PERCEPTIONS OF ACCOUNTING INSTRUCTORS AND

INDUSTRY REPRESENTATIVES CONCERNING

UTILIZATION OF COMPUTERS IN

ACCOUNTING CLASSROOMS

By

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PREFACE

The purpose of this study was to investigate perceptions of accounting instructors and industry representatives concerning utilization of computers in the accounting classroom for postsecondary educational programs and to obtain information which could be useful for determining the proper utilization of computers in an accounting curriculum. Results of questionnaires given to accounting instructors and industry representatives were tabulated and analyzed.

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Special gratitude is expressed to a good friend, Vicki Stortzum, for assistance in typing and operating the word processor.

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CHAPTER I

THE RESEARCH PROBLEM

Introduction

Most businesses are taking advantage of computers to store and process accounting data, thus, many job responsibilities relating to accounting are changing. In recent years, computers have been adapted to accounting. Computers may completely replace the manual bookkeeping accounting functions as known today (Cunitz, 1972).

According to Cunitz (1972), a knowledge of electronic data processing systems and computer capabilities is essential for accounting students. Most of this knowledge will be gained from specialized computer courses. However, there still needs to be exposure to computers in a course of accounting fundamentals to demonstrate the bond between accounting and computers at a very early stage of the education process. Through applications which eliminate many tedious bookkeeping operations, the student learns to view the computer as a tool to make his work easier. The use of the computer will not eliminate the necessity to learn accounting principles and procedures. Computers should be used to improve student knowledge of accounting material already learned, not as a substitute to learning such material (Cunitz, 1972).

Fess (1981) stated that computers can store information for subsequent recall and usage, absorb new information at incredible speeds,

process information according to the most involved instructions imaginable, and print preselected information in any desired form. Examples of computer applications in accounting are payroll, budget control, cost control, financial statement preparation, inventory control, billing, cash flow projections, cost benefit analyses, quality control, and long-range planning.

According to Fess (1981), the presence of the computer signifies that vast quantities of accounting data can be collected and transformed rapidly into meaningful reports. The accountant will become increasingly involved in interpreting accounting reports and utilizing them to aid management decisions as more of the routine accounting work is performed by the computer.

The presence of the computer in businesses requires accounting personnel to know or learn how to use them. Based on preliminary inquiries and contacts with instructors and administrators, post-secondary business education programs do not utilize computers in the accounting classroom. Most of the computer knowledge now acquired by accounting graduates prior to employment is gained from specialized computer courses which do not directly incorporate accounting type problems into their instructional programs. Graduates of accounting programs at Oklahoma State University School of Technical Training respond to postgraduate questionnaires with recommendations for teaching computers in the accounting classroom. Demand for computer instruction in the accounting classroom is a logical response to the needs of industry (Stubbe, 1982). In a conversation with Dr. Richard Tinnell, a member of the panel of experts (Appendix A), he stated that generally the perceptions of individuals and groups affected by

educational program changes are significant factors in the successful implementation of such changes. Campagna (1980) concluded that perceptions of practitioners toward university programs were important components of any effort to design an optimal curriculum.

Statement of the Problem

There is a lack of information concerning the perceptions of accounting instructors and industry representatives in relation to uses of computers in accounting classrooms although these two groups are the most immediately affected with any change in postsecondary education to include computers in the accounting curricula.

Purpose of the Study

The purpose of this study was to investigate perceptions of accounting instructors and industry representatives concerning utilization of computers in the accounting classroom for postsecondary educational programs and to obtain information which could be useful for determining the proper utilization of computers in an accounting curriculum.

Research Questions

The research in this study pursued the following questions:

1. How do classroom teachers and business leaders perceive computers should be used in the accounting curriculum of postsecondary education programs?

2. What reasons are given for feelings that use of computers would not be beneficial?

3. In what areas of the accounting curriculum of postsecondary education programs is there a need for computer usage?

4. In what ways should the computer be used in the accounting curriculum?

5. What type of computer could best be used in the accounting curriculum?

Limitations

This study was limited to two groups surveyed, accounting instructors employed by schools in the state of Oklahoma as listed in Appendix B and selected industry representatives in Tulsa and a 60-mile surrounding area. The validation of this study was based on the reputable respondents' submissions.

Assumptions

The following assumptions were formulated for the purpose of the study:

1. The primary goal of accounting classes remains to be to teach accounting principles and theory.

2. Job responsibilities are changing in the business world since most businesses are taking advantage of computers to process and store accounting data.

3. Most repetitious activities, primarily those taught in the beginning accounting classes, are now performed by the computer in the offices performing accounting functions.

4. Computers are not currently utilized in the accounting classrooms to the extent possible.

Definitions

For the purpose of this study the following definitions are used:

Postsecondary business education programs – those programs the Oklahoma State System of Higher Education designated as technical/occupational programs of a two-year school.

A computer – an electronic device capable of accepting data, performing arithmetic or decision type processes on it, and making the answers available.

A minicomputer – a stored-program computer which falls into a small computer category based on price, main memory size, and variety of functional capabilities.

A microcomputer – a computer with each major section--central processing unit (CPU), control, timing, and memory--contained on a single miniature circuit board, usually a single large-scale integration (LSI) chip; a class of small, very low-cost computer systems using single-chip and LSI technology.

An advisory committee – a committee composed of several interested representatives from business and industry who provide guidance and advice to programs of an educational institution.

An instructor – a person who teaches accounting related courses in a postsecondary program.

An industry representative – a member of business or industry who uses or has knowledge of computers in accounting related operations.

CHAPTER II

REVIEW OF LITERATURE

Up to this time, accounting instructors have left the teaching
of computers to the data processing department instructors (Babcock,
1979). These instructors primarily teach programming and specialized
computer courses, creating a gap between computer theory and practical
accounting application. Need exists for exposure to computers in a
course of accounting fundamentals to demonstrate the bond between
accounting and computers at a very early stage.

A review was made of literature related to the usage of computers,
other than by data processing departments, in both business and
industry and educational institutes. Literature applicable to business
and industry was reviewed as a group with analysis by usage. Litera-
ture applicable to educational institutes was segregated into subgroups
with analysis by usage in the subgroups.

Business and Industry

Business and industry users of computers consist of almost every
business and industry in the United States in 1982 (Sheldon, 1982).
The size of the user has no bearing on the usage. In 1976, the total
number of small and large computers in operation was expected to
increase during the next five years and was projected to increase to
approximately 160,000 by 1986. According to a 1981 Datapro publication

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cited by Sheldon in 1982, approximately 60,000 small business com-
puters were sold in 1980. This figure is projected to reach 500,000
per year by 1985. Based on the large shortfall of the 1976 projec-
tions, there is good probability that the projection of 500,000 for
1985 is low.

