainframe computers (25.6%) under their supervision. Microcomputers (18.8%) ranked

second in terms of most frequent response by these business respondents. Word processors (13.6%) were required use by 24 of these respondents. Forty-five respondents (25.6%) did not require entry-level employees under their supervision to use any kind of computer (Table 11).

TABLE 11

PERCENTAGE DISTRIBUTION OF KIND OF COMPUTER ENTRY-LEVEL EMPLOYEES IN BUSINESS AND INDUSTRY ARE REQUIRED TO USE

Kind of Computer	Percent	Frequency
Word Processor	13.6%	24
Microcomputer	18.8%	33
Personal	26.1%	46
None	25.6%	45
Other	15.9%	28
Missing Cases	16.2%	34

When business and industry respondents were asked if additional computer training was needed for entry-level employees under their supervision, 55.6% indicated that no additional computer training was needed. Eighty-six respondents (43.4%) suggested that additional training had to be provided for entry-level employees that did not have a degree in Computer Science.

Figure 8 displayed the number of additional clock hours required for business graduates for computer training. The majority of business respondents reported that business graduates required over 20 clock hours of additional computer training once they had completed a business program.

It was estimated by the majority of respondents (41%) in business and industry that less than $100 was spent per employee for additional computer training that had been employed in entry-level positions. Figure 9 illustrated the frequency distribution of these data.

Table 12 showed that 56.9% of the business and industry respondents indicated that business graduates employed under their supervision were computer literate. Fifty-nine respondents (30.3%) suggested that business graduates employed under their supervision were not computer literate, and twenty-five business respondents (12.8%) reported that

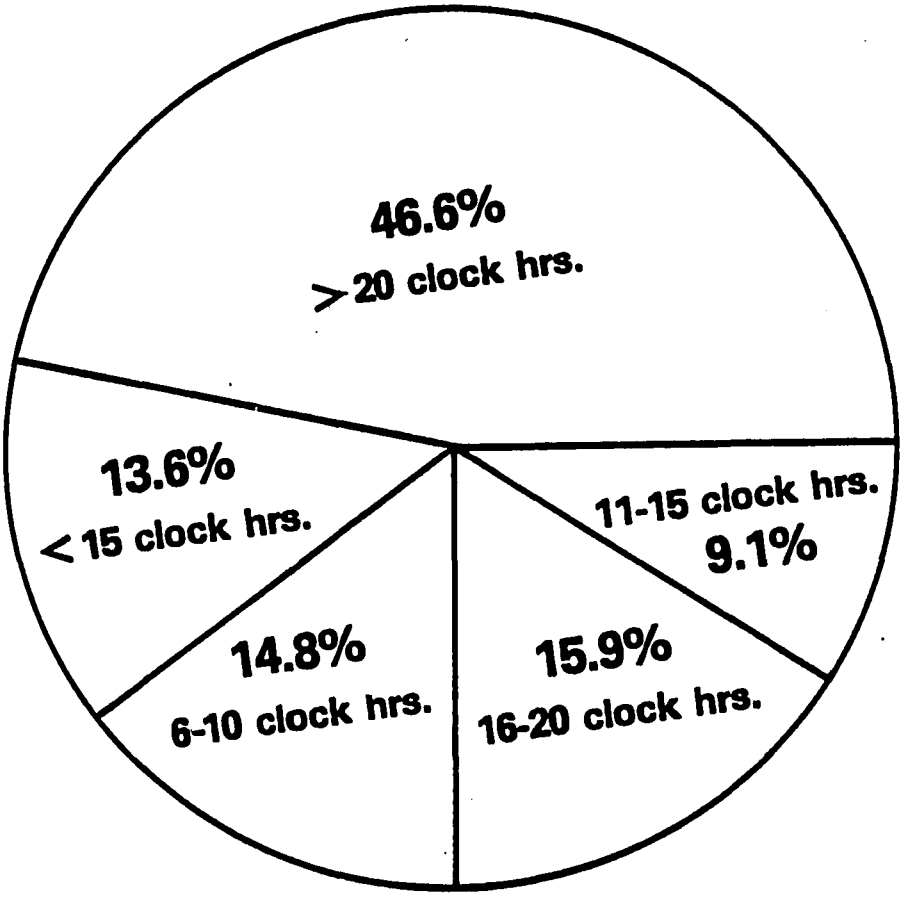


Figure 8. Percentage distribution of additional clock hours of computer training needed by business graduate in business and industry

