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The Status of Automated Accounting Instruction in Secondary Schools in Illinois

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THE STATUS OF AUTOMATED ACCOUNTING INSTRUCTION IN SECONDARY SCHOOLS IN ILLINOIS

(TITLE)

BY

Bradley Donnald Kilcullen

B.S., Eastern Illinois University, 1990

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
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I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING
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August 2, 1996
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AN ABSTRACT OF THE THESIS OF

Bradley Donnald Kilcullen, for the Master of Science degree in Business Education presented on August 1, 1996, at Eastern Illinois University at Charleston.

TITLE: THE STATUS OF AUTOMATED ACCOUNTING INSTRUCTION IN SECONDARY SCHOOLS IN ILLINOIS.

Graduate Advisor: Dr. Roger Luft

Purpose

The purpose of this study was to find characteristics of schools that teach automated accounting in Illinois. A survey instrument was developed which requested information about school size, computer facilities, demographics about the instructor, and other items that may be useful in finding information about the instruction of automated accounting.

Procedures

This study was conducted in high schools randomly selected in the state of Illinois. Accounting teachers from 250 selected schools were surveyed from the population of 760. Two mailings of the survey instrument were delivered. 151 responded to the first mailing while 28 more responded to the second mailing. The characteristics of schools teaching automated accounting were compared to those of schools not teaching automated accounting.

Results and Conclusions

In Illinois, 123 of the 178 schools that responded include the instruction of automated accounting in the curriculum. 117 of these 123 schools (95.1%) include

computerized accounting with other accounting courses while 6 have a separate course for automated accounting.

Sixty-six schools introduce computerized accounting during the first semester of accounting courses. This would indicate that these schools are instructing automated accounting and manual accounting methods concurrently. These schools are consistent with the majority opinion of researchers who recommend that computerized accounting should be introduced early in accounting courses.

The instruction of automated accounting appears to be influenced by some of the factors listed on the questionnaire. Larger schools are more likely to include automated accounting in the curriculum. Instructors with a master's degree or more are also more likely to teach automated accounting. The gender of the instructor appears to have no influence on the teaching of computerized accounting while previous accounting or bookkeeping work experience seems to influence the instruction of automated accounting. Instructors over 49 years of age are also more likely to teach automated accounting as 76.5% in this age category do compared to the overall total of 69.1%.

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CHAPTER I

Introduction

Technology has greatly changed the way the world functions. Just about every aspect of our lives has been influenced by the use of computers and the developments made possible by the use of computers. Office automation has occurred during the past twenty years including the computerization of accounting systems. Unfortunately, the accounting curriculum and the teaching of computerized accounting may be behind the times. Bagranoff (1993) stated:

> The need for change in accounting education is well recognized. The Bedford Committee of the American Accounting Association, examining accounting and its environment over a 60-year period, found that while accounting practice had undergone tremendous change, there had been little change in accounting education during the same period. (p. 275)

Other authors of recent articles have also identified that accounting education may not be keeping pace with the technology. To make this point, Getter and Gilbertson (1992) began an article as follows:

> "I've taught accounting for 50 years and during that time, nothing has changed about accounting education!" said a speaker at a recent meeting of accounting educators. Unfortunately, he's right. With the exception of the

> relatively recent integration of computers into the accounting curriculum, the teaching of accounting has not changed noticeably in the last five decades or more. Nor has accounting methodology itself changed significantly in this interval. (p. 5)

Accounting educators are responsible to teach skills to students which will allow them to function in the work environment. As the field of accounting changes, instructors need to modify their course content and teaching methods to reflect changes in the profession. Concerned with the general state of accounting education recently, Williams (1996) reported:

> Clearly the nature of the first job and the nature of the career for accountants are undergoing dramatic change. Unless accounting educators respond successfully to these changes, the profession will be forced to seek entry-level talent elsewhere. The AECC was established on the premise that the profession will need individuals in the aggregate with different capabilities than in the past. Perhaps even students with different personalities, breadth of interests etc., should be attracted to accounting programs. (p. 199)

There is no dispute that the profession of accounting has undergone drastic changes. It is now the responsibility of accounting educators to constantly monitor the professional environment and their own curriculum to ensure that students learn appropriate skills.