Sheldon and Buchanan (1982) emphasized that large firms with
sophisticated computer capabilities often use small computers to
decentralize or distribute the computing function and stated that the
most common use in businesses for small computers has been for
accounting applications. The profit and nonprofit organizations need
to control assets and allocate resources. The primary accounting
activities that have been computerized are billings, accounts
receivable and payable, client write-up and financial statement prepa-
ration, sales analysis, general ledger, fixed asset recordkeeping,
payroll, and inventory control (Sheldon, 1982). Financial accounting
applications are not all that have been computerized in most
businesses. Sheldon and Buchanan (1982) agree systems to support
general administration and planning activities have been developed and
that these include cost accounting, financial planning and profit
projections, project management, lease administration, market research,
tax planning and preparation, cash management, control of investment
portfolios and many others. In manufacturing firms, materials flow and
scheduling problems are solved by computer systems. The maintenance of
large name and address lists and the generation of mailing labels are
almost always created using a computer.

Word processing has become another application of the small com-
puters. Word processing involves the fundamental tasks of text entry

and modifications of letters, reports and other documents (Sheldon, 1982).

Sheldon and Buchanan (1982) stressed small computers have made possible the decentralization of computing facilities in organizations and that most businesses who had not considered computer systems in the late 1960's installed minicomputers in the early 1970's. The swift growth and economic impact can not be underestimated. For example, in 1969, one could install an accounting system on an IBM 1130 for about $90,000 in hardware cost. In 1972, one could install the same system on an HP 9830 for about $10,000. In 1977, it cost about $7,000 to install the same system. In 1981, it was possible to install the same accounting system for about $4,000 (Sheldon, 1982). Dealers in the Tulsa area stated a price of about $2,400 for this system in late 1982.

The multiple uses of the small computer along with the big reduction in cost has caused increased usage of the small computers (Wynne, 1981). Most accountants and particularly Certified Public Accountants (CPA) have greatly enhanced the management of their practices by using small computers. Most computer installation failures are due to poor planning, a lack of inhouse computer skills, and the reluctance of employees to accept the computer (Wynne, 1981).

Educational Institutions

Educational facilities have adapted computers to educational as well as their financial and administrative uses. Educational institutes from nurseries to postsecondary schools are using computers to help teach students from the handicapped to the gifted (IBM, New York, 1979).

In some nursery schools preschoolers have been allowed, in fact encouraged, to play with the computers. They have learned simple basic things but very advanced for groups their age (The, 1982).

In elementary schools across the country computers are used as an instructional aid in teaching elementary mathematics, english communication skills, selected topics in algebra, spelling and all kinds of practices and drills. Computer based practices and drills can offer significant assistance to students expected to master a specialized vocabulary or demonstrate rapid recall of mathematical or scientific data (Davis, 1980). For the gifted student, the tutorial or dialogue computer aided instruction (CAI) has worked best. For the disabled or handicapped all kinds of new computer instructional aids have been developed. The computer has made possible for the disabled student equal opportunities in cases where conventional educational methods are not feasible or effective (Weir, 1982). The computer has provided a vehicle for genuine intellectual achievement. Logo is one such computer activity. The application of the computer has been shown here to be another supplemental tool for multiplying the classroom effectiveness of teachers (Watt, 1982).

In high schools, computers have been on the rise with more instructors utilizing them in teaching their particular subject (Stubbe, 1982). Computer literacy courses have emerged even in the small high schools (Johnson, 1982). In the last few years costs have gone down making the purchase of some computers easier (Rowland, 1982). High school clientele demanded hands-on experience with electronic equipment. In the hope of keeping some students interested in learning, computer purchases have been made.

Infiltration of the computer into the business world has had a dynamic effect on traditional accounting methods (Brown, 1980). Information entry and retrieval has undergone dramatic change. An advisory committee of the Thomas Downey High School in Modesto, California convinced the institution that accounting instruction had not kept pace with changes in the application of accounting theory necessitated by the extensive use of new technology. One advisory committee member related a horror story, possibly a story happening across the nation, of a company who had brought in nine cathode ray tubes (CRT) to be used by 20 accounting employees. The original employees, who were trained to perform their tasks on a manual basis, had difficulty adjusting to new technology. The company still employs 20 people, but only three of the originals are still with the company. The company believed that the employees were so heavily indoctrinated on a manual system that they could not adjust to a computerized system. As a result, physical computer application has been integrated into the accounting classroom at Thomas Downey High School.

Brown concluded that the accounting classroom is the appropriate place to introduce the computer, since computers are so universally accepted in business. Business Department Coordinator, Brown, (1980) cited the following:

> The inclusion of computer operation in the accounting
> course has been a success at Thomas Downey High School.
> Students who had lost interest in school began to see a pur-
> pose in education; others who had not planned to continue
> their education went on to college (p. 18).

Stubbe and Weaver (1980) stated the main reasons for teaching data processing concepts in the high school accounting classes were to increase the employment possibilities of students for expected high

technology offices of the 1980's; to prepare students for college programs; and to develop computer literacy for everyday personal use. Students who have gone directly after high school into the work force have encountered the full impact of computer technology. Some experts think that most graduates have been operating computer terminals shortly after leaving high school (Stubbe, 1982).

Reap (1980) in her article on the importance of data processing instruction in the accounting class concluded, "Job tasks in the electronic data processing category are the most frequently performed of all (clerical accounting) tasks" (p. 18). Stubbe and Weaver (1980) also emphasized the importance of including computer related instruction in the accounting class. Eighty percent of the nation's computers are being put to business application and only 20 percent are being utilized for mathematics and science related application, therefore, Stubbe and Weaver concluded: "It is imperative that accounting teachers begin infusing data processing knowledge into the classroom in order to more thoroughly prepare tomorrow's employees for a computerized society" (p. 27).

Most all programs in high schools have started using computers to some extent. Computer literacy courses seemed to be the most popular courses for schools just beginning to use computers.

The postsecondary schools have not fallen by the wayside in the race for computer usage in the classroom. More postsecondary schools have purchased, for classroom use, small computers than ever before (Davis, 1980). Computers have been utilized to teach filing, shorthand, economics, marketing, business principles and math, keyboarding, word processing, and computer literacy courses (Frederick, 1982).