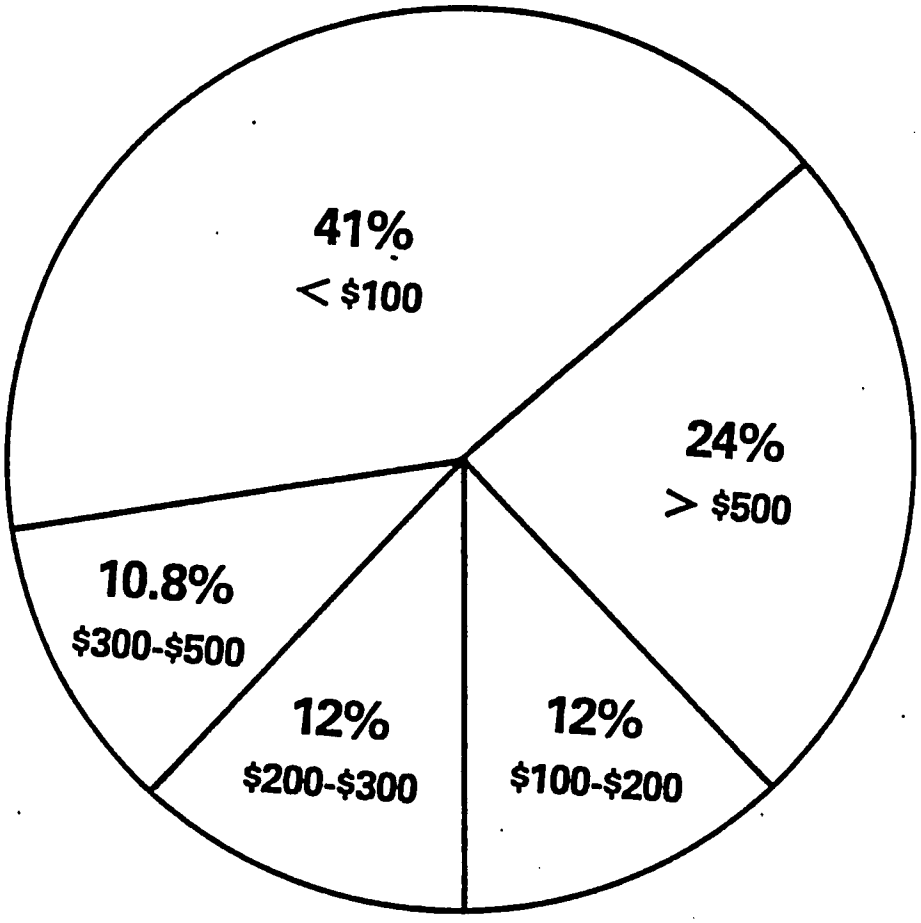


Figure 9. Percentage distribution of money spent in business and industry to train entry-level business graduates

TABLE 12

PERCENTAGE DISTRIBUTION OF COMPUTER LITERATE BUSINESS GRADUATES IN BUSINESS AND INDUSTRY

Computer Literate?	Percent	Frequency
Yes	56.9%	111
No	30.3%	59
Marginally Computer Literate	12.8%	25
Missing Cases	7.1%	15

they felt that business graduates employed under their supervision were marginally computer literate.

The percentage distribution of computer competencies business graduates should possess at the time of employment was displayed in Table 13. Business and industry respondents reported that entry-level employees should possess data input

TABLE 13

PERCENTAGE DISTRIBUTION OF COMPUTER COMPETENCIES BUSINESS GRADUATES SHOULD POSSESS WHEN EMPLOYED IN BUSINESS AND INDUSTRY

Computer Competency	Yes	No
Programming (Beginning)	38.6% (78)	61.4% (124)
Data Input Skills	76.2% (154)	28.8% (48)
Data Output Skills	66.0% (134)	34.0% (69)
Transformation of Data	69.5% (141)	30.5% (62)
System Design	13.9% (28)	86.1% (174)
System Planning	22.2% (45)	77.8% (158)
System Analysis	41.4% (84)	58.6% (119)
Implementation of New System	17.2% (35)	82.3% (167)
Program Modification	27.2% (55)	72.8% (147)
Punch Card Skills	10.3% (21)	89.7% (182)
Keyboarding Skills	75.2% (158)	21.4% (45)
Text Editing Skills	74.3% (150)	25.7% (52)

skills (76.2%), keyboarding skills (75.2%), and text editing skills (74.3%) at the time of employment. These skills ranked highest on the computer competency list as reported by business respondents. System Design and System Planning were ranked as low priority skills for business graduates, according to these respondents.

When business and industry respondents were asked to identify what guidelines were used in corporate organizations to determine computer literacy, knowledge of basic programming skills (21.3%) was suggested very highly by this group as the guideline to use. Ability to perform tasks (17.5%) and understanding the basic functions of a computer (17.5%) were the second highest ranked guidelines used by business and industry to determine the computer literacy of business graduates employed under their supervision. The least ranked guideline (1.9%) reported by these respondents was hands-on experience. Table 14 illustrated these data.

Crosstabulated Data

Descriptive statistical data analyses were used in the study. Chi Square, the Phi Coefficient method of correlating dichotomous data, and the Cramer's V test were the primary statistical treatments used in the study.

TABLE 14

PERCENTAGE DISTRIBUTION OF GUIDELINES BUSINESS AND INDUSTRY USED TO DETERMINE COMPUTER LITERACY IN BUSINESS GRADUATES EMPLOYED IN ENTRY-LEVEL POSITIONS

Guideline for Determining Computer Literacy	Percent	Frequency
Basic Programing Skills	21.3%	34
Knowledge of Software Application	7.5%	12
Ability to Perform Tasks	17.5%	28
Ability to Solve Problems	4.4%	7
Understanding Computer Terminology	2.5%	4
Hands-On-Experience	1.9%	3
Ability to Interpret Data Output	3.1%	5
Understanding Basic Functions Of a Computer	17.5%	28
Ability to Communicate Computer Needs to Computer Expert	12.5%	20
Ability to Learn Basic Computer Operations	11.9%	19
Missing Cases	23.8%	50

Inasmuch as these were nominal data, mutually exclusive categories or classes, other statistical tests would not have represented the best statistical results for the study. In addition, these data were tested at the <.05 level of confidence.

The results of the crosstabulations revealed that no significant difference existed between the guidelines used by respondents from business and industry and respondents from schools to determine the computer literacy of business graduates. Chi Square was calculated at 12.13252. The critical value from Standard Probability Distribution of Chi Square Tables with 9 degrees of freedom was 16.919. The critical value was higher than the calculated value, therefore, the results are not significant. The strength of the relationship was tested by using the Cramer's V Test. The results of this test showed that the relationship between the two groups was .26330. This value represented a low degree of association between these two variables. The value of V ranges from 0 to +1 when several nominal categories are tested. The higher the V, the greater the association between the categories. Since this was not dichotomous data, the Phi correlation was not used. Table 15 showed the percentage distribution for this category.

TABLE 15

PERCENTAGE DISTRIBUTION OF GUIDELINES USED IN BUSINESS AND INDUSTRY TO DETERMINE THE COMPUTER LITERACY OF BUSINESS GRADUATES COMPARED TO GUIDELINES USED IN SCHOOLS TO DETERMINE COMPUTER LITERACY

Guideline	Schools	Business and Industry
Basic Programming Skills	13.3%	21.3%
Knowledge of Software Application	26.7%	7.5%
Ability to Perform Tasks	13.3%	17.5%
Ability to Solve Problems	13.3%	4.4%
Understanding Computer Terminology	0.0%	2.5%
Hands-On-Experience	0.0%	1.9%
Ability to Interpret Data Output	26.7%	3.1%
Understanding Basic Functions Of a Computer	0.0%	17.5%
Ability to Communicate Computer Needs to Computer Expert	6.7%	12.5%
Ability to Learn Basic Computer Operations	0.0%	11.9%

Length of employment in present job capacity in the schools was crosstabulated with the same data from business and industry. The results indicated that no significant difference existed between the two groups in this regard. Figure 6 illustrated these results. The Cramer's V was calculated at .14182, suggesting that the relationship of the two groups was not very strong. Phi was calculated at .00352, indicating that the correlation between the two groups was very low.