Statement of the Problem

It seems that the lack of guidance for teaching computerized accounting has been an ongoing problem for accounting instructors. In an earlier survey of accounting graduates, Bean and Medewitz (1987) made the following observation:

> By 1970, both the American Institute of Certified Public Accountants (AICPA) and the American Accounting Association (AAA) recognized the impact on the accounting profession of technological advances in computers and recommended integration of computers within the accounting education program. By 1986, American Assembly of Collegiate Schools of Business (AACSB) standards required that "Students should receive instruction in the design, use, control, and audit of computerized information systems. Students are expected to use the computer in accounting courses." Other than these broad statements, educators have received little specific guidance. (p. 243)

Research Question

This study seeks to answer the following question: What is the status of teaching automated accounting in the secondary schools in Illinois? The answer to this will indicate if and when accounting instructors are currently teaching automated accounting and will give a focus point for other studies regarding its effectiveness.

Significance of the Problem

The goal of this study was to find information regarding the teaching of automated accounting in high schools in Illinois. Since the Illinois State Board of Education does not

require the teaching of automated accounting in the accounting curriculum, course content and structure may vary greatly throughout the state. This is not intended to imply that the teaching of automated accounting at the secondary level is good or bad, but that it is something that needs to be examined. The lack of statewide automated accounting curriculum requirements may cause graduates from secondary schools in the state to vary greatly in their skills.

Determining the proper time for the introduction of automated (computerized) accounting may have a great impact on the learning of students. Research on the best way to teach automated accounting is minimal. Currently, accounting educators are using personal judgement for deciding when and how to teach accounting software. This dilemma was mentioned in an article by Murvin & Price (1992):

> Some accounting educators will say computerized case simulations should not be introduced until after the student has fully mastered the manual operations of the accounting cycle. Others will advocate that computers for accounting be introduced as a separate course, not as part of an introductory financial and/or managerial accounting course. However, what seems to be missing in all of these scenarios is how the computer can help the student better understand accounting. If we are to justify the introduction of computers into the classroom there must be specific and identifiable benefits for the student. (p. 24-25)

The remarks by these authors voice the frustrations of many regarding the lack of research for the instruction of automated accounting. Most instructors would agree that

teaching automated accounting is an important aspect of accounting education, but information is needed so that the most effective instructional techniques will be used.

Limitations / Delimitations

This study included accounting teachers only at the secondary level in the state of Illinois. Instructors were questioned as to whether automated accounting is being taught or not. Quality of the programs or teaching methods used were not of concern for this study. Findings of a similar study in other states may differ due to monetary concerns and computer resources in these regions.

Definition of Terms

The following definitions were used for this study:

Accounting: Planning, recording, analyzing, and interpreting financial information.

Accounting Education: The instruction of accounting skills and accounting practice.

Automated Accounting: The use of computer software to perform routine accounting tasks. Can also be called computerized accounting.

Computerized Accounting: The use of computer software to perform routine accounting tasks. Can also be called automated accounting.

Manual Accounting: Performing all accounting activities without the use of a computer.

CHAPTER II

Literature Review

Literature about automated accounting instruction at the secondary level is scarce. Most of the literature that follows discusses post-secondary level concerns of accounting instruction. However, the literature discusses the teaching of automated accounting during introductory courses. Since high school accounting is an introductory course in the practice of accounting, the issues discussed in the following articles also pertain to the secondary level of education.

This chapter is divided into four sections. The first section discusses how employers view the need for teaching computers and accounting. The second section discusses criticisms of accounting education. The third section discusses recommendations for changes in accounting education; while the final section considers advantages and disadvantages of teaching computerized accounting.

Employers View of Computers and Accounting

One of the main purposes of education is to develop skills in people which will allow them to function productively in the work force. As the accounting profession has changed with the advances in technology, there is concern that students may not possess the needed computer skills to function effectively. Currently, the profession of accounting is highly automated. In one survey of businesses, Graham (1993) found:

> The recurrent use of general ledger, accounts receivable/payable, payroll, and company-authored accounting packages clearly shows that the accounting departments in most companies are extensively automated. In fact, 98 percent of the companies sampled use one or more of these types of packages. (p. 31)

Unfortunately, there seems to be a gap between the skills taught in a high school accounting classroom and the skills necessary on the job. Haber (1993) stated "what business sees as relevant for success in the work place and what the accounting teacher sees as relevant for success in the classroom is seldom the same" (p. 23). Haber also studied employers concerns when interviewing for accounting positions and reported the following:

> Practitioners were further asked: Do you expect prospective employees to have knowledge of accounting packages before hiring? Fifty percent responded "Yes"; 12 percent answered "No, but it would be helpful"; and the other 38 percent replied "Not our specific package but a user friendliness with accounting and other PC packages is required - we will train them on our package." (p. 25)

It is evident that businesses place great emphasis on computers to operate their accounting systems. These businesses have expressed a need for graduates who are able to function on computers and expect educators to produce graduates with computer skills.