DeNardo and Thornton (1982), college recruiters from two accounting firms, reiterate that manual systems in accounting are fast disappearing. Changes such as these have serious ramifications for accounting programs and accounting professors. Recruiters are looking for students with double majors in accounting and computer science. The solution offered by DeNardo and Thornton emphasized a greater amount of early exposure to the computer would facilitate the types of change in education that would have to take place. Business and academe professionals need to look at and perhaps redefine and redesign the educational and training programs for students entering accounting programs and preparing to enter the profession.

Strippoli (1980) believed that postsecondary schools had an obligation to provide a program that is relevant to the world that the students will enter. He thought it important that the computer be introduced into the school curriculum. Muscat (1980), co-director of the center for Business Education and Research, McLaren College of Business Administration of the University of San Francisco, made the following remark:

> Business educators are discovering that the microcomputer
> is as useful and as friendly an instructional device as the
> overhead projector, slide/tape projector, or chalkboard.
> Contrary to earlier fears, the overall effect of the micro-
> computer is to personalize, rather than depersonalize,
> instruction. Student interest typically runs high, thereby
> encouraging the enrollment and retention of students in
> business courses (p.10).

A study of accounting practitioners by Campagna, Georges and Talarzyk (1980) related to the preparation of students for careers for the present and in the future. The respondents to their survey believed that an increase in computer science and accounting related courses was extremely important in the future.

A study of accounting practitioners by Campagna, Georges and Talarzyk (1980) related to the preparation of students for careers for the present and in the future. The respondents to their survey believed that an increase in computer science and accounting related courses was extremely important in the future.

Carter et al. (1981) as related in an article in Interface, conducted an evaluation of Electronic Data Processing (EDP) instruction in accounting programs. The authors surveyed schools who were members of the American Assembly of Collegiate Schools of Business (four-year colleges). One of the questions was designed to provide information concerning the integration of computers in the accounting coursework. Most responding schools reported computer integration into less than ten percent of the accounting courses offered. According to Carter (1981) few responding schools introduced the computer in an accounting principles course. The study concluded that only limited integration of the computer into accounting courses seemed to be occurring at respondent schools. However, the study pointed out that the professional accounting bodies recommended inclusion of computers in the programs, and schools deficient in this area of accounting education may need to strengthen their offerings for current and future accounting students.

Summary

One of the greatest challenges to educators is that of keeping the educational programs relevant to the needs and trends of business, while providing meaningful knowledge and skills for each student (Babcock, 1979). Time limitations weigh heavily on decisions regarding

the overall objectives for the program, the amount of content to cover, the instructional approach, and the type of skills to be taught. The challenge has been one of constantly evaluating and revising the program offering to insure that the student has been trained to meet the needs of business and industry. The wide use of computers by industry and business has left the accounting programs in the educational institutions trailing behind. .

All of the literature reviewed indicates that manual accounting systems of the business office have become a thing of the past and educational institutions must update techniques and programs to properly equip present and future students with the proper training and knowledge to work efficiently in the computerized age ahead.

If accounting classes are to do a proper job of preparing students for work, the curriculum needs to be changed. Again, the literature reviewed indicated that people need more technological training than ever before, and the best place for the accounting profession to accomplish this enormous task is in the accounting classroom.

CHAPTER III

METHODOLOGY

The purpose of this study was to investigate perceptions of
accounting instructors and industry representatives concerning utili-
zation of computers in the accounting classroom for postsecondary edu-
cational programs and to obtain information which could be useful for
determining the proper utilization of computers in an accounting
curriculum. Specifically, this study was directed toward instructors
in two-year accounting programs that are similar to the Oklahoma State
University School of Technical Training (OST) program, and toward
members of industry.

Population Surveyed

Full-time accounting instructors within the state of Oklahoma
in schools listed as giving associate degrees, diplomas, and/or cer-
tificates for accounting associate or bookkeeping/accounting clerk
programs were surveyed to obtain their views regarding implementation
of computers into the accounting curriculum. This study specifically
included eight Oklahoma schools listed in Appendix B that were desig-
nated by the Oklahoma State Regents of Higher Education as comprising
the category of technical/occupational education (non-four-year
institutes) that offer degrees or certificates in the accounting area

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under study. A total of 84 instructors were identified in these schools and were mailed the survey questionnaires.

The four-year degree granting schools were excluded from the study because most of their students do not enroll in accounting courses until after their first year. In a two-year certificate or degree program the students enroll in accounting courses the first semester.

A panel of experts was selected for their expertise in accounting, instruction, business and/or computer application to aid in the development of the instrument used in this study. See Appendix A for identification and positions of these individuals. This panel of experts was also used in formulating the approach to study the views of industry. This approach was based on accessibility of business and industry representatives as well as other considerations such as qualifications and known interest in the educational system. The panel chose to use the members of the OST Business Education Department's Advisory Committee and additional individuals named by the Advisory Committee. A total of 28 industry representatives, 15 members of the advisory committee and 13 additional industry representatives, were sent questionnaires.

Development of Questionnaire

Through research and discussion with concerned individuals and guidance from the panel of experts, a questionnaire was developed to solicit the perceptions of accounting instructors and industry representatives concerning utilization of computers in accounting classrooms. The questionnaire shown in Appendix C contained seven questions which were asked to obtain an overall conclusion for each question.

Collection of Data

Each of the 28 industry representatives and 84 accounting instructors selected for the study were mailed a copy of the questionnaire at their respective places of business or instruction. Enclosed with the questionnaire, to facilitate response, was a cover letter (Appendix D) explaining the purpose of the questionnaire, a pencil, and a preaddressed return envelope with postage. The 112 questionnaires were mailed during the first week of March, 1983. Two weeks was the allowed time for returning questionnaires. After this interval, a further mailout of postcards was made to non-respondents in the Tulsa, Oklahoma area and telephone calls were placed to non-respondents outside the Tulsa area to encourage questionnaire responses.

Tabulation of Data

Questionnaires were separated by accounting instructors and by industry representative. The responses to each question were compiled and percentages of affirmative and negative answers were determined. The data were then tabulated and evaluated for when, how, and where computers should be placed in the accounting curriculum. These evaluations were made by category of industrial representatives or accounting instructors respondents and then the responses of the two surveyed groups were compared and differences were tabulated.

CHAPTER IV

FINDINGS

The findings of the study on the perceptions of accounting in-
structors and industry representatives concerning utilization of com-
puters in the accounting classroom are reported in this chapter. The
purpose and scope of this study was to present a discussion of re-
sponses to questionnaires and resulting data from the questionnaires.