No significant difference existed between school respondents and business and industry respondents relative to the sex of the individuals participating in study. The mix of males and females for both the schools and business and industry was relatively the same (see Table 4). The Phi correlation was calculated at .09076. This meant that the correlation between these two variables was low inasmuch as Phi correlations range from -1.00 (negative correlation) to +1.00 (positive correlation).

Significant difference existed between the two groups relative to highest degree held. Chi Square is a test of significance. The greater the discrepancies between the actual and expected frequencies, the larger Chi Square becomes (Nie, Hull, Jenkins, Steinbrenner and Bent, 1975).

In these crosstabulations, Chi Square was 31.24715 with 4 degrees of freedom. In order for these results to have been significant at the <.05 level of confidence, the critical value must have been at least 9.488, according to Standard Probability Distribution of Chi Square Tables (Chase, 1984; Glass and Hopkins, 1984). Therefore, Chi Square was significant because it was much greater than the critical value tested at the 95% confidence level. Table 5 showed the percentage distribution for this category.

No significant difference existed between business and industry respondents and respondents from school administrators regarding the kind of computer business graduates were required to learn in school or required to operate on the job. Table 16 displayed these data. School respondents as well as business and industry respondents suggested that the personal computer was the kind of computer learned most often in schools and used most often in business and industry. Chi Square for this category was 2.21270 with 4 degrees of freedom. The critical value is 9.488. This meant that the Chi Square value was much lower than the critical value. Therefore, it was not a significant finding. The Cramer's V was calculated at .10820, suggesting a very weak relationship between categories.

In the category of whether or not school respondents and business and industry respondents perceived business graduates as computer literate, no significant difference was found. The Chi Square with two degrees of freedom was reported at 4.18702. The critical value for Chi Square tested at <.05 was 5.991. The critical value was higher than the calculated value for this category. Therefore, the

TABLE 16

PERCENTAGE DISTRIBUTION OF KIND OF COMPUTER TAUGHT IN SCHOOLS AND REQUIRED IN BUSINESS AND INDUSTRY USE

Kind of Computer	Word Processor	Micro-computer	Personal	None	Other	No Response
Schools	15.4% (2)	23.1% (3)	30.8% (4)	7.7% (1)	23.1% (3)	* 23.5% (4)
Business and Industry	13.6% (24)	18.8% (33)	26.7% (46)	25.6% (45)	15.9% (28)	* 16.2% (34)
Percentage Difference	4.3%	4.7%	17.9%	17.9%	7.2%	7.3%

*Percentage of total (17) respondents

findings were not significant. Table 17 showed the percentage distribution for this category.

TABLE 17

PERCENTAGE DISTRIBUTION OF BUSINESS GRADUATES CONSIDERED COMPUTER LITERATE IN BUSINESS AND INDUSTRY AND IN SCHOOLS

Computer Literate?	Yes	No	Marginal	No Response
Schools	82.4% (14)	11.8% (2)	5.9% (1)	0.0% (0)
Business and Industry	56.9% (111)	30.3% (59)	12.8% (25)	7.1% (15)
Percentage Difference	25.5%	18.5%	6.9%	7.1%

Crosstabulated data from the two groups regarding the computer competencies business graduates should possess indicated that no significant difference existed in the following categories:

-- Programming Skills (Chi Square was calculated at 3.40. The critical value at .05 with one degree of freedom was 3.84). Phi was calculated at .14215, indicating a very low correlation between the two groups.

-- Data Input Skills (Chi Square was 2.88. The critical value at .05 with one degree of freedom was 3.84). Phi was calculated at .11480, indicating a very low correlation between the two groups.

-- System Design (Chi Square was .05831. The critical value at .05 with one degree of freedom was 3.84). Phi was calculated at .01632, indicating a very low correlation between the two groups.

-- System Planning (Chi Square was .046875. Critical value at .05 with one degree of freedom was 3.84). Phi was calculated at .04616, indicating a very low correlation between the two groups.

-- System Analysis (Chi Square was .93265. Critical value at .05 with one degree of freedom is 3.84). Phi was calculated at .06511, indicating a very low correlation between the two groups.

-- Implementation of New System (Chi Square was 1.49. Critical value at .05 with one degree of freedom is 3.84). Phi was calculated at .08263, indicating a very low correlation between the two groups.

-- Program Modification (Chi Square was .10896. Critical value at .05 with one degree of freedom was 3.84). Phi was calculated at .02231, indicating a very low correlation between the two groups.

-- Punch Card Skills (Chi Square was 2.70. The critical value at .05 with one degree of freedom was 3.84). Phi was calculated at .11093, indicating a very low correlation between the two groups.

-- Keyboarding Skills (Chi Square was 1.01. The critical value at .05 with one degree of freedom was 3.84). Phi was calculated at .06777, indicating a very low correlation between the two groups.

-- Text Editing Skills (Chi Square was 3.37. The critical value tested at .05 with one degree of freedom was 3.84). Phi was calculated at .12408, indicating a very low correlation between the two groups.

Table 18 exhibited these data by percentage distribution.

Summary

The primary objectives of this study were (1) to determine what guidelines business and industry used to identify a computer literate business graduate employed in an entry-level position that did not require a degree in computer science; (2) to investigate the computer competencies taught in post-secondary schools in the Atlanta metropolitan area that offered business programs; and (3) to compare data collected in business and industry with those data collected in schools to determine what discrepancies, if any, existed between the two groups.

The findings indicated, for the most part, that no significant difference existed between what business students were taught in post-secondary schools offering business programs in the Atlanta metropolitan area and in businesses in this locale with a work force of 1,000 or more employees or more that were either headquartered or had a regional office in this area.