Criticisms of Accounting Education

Accounting educators are often blamed for the way graduates are able to function in the work place. After a study of the effects of different teaching approaches of

accounting educators, Friedlan (1995) remarked "Considerable criticism has been leveled against accounting education for its inability to provide graduates who meet the demands of the accounting profession" (p. 48).

Friedlan also did a study at the beginning and end of fall semester 1992. College students from two separate introductory accounting courses were taught using different teaching methods. One class used a traditional approach that relied heavily on lecture and technically oriented material. The other class was taught using a nontraditional approach that focused on applications, minicases, and an interactive classroom. The results showed that the teaching approach does make a difference in students' perceptions of skills needed for accounting.

Some researchers have questioned accounting graduates to determine if appropriate accounting skills are being taught. One such survey of accounting graduates from a diverse group of universities was summarized by Bean & Medewitz (1987) who said, "The present research examined accounting graduates' rating for both their own educational preparation and the importance of computer skills to the professional accountant. The respondents felt their preparation was minimal, at best" (p. 257).

This conclusion was similar to a more recent survey regarding accounting graduates and their recommendations of microcomputer knowledge for the work place. Gallun & Heagy (1994) stated:

> Educators are aware of the need to integrate computer skills into the accounting curriculum to prepare accounting graduates for the work environment they will be entering. It is difficult, however, to ascertain what these computer skills should be.

> The first-hand experience of practicing accountants gives them an excellent perspective from which to make recommendations. However, little or no information is available as to the actual computer knowledge considered necessary or desirable for the accounting graduate. (p. 205)

In an article that stresses the importance of change for accounting education, Williams (1991, p. 126) summarized the following criticisms of accounting education:

1. We are not attracting sufficient numbers of students of sufficient quality to the study of accounting
2. The curriculum has lost its relevance; and
3. We are not sufficiently developing the skills and attributes of our students.

Though most criticism of accounting education seems aimed at the ability of the curriculum to keep pace with technology, there have also been fingers pointed at instructors and their apprehension toward teaching technology. Hogan (1994), who is a program specialist for secondary business - technology education claimed:

> Many teachers are afraid to incorporate the computer primarily because they have not the time to learn the hardware and software. However, in the information age, technology is changing so rapidly that educators must accept that they will never again know it all. They simply need to be able to guide our students to the resources that will help them solve their problems. Accounting is a natural subject for the incorporation of computer applications. (p. 37)

With these and other criticisms in mind, many accounting educators are looking for teaching methods and curriculum improvements. The following section will report some of the literature regarding changes for accounting education.

Recommended Changes for Accounting Education

Before computers were developed, teaching accounting consisted mostly of lecture and workbook assignments. This teaching method was effective for producing functional graduates at that time. As computers have now filled the business world, the approach to teaching accounting needs to be reconsidered. Bagranoff (1993) claimed "The wide-spread use of computers in accounting practice suggests the need for other approaches in teaching students" (p. 277).

In an article listing new ideas for curriculum change in the 1990's, Getter and Gilbertson (1992) included expanding coverage of computerized accounting concepts and procedures as a needed curriculum change. Consistent with this finding, Gallun and Heagy (1994) studied recommended microcomputer knowledge for accounting graduates and reported "The results of this study suggest that universities should place the greatest emphasis on spreadsheets, followed by accounting systems and word processing" (p. 209-210).

Realizing the need for change in accounting education, Williams (1996, p. 202) addressed some of the criticisms of accounting education. He recognized the need for change and listed the basic elements of the curriculum change process. This process is as follows:

1. Recognize the need for change.
2. Identify changes needed.
3. Design program.
4. Gain acceptance.
5. Implement change.
6. Measure results
7. Feedback.

This change process is currently taking place in accounting education. Most textbooks published now have software applications and offer computer templates for instructors teaching automated accounting.

