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Technology Expectations Of CPA Firms: Hiring and the Accounting Curriculum

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The University of Southern Mississippi

TECHNOLOGY EXPECTATIONS OF CPA FIRMS:
HIRING AND THE ACCOUNTING CURRICULUM

by

Kristy Wilson

A Thesis
Submitted to the Honors College of
The University of Southern Mississippi
in Partial Fulfillment
of the Requirements for the Degree of
Bachelor of Science of Business Administration
in the Department of Accountancy

Fall 2013

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Abstract

The purpose of this study is to determine the technology expectations of Certified Public Accounting (CPA) firms and to evaluate whether or not accounting curriculums adequately prepare students to meet the firms' hiring expectations. A total of 28 participants - 19 sole practitioners and 9 CPA firms - completed an online survey designed to determine the technological skills CPA firms require of new hires, the extent to which recent new hires have met the firms' expectations, and the accounting software and programs that firms typically use. The researcher also analyzed the accounting curriculums of 22 four-year public universities to gather information regarding the technology-related classes that each university offered.

CPA firms use a variety of accounting software programs to complete accounting, tax, audit, and/or financial reporting tasks. The majority of CPA firms require new hires to have research and word processing skills. They also require that new hires have the ability to use e-mail, the Internet, and spreadsheets. Most of the CPA firms agreed that new hires have met the technological expectations of the firm in the past three to five years. The curriculum analysis showed that every university included in this study offered at least one technology-related course in their accounting curriculum. The results presented in this thesis suggest that students are being adequately prepared to meet the hiring expectations of CPA firms.

Key Words: Certified Public Accounting firms, CPA firms, hiring expectations, new hires, technological skills, accounting software, accounting technology

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Introduction

Technology is becoming increasingly important in today's business world. Advances in technology are paving the way for businesses to become more productive and efficient than ever before. The accounting profession is a prime example of a business that has adapted over the past few decades to incorporate the use of new technology. Accounting firms have embraced the use of electronic software, and the accounting industry continues to adapt and incorporate new technologies and software developments.

Accountants use technology to aid in communication and the completion of tasks. Electronic mail (e-mail) has greatly contributed to globalization by making it easy to communicate across geographic regions and all around the world. E-mail has assisted in connecting professionals and facilitates communication between accounting firms and clients. E-mail is also beneficial for communicating internally at firms between practices. For example, an employee in the audit division of the firm can easily send a message or transfer documents electronically via e-mail to someone in the tax division. Programs, such as Excel, are used to manage financial information. Excel and other similar spreadsheet and database systems facilitate the accounting calculations and aid accountants by displaying information in an organized manner. These programs are designed to help record, sort, and analyze data. Accounting software, such as SAP Business One, QuickBooks, or Thompson Reuters Creative Solutions, is designed to help accountants process data in the accounting cycle and is widely used in Certified Public Accounting (CPA) firms and industry accounting. Functions of these systems enable

accountants to electronically post to the ledger, record journal entries, manage budgets, prepare financial statements, etc.

It seems reasonable that employers at CPA firms look for employees who are the most qualified for the job. When considering applicants, CPA employers most likely have hiring expectations that a potential employee must meet in order to be hired for the job. A person with higher technological skills and experience in working with accounting information systems and programs may have an advantage over an inexperienced person who is applying for the same job.

The researcher is interested in investigating whether or not there is a growing gap between the skills that accounting students are taught in the classroom and the skills that accountants actually need for on-the-job application in the accounting profession. Once data are gathered regarding how technology is incorporated into the accounting curriculum, the researcher will then analyze how potential accountants are prepared by their college education to meet hiring expectations and effectively work with accounting technology.

Purpose and Significance of the Study

The purpose of this study is to determine if accounting students are receiving the education they need in order to be fully prepared for the technological expectations and demands of the accounting profession. The researcher believes that maintaining an educational curriculum that is consistent with the demands of a profession is crucial for students' successes after graduation. CPA firms in Alabama and Mississippi were the main focus of this study. By finding out what skills CPA firms are looking for in the hiring process, the researcher was able to analyze the current accounting programs in

schools to see if they are sufficient for preparing students to become effective employees at CPA firms, or if implementing new programs should be considered in order to keep up with the changing technology that has transformed the accounting profession into what it is today.