TABLE 18

PERCENTAGE DISTRIBUTION OF COMPUTER COMPETENCIES IN BUSINESS AND INDUSTRY COMPARED TO SCHOOLS

Computer Competency	Schools	Business and Industry
Programming	Yes (64.7%)	No (61.4%)
Data Input Skills	Yes (94.1%)	Yes (76.2%)
Data Output Skills	Yes (94.1%)	Yes (66.0%)
Transformation of Data Skills	Yes (94.1%)	Yes (69.5%)
System Design	No (88.2%)	No (86.1%)
System Planning	No (70.6%)	No (77.8%)
System Analysis	No (70.6%)	No (58.6%)
Implementation of New System	No (94.1%)	No (82.3%)
Program Modification	No (76.5%)	No (72.8%)
Punch Card Skills	No (76.5%)	No (89.7%)
Keyboarding Skills	Yes (88.2%)	Yes (75.2%)
Text Editing Skills	Yes (94.1%)	Yes (74.3%)

Significant differences existed between the two groups relative to highest degree held, possessing data transformation skills and data output skills. The strength of the relationship, however, between the groups for each of these categories was not very strong. The correlation between the two groups was very low as well.

While no significant difference existed between what guidelines were used in business and industry and the schools to determine a computer literate business graduate, the results of the data analysis indicated that the two groups placed different priorities as to the perceived worth of each guideline.

School administrators suggested that the ability for business graduates to communicate computer needs to a computer expert in a business setting was not a high priority. This category received the least amount of responses compared to the other nine categories.

Business and industry, on the other hand, indicated that business graduates did not need extensive hands-on-experience in order to be a productive employee.

CHAPTER V

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This study sought to investigate the guidelines used by business and industry to identify the computer literacy of business graduates employed in entry-level positions that did not require a degree in Computer Science. In addition, inquiry was made into the computer literacy course offerings for business graduates in post-secondary schools offering business programs in the Atlanta metropolitan area.

The design of the study delimited the sample populations to include only supervisory personnel in business organizations that were located in the Atlanta metropolitan area having a work force of 1,000 or more full-time employees and were either headquartered in this locale or had regional offices in this geographical area. These supervisors were directly responsible for the day-to-day operations of particular functions in these organization.

Only school administrators who planned, directed or implemented business programs in post-secondary schools in the Atlanta metropolitan area were asked to participate in this study.

Business organizations were selected according to the employee population and if the firm were headquartered in the

Atlanta metropolitan area or had a regional office in this locale. This information was secured from brochures published by the Atlanta Chamber of Commerce.

Initial contact was made with the corporate executive officer in each firm that met the criteria set forth by the researcher. Permission was requested to collect data from managerial personnel that directly supervised business graduates employed in entry-level positions that did not require a degree in computer science.

One criterion, however, had to have been met: A bachelor's degree, an associate degree, or a certificate in business was a requirement for employment.

Questionnaires were the primary data collection instruments used in the study. A questionnaire was developed for business and industry respondents and one developed for collecting data from school officials. Like questions were asked of both groups so that these data could be correlated. The data were analyzed using the statistical computer programs designed for the analysis of social science data (SPSS). Inasmuch as these were nominal data, mutually exclusive categories or classes, Chi Square, the Phi Coefficient method of correlating dichotomous data, and the Cramer's V Test were the primary statistical treatments used in these analyses.

The findings revealed a professional and personal profile of the two groups of respondents. The typical business respondent was male; had been working in his present position from one to five years; held a Bachelor of Arts or a Bachelor of Science degree; and was currently working as a Department Head, a Group Head, a Director, a Chief Operating Officer, a Vice President of Operations or an Executive Head.

The data results profiled the typical school respondent that participated in the study: male; had been employed in his present job capacity from one to five years; held a Doctor or Philosophy or a Doctor of Education degree; and held the job title of Chairman of Economics, Vocational-Technical Education, Real Estate or Hotel, Restaurant, and Travel.

The findings revealed: (1) no significant difference existed between the two groups regarding the guidelines used to determine the computer literacy of business graduates; (2) significant differences existed between the two groups relative to highest degree held, possession of data output skills, and transformation of data skills; (3) schools that provided hands-on-experience for business students on personal computers were consistent with current business practices; and (4) computer literacy course offerings in

post-secondary schools offering business programs in the Atlanta metropolitan area were meeting the needs of business and industry.

School respondents indicated that the ability to communicate computer needs to a computer expert was the least important guideline to follow when determining the computer literacy of business graduates. Business respondents indicated hands-on-experience was not a factor worthy of consideration when determining computer literacy.

Conflicting data within groups were also revealed in the data analysis. Business and industry respondents agreed that no additional computer training was needed for business graduates employed in entry-level positions. However, forty-one of these respondents indicated that over 20 clock hours of additional computer training was needed for these employees. In addition, business respondents suggested that possessing basic programming skills was not a factor to be considered at the time of employment for business graduates; however, possessing basic programming skills was ranked highest on the list of guidelines to follow to determine the computer literacy of business graduates.

Finally, significant differences existed between the two groups relative to highest degree held, possessing data

output skills, and transformation of data skills. While these results were statistically significant, the percentage distribution for two of the three categories (transformation of data skills and possessing data output skills) was minimal. The category of highest degree held supported the historical trend of the nature of the job. Post-secondary school administrators usually need degrees to move into supervisory positions in educational institutions. Supervisory personnel in business and industry are generally hired into the company with a bachelor's or master's degree and promoted to higher level positions. Therefore, advanced educational degrees are not typically needed in business and industry.

Conclusions

Based on the findings in the study, these conclusions were drawn:

1. Post-secondary schools in the Atlanta metropolitan area are offering computer literacy courses that major employers in this locale consider adequate for the needs of business graduates employed in entry-level positions in their organizations.

2. Schools providing hands-on-experience for business students on personal computers were consistent with current computer practices in business and industry.

3. While there were some apparent discrepancies noted in the data, major computer literacy curriculum redesigns or changes were not warranted.

Recommendations

The author wishes to make clear that the findings outlined in this study are not nearly conclusive enough to make definitive statements regarding what guidelines to use to determine the computer literacy of business graduates.