There is a consensus that computerized accounting should be taught at some time during the accounting education process. However, there is some dispute as to when the computer applications should be introduced. Kalbers (1984) argued that the introduction of dedicated ("canned") accounting software does not develop the thought processes for understanding and solving accounting problems. If this is true, then the instruction of computerized accounting should wait until manual procedures are mastered.

In contrast to Kalbers claim, Murvin and Price (1992) stated, "This instructional approach, which fully integrates the manual and computer operations of the accounting cycle, has proved to be very successful" (p. 27). Murvin and Price also claimed that their research would suggest that "the over-all understanding of the accounting cycle by the students seems to be enhanced by integrating manual and computer operations, with the introduction of the use of the computer at the journal-entry stage" (p. 27).

Spiegelberg (1993) also had similar views. She reported:

> Students can see the relevance of the computer operation when it parallels the manual system with which they are familiar. A comparison of the computerized accounting system allows students to see that by using the microcomputer many repetitive procedures, such as posting, are eliminated and it improves the accuracy of their work. Knowing a manual system and then using a computerized system will impress upon the students the value of computerized accounting. (p. 40)

In the conclusion of this article, Spiegelberg said, "Students need to have hands-on experience with the microcomputer during the entire year rather than just two or three weeks at the end of the year" (p. 40). Graham (1993) supported the early integration of computers in accounting education with the following:

> Clearly, the findings support the need to change both content and methodology in beginning accounting classes. For sure, greater and earlier emphasis should be placed on the use of the computer. Many schools, at both high school and college level, still delay the integration of PC applications to higher level courses. Other schools teach the computer applications in automated accounting courses after the theory of accounting has been thoroughly covered. At the high school level, since the vast majority of Accounting I students do not take a more advanced accounting course, PC applications should become an integral part of Accounting I. (p. 31-32)

Benefits and Problems of Computer Use in Accounting Education

As accounting instructors continue to implement computers in accounting courses Chalupa (1988) offered this advice for the selection of accounting software:

> The software should have good documentation that includes pictures of screen information and clear instructions. The documentation should provide a short sample problem, not a tedious keyboarding sample. The software should be considered "user friendly". The entry and modification of transaction information should be easy. (p. 76)

Chalupa felt that curriculum, objectives, and time available are also major factors when determining which software to select. Once a software package has been selected, it is important to be aware of the benefits and common problems associated with computer use in accounting education. McNamee & Togo (1995) listed removal of computational burden, increases interest in accounting, and aids the learning process as some of the benefits. Some of the problems listed were added time constraints, decrease in instructional time, and de-emphasizes learning accounting.

Summary of Related Literature and Research

While the accounting functions at almost all businesses has been automated, many accounting graduates have weak computer skills. Businesses seek graduates who are computer literate and have been disappointed in the computer skills demonstrated by recent graduates. These businesses claim the accounting educators have not properly trained students in computer skills.

Teaching computer skills has been accepted by most accounting educators. However, there is limited research on the integration of computer instruction in the accounting classroom. Current research indicates that teaching automated accounting should be included in the accounting curriculum. Most researchers agree that this should be done in conjunction with the teaching of manual methods while some researchers claim that students should not learn automated accounting until manual methods are mastered.

CHAPTER III

Methods and Procedures

This chapter describes the methods and procedures used to find data relevant to this study. The first section describes the population from which a sample was chosen. The second section describes the survey instrument and the procedures followed to gather data for the study. The third and final section explains the methodology and rationale used to analyze the findings.

Identification of the Population

The population for this study was all high school level accounting instructors in the state of Illinois. This population was chosen for two reasons. First, the purpose of the study was to determine when computerized accounting was introduced in the curriculum. Limiting the geographic area to just the state of Illinois assured that each school was under the jurisdiction of the Illinois State Board of Education. This common governing body eliminates tainting of the results due to different requirements in other states. Second, choosing high school level accounting instructors allowed the comparison of data among students within a small age range.

Sample Selection

Schools for this study were randomly selected. The population of Illinois High Schools was identified in the Illinois High School Association Member School Directory.

This directory listed the 760 high schools in Illinois alphabetically. Each school was assigned a number beginning with the number one in the order they were listed in the directory. Numbers 1 - 760 were then written on identically sized pieces of paper and placed in a cup. These were shaken and stirred vigorously to assure a random draw.