Literature Review

Technology in Business

Advances in technology have transformed the way businesses are managed and operated. Technology started becoming popular in the business world and created a shift in the business environment in the 1980s (Tapscott, 1982). Technology is constantly changing and adapting to provide better services to users. The implementation of technology in regular business practices has continued to grow over the years and has led to greater business competition (Cytron & Tie, 2001). Computers, software systems, and the Internet are just a few of the many technological advances that have set the stage for a modern and global business environment.

Applications of computer systems and software have created new and efficient ways of completing tasks. Electronic systems, such as databases, facilitate the management of information. A database allows users to store data in files and tables (Rainer & Cegielski, 2011). Databases have been used since the 1970s, but due to many errors in the initial systems were not widely used in offices until the 1980s. Information that is recorded in these systems can be stored, processed, and communicated electronically (Tapscott, 1982). Databases facilitate the management of information with data processing features and allow greater availability of historical data because data can be kept longer and are more accessible to users when filed in a database. Don Tapscott (1982) stated that in databases “pieces of information are stored associatively in logical hierarchical relationship with other data rather than being stored in a traditional serial file” (p. 12). The database systems can help users make decisions and allow for data

analysis with features designed to show the relationships, trends, and fluctuations of recorded data.

The Internet fosters globalization and allows people from all over the world to connect and share information through the World Wide Web. This aspect of globalization allows businesses to reach a broad spectrum of clients, regardless of their location. The concept of being able to communicate with organizations, sell and buy goods, and service clients via the Internet is called E-Business (Rainer & Cegielski, 2011). According to James Stapleton (1997), the first commercial use of the Internet occurred in the 1980s, although originally for scientific and academic use. The Internet grew increasingly popular as improvements were made and it became more easily accessible. In the 1990s, the Internet was used by many business organizations (Stapleton, 1997).

Wireless technology enables users to communicate and share information from almost any location. Employees who travel now have the capability of staying in contact with the company and managing regular business tasks while away from the main office. Smart phones, laptops, and other handheld portable devices are popular in today's business world for this reason. Chief Information Officer Michael W. Harnish, CPA, provided testimony to the benefits of wireless technology by stating: "Wireless and mobile technologies give me cheap, convenient phone and Web service, enabling me to be in two places at once--an essential survival tool for any CPA today" (Cytron & Tie, 2001, p. 71).

Internet communication systems increase business communication with clients and other organizations. E-mail has become an increasingly popular form of communication over the past two decades. Stapleton (1997) stated that "E-mail has

revolutionized the way business communication is performed, both intercompany and intra-company” (p. 441). In today’s business world, e-mail is considered a necessity in order to conduct business. It is both an inexpensive and efficient form of communication and a way of spreading ideas and business information to clients and other organizations (Stapleton, 1997).

Technology in Accounting

Similar to the technology advance in business, technology has also transformed the accounting industry. Technology has led to pervasive automation in bookkeeping, recording of transactions, and compiling of financial reports. In the July 2011 issue of *Strategic Finance*, Jeff Alder, CPA, stated that using technology in accounting has increased efficiency, reliability, and accuracy (Alder, 2011).

System updates are developed so that the existing technology can incorporate the newest technological advances. The Internet allows companies to assess the different types of software available and access information regarding the price of the software, applications of the software, customer reviews, and online support. When looking to purchase accounting software, it is important for buyers to keep in mind the functions required by the business and to make sure that the software will be compatible with current operating systems. For example, Sage ERP Accpac can run successfully on Windows and Linux, but may not work well with other operating systems. It is also important to note that some software systems, such as Microsoft Dynamics GP, provide online training for new users, which could help in the transition of employees and staff using new software (Koploy, 2012).