The efforts of the researcher should be viewed as a beginning inquiry into the much needed domain of computer use and application in our society. From this perspective, the author makes the following recommendations:

1. Since the sample populations for the study were concentrated primarily in one geographical area, additional research on computer literacy guidelines should be conducted at the national level.

2. Larger sample sizes from both business and industry and post-secondary school administrators should be goals of future researchers on this subject so that the conclusions drawn will be more definitive.

3. A follow-up study with these same school administrators and business supervisory personnel needs to be conducted in order to compare data gathered in this study with those data to check the reliability of the responses generated in this study.

While computer literacy takes the status of being "the new kid on the block" in educational settings, a systematic approach for training business graduates to effectively perform on the job should be a priority in all post-secondary schools offering business programs.

National guidelines should be established so that computer training will be consistent throughout the country. Business graduates should be able to go from one geographical area to another with minimal difficulty related to the transfer of their computer knowledge and skills.

While there is still a great deal of research to be done in this area, it is the author's hope that some positive revelations were disclosed in this study to provoke future inquiry into this subject matter.

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APPENDIXES

Appendix A

Letter to Corporate Executives

233 Eigenmann Hall
Indiana University
Bloomington, Indiana 47406
June 18, 1986

Dear Coporate Executive:

I sorely need your help! I would like to have your supervisory staff (first-line managers, office supervisors, etc.) directly responsible for supervising business graduates (accounting, finance, advertising, marketing, auditing, secretarial, etc.) in entry-level positions complete a questionnaire regarding computer literacy.

I am a doctoral student at Indiana University, and I am permanently employed at Clark College in the Atlanta University Center as an Assistant Professor of Business Education. Presently, I am in the data collection stage of the research that is required for writing my dissertation. The information that I will gather from your supervisory personnel will greatly assist me in preparing this report.

Your organization was not arbitrarily selected to participate in this study. After carefully deciding upon a set of criteria (employers in the Atlanta metropolitan area with a full-time labor force of 1,000 workers or more, companies or agencies that are either headquartered in Atlanta or have regional offices in this geographical locale, etc.), your organization fell within this limited population. Therefore, I am sure you can understand why your organization's participation is so vital to this investigation.

The questionnaire is not long; it takes less than fifteen minutes to complete. So, won't you or an appointee take a few minutes from your busy schedule and send to me, as soon as possible, the number of persons in your organization that supervise business graduates employed in entry-level positions. I do not need the names of these employees. A self-addressed, stamped envelope is enclosed for your convenience. If you prefer, however, you may call me at telephone number [812] 337-5015 and give me this information.

As soon as I receive the number of participants from your organization, I will forward to you the questionnaires for you to distribute to these selected employees.

Data obtained from your employees will be held in strict confidence. Only statistical analyses of these data will be used in my report. A complete listing of all of the companies and agencies that will participate in this study will be placed in the appendix section of this document. This will be the only reference to any organization by name.

Realizing the magnitude of this request, I am willing to pay for this service. Please let me know if a charge is assessed. I will be happy to send you a check by return mail.

Many thanks for your cooperation in my educational endeavors. We (education and business) can benefit from this study in that educators will be better equipped to offer courses to business students that will parallel with the skills expected of them by the public and private sectors when these individuals are hired in entry-level positions.

I feel certain that you will not let me down. Please let me hear from you soon.

Sincerely,

(Mrs.) Charletta B. Clark
Assistant Professor/Doctoral Student

CBC:wc
Enclosure

Appendix B

Follow-Up Letter to Companies

233 Eigenmann Hall
Indiana University
Bloomington, Indiana 47406
August 6, 1986

Dear Coporate Executive:

On June 18, 1986, I sent you a letter requesting permission to have selected members from your managerial staff directly responsible for supervising business functions (marketing, operations, personnel, finance, accounting, secretarial, etc.) participate in a computer literacy survey. So far, I have not heard from you. Given the importance of having your organization participate in this research, I have no choice but to make this appeal once again. Please don't let me down!

I am a doctoral student at Indiana University and I am permanently employed at Clark College in the Atlanta University Center as an Assistant Professor of Business Education. Presently, I am in the data collection stage of the research that is required for writing my dissertation. The information that I will gather from your supervisory personnel will greatly assist me in preparing this report.

As I stated in my earlier correspondence to you, your organization was not arbitrarily selected to participate in this study. After carefully deciding upon a set of criteria (employers in the Atlanta metropolitan area with a full-time labor force of 1,000 workers or more, companies or agencies that are either headquartered in Atlanta or have regional offices in this geographical locale, etc.), your organization fell within this limited population. Therefore, your participation is vital to this investigation.

The questionnaire is not long; it takes less than fifteen minutes to complete. So, won't you or an appointee take a few minutes from your busy schedule and send to me, as soon as possible, the number of persons in your organization that will participate in this study. I do not need the names of these employees. If you prefer, however, you may call me at telephone number [812] 337-5015 and give me this information.

Many thanks to you for your cooperation. We (education and business) can benefit from this study in that educators will be better equipped to offer courses to business students that will parallel with the skills expected by both the public and private sectors once these individuals are hired in entry-level positions. Remember, I am counting on you!

Sincerely,

(Mrs.) Charletta B. Clark
Assistant Professor/Doctoral Student

CBC:wc

Appendix C

Letter to School Administrators

233 Eigenmann Hall
Indiana University
Bloomington, Indiana 47406
August 1, 1986

Dear School Administrator:

I sorely need your help! I would like for you to fill out the enclosed questionnaire and answer sheet regarding computer literacy in your school and return these forms to me as soon as possible.

I am a doctoral student at Indiana University. Presently, I am in the data collection stage of the research that is required for writing my dissertation. The information that I will gather from school officials responsible for planning and directing the course offerings of business students (major areas of study in business administration, economics, business education, office administration, secretarial science, etc.) will greatly assist me in preparing this report. Therefore, your participation is crucial to this investigation.

My research is being gathered in the Atlanta metropolitan area because I am employed at Clark College in the Atlanta University Center as an Assistant Professor of Business Education, and I am interested in comparing the computer literacy course offerings in the post-secondary schools in this locale with the guidelines business and industry use to identify this trait in business graduates once they are employed in entry-level positions.