An error measurement of +/- 5% was desired for this study. A response from a sample of 250 accounting instructors would yield survey results within the realm of acceptable error for this study. Subsequently, 250 numbers were drawn individually from the cup.

Development of Instrument

The literature search did not provide an instrument suitable for purposes of this study. Research regarding automated accounting at the high school level is scarce. However, this was not a concern as questions with potentially significant responses were developed.

The questionnaire (Appendix A) was designed in booklet form. It consisted of three sections which were labeled in italicized print. The first section requested information about the school's enrollment and computers available for instruction. The next section consisted of questions about the instructor. Age, gender, and level of education were requested. The final section requested information about the accounting program at that school. This included questions about the number of students enrolled in the program along with questions regarding the teaching of automated accounting.

The instrument also included a letter to the accounting instructor (Appendix B). This letter was on the front cover of the questionnaire and briefly explained the purpose of the study. Respondents were informed that their responses were confidential to ease potential concerns.

Administration of the Instrument

The instrument was mailed on April 24, 1996 to each of the 250 schools selected. The letter and instrument were printed on salmon colored paper. Each questionnaire was placed inside a booklet sized envelope and addressed to the Accounting Instructor. The questionnaire had a preprinted return address and affixed postage for easy return. Each questionnaire was answered individually at the respondent's convenience. Supervision was not possible since this was a mailed survey.

The instrument was coded and the schools that responded were recorded. A second mailing consisting of the 96 participants who did not respond to the first mailing was mailed on May 9, 1996. This was printed on goldenrod colored paper to distinguish it from the first mailing. The letter included in the second mailing was similar to the first letter but emphasized the importance of responding even if automated accounting systems were not used (Appendix C). This also had a preprinted return address and affixed postage.

A total of 179 responses were received from the 250 schools selected. One questionnaire was returned with no response. Several others were damaged in the mail

but were still usable due to the location of the damage. The response rate for each mailing is listed on Table I.

TABLE I

PERCENTAGE OF RESPONSES RECEIVED

	Number of Responses	Number of Usable Responses	Percentage Response
First mailing.....	124	123	49.6%
Second mailing.....	55	55	22.0%
Total.....	179	178	71.6%

Treatment of Data

The responses were entered into a database software package with each questionnaire recorded as a separate record. Each question was entered as a separate field and responses were entered. After all responses were entered, the data was sorted so that schools that teach automated accounting were separated from those that do not. The following comparisons were made between these two response groups:

1. School enrollment and the percentage of schools teaching automated accounting within specified ranges.
2. The number of computers available for student use and the percentage of schools teaching automated accounting at certain levels of computer availability.
3. The age of the accounting instructor and the percentage of schools teaching automated accounting within various ranges of age.

4. The gender of the instructor and the percentage of schools teaching automated accounting for each gender.

5. The level of education of the instructor and the percentage of instructors who teach automated accounting with bachelor's degrees compared to those who hold master's or higher degrees.

6. Instructors with accounting or bookkeeping work experience were compared with those without experience.

CHAPTER IV

Findings

This study found information about the percentage of high schools in Illinois that teach computerized accounting. Characteristics of instructors and schools where computerized accounting is taught were compared to those that do not. In addition, this study also found information regarding the initiation of computerized accounting for those who include it in the curriculum. The findings are revealed in the tables that follow.

The high school enrollment ranges used and the number of schools that teach automated accounting is shown in Table II.

Table II

High School Enrollment and Number of Schools Teaching Automated Accounting

	Teach Automated Accounting			Percentage	Percentage
School Enrollment	Yes	No	Total	Yes	No
Less than 451	50	35	85	58.8%	41.2%
451 - 1750	50	16	66	75.8%	24.2%
Over 1750	23	4	27	85.2%	14.8%
Totals	123	55	178	69.1%	30.9%

Overall, 69.1% of all schools teach automated accounting while 30.9% do not. A higher than average percentage of schools over 1750 students (85.2%) teach automated

accounting while only 14.8% do not. 58.8% of schools under 451 students teach automated accounting while 41.2% do not.

The number of computers available for student use was evaluated to see if available facilities contributed to the teaching of computerized accounting.