The Internet is used to support the software and enables accountants to access information that has been input into the system from anywhere in the world (Stapleton, 1997). Specialized accounting software makes it possible for users to access historical data because the data that are input into the system can be kept for long periods of time and readily accessed.

Accounting no longer requires all calculations to be done by hand. Accounting information systems have been developed to simplify the recording of financial information. When accounting information systems were first utilized, they could only record data in preset formats. Databases started to become prevalent in the accounting field in the 1980s and, as technology advanced, the databases were altered so that more detailed and precise entries could be made by accountants (Rahman & Halladay, 1988). Many accountants utilize computer functions that have the capability to automatically post data from journal entries to ledgers, which lessens the chance of manual input errors.

The use of technology assists users in decision-making and data analysis by employing analytical tools (Tapscott, 1982). Accounting and other office software programs are designed to keep data organized so that it is easy to find, accumulate, and understand. Excel workbooks are frequently used by accountants in the recording of transactions and the presentation of accounting data. Alder states that accounting professionals use Excel nearly every day to complete financial statements, check balances, and evaluate financial data (Alder, 2011). Accounting database systems have increased accounting productivity. Most of the technological changes that affected the accounting industry occurred during the late 1990s. According to Rajiv Banker, Hsihui

Chang, and Ram Natarajan (2005), an analysis of Certified Public Accounting (CPA) firms showed an increase of 9.5% in their productivity level between 1995 and 1999.

Security of accounting data is a concern when it comes to using Excel spreadsheets, accounting software programs, and internet connectivity to record transactions and financial information. In the article *Closing the Loop on Closing the Books*, the author mentioned the inability to attach supporting documents to an Excel workbook as another disadvantage because the supporting documents have to be stored separately and may not be as readily available as if they were directly attached (Alder, 2011). The author also stated that “The consolidation of individual workbooks is often a manual process that leads to risk of human error” (p. 46). While challenges of managing accounting information with technology exist, there are always upgrades in systems and new developments that work to solve the problems. Integrated, automated applications have been developed to solve the aforementioned problems by creating increased security and by allowing the attachment and easier accessibility of documents for financial activities (Alder, 2011).

Technology in CPA firms

CPA firms must be aware of technological trends in order to remain competitive with other firms. Using features such as e-mail to create mailing lists, CPAs are able to send out mass messages to clients informing them of business news and information. CPAs are able to communicate via e-mail within their business, with their clients, and with other organizations.

Accountants have many different options when it comes to choosing the right software for their practice. The type of software an accountant looks for typically

depends on the firm's size and the type of functions necessary to perform tasks. Software facilitates many aspects of the accountant's job, such as recording journal entries, managing cost accounting, and preparing and overseeing a budget ("CPA Accounting Software," 2012). Software has the capability of matching transactions, assisting in the control of costs, analyzing variances, and consolidating varying currencies (Alder, 2011). Programs are designed so that they can be installed on-site and have online support.

Sage ERP Accpac, Microsoft Dynamics GP, and SAP Business One are three examples of accounting software used by small to mid-sized CPA firms. Sage ERP Accpac contains applications that facilitate services that the accounting firms provide to clients. This software is available in different versions that allow managers to choose the best fit for their business. The software is designed to offer various options and settings. For example, Sage ERP Accpac is a flexible system due to the different language, location, and currency options. Some software systems are designed in a way that allows accountants to add modules in order to further accommodate their accounting needs.

Hiring Expectations

CPA employers want to hire the most qualified workers for their firm. Harold Arnett and Paul Danos (1979) stated that "In a personal service industry such as public accounting, the quality of personnel is crucial to success" (p. 102). Stapleton (1997) also supported this claim by explaining that firms want to recruit employees who will increase the success rate of a business.

Professional experience is a key factor in determining which applicant gets the job offer. Stapleton (1997) stated that: "Every time you hire an employee who has no public accounting experience, you are handling a ticking box" (p. 389). The more experienced a

potential employee is, the more likely they are to be hired. An aspect of experience that is expected of employees is experience of working with technology because with an increase in the use of technology in business comes an increased need in the technological skills of workers.