The questionnaire is not long; it takes less than fifteen minutes to complete. So, won't you take a few minutes from your busy schedule and participate in this survey. A self-addressed, stamped envelope is enclosed for your convenience.

Thank you for your cooperation. I look forward to hearing from you soon.

Sincerely,

(Mrs.) Charletta B. Clark
Assistant Professor/Doctoral Student

CBC:wc
Enclosures

Appendix D

Company Questionnaire

COMPUTER LITERACY SURVEY

COMPANY NAME OR ORGANIZATION_____

STATEMENT OF PURPOSE: THIS QUESTIONNAIRE IS BEING ADMINISTERED TO COLLECT DATA FROM SUPERVISORY PERSONNEL DIRECTLY RESPONSIBLE FOR SUPERVISING BUSINESS GRADUATES IN ENTRY-LEVEL POSITIONS THAT DO NOT REQUIRE A COMPUTER SCIENCE DEGREE. NO INDIVIDUAL RESPONSES WILL BE FED BACK TO YOUR ORGANIZATION. YOUR RESPONSES WILL BE STRICTLY CONFIDENTIAL. RESULTS WILL BE REPORTED ONLY IN STATISTICAL SUMMARIES.

DIRECTIONS: PLACE THE NAME OF YOUR COMPANY OR ORGANIZATION ON THE ANSWER SHEET IN THE SPACE PROVIDED FOR YOUR NAME. NO OTHER INFORMATION IS NEEDED. PLEASE ANSWER ALL QUESTIONS FRANKLY AND OPENLY. USE ONLY A #2 PENCIL ON THE ANSWER SHEET. BLACKEN THE CIRCLE THAT BEST REPRESENTS YOUR ANSWER. IF YOU DO NOT AGREE WITH ANY OF THE CHOICES, PLEASE WRITE YOUR ANSWER ON THE LINE LABELED "OTHER". CERTAIN QUESTIONS WILL REQUIRE A WRITTEN RESPONSE.

1. WHAT JOB TITLE BEST DESCRIBES YOUR PRESENT POSITION?

   a. OPERATIONS SUPERVISOR
   b. FIRST-LINE MANAGER
   c. OFFICE MANAGER
   d. UNIT MANAGER
   e. OTHER, SPECIFY

   _____

2. HOW LONG HAVE YOU BEEN EMPLOYED IN YOUR PRESENT JOB CAPACITY?

   a. 1-5 YEARS
   b. 6-10 YEARS
   c. 11-15 YEARS
   d. 16-20 YEARS
   e. OVER 20 YEARS

3. ARE YOU. . .

   a. MALE?
   b. FEMALE?

4. WHAT IS THE HIGHEST DEGREE YOU HOLD?

   a. B.S./B.A.
   b. M.S./M.A.
   c. MBA
   d. Ed.D./Ph.D.
   e. OTHER, SPECIFY

   _____

5. ARE YOU DIRECTLY RESPONSIBLE FOR HIRING ENTRY-LEVEL EMPLOYEES TO WORK UNDER YOUR SUPERVISION?

   a. YES
   b. NO

6. IS A DEGREE IN COMPUTER SCIENCE OR AN EQUIVALENT REQUIRED FOR ENTRY-LEVEL POSITIONS UNDER YOUR SUPERVISION?

   a. YES
   b. NO

7. WHAT KIND OF COMPUTER WILL ENTRY-LEVEL EMPLOYEES BE REQUIRED TO USE UNDER YOUR SUPERVISION?

   a. WORD PROCESSOR
   b. MICRO-COMPUTER
   c. PERSONAL
   d. NONE
   e. OTHER, SPECIFY

   _____

8. IS ADDITIONAL COMPUTER TRAINING NEEDED FOR BUSINESS GRADUATES EMPLOYED IN ENTRY-LEVEL POSITIONS UNDER YOUR SUPERVISION? IF YES, ANSWER QUESTIONS 8 AND 9. IF NO, GO DIRECTLY TO QUESTION 10.

   a. YES
   b. NO

9. IF SO, HOW MANY HOURS?

   a. LESS THAN 5 CLOCK HOURS
   b. 6-10 CLOCK HOURS
   c. 11-15 CLOCK HOURS
   d. 16-20 CLOCK HOURS
   e. OVER 20 CLOCK HOURS

10. HOW MUCH MONEY PER EMPLOYEE IS ESTIMATED FOR ADDITIONAL COMPUTER TRAINING FOR BUSINESS GRADUATES EMPLOYED IN ENTRY-LEVEL POSITIONS UNDER YOUR SUPERVISION?

    a. LESS THAN $100
    b. $100 TO $200
    c. $200 TO $300
    d. $300 TO $500
    e. OVER $500

11. LIST ENTRY-LEVEL POSITIONS UNDER YOUR SUPERVISION.

a. _____

b. _____

c. _____

d. _____

e. _____

12. WOULD YOU DESCRIBE BUSINESS GRADUATES EMPLOYED IN ENTRY-LEVEL POSITIONS UNDER YOUR SUPERVISION AS COMPUTER LITERATE? (POSSESSING BASIC KNOWLEDGE, SKILLS, AND APPLICATIONS OF COMPUTERS IN ACCORDANCE WITH YOUR EXPECTATIONS)

a. YES
b. NO
c. MARGINAL, EXPLAIN

_____

_____

13. DO BUSINESS GRADUATES IN ENTRY-LEVEL POSITIONS UNDER YOUR SUPERVISION REQUIRE ADDITIONAL KNOWLEDGE(S) (MORE THAN THOSE LISTED IN QUESTION 12) IN COMPUTER SKILLS?

a. YES
b. NO
c. SOME, EXPLAIN

_____

_____

(QUESTIONS 14 THRU 27)

WHAT COMPUTER COMPETENCIES SHOULD BUSINESS GRADUATES EMPLOYED IN ENTRY-LEVEL POSITIONS UNDER YOUR SUPERVISION POSSESS AT THE TIME OF THEIR EMPLOYMENT?