Table III

Computers Available for Student Use and Number of Schools Teaching Automated Accounting

Computers Available	Teach Automated Accounting Yes	No	Total	Percentage Yes	Percentage No
0 - 30	42	29	71	59.2%	40.8%
31 - 60	37	16	53	69.8%	30.2%
Over 60	41	7	48	85.4%	14.6%
Totals	120	52	172	69.8%	30.2%

This question was intended to find the average number of computers available for the accounting instructor during the accounting class periods. Some responded with this information while others responded with the number of computers for all classes in the school. The inconsistent responses to this question disallow accurate comparisons.

The age of the instructor and the teaching of computerized accounting are shown in Table IV.

Table IV

Age of Accounting Instructor and Number of Schools Teaching Automated Accounting

Age of Instructor	Teach Automated Accounting Yes	No	Total	Percentage Yes	Percentage No
Under 35	18	13	31	58.1%	41.9%
35 - 49	64	29	93	68.8%	31.2%
Over 49	39	12	51	76.5%	23.5%
Totals	121	54	175	69.1%	30.9%

This data shows that a higher percentage of instructors over 49 years of age teach automated accounting.

Table V shows how many male and female instructors teach automated accounting.

Table V

Gender of Instructor and Number of Schools Teaching Automated Accounting

Gender of Instructor	Teach Automated Accounting Yes	No	Total	Percentage Yes	Percentage No
Male	50	22	72	69.4%	30.6%
Female	73	33	106	68.9%	31.1%
Totals	123	55	178	69.1%	30.9%

Overall, 69.1% of all instructors teach automated accounting while 30.9% do not. The percentage of male and female teachers who teach automated accounting does not differ greatly from the overall percentage of 69.1%.

Table VI

Degree Held by Instructor and Number of Schools Teaching Automated Accounting

	Teach Automated Accounting			Percentage	Percentage
Degree Held	Yes	No	Total	Yes	No
BS or BS/Hours	47	30	77	61.0%	39.0%
MS or MS/Hours	76	25	101	75.2%	24.8%
Totals	123	55	178	69.1%	30.9%

The percentage of accounting instructors who teach automated accounting is greater for those who have attained at least a Master's degree.

Accounting instructors were asked if they had previous accounting or bookkeeping work experience. Not considering any other factors, accounting instructors with previous work experience are more likely to teach automated accounting. Their responses are listed in Table VII.

The number of students enrolled in accounting was requested. Based on the number of students in accounting, Table VIII shows the number of schools that do and do not teach automated accounting.

Table VII

Previous Accounting or Bookkeeping Work Experience and Number of Instructors Teaching Automated Accounting

	Teach Automated Accounting			Percentage	Percentage
Work Experience	Yes	No	Total	Yes	No
Previous Experience	82	32	114	71.9%	28.1%
No Previous Experience	40	23	63	63.5%	36.5%
Totals	122	55	177	68.9%	31.1%

Table VIII

Accounting Enrollment and Number of Schools Teaching Automated Accounting

	Teach Automated Accounting			Percentage	Percentage
Number of Students	Yes	No	Total	Yes	No
0 - 14	36	27	63	57.1%	42.9%
15 - 49	67	24	91	73.6%	26.4%
Over 49	20	4	24	83.3%	16.7%
Totals	123	55	178	69.1%	30.9%

A total of 57.1% of schools with less than 15 accounting students teach automated accounting while 83.3% of schools with 50 or more accounting students teach automated accounting.

There were 123 respondents who taught automated accounting. The data in the three tables that follow are reported only from those questionnaires. The researcher

cannot account for the discrepancy between Table X and Table XI which indicates the number introducing automated accounting in the introductory course. Table IX shows how many schools teach automated accounting as a separate course.

Table IX

Number of Schools that Teach Automated Accounting as a Separate Course

How Taught	Number of Schools	Percentage
Included with Other Accounting Course(s)	117	95.1%
Separate Course	6	4.9%

Table X shows the first exposure of automated accounting to students.

Table X

When is Automated Accounting First Introduced to Students

Course	1st Quarter/ Percentage	2nd Quarter/ Percentage	3rd Quarter/ Percentage	4th Quarter/ Percentage	Total/ Percentage
Accounting I	30/30.6%	36/36.7%	18/18.4%	14/14.3%	98/79.7%
Accounting II	13/52.0%	6/24.0%	3/12.0%	3/12.0%	25/20.3%

Table XI shows the total amount of time used for automated accounting in the introductory accounting class.