Purpose and Scope of Study

The purpose of this study was to investigate perceptions of
accounting instructors and industry representatives concerning utiliza-
tion of computers in the accounting classroom for postsecondary educa-
tional programs in the two-year technical/occupational programs and to
obtain information which could be useful for determining the proper
utilization of computers in an accounting curriculum.

The researcher chose to survey two groups to determine their
opinions concerning possible use of computers in the accounting curri-
culum in two-year technical/occupational programs. Eighty-four
accounting instructors from all postsecondary schools with similar
technical/occupational accounting programs as designated by the
Oklahoma State Regents for Higher Education composed one group.
Twenty-eight industry representatives were selected for the second
group.

Response Rate

Forty-three accounting instructors responded out of the 84 surveyed representing a 51 percent response rate. Nineteen out of 28 responded from the business and industry group representing a 68 percent response rate.

Results

All of the respondents answered question one and question two in the survey. In response to question one, "Do you feel computers should be used in the accounting curriculum?" 100 percent of the industry representatives responding answered "yes" while 86 percent of the accounting instructors responding answered "yes" and 15 percent answered "no".

In response to question two, "Do you feel utilization of small computers in teaching accounting would be of material benefit to prospective employees when applying for accounting related positions?" 100 percent of the industry representatives responding answered "yes" while 93 percent of the accounting instructors responding answered "yes" and 7 percent answered "no".

Question three was a multi-part question inquiring into reasons respondents would not use computers in the accounting classroom. The respondents were requested to answer "yes" or "no" to eight preselected, potential reasons and were provided an opportunity to add others they thought to be appropriate. Over one-half of the respondents did not choose to select any of the eight preselected items in question three, but instead chose to answer with not applicable ("N/A").

The number of industry representatives' "yes" and "no" responses to reasons computers should not be used were recorded and compared in Table I. In the list of reasons computers should not be used, lack of properly trained personnel rated a 57 percent positive response while lack of interest and lack of importance rated a 100 percent negative response as depicted in Table I. The number of accounting instructors' "yes" and "no" responses to reasons computers should not be used were recorded and compared in Table II. In the list of reasons computers should not be used, lack of properly trained personnel rated a 79 percent positive response while lack of interest and lack of importance rated a 100 percent negative response as depicted in Table II. Additional reasons that were not listed in question three are identified in Appendix E. Many of the individuals who returned questionnaires did not respond to the reasons listed in question three. Therefore, comparisons of "yes" and "no" replies versus "no response" were made in Table III for industry representatives and on Table IV for instructors. These comparisons show that over one-fourth of the responding instructors answered affirmatively to all potential reasons other than lack of interest and lack of importance while the industry representatives' affirmative replies ranged from 5 percent to 16 percent.

Question four asked respondents to please state specific reasons they believed the use of small computers in teaching accounting would not be beneficial to students. Most respondents chose not to answer this question. Responses from those that chose to answer are recorded in Appendix F.

Question five was a multi-part question which sought identification of specific accounting courses which the respondents suggested for

TABLE I

INDUSTRY REPRESENTATIVES' RESPONSES TO REASONS
COMPUTERS SHOULD <u>NOT</u> BE USED

Reasons	Responses			Percentage of Responses	
	<u>Yes</u>	<u>No</u>	<u>Total</u>	<u>Yes</u>	<u>No</u>
a. Students receive computer training in other courses	2	3	5	40	60
b. Lack of interest	0	4	4	0	100
c. Lack of importance	0	4	4	0	100
d. Lack of properly trained personnel	4	3	7	57	43
e. Lack of adequate equipment	1	4	5	20	80
f. Lack of adequate programs and textbooks	3	5	8	37	63
g. Lack of time in the classroom	3	3	6	50	50
h. Lack of preparation time	2	3	5	40	60

TABLE II

ACCOUNTING INSTRUCTORS' RESPONSES TO REASONS
COMPUTERS SHOULD NOT BE USED

Reasons	Responses			Percentage of Responses	
	Yes	No	Total	Yes	No
a. Students receive computer training in other courses	12	4	16	75	25
b. Lack of interest	0	10	10	0	100
c. Lack of importance	0	10	10	0	100
d. Lack of properly trained personnel	11	3	14	79	21
e. Lack of adequate equipment	14	2	16	88	12
f. Lack of adequate programs and textbooks	12	3	15	80	20
g. Lack of time in the classroom	16	2	18	89	11
h. Lack of preparation time	13	1	14	93	7

TABLE III

INDUSTRY REPRESENTATIVES' RESPONSES VERSUS NON-RESPONSES
TO REASONS COMPUTERS SHOULD NOT BE USED

Reasons	Percentage of Survey Respondents			
	Yes	No	No Response	Total
a. Students receive computer training in other courses	10	16	74	100
b.. Lack of interest	0	21	79	100
c. Lack of importance	0	21	79	100
d. Lack of properly trained personnel	21	16	63	100
e. Lack of adequate equipment	5	21	74	100
f. Lack of adequate programs and textbooks	16	26	58	100
g. Lack of time in the classroom	16	16	68	100
h. Lack of preparation time	10	16	74	100

TABLE IV

ACCOUNTING INSTRUCTORS' RESPONSES VERSUS NON-RESPONSES
TO REASONS COMPUTERS SHOULD <u>NOT</u> BE USED

	Reasons	Percentage of Survey Respondents			
		<u>Yes</u>	<u>No</u>	<u>No Response</u>	<u>Total</u>
a.	Students receive computer training in other courses	28	9	63	100
b.	Lack of interest	0	23	77	100
c.	Lack of importance	0	23	77	100
d.	Lack of properly trained personnel	26	7	67	100
e.	Lack of adequate equipment	32	5	63	100
f.	Lack of adequate programs and textbooks	28	7	65	100
g.	Lack of time in the classroom	37	5	58	100
h.	Lack of preparation time	31	2	67	100

utilization of computers. The respondents were requested to answer "yes" or "no" to 11 preselected courses validated by the panel of experts listed in Appendix A. The data are presented in Tables V and VI and reflect the results of responses of industry representatives and accounting instructors respectively. In the list of courses suggested for computer utilization, the industry representative respondents rated Accounting Systems with 94 percent, Advanced Accounting II with 94 percent, and Auditing with 88 percent. The accounting instructors rated Accounting Systems with 90 percent, Advanced Accounting II with 58 percent and Auditing with 77 percent. Provision was also made for respondents to identify other courses they believed appropriate. These items are listed in Appendix G for both groups surveyed.