14. PROGRAMMING (BEGINNING)

a. YES
b. NO

15. DATA INPUT SKILLS (INFORMATION FED INTO A COMPUTER)

a. YES
b. NO

16. DATA OUTPUT SKILLS (OPERATING A PRINTER)

    a. YES
    b. NO

17. TRANSFORMATION OF DATA (PROCESSING, STORING, AND RETRIEVING INFORMATION)

    a. YES
    b. NO

18. SYSTEM DESIGN (ASSEMBLING COMPONENT PARTS OF A COMPUTER)

    a. YES
    b. NO

19. SYSTEM PLANNING (FORECASTING GROWTH AND EXPANSION NEEDS)

    a. YES
    b. NO

20. SYSTEM ANALYSIS (UNDERSTANDING USER NEEDS)

    a. YES
    b. NO

21. IMPLEMENTATION OF A NEW SYSTEM (INSTALLING A SYSTEM TAILOR-MADE TO ORGANIZATION NEEDS)

    a. YES
    b. NO

22. PROGRAM MODIFICATION (MAKING CHANGES IN SOFTWARE PACKAGES)

    a. YES
    b. NO

23. PUNCH CARD SKILLS (KNOWLEDGE OF PUNCH CARDS)

    a. YES
    b. NO

24. KEYBOARDING SKILLS (TYPEWRITING SKILLS)

    a. YES
    b. NO

25. TEXT EDITING SKILLS (DELETE, ADD, CHANGE, OR CORRECT INFORMATION)

    a. YES
    b. NO

26. OTHER(S), SPECIFY

_____

_____

_____

_____

_____

27. WHAT GUIDELINES DO YOU USE TO DETERMINE A COMPUTER LITERATE BUSINESS GRADUATE EMPLOYED IN A POSITION IN WHICH A DEGREE IN COMPUTER SCIENCE IS NOT REQUIRED?

_____

_____

_____

_____

_____

Appendix E

School Questionnaire

COMPUTER LITERACY SURVEY

SCHOOL_____

STATEMENT OF PURPOSE: THIS QUESTIONNAIRE IS BEING ADMINISTERED TO COLLECT DATA FROM SUPERVISORY PERSONNEL RESPONSIBLE FOR PLANNING, ORGANIZING, AND DIRECTING THE CURRICULUM COURSE OFFERINGS OF BUSINESS STUDENTS. NO INDIVIDUAL RESPONSES WILL BE FED BACK TO YOUR SCHOOL. YOUR RESPONSES WILL BE STRICTLY CONFIDENTIAL. RESULTS WILL BE REPORTED ONLY IN STATISTICAL SUMMARIES.

DIRECTIONS: PLACE THE NAME OF YOUR SCHOOL ON THE ANSWER SHEET IN THE SPACE PROVIDED FOR YOUR NAME. NO OTHER INFORMATION IS NEEDED. PLEASE ANSWER ALL QUESTIONS FRANKLY AND OPENLY. USE ONLY A #2 PENCIL ON THE ANSWER SHEET. BLACKEN THE CIRCLE THAT BEST REPRESENTS YOUR ANSWER. IF YOU DO NOT AGREE WITH ANY OF THE CHOICES, PLEASE WRITE YOUR ANSWER ON THE LINE LABELED "OTHER". CERTAIN QUESTIONS WILL REQUIRE A WRITTEN RESPONSE.

1. WHAT JOB TITLE BEST DESCRIBES YOUR PRESENT POSITION?

   a. CHAIR, BUSINESS ADMINISTRATION
   b. CHAIR, BUSINESS EDUCATION
   c. COORDINATOR, BUSINESS ADMINISTRATION
   d. COORDINATOR, BUSINESS EDUCATION
   e. OTHER, SPECIFY

   _____

2. HOW LONG HAVE YOU BEEN EMPLOYED IN YOUR PRESENT JOB CAPACITY?

   a. 1-5 YEARS
   b. 6-10 YEARS
   c. 11-15 YEARS
   d. 16-20 YEARS
   e. OVER 20 YEARS

3. ARE YOU. . .

   a. MALE?
   b. FEMALE?

4. WHAT IS THE HIGHEST DEGREE YOU HOLD?

   a. B.S./B.A.
   b. M.S./M.A.
   c. MBA
   d. Ed.D./Ph.D.
   e. OTHER, SPECIFY

   _____

5. ARE YOU DIRECTLY RESPONSIBLE FOR ADVISING BUSINESS STUDENTS?

   a. YES
   b. NO

6. ARE YOU DIRECTLY RESPONSIBLE FOR DEVELOPING, PLANNING, AND DIRECTING THE COURSE OFFERINGS OF BUSINESS STUDENTS?

   a. YES
   b. NO

7. WHAT KIND OF COMPUTER DO BUSINESS STUDENTS IN YOUR DEPARTMENT LEARN TO OPERATE ON YOUR CAMPUS?

   a. WORD PROCESSOR
   b. MICRO-COMPUTER
   c. PERSONAL
   d. NONE
   e. OTHER, SPECIFY

   _____

8. IS HANDS-ON-EXPERIENCE ON COMPUTERS REQUIRED FOR BUSINESS STUDENTS IN YOUR DEPARTMENT?

   a. YES
   b. NO

9. IF SO, FOR HOW LONG?

   a. ONE SEMESTER
   b. TWO SEMESTERS
   c. THREE SEMESTERS
   d. FOUR SEMESTERS
   e. OVER FOUR SEMESTERS

10. LIST THE NAMES OF MAJOR AREAS OF STUDY IN YOUR DEPARTMENT THAT BUSINESS STUDENTS MAY RECEIVE A BACHELOR'S DEGREE, AN ASSOCIATE DEGREE, OR A CERTIFICATE.

    a. _____

    b. _____

    c. _____

    d. _____

    e. _____

11. WOULD YOU DESCRIBE BUSINESS GRADUATES FROM YOUR SCHOOL AS COMPUTER LITERATE? (POSSESSING BASIC KNOWLEDGE, SKILLS, AND APPLICATIONS OF COMPUTERS IN ACCORDANCE WITH YOUR EXPECTATIONS)

a. YES
b. NO
c. MARGINAL, EXPLAIN

_____

_____

(QUESTIONS 12 THRU 24)

WHAT COMPUTER COMPETENCIES SHOULD BUSINESS GRADUATES IN YOUR DEPARTMENT POSSESS AT THE TIME OF THEIR GRADUATION?