According to Stapleton, some firms prefer to hire college graduates and new accountants because they will have an open mind to the firm's organizational culture. New hires are more flexible and eager to learn in their new profession. Since they are new to the field, they are not accustomed to a specific organizational culture and can be trained to fit the standards of a particular firm.

The demand for knowledge with accounting software is increasing. According to Edward Summers, the three areas of technology in which accountants need to be knowledgeable include controls, database structures, and computer characteristics. Accounting software is constantly being developed and improved in order to better suit the needs of CPAs and their clients. Potential accountants are expected to be familiar with current technologies and likewise professional accountants and managers are expected to maintain up-to-date technology systems (Summers, 1983). Accountants must be familiar with internet features, such as e-mail, and the accounting programs or applications they are working with in order to be successful in the business (Rahman & Halladay, 1988).

Summary: Growing Gap in Education

Technological advances have transformed the business world and, more specifically, the accounting industry. Employers at CPA firms want to hire accountants with the best experience and technological skills. One challenge that has become

apparent over the past couple of decades is the lack of these skills in college graduates. In many cases, students are being taught how to perform accounting calculations and record financial information by hand and are not getting the opportunity to work with accounting software during their college years, which in turn makes them less likely to meet the technological expectations of employers.

The question about whether universities are adequately preparing students for technology expectations is not a new question and has been addressed in the past. In *A Strategic Plan for Educational Technology in Accounting*, Holcomb and Michaelson (1996) stated that graduates may not be fully prepared with the skills that they need and states that “accounting education does not adequately bridge the gap between the classroom and the real world” (p. 279). Summers (1983) believed that “Universities have not, as an industry, developed or applied educational technology as a major curriculum factor” and that “Accounting education utilizes little electronic technology, nor have faculties urged their administrations to help them make it otherwise” (p. 160).

The focus of technology education is more on becoming an expert in knowing facts about the technology functionality rather than actually knowing how to use the technology in a real world scenario. Technology-based courses should foster higher-level skills by simulating real world problems and requiring students to solve the problems with the application of functions and software (Holcomb & Michaelson, 1996). Summers wanted to see the implementation of educational technology in the curriculum. He believed that the only source of technological skills accounting majors gain from their college education comes from basic computer courses or statistics, which is not enough to fully prepare a student for entering into the accounting profession (Summers, 1983).

Although years have passed and the curriculum has changed since Holcomb, Michaelsen, and Summers addressed the need for an adjustment, the points that they made are still valid and relevant as technology has continued to advance. As the use of technology becomes more prevalent, there should be a paralleling increase in technology-related classes at universities. Allowing accounting students to work directly with software programs would provide students with the opportunity to learn and become accustomed to using accounting software prior to entering the profession.

Charles E. Davis, an associate accounting professor at Baylor University, asked the question: “What entry-level skills are we trying to develop in an accounting undergraduate?” (p. 74). He believed that students should not be solely taught the technical terms and codings of the technologies available, but instead should be taught how to utilize functions and develop skills to incorporate the technology in the completion of tasks (Cytron & Tie, 2001). Davis’ question greatly resembles the research questions that this thesis will examine.

Methodology

The purpose of this thesis is to study the technology expectations that CPA firms have of new hires and to analyze the accounting courses offered to students at four-year universities. The research for this thesis is both quantitative and qualitative in nature. Data were gathered by surveying CPA firms about the technology expectations they have when looking to hire new employees. The research also included a qualitative study of the different types of accounting courses offered at universities in Alabama and Mississippi for accounting majors.

Research Questions

The research was designed to provide answers to two research questions:

- 1) What entry-level technology expectations do CPA firms have of new hires?
- 2) Do universities incorporate technology-related accounting courses in the accounting curriculum?

Research Design

Two different research designs were used to gather data. The first research used a survey design to gather data. The survey was created online with Qualtrics Survey Software and deployed via e-mail to the selected CPA firms (see survey instrument in Appendix A on page 33). Once the surveys were completed, the responses were recorded and the data were analyzed using descriptive statistics.