Question six was another multi-part question. It inquired into how the groups suggested computers be utilized. This question provided for "yes" or "no" answers to ten situations preselected and validated by the panel of experts, and also provided space for a narrative response. Data resulting from responses of industry representatives is presented in Table VII and data resulting from responses of accounting instructors is presented in Table VIII. One-hundred percent of the industry representatives responding indicated they would utilize the computers in the areas of computer aided instruction, accounts receivable and payable calculations, inventory costing problems, and payroll calculations. Of the accounting instructors responding, 97 percent would utilize the computer in depreciation calculations and payroll calculations. Eighty-four percent would utilize the computer as computer aided instruction. Other items are listed in Appendix H for both groups surveyed.

TABLE V

INDUSTRY REPRESENTATIVES' RESPONSES TO SUGGESTED
COURSES FOR COMPUTER UTILIZATION

Courses	Responses			Percentage of Responses	
	Yes	No	Total	Yes	No
a. Principles of Accounting I	4	5	9	44	56
b. Principles of Accounting II	8	3	11	73	27
c. Intermediate I	8	5	13	62	38
d. Intermediate II	11	3	14	79	21
e. Cost Accounting	10	3	13	77	23
f. Advanced Cost Accounting	16	1	17	94	6
g. Advanced Accounting I	11	3	14	79	21
h. Advanced Accounting II	16	1	17	94	6
i. Auditing	14	2	16	88	12
j. Personal Income Tax	11	2	13	85	15
k. Accounting Systems	16	1	17	94	6

TABLE VI

ACCOUNTING INSTRUCTORS' RESPONSES TO SUGGESTED
COURSES FOR COMPUTER UTILIZATION

Courses	Responses			Percentage of Responses	
	Yes	No	Total	Yes	No
a. Principles of Accounting I	14	17	31	45	55
b. Principles of Accounting II	16	14	30	53	47
c. Intermediate I	14	14	28	50	50
d. Intermediate II	14	12	26	54	46
e. Cost Accounting	20	11	31	65	35
f. Advanced Cost Accounting	23	6	29	79	21
g. Advanced Accounting I	15	11	26	58	42
h. Advanced Accounting II	15	11	26	58	42
i. Auditing	23	7	30	77	23
j. Personal Income Tax	18	13	31	58	42
k. Accounting Systems	27	3	30	90	10

TABLE VII

INDUSTRY REPRESENTATIVES' RESPONSES TO SUGGESTED
WAYS FOR COMPUTER UTILIZATION

	Areas of Utilization	Responses			Percentage of Responses	
		Yes	No	Total	Yes	No
a.	Homework in courses now offered	16	1	17	94	6
b.	Computer aided instruction	17	0	17	100	0
c.	Financial Statement Preparation and Problems	16	1	17	94	6
d.	Accounts Receivable and Payable Calculations	16	0	16	100	0
e.	Personal Income Tax Preparation	14	1	15	93	7
f.	Governmental Accounting Problems	11	1	12	92	8
g.	Cost Accounting Problems	15	2	17	88	12
h.	Inventory Costing Problems	18	0	18	100	0
i.	Depreciation Calculations	17	1	18	94	6
j.	Payroll Calculations	18	0	18	100	0

TABLE VIII

ACCOUNTING INSTRUCTORS' RESPONSES TO SUGGESTED
WAYS FOR COMPUTER UTILIZATION

	Areas of Utilization	Responses			Percentage of Responses	
		Yes	No	Total	Yes	No
a.	Homework in courses now offered	26	13	39	67	33
b.	Computer aided instruction	32	6	38	84	16
c.	Financial Statement Preparation and Problems	29	5	34	85	15
d.	Accounts Receivable and Payable Calculations	30	5	35	86	14
e.	Personal Income Tax Preparation	24	8	32	75	25
f.	Governmental Accounting Problems	21	7	28	75	25
g.	Cost Accounting Problems	31	5	36	86	14
h.	Inventory Costing Problems	32	3	35	91	9
i.	Depreciation Calculations	36	1	37	97	3
j.	Payroll Calculations	35	1	36	97	3

Question seven sought respondent opinions as to the best types of computers to use to teach accounting students. Twelve industry representatives and 36 accounting instructors responded regarding the use of individual personal computers. Ninety-two percent of the respondents, both industry representatives and instructors answered "yes" to the use of individual personal computers. Thirteen industry representatives and 26 accounting instructors responded regarding the use of terminals connected to time-sharing computers. Of these respondents 92 percent of the industry representatives and 54 percent of the accounting instructors replied in the affirmative to the use of terminals hooked to time-sharing computers. Respondents from both groups suggested the use of Apple, Radio Shack's TRS-80, IBM Personal Computers and IBM System 34. Narrative responses regarding the best types of computers to use are recorded in Appendix I.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

A summary of this study on perceptions of accounting instructors and industry representatives concerning utilization of computers in accounting classrooms is presented in this chapter. The conclusions and recommendations drawn from the study follow the summarization.

Summary

The purpose of this study was to investigate perceptions of accounting instructors and industry representatives concerning utilization of computers in the accounting classrooms for postsecondary educational programs in the two-year technical/occupational programs and to obtain information which could be useful for determining the proper utilization of computers in an accounting curriculum. Descriptive research was used to solicit response to seven preselected questions from industry representatives and accounting instructors from postsecondary schools in the state of Oklahoma with technical/occupational programs as designated by the Oklahoma State Regents for Higher Education. The study made comparisons between the two groups concerning the data obtained on each of the seven selected questions.

The study had the following specific objectives:

1. to identify whether surveyed groups believed that computers should be included or excluded from the accounting curriculum and to

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identify whether they believed utilization of small computers in teaching accounting would be of material benefit to prospective employees when applying for accounting related jobs.

2. to identify reasons respondents perceive computers should not be used in the accounting curriculum.

3. to identify areas or courses in which computers should be incorporated.

4. to identify the best types of computers to utilize in the accounting classroom.

Survey questionnaires were mailed to 28 representatives from industry and to 84 accounting instructors at postsecondary technical/ occupational two-year schools with accounting programs similar to Oklahoma State University School of Technical Training.

The responding surveys were tabulated according to the "yes" or "no" answers to each question. Comparisons between the two groups according to the questions were then made. From these comparisons, overall conclusions were drawn.