12. PROGRAMMING (BEGINNING)

a. YES
b. NO

13. DATA INPUT SKILLS (INFORMATION FED INTO A COMPUTER)

a. YES
b. NO

14. DATA OUTPUT SKILLS (OPERATING A PRINTER)

a. YES
b. NO

15. TRANSFORMATION OF DATA (PROCESSING, STORING, AND RETRIEVING INFORMATION)

a. YES
b. NO

16. SYSTEM DESIGN (ASSEMBLING COMPONENT PARTS OF A COMPUTER)

a. YES
b. NO

17. SYSTEM PLANNING (FORECASTING GROWTH AND EXPANSION NEEDS)

a. YES
b. NO

18. SYSTEM ANALYSIS (UNDERSTANDING USER NEEDS)

a. YES
b. NO

19. IMPLEMENTATION OF A NEW SYSTEM (INSTALLING A SYSTEM TAILOR-MADE TO ORGANIZATION NEEDS)

    a. YES
    b. NO

20. PROGRAM MODIFICATION (MAKING CHANGES IN SOFTWARE PACKAGES)

    a. YES
    b. NO

21. PUNCH CARD SKILLS (KNOWLEDGE OF PUNCH CARDS)

    a. YES
    b. NO

22. KEYBOARDING SKILLS (TYPEWRITING SKILLS)

    a. YES
    b. NO

23. TEXT EDITING SKILLS (DELETE, ADD, CHANGE, OR CORRECT INFORMATION)

    a. YES
    b. NO

24. OTHER(S), SPECIFY

    _____

    _____

    _____

    _____

    _____

25. WHAT GUIDELINES DO YOU USE TO DETERMINE A COMPUTER LITERATE BUSINESS GRADUATE FROM YOUR SCHOOL?

    _____

    _____

    _____

    _____

    _____

Appendix F

Cover Letter to Administrators of Questionnaire

TO: QUESTIONNAIRE ADMINISTRATOR

FROM: Charletta B. Clark
Indiana University

DATE: July 15, 1986

TELEPHONE: [812] 337-5015

SUBJECT: INSTRUCTIONS FOR ADMINISTERING THE COMPUTER LITERACY QUESTIONNAIRES

Enclosed you will find questionnaire forms and answer sheets to be distributed to supervisory personnel in your organization that are directly responsible for supervising business graduates employed in entry-level positions. Please give each participant a questionnaire form and an answer sheet.

When the forms are completed, please collect and forward them directly to me in the self-addressed, stamped envelope that is enclosed. I would appreciate having the completed forms returned as soon as possible.

Should you have questions, please call me at the above telephone number. Thank you very much for your continued cooperation.

CBC:wc
Enclosures

Appendix G

Companies that Participated in the Study

Companies that Participated in the Study

Atlanta Board of Education

Atlanta Gas Light Company

Atlanta Hilton Hotel

Atlanta Journal-Constitution

American Telephone and Telegraph Company

Bank South Corporation

Bell South Corporation

Big Star Food Markets

Citizens and Southern National Bank

City of Atlanta

Crawford Long Hospital

DeKalb County Government

Dobbs Houses, Inc.

Emory University

Equifax, Inc.

First Atlanta Bank

Fulton County Board of Education

Fulton County Government

Genuine Parts, Inc.

Georgia Department of Human Resources

Georgia-Pacific Corporation

Georgia Power Company

Georgia State University

Grady Memorial Hospital

J.C. Penney Company

Lanier Business Products

Metropolitan Atlanta Rapid Transit Authority

Norrel Service, Inc.

Oxford Services

Scientific-Atlanta, Inc.

Six Flags Over Georgia

Southern Bell Telephone Company

Trust Company Bank

United States Department of Health and Human Services

United States General Services Administration

United States Internal Revenue Service

Wendy's Inc.

Appendix H

Schools that Participated in the Study

Schools that Participated in the Study

Atlanta Area Technical School

Clark College

Clayton College

DeKalb Community College

Emory University

Georgia Institute of Technology

Georgia State University

Kennesaw College

Morehouse College

Morris Brown College

Spelman College

V I T A

Charletta Bracy Clark was born in Mobile, Alabama, on January 19, 1942. She attended the public schools in Mobile and was graduated from Central High School in 1960. She enrolled in Alabama State College in 1960, and received a Bachelor of Science degree in business education in 1964. In September, 1964, she was hired by the Mobile County School Board as Secretary to the Principal of Trinity Gardens High School. From 1965 to 1969, she was employed as Assistant Registrar at Mobile State Junior College.

In January, 1969, she took a leave of absence from her position and enrolled in the master's degree program in business education at Indiana University, earning her Master of Science degree in September, 1970. She was also granted a teaching assistantship while pursuring her studies. Upon completion of her master's degree, she returned to Mobile State Junior College as an Instructor in the Business Education Department and taught there until 1972.

From 1972 to 1978, she was employed in business and industry as a Personnel Specialist for Allstate Insurance Company; as Manager of Employment for the Metropolitan Atlanta Rapid Transit Authority; and as a Special Consultant to the Governor's Advisory Board on Vocational Education in Atlanta, Georgia. She taught evening courses at Georgia State University from 1972 to 1976.

In 1978, she returned to a full-time position in education when she accepted her present position as Assistant Professor of Business Education at Clark College in the Atlanta University Center. During the summers of 1980 to 1982, she was employed as a Product Administrator for the IBM Corporation in Atlanta, Georgia.

In 1983, she was granted a United Negro College Fund Fellowship sponsored by IBM and an assistantship from Indiana University to study for the Doctor of Philosophy degree in business education. While enrolled in the doctoral program, she worked as an Associate Instructor in the Business Education and Administrative Systems Department. She presently holds membership in Delta Pi Epsilon, a national honorary professional graduate society in business education and Pi Lambda Theta, a national honor and professional organization in education.