The second research design was a content analysis of courses from published course catalogs required for accounting majors at four-year public universities in Alabama and Mississippi. The curriculums were found online on the official university

websites for the selected schools and analyzed to determine if the universities offer technology-related courses within the accounting curriculum.

Participants

The participants of this research were a sample of CPA firms, including sole practitioners, from the states of Alabama and Mississippi. Alabama and Mississippi were chosen for the research because they are located in the same geographic region of the United States and are in proximity to The University of Southern Mississippi. Fifty CPA firms were selected from each state of Alabama and Mississippi for a total of 100 CPA firms that were e-mailed the survey. To select the participants, two lists of CPA firms (one for Alabama and one for Mississippi) were obtained from the state boards of accountancy websites for each state. The CPA firm lists also included sole practitioners, which were included in this study. The lists of firms were sorted by location and the firms were chosen through random selection of every 21st firm on the Alabama list and every 18th firm on the Mississippi list.

The researcher contacted each of the selected 100 firms by phone prior to sending the survey. If a firm in the sample elected to not provide an e-mail address or if the firm could not be contacted for any reason (such as the phone number could not be located, the number had been disconnected, the firm did not answer phone after multiple attempts, or any other reason that prevented the researcher from successfully contacting the firm and getting an e-mail address), then the researcher selected the next firm on the list. The researcher called the firms to notify them of the survey they would receive, to familiarize them with the purposes of gathering the research data, to answer any questions regarding the survey process, and to gather the e-mail addresses of the firms for sending the survey.

Instrumentation

The survey was titled “CPA Firm Survey for Technology Expectations” (see copy of the survey instrument in Appendix A on page 33). The survey was approved by The University of Southern Mississippi Institutional Review Board (see the IRB Approval Letter in Appendix B on page 37). The questions for the survey were developed in a combined effort by the researcher and the thesis advisor. The advisor’s professional experience gained from working at a CPA firm in the past was useful in the development of the questionnaire because it provided a professional perspective. To develop the questions, the researcher and advisor created an outline of research objectives and then created a list of questions that met the objectives of this study.

In order to gather data, a link to the survey was e-mailed to selected firms. The researcher decided to use Qualtrics Survey Software because the surveys could be sent online and the software would automatically record the responses. An electronic survey sent via e-mail seemed more convenient for the participant than a paper-based survey sent via mail because the link would be easily accessible in their inbox and the participant would not have to mail the survey back to the researcher.

A distinction was made by the participants at the beginning of the survey of whether they completed the survey as a CPA firm or as a sole practitioner. If the participant selected the option of taking the survey as a sole practitioner, the questions which were relevant to the CPA firm but irrelevant to the sole practitioner (such as “From recent recruiting and hiring experiences at your firm, what percentage of your firm's new hires are recent college graduates [i.e. graduated from college within the last 3 - 5 years]?”) were hidden from the sole practitioner’s survey, in order to help with gathering

accurate, meaningful, and relevant responses. Prior to sending the survey to the participants, the researcher previewed the survey and took the live survey online as both a CPA and then as a sole practitioner to test the survey link. The goals of testing the survey were to verify that questions were understandable and displayed correctly. Testing the survey allowed the researcher to check the length and quality of the survey from a participant's perspective. Given that the survey was closely reviewed through a pretest of the survey's functionality by both the researcher and thesis advisor, piloting the survey was not considered necessary.

The survey included demographic questions regarding the size of the CPA firm and the location of the firm. The firms were asked in the demographic section of the survey to identify their firm size in order to provide appropriate size-classifying information. The size descriptions of local, state, regional, and national were defined on the survey to lessen the possibility of any inappropriate self-reporting classification. Other questions were scaled-response, ranking, and multiple-choice. The questions were used to determine what technological skills the accounting firms consider to be important when hiring new employees.