Findings of the Study

There were indications that computers should be used in the accounting curriculum and that such utilization would benefit students when applying for accounting related positions. Industry respondents unanimously replied that computers should be used by accounting students and that such usage would be beneficial to prospective employers. A large majority of the accounting instructors agreed with the need for computer usage. There were a small percentage of instructors who responded that computers should not be used in the

accounting curriculum. Their main concern was that if computers were integrated into the accounting curriculum, too much effort would be spent on teaching/learning computers to the detriment of the teaching of accounting. One respondent, as listed in Appendix F summed up the reservations with the following statement:

> We now have general students who cannot add, subtract, multiply or divide because of the hand-held calculator; We will soon have accounting students who cannot journalize, post or prepare financial statements without a computer.

Both groups surveyed unanimously replied they did not perceive lack of interest or lack of importance as reasons for not including computers into the accounting curriculum. Lack of time in the classroom was the most frequently affirmed reason and lack of adequate equipment was the second most frequently affirmed reason for exclusion of the computers.

Both surveyed groups identified Principles of Accounting I as the least suggested course and Accounting Systems as the most suggested course for computer utilization. Fifty-six percent of the industry representative respondents and 55 percent of the accounting instructor respondents stated "no" to usage of computers in Principles of Accounting I. Ninety-four percent of the industry representative respondents and 90 percent of the accounting instructor respondents stated "yes" to usage of computers in an Accounting Systems course. The majority of both groups responded affirmatively to use of computers in the other preselected accounting related courses. Both groups tended to show affirmative responses to the use of computers in more-advanced courses. The affirmative response percentages were 77 percent for industry and 65 percent for instructors on Cost Accounting and 94 percent for industry and 79 percent for instructors on Advanced Cost Accounting.

Responses to the inquiries of how computers should be used in the accounting curriculum show a clear majority of both groups were in favor of all suggested uses. They were least favorable to utilization of the computer by integrating into homework assignments in the courses now offered. Both groups also gave more favorable answers to utilization of computers in problem solving in Inventory Costing, Depreciation and Payroll categories than in other suggested categories.

The preponderance of both groups answered affirmatively to the use of individual personal computers for accounting curricula. However, there was a significant difference in the responses of the two groups regarding the use of terminals connected to a time-sharing computer. Ninety-two percent of the industry respondents favored the terminals while only 54 percent of the instructor respondents favored them. Responses from both groups did not disclose any one brand of computer with a clear recommendation. However, their responses did list some name brands, i.e. IBM, Radio Shack TRS-80, and Apple were recommended as shown in Appendix J.

Conclusions

The review of literature indicated there was little stated evidence of the usage of computers in accounting curricula although there was a need for such based on the extensive use of computers in accounting related tasks in industry and business. Both groups recognized this need and strongly responded that computers should be used in the accounting curricula and that its use would be of benefit to prospective employees when applying for accounting related positions.

This study disclosed certain factors which should be of benefit in devising an implementation plan for integration of computers into an accounting curriculum of postsecondary technical/occupational programs. These factors include these points:

1. that both industry representatives and the instructors already recognized the need.

2. that both groups indicated more support for integration of computers into advanced courses and less support to integration of computers into the lower-level courses, particularly Principles of Accounting I.

3. that both groups indicated more interest in the utilization of computers in the more defined accounting fields such as inventory costing, depreciation, and payroll.

4. that a major concern of instructors was lack of time in the classroom.

5. that both groups were more supportive of integration of computers as computer aided instruction than as homework assignments in the courses now offered.

6. that although both groups agreed that personal computers would be useful in teaching accounting students, they were not in agreement regarding the use of terminals connected to a time-sharing computer, instructors were not strongly in favor of this method.

Recommendations

Based on the results of this study, the following are recommended. Industry managers, educators, administrators and other interested parties should continue to pursue the integration of

computers in accounting curricula of postsecondary technical/occupational programs. This study should be made available to interested parties to aid in implementing the use of computers in accounting curricula. Particular consideration should be given to implementing computer usage in the higher level accounting courses before usage in lower level courses. Interested parties should take steps, as necessary, to assure that the use of computers in the accounting curriculum does not detract from the learning of accounting theory, procedures and practices.

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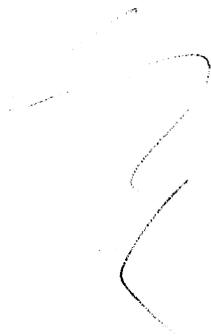
APPENDIX A

LIST OF PANEL OF EXPERTS

A panel of experts was chosen by the researcher to aid in making decisions concerning the population to survey and the questions to use in the survey. The panel consisted of the following:

Dr. Jerry Davis, School of Occupational and Adult Education
Oklahoma State University
Stillwater, Oklahoma

Dr. Richard Tinnell, Coordinator, Instructional Resources
Oklahoma State University School of Technical Training (OST)
Okmulgee, Oklahoma

Ms. Ann Carey, Instructor, Data Processing
Oklahoma State University School of Technical Training (OST)
Okmulgee, Oklahoma

Ms. Charlene Hart, Instructor, Accounting
Oklahoma State University School of Technical Training (OST)
Okmulgee, Oklahoma

Mr. R. W. Cook, Supervisory Auditor
Minerals Management Services
Tulsa, Oklahoma

APPENDIX B

LIST OF SCHOOLS BY THE OKLAHOMA STATE

SYSTEM OF HIGHER EDUCATION

TECHNICAL/OCCUPATIONAL

PROGRAMS

The following schools were chosen as suggested by the panel of experts to participate in the study. The 84 accounting instructors participating in the study were listed as teaching one or more accounting courses at these schools:

Northern Oklahoma College at Tonkawa, Oklahoma

Oklahoma State University Technical Institute at Oklahoma City Oklahoma

Oklahoma State University School of Technical Training at Oklahoma

Oscar Rose Junior College at Midwest City, Oklahoma

Seminole Junior College at Seminole, Oklahoma

South Oklahoma City Junior College, Oklahoma City, Oklahoma

Tulsa Junior College at Tulsa, Oklahoma

Western Oklahoma State College at Altus, Oklahoma

THE OKLAHOMA STATE SYSTEM OF HIGHER EDUCATION TECHNICAL-OCCUPATIONAL PROGRAMS

Legend:
AC—Associate Degree and Certificate
AD—Associate Degree and / or Diploma
A—Associate Degree
C—Certificate
D—Diploma