Table XI

Total Time Using Automated Accounting in Introductory Accounting

	None	Unit	Quarter	Semester	Academic Year
Number of Schools	19	64	24	9	7

All of the 19 schools listed in the none column introduce automated accounting in an advanced accounting course rather than introductory accounting. Table XII shows which software titles instructors are using for automated accounting instruction. These do not total 123 since some schools use more than one software package.

Table XII

Software Used for Automated Accounting Instruction

Software	Number of Schools
SouthWestern Century 21 Automated Accounting	101
Glencoe Accounting	7
PeachTree Accounting	7
Lotus 1-2-3	12
MicroSoft Works Spreadsheet	2
Quicken	3
DacEasy Accounting	1

All 178 responses are included in the following table. Instructors were asked to list all accounting courses offered. The responses were categorized according to the teaching of automated accounting. These responses lacked consistency as schools differed in the length of an introductory accounting course. Some introductory courses were for a quarter, some for a semester, while others were for an entire school year. The lack of a common time frame for introductory accounting must be considered before meaningful analysis of this data can be performed. The results are listed in Table XIII.

Table XIII

Accounting Courses Offered at the Secondary Level in Illinois

Instruction Status	Offer Introductory Accounting Only	Offer Introductory Accounting and Advanced Accounting
Do not Teach Automated Accounting	33	22
Teach Automated Accounting	34	89

CHAPTER V

Summary, Conclusions, and Recommendations

The purpose of this study was to find information about the instruction of computerized accounting at the secondary level in Illinois. A questionnaire was developed that asked questions about circumstances that may influence the teaching of computerized accounting. Information gathered for this study would be useful for other studies.

Summary

This study was performed to answer the following question: What is the status of teaching automated accounting in the secondary schools in Illinois? A random sample from the population of secondary schools in Illinois was selected to provide information to answer this question. 250 schools were selected and 179 responded for a 71.6% response rate.

Available research indicated that computerized accounting should be taught in an introductory accounting course. Arguments were found that stated students should complete the entire accounting cycle manually before automated accounting is introduced. However, the majority opinion of current research stated that automated accounting should be incorporated with the instruction of manual methods.

The responses to the survey instrument were grouped according to the instruction of automated accounting and tallied. Characteristics of schools teaching automated

accounting were compared to schools who do not teach automated accounting. These characteristics included school size, number of computers available, and number of students enrolled in accounting. In addition the age, gender, level of education, and previous work experience of the instructor was also requested. These responses were compared to see if there were common characteristics among schools and the instruction of automated accounting.

Conclusions

In Illinois, 123 of the 178 schools that responded include the instruction of automated accounting in the curriculum. 117 of these 123 schools (95.1%) include computerized accounting with other accounting courses while 6 have a separate course for automated accounting.

Sixty-six schools introduce computerized accounting during the first semester of accounting courses. This would indicate that these schools are instructing automated accounting and manual accounting methods concurrently. These schools are consistent with the majority opinion of researchers who recommend that computerized accounting should be introduced early in accounting courses.

The instruction of automated accounting appears to be influenced by some of the factors listed on the questionnaire. Larger schools are more likely to include automated accounting in the curriculum. Instructors with a master's degree or more are also more likely to teach automated accounting. The gender of the instructor appears to have no influence on the teaching of computerized accounting while previous accounting or

bookkeeping work experience seems to influence the instruction of automated accounting. Instructors over 49 years of age are also more likely to teach automated accounting as 76.5% in this age category do compared to the overall total of 69.1%.

Recommendations

Accounting instructors at all levels should evaluate their course content to ensure that students are developing computer skills. The instruction of computerized accounting needs to be included in the accounting curriculum. Schools who do not teach automated accounting should include it. Schools who teach automated accounting as a separate course should include it in the introductory accounting course. Automated accounting should be introduced at the same time that manual methods of accounting are taught.

It is important to teach computerized accounting because employers are looking for accounting graduates with good computer skills. Most businesses in the United States utilize an automated accounting package to some degree. Including computerized accounting in the curriculum will produce graduates more compatible with the work environment. Local business should be contacted to provide current information and resources to students about current accounting practices. In addition, internships could be used to gain "hands-on" experience for students.

The instruction of automated accounting needs more evaluation. More studies should be performed to ensure that current research is recommending the optimal time to introduce automated accounting. More information needs to be made available regarding software and hardware selections. Also, there has been little research regarding teaching

methods for computerized accounting instruction. Accounting instructors need more information available to help develop effective teaching techniques.