Procedures

The CPA firms were contacted prior to the deployment of the survey, and the survey links were e-mailed on June 9, 2013. A reminder to complete the survey was sent on June 18, 2013 in an attempt to obtain a higher response rate. The participants were asked to complete the survey by June 23, 2013. Due to communication challenges encountered when contacting the firms directly and the resulting time constraints present

during the process of collecting, summarizing, analyzing, and reporting the final data results from the study, no further efforts were made to generate a larger response rate.

The results from the survey were recorded electronically on the Qualtrics website. The data was analyzed on Qualtrics and with Statistical Package for the Social Sciences (SPSS) software. The SPSS software was used to interpret and disaggregate the 28 responses between the CPA firms and the sole practitioners. The software presented the data in an easy-to-read format and provided a compilation of the responses to each question.

A Word document was used to organize the data gathered from the content analysis of published accounting curriculums. The names of the selected universities in Alabama and Mississippi were listed in the document, along with the names of the technology-related courses offered to accounting majors. To further present the data, the researcher documented the list in Excel by creating a spreadsheet that separated the courses into three columns: 1) courses related to “Accounting Information Systems,” or “Accounting Systems,” 2) courses related to “Management Information Systems,” “Information Systems” or “Systems,” and 3) other relevant technology-related courses. The researcher made note of any similar courses that were offered at the different universities. The course information was then summarized in Excel to show the number of technology-related classes each university offered and to present the overall percentages of universities that offered courses (see Appendix C on page 38).

Limitations

The research of this thesis was limited to the data provided by the 28 participants on the online surveys. The limited number of respondents may be due to a variety of factors. It is possible that the e-mail containing the survey link was redirected to the firm's spam folder or was overlooked by the receiver. The pressures of a job in public accounting could have been a contributing factor to the low response rate. While special consideration was made to avoid sending the survey during the busy time prior to the IRS tax filing deadline of April 15, the CPA firms may have had other deadlines, such as June IRS deadlines, and busy schedules that prevented their availability for taking the survey.

This study was limited geographically to only firms and sole practitioners in Alabama and Mississippi. The collection of data from universities and participants located specifically in Alabama and Mississippi limits the research from being generalized on a large scale.

For the content analysis of college accounting programs, only the course names that were published on university websites or catalogs were used. As curriculums are subject to change and differ at every university, it is possible that the researcher was unable to discover every technology-related course offered to accounting majors. No attempt was made in this study to determine actual and detailed course content, such as with syllabus analyses of the courses.

Results

A total of 28 participants completed the survey: nine CPA firms and 19 sole practitioners. The total data was broken down with SPSS software to present the responses for CPA firms and sole practitioners separately. While the information gathered from the sole practitioners is important to report, given that the purpose of this thesis is to focus on hiring expectations, the majority of the thesis will focus on the results from the CPA firms, as sole practitioners do not typically hire recent college graduates.

Sole Practitioners

Of the 19 sole practitioners that responded, 11 were located in Mississippi and eight were located in Alabama (see Table 1 on page 28). All of the sole practitioner participants use professional software packages to complete accounting tasks. The software packages that they use include, but are not limited to, ATX, ProSeries, ProSystems, Creative Solutions, Drake Software, Intuit and QuickBooks. Sixteen sole practitioners use a specific program for e-mail, and of those sixteen, 12 used Outlook. Other e-mail programs listed by the sole practitioners were AOL, AT&T e-mail, Gmail, iMail, and Phoneslips. Fifteen sole practitioners expect that the use of technology will increase in the next five years, three expect that it will remain the same, and one sole practitioner expects that it will decrease.

CPA Firms

Of the nine CPA firms responding, seven classified themselves as local firms, one as a state firm and one as a regional firm. Zero firms responded as national firms (see Table 1). The number of employees ranged anywhere from two to 32 employees. The

maximum number of 32 employees was reported by a firm classified as a local firm in Mississippi. Six of the CPA firms responding were located in Alabama and the other three firms were located in Mississippi (see Table 1). Every firm responded that they use professional software at their firm to complete accounting tasks. The software listed by the firms include, but are not limited to, the following: Creative Solutions, GoSystem Tax RS, QuickBooks Pro, ProSystem Suite of Software, Drake Software, Taxwise PPC, Checkpoint Online Research, and SmartPractice Aids. Creative Solutions and QuickBooks were listed by more than one firm.