BUSINESS RELATED	Carl Albert Jr. College, Poteau	Cameron Univ., Lawton	Rogers State College, Claremore	Connors State College, Warner	Central State Univ., Edmond	East Central Okla. State Univ., Ada	El Reno Junior College	Eastern Oklahoma State College, Wilburton	Murray State College, Tishomingo	Northeastern Okla. A&M College, Miami	Northeastern Okla. State Univ., Tahlequah	Northern Oklahoma College, Tonkawa	Oklahoma State Univ., Stillwater	OSU Technical Institute, Okla. City	OSU School of Technical Trng., Okmulgee	Oscar Rose Jr. College, Midwest City	Okla. Panhandle State Univ., Goodwell	Sayre Junior College	Seminole Junior College	Southeastern Okla. State Univ., Durant	South Okla. City Jr. College	Southwestern Okla. State Univ., Weatherford	Tulsa Junior College	Western Oklahoma State College, Altus
Accounting Associate					C							C	A	A	AD	A			A		A		AC	A
Aviation Management																								A
Banking & Finance		A	A				AC									AC			A		A		AC	
Bookkeeping/Acctg. Clerk													C		D									
Clerk Typist															D									
Commercial Art							A								AD	C					A	C		A
Community Journalism											A		A						A					
Computer Operator		C														A							AC	
Computer Programmer		A					A			A	A				AC						A		AC	
Consumer Economics																A								
Credit Manager																							AC	AC
Data Processing	A		A					A							AD	A			A					
Fashion Merchandising													A					C			A			
General Business				C			AC		C		C		A		D	A					A	C		
General Office Assistant	AC															A				C	C		C	
Industrial Management						.							A											
Legal Assistant Admin.		A									A					A							AC	
Legal Secretary	AC		A								A				AD	A							AC	
Logistics Mid-Management																A								
Marketing & Merchandising							A									A							AC	AC
Medical Assistant Admin.																		A						AC
Medical Secretary	AC		A		C						A		A		AD	A							AC	C
Middle Management	AC	A	A				AC	A	A	A			A		AD	AC			A		AC		A	A
Real Estate and/or Insurance	AC	AC					AC									A					AC		AC	
Property Management																							AC	
Secretarial Science	AC	AC	A	C	C		AC	AC	A		A	C	A	C	AD	AC	C		A	A	C	A	C	AC
Small Business Management																							AC	
Stenographic													C		D			C						

For information other than that provided by the institution, write:

Oklahoma State Regents for Higher Education
500 Education Building—State Capitol Complex
Oklahoma City, Oklahoma 73105

APPENDIX C

THE QUESTIONNAIRE

SURVEY TO DETERMINE A METHOD OF INTEGRATING

COMPUTERS INTO THE ACCOUNTING CURRICULUM

	YES	NO

1. Do you feel computers should be used in the accounting curriculum? ___ ___

2. Do you feel utilization of small computers in teaching accounting would be of material benefit to prospective employees when applying for accounting-related positions? ___ ___

3. Reasons you feel the computer should not be used in the classroom are:

   Students receive computer training in other courses. . . ___ ___
   Lack of interest . . . . ___ ___
   Lack of importance . . . . ___ ___
   Lack of properly trained personnel . . . . ___ ___
   Lack of adequate equipment . . . . ___ ___
   Lack of adequate programs and textbooks. . . . . ___ ___
   Lack of time in the classroom. . . . . ___ ___
   Lack of preparation time . . . . ___ ___
   Other (specify)_____

   _____
   _____

4. If you feel the use of small computers in teaching accounting would not be beneficial to students, please specify why. _____

   _____
   _____

5. If you feel computers would be beneficial, in which of the following courses would you suggest utilization?

   Principles of Accounting I . . . .
   Principles of Accounting II. . . . . ___ ___
   Intermediate I . . . . ___ ___
   Intermediate II. . . . . ___ ___
   Cost Accounting. . . . . ___ ___
   Advanced Cost Accounting . . . . ___ ___
   Advanced Accounting I. . . . . ___ ___
   Advanced Accounting II . . . . ___ ___
   Auditing . . . . ___ ___
   Personal Income Tax. ___ ___
   Accounting Systems . . . . ___ ___
   Other (specify) _____

   _____
   _____

	YES	NO

6. How would you utilize the computer?

Integrated as homework assignments in the course now offered? ____ ____

As computer aided instruction in the basic terminology, formula analysis, and financial statement preparation? ____ ____

As problem solving situations for:

	YES	NO
Financial Statements	____	____
Accounts Receivable and Payable Calculations	____	____
Personal Income Tax Preparation.	____	____
Governmental Accounting	____	____
Cost Accounting	____	____
Inventory Costing	____	____
Depreciation Calculation	____	____
Payroll Calculation	____	____

Other (specify) _____

_____

_____

7. What type of computers do you feel would be the best to use to teach accounting students?

Individual Personal Computers (Mini- & Micro-Computers . ____ ____
Terminals Hooked to a Time Sharing Computer . . . . . . ____ ____
Other (specify) _____

_____

Please provide the name of any particular system you believe would be the best: _____

_____

APPENDIX D

THE COVER LETTER

Date of Mailout

Name of Participant
Street Address
City, State Zip

Dear (Name of Participant):

You have been selected to participate in a study that will be helpful
to accounting education during the upcoming "high technology" age. As
a representative of a (successful company/school) actively concerned
with development of ed.icational excellence for the mutual benefit of
industry and society, your opinion is highly regarded.

With your demonstrated interest in education, you are among the best
qualified people to decide if computers need to be used in the
accounting classroom and at what level or in what areas they need to be
utilized.

Enclosed is a complimentary pencil to aid you in promptly answering the
accompanying survey which seeks your opinions concerning the inte-
gration of computers into the accounting classroom. The majority of
the questions can be answered with a check mark under the columns "yes"
or "no".

Please respond to the survey by _____. Your prompt response will
assure your opinions will have maximum impact on the study, so you can
say, "I helped the instructors decide to include or exclude computers
in the accounting classroom."

Sincerely,

C. Sue Cook, Accounting Instructor
Business Education Department
Oklahoma State School of Technical Training
Fourth & Mission Road
Okmulgee, OK 74447

Enclosures: 3

APPENDIX E

LIST OF COMMENTS UNDER

OTHER REASONS IN

QUESTION THREE

Industry Representatives' Responses

"I think it should be used. Our whole society is moving to computers. Accounting and computers go together."

"Great time would be required initially, but well worth the investment."

Accounting Instructors' Responses

"Implementation of computers in accounting should be done on the job."

"I feel they should be fully utilized to prepare students for the real world. However, the above are definite restrictions."

"Do not forego the learning of fundamental accounting procedures, i.e. don't let the computer do the work."

"Not applicable."

"Too many forms of software--how can we limit to one."