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APPENDICES

APPENDIX A

SURVEY INSTRUMENT

Please provide the following information about your school and facilities:

1. What is your high school enrollment?

____ less than 150	____ 1051 - 1300
____ 151 - 300	____ 1301 - 1450
____ 301 - 450	____ 1451 - 1600
____ 451 - 600	____ 1601 - 1750
____ 601 - 750	____ 1751 - 1900
____ 751 - 900	____ 1901 - 2050
____ 901 - 1050	____ Over 2050

2. How many computers do you have available for student use?

____ 0 - 10	____ 51 - 60
____ 11 - 20	____ 61 - 70
____ 21 - 30	____ 71 - 80
____ 31 - 40	____ 81 - 90
____ 41 - 50	____ 91 - 100

____ Over 100

Please provide the following information about yourself:

1. Which age bracket best describes you?

____ Under 25	____ 40 - 44
____ 25 - 29	____ 45 - 49
____ 30 - 34	____ 50 - 54
____ 35 - 39	____ Over 54

2. What is your gender: M or F
(please circle)

3. Please indicate your degree:

____ B.S. + ____ hours
____ M.S. + ____ hours
____ Education Specialist + _____ hours
____ Doctorate

4. Do you have bookkeeping or accounting business work experience other than teaching?

____ Yes ____ No

Please provide the following information about your accounting program:

1. How many students are currently enrolled in your school's accounting program?

____ 0 - 4	____ 35 - 39
____ 5 - 9	____ 40 - 44
____ 10 - 14	____ 45 - 49
____ 15 - 19	____ 50 - 54
____ 20 - 24	____ 55 - 59
____ 25 - 29	____ 60 - 64
____ 30 - 34	____ Over 64

2. Please list in the space below the names of all accounting courses offered:

_____
_____
_____

3. Is automated (computerized) accounting included in your curriculum?

____ Yes ____ No

* *If no, you may stop here.*

4. Is automated accounting a separate course or is it included as a part of other accounting courses?

____ Separate course ____ Included with other accounting course(s)

5. When is automated accounting first performed by students?

____ Accounting I (or) ____ Accounting II

please circle: 1st quarter 2nd quarter 3rd quarter 4th quarter

6. Please indicate which of the following best describes the total amount of time used for automated accounting during your introductory accounting class:

_____ unit	_____ semester
_____ quarter	_____ academic year

7. Please list any automated accounting software program(s) used for your instruction:

_____
_____

APPENDIX B

LETTER TO ACCOUNTING INSTRUCTORS (FIRST MAILING)

Dear Accounting Instructor:

Your assistance is needed to obtain meaningful data relating to the instruction of automated accounting. I am completing my masters degree and have chosen to conduct research about the teaching of automated accounting. This is a fast growing content area for which little information is available. Your response to the enclosed questionnaire will provide necessary data to find important information regarding teaching accounting. This data will assist with curriculum development.

The questionnaire will take just a few minutes to complete. All individual responses will remain confidential though your questionnaire has been coded for survey purposes. Please complete the questionnaire, staple, and return it at your earliest convenience. Your input will be greatly appreciated!

If you would like a summary of the survey results, please indicate by checking "yes" under your return address on the back of this questionnaire. Thank you for your assistance.

Sincerely,

Bradley D. Kilcullen
El Paso High School

APPENDIX C

LETTER TO ACCOUNTING INSTRUCTORS (SECOND MAILING)

Dear Accounting Instructor:

This is the second mailing of a questionnaire to seek information regarding the instruction of automated accounting. A large response rate is needed for statistical purposes and your assistance is needed. Please respond even if you do not currently use automated systems.

I am completing my masters degree and have chosen to conduct research about the teaching of automated accounting. This is a fast growing content area for which little information is available. Your response to the enclosed questionnaire will provide necessary data to find important information regarding teaching accounting. This data will assist with curriculum development.

The questionnaire will take just a few minutes to complete. All individual responses will remain confidential though your questionnaire has been coded for survey purposes. Please complete the questionnaire, staple, and return it at your earliest convenience. Your input will be greatly appreciated!

If you would like a summary of the survey results, please indicate by checking "yes" under your return address on the back of this questionnaire. Thank you for your assistance.

Sincerely,

Bradley D. Kilcullen
El Paso High School