Creative Solutions, Inc. (CS) was founded in 1979 and offers a variety of software for tax and accounting professionals. CS develops software that assists professionals in bookkeeping, data analysis, payroll, financial reporting, tax preparation, document storage, asset management, and other daily transactions. One firm specifically stated that they use Ultratax CS, Client Bookkeeping Solution, and FileCabinet CS, among other programs.

CS is a subsidiary of Thomson Reuters. Thomson Reuters Creative Solutions offers several products for businesses in finance and accounting. According to the Thomson Reuters website, the CS Professional Suite is one system that utilizes the Internet, data sharing, and paperless processing to enhance client service and increase the productivity of the firm. This program allows clients to enter information, such as timesheet information, and pay bills on secured web portals (Thomson Reuters, 2013). The CPA firms are then able to pull their client's entered data directly from the web portals, which decreases data entry. By decreasing the amount of data entry, the program maximizes efficiency and lessens the chance of a CPA making a data entry error.

QuickBooks is a registered trademark of Intuit, Inc. and offers accounting software for the industries of construction, manufacturing, nonprofit, professional services, and retail, among others. Their products include QuickBooks Online, QuickBooks Pro, QuickBooks Premier, QuickBooks Enterprise Solutions, QuickBooks Accountant, and QuickBooks for Mac. According to the QuickBooks website, QuickBooks is a top-selling accounting software for small businesses (Intuit, Inc., 2013).

Firms were asked to rank the methods of communication via e-mail, telephone, mail, and face-to-face in order of most frequently used to least frequently used when communicating with clients. Results from this survey rank can be found in Table 2 on page 29. E-mail and telephone were ranked as the most frequently used methods of communication by the firms. Five firms ranked e-mail as the number one method and the other four firms ranked communication via telephone as the top method. Telephone communication was ranked by the majority as either the first or second method. It was ranked as the third method of communication by one firm and zero firms ranked it as the least frequently used method. Communication via mail was ranked as the least frequently used method of communication, and face-to-face communication was right in the middle ranked as either the second or third method of communication.

Electronic communication via e-mail has become a major part of business communication. Eight firms responded that they use a specific program for e-mail. All of the firms that use a specific program stated that they use Microsoft Outlook. Outlook allows users to manage e-mails, calendars, contacts, and tasks. Users can send and receive e-mails, flag important e-mails, and organize their e-mails into folders. The Outlook calendar allows users to schedule meetings and keep track of events. Contact

information for clients and other contacts can be maintained in a contact list which can be easily accessed. The task list allows the user to manage and prioritize a list of tasks in order to see what tasks need to be done or are in progress, along with the associated deadline by which the tasks need to be completed. A search bar in Microsoft Outlook allows users to quickly search key words to find specific e-mails or events pertaining to the searched words (Microsoft Corporation, 2013).

A question was included in the survey asking firms to identify whether they use a PC or Apple products, such as a Macintosh computer frequently referred to as a Mac. The purpose of this question is to identify if firms use one type more than other. All of the participating firms reported that they use a PC.

Firms were asked to give the percentage of recent college graduates that they have recruited and hired in recent experiences. For the purpose of this survey, “recent college graduates” refers to anyone who has graduated from college within the past three to five years. The firms ranked this percentage on a 25% scale from 1% to 100%. The majority of the responses were on both ends of the scale. Three firms reported that recent recruiting experiences were comprised of 1% to 25% recent college graduates and four firms stated that 76% to 100% were recent college graduates. Along the same lines, firms were asked if they have training programs to educate new hires on the accounting software programs and other technology used in the office. The responses indicated that four firms do have training programs, and five firms do not have training programs to educate new hires on the accounting software programs and technology used in the office.