"Accounting classes are accounting not a computer science class. Let's keep it that way."

"Those continuing on towards CPA certificates may have limited background."

APPENDIX F

LIST OF COMMENTS UNDER

OTHER REASONS IN

QUESTION FOUR

Industry Representatives' Responses

"Computers should be helpful."

"Not applicable."

"Specifically, I believe computers of any size should not be used in principle or introductory courses. Nor would they be used if the educational facility cannot commit resources for adequately trained and equipped staff."

Accounting Instructors' Responses

"We now have general students who cannot add, subtract, multiply or divide because of the hand-held calculator. We will soon have accounting students who cannot journalize, post, or prepare financial statements without a computer."

"More realistic."

"Basically on the job training is most effective."

"I feel they should be used in a limited manner. Perhaps a separate course in computer oriented accounting would be best."

"The extent of usage of computers in business certainly justifies their inclusion in an accounting curriculum, however, they cannot be substituted for the student manually preparing problems."

"Lack of time in class."

"The teaching required to learn the computer programs would take away from time the student needs to learn accounting."

"The students need to know the accounting system very well before just letting a machine do the transactions. The true understanding of all the postings is only learned by actually doing the entries manually over and over."

APPENDIX G

LIST OF OTHER OR SPECIFIC COURSES

IN RESPONSE TO QUESTION

FIVE

Industry Representatives' Responses

"Any other accounting course."

"Budgeting-forecasting."

"In my opinion, the computer could be utilized to some degree in all of these courses."

"Advanced Auditing."

Accounting Instructors' Responses

"Computerized applications in accounting."

"A separate two-hour course using a microcomputer to solve a practice set."

"Specially designed courses for integrating accounting and data processing--we don't have time to teach use of computers; and many schools now using computers in introductory courses, graduate students who can use computers but don't know anything about accounting concepts, principles, and/or journalization."

"Accounting applications--with minimum prerequisites of Accounting I and II."

"Payroll records, cost variance records, budgets, etc."

"A special computerized accounting course."

"Only to a limited degree."

"People still need to know the purpose and how things work."

"Petroleum Accounting."

"Required in place of practice set in Accounting I."

APPENDIX H

LIST OF OTHER PROBLEM SOLVING

SITUATIONS IN RESPONSE TO

QUESTION SIX

Industry Representatives' Responses

"We utilize a mainframe system in every phase of our business and also use a micro to increase productivity of professional staff."

"Journalization of accounting entries."

Accounting Instructors' Responses

"The entire accounting process cycle."

"Sales, Purchases, and other special journal applications."

"Students first need to learn and understand accounting principles; then how to use computer as a tool to perform routine tasks, retrieve data, perform analytical studies. Students need instruction on interpersonal relationship with EDP staff."

APPENDIX I

LIST OF TYPES OF COMPUTERS IN

RESPONSE TO QUESTION

SEVEN

Industry Representatives' Responses

"Either whichever is most cost feasible. To have basic knowledge of how to use them is paramount."

"Type of computer is not important if the student understands how to solve problems. Whether the computer is a stand-alone (small or large) or is connected to a time-sharing or large host facility via telecommunications should be transparent to the student."

Accounting Instructors' Responses

"Any that you can get access to."

APPENDIX J

NAME OF POSSIBLE COMPUTERS

TO USE

Industry Representatives' Responses

"Apple or IBM -- industry leaders."

"Stay with name brands: IBM, Apple, etc."

"Brand is irrelevant. Teach the use of spread sheet software such as Basicak or Visicak plus an intro and language course in the Data Processing curriculum. Todays accountant must have an appreciation for the computer being the bookkeeper and calculator and letting the accountant be the decision maker."

"Both (individual personal computers and terminals hooked to a time-sharing computer) would be best, home computers will be as prevalent in the average home in 10 years as T.V.'s were in the 60's. The students we're preparing today will be in the first years of marriage and family/home life building then. They need the micro-expertise for their own records. The terminals to the big mainframes would allow exploration and use of systems probably found in their jobs."

"IBM-PC, Texas Instruments PC (not 99/4A), Kaypro II, or any other computer using CPM based software."

Accounting Instructors' Responses

"TSR-80--Model 3." (five responses)

"We just implemented a two credit hour course using a microcomputer to solve a fairly complex practice set. The requirements for enrollment are 6 hours of accounting. The class meets for one hour of lecture and two hours of computer lab each week for 16 weeks. We use the TSR-80. I was born in Okmulgee--keep up the good work."

"Undecided."

"IBM System 34 is good."

"Radio Shack model 16, IBM, Epson, etc."

"Apple computers." (three responses)

"No particular favorite, but for instruction purposes we should try to use a standardized program within all state schools."

"Haven't used any yet."

"An accounting student should know some about a micro-computer, how they operate, and what the computer can do for them. But a student must first learn what it is they are putting into the computer before they are able to understand what it is that comes out."

"Do not wish to express an opinion."

"IBM System 34 with CRT's as terminals."

"No Doubt--IBM Personal Computers."

VITA ⸜

Carolyn Burleson Cook

Candidate for the Degree of

Master of Science

Thesis: PERCEPTIONS OF ACCOUNTING INSTRUCTORS AND INDUSTRY REPRESEN-
TATIVES CONCERNING UTILIZATION OF COMPUTERS IN ACCOUNTING
CLASSROOMS

Major Field: Technical Education

Biographical:

Personal Data: Born in Hanna, Oklahoma, May 29, 1944, the
daughter of Mr. and Mrs. Guy Burleson.

Education: Graduated from Hanna High School, Hanna, Oklahoma in
May, 1962; received associate degree from Eastern Oklahoma
State College in Wilburton, Oklahoma in May, 1964; attended
Oklahoma State University, Stillwater, Oklahoma during the
fall of 1964 and during 1964-65; received Bachelor of Science
in Business degree from Oklahoma City University, Oklahoma
City, Oklahoma in May, 1968; enrolled in additional evening
accounting classes at Tulsa University, Tulsa, Oklahoma
during 1975-77; completed requirements for the Master of
Science degree at Oklahoma State University in May, 1983.

Professional Experience: Supervisory Accountant at the University
of Oklahoma, 1972-75; auditor for Oklahoma Technical Society
1977-81; accounting instructor at Oklahoma State University
School of Technical Training, Okmulgee, Oklahoma 1975 to
present.

Professional Organizations: Oklahoma Technical Society, Higher
Education Alumni Council of Oklahoma, American Accounting
Association, American Accounting Association-Junior College
Division, and Oklahoma Education Association.