To further inquire about new hire skills, firms were asked to select any skills that they consider a minimum requirement for new hires. Skills were broken down into areas of research, e-mail, internet, databases, spreadsheets, multi-media (ex. PowerPoint), and word processing. Multi-media skills were not considered to be part of the minimum requirements of the participating CPA firms, as illustrated in Figure 1 on page 30. The ability to use e-mail and spreadsheets was considered most important, as both were selected by eight out of the nine firms. Internet and word processing followed closely behind with the selection of seven firms. Skills in research were considered to be a minimum requirement by five firms, and two firms selected databases as a minimum requirement.

During the survey, the CPA firms were presented with statements regarding new hires, technological skills, and expectations. Eight firms considered technological skills of new hires as an important hiring qualification. The majority of firms either agreed (four firms) or gave a neutral response (three firms) to the statement that “Entry-level employees are prepared with the necessary technological skills for entering the accounting profession.” One firm disagreed with this statement, and one firm strongly disagreed. Six firms agreed with the statement that “In the past three to five years, new hires have met the technological expectations of the firms,” with two firms remaining neutral and one disagreeing. In response to the statement that “College graduates from 4-year universities should have experience with accounting, tax, audit, and/or financial reporting software prior to being hired at a CPA firm,” one of the firms strongly agreed, three firms agreed, three neither agreed nor disagreed, and two disagreed.

Accounting Curriculum

A total of 22 universities were analyzed in the curriculum analysis. The following four-year public universities were included in this analysis from Alabama: Alabama A&M University, Alabama State University, Athens State University, Auburn University, Auburn University at Montgomery, Jacksonville State University, Troy University, The University of Alabama, University of Alabama at Birmingham, University of Alabama in Huntsville, University of Montevallo, University of North Alabama, University of South Alabama, and University of West Alabama. The following four-year public universities were included in this analysis from Mississippi: Alcorn State University, Delta State University, Jackson State University, Mississippi State University, Mississippi University for Women, Mississippi Valley State University, The University of Mississippi, and The University of Southern Mississippi.

Results from the curriculum analysis showed that universities have incorporated courses involving technology in their curriculums. While every university offered at least one class on information systems or technology in one way or another, 82% of the universities offered two or more technology-related classes. Some of the technology classes were offered as electives for accounting majors. The most common classes were called Management Information Systems (MIS) or Accounting Information Systems (AIS), but classes were listed with various other titles as well. Alternative technology-related classes included Business Computer Applications, Business Process Integration using SAP, Spreadsheet Applications, Spreadsheet Modeling, Business Programming Language, and Decision Support Systems. The classes titled Business Process Integration using SAP, Spreadsheet Applications, and Spreadsheet Modeling appeared to be the most

specifically targeted classes by their course names, focused directly on the use of SAP software and spreadsheets. While researching the accounting curriculum information on the university websites, the researcher noticed that in addition to the wide range of classes offered, some universities include a reference to technology in their accounting department mission statement or objectives.

Conclusion

While the results from the survey could have been more conclusive with a higher response rate and with a greater variation of CPA firm respondents in regards to firm size, the survey results do provide great insight into the technology used in today's accounting profession. Microsoft Outlook is widely used for e-mail by CPA firms. A large variety of software programs are used by firms, which could be due to firm preference or different needs of each firm. If more national firms had responded to the survey, the results may have shown more firm-specific software developed and tailored to meet the needs of the particular firm.

Based on the research gathered from the survey, it is recommended that students have skills in the area of research and word processing and be able to use e-mail, the Internet, and spreadsheets when entering the accounting profession because those were considered minimum requirements by the majority of the firms. There were relatively mixed responses from CPA firms to the statements presented in the survey, but the agreement of six out of nine firms to the statement that new hires have met the technological expectations of the firm in the past three to five years suggests that students are being prepared adequately for entrance into the accounting profession. The curriculum analysis supports this suggestion, given that every university offered at least one technology-related course.

Further research could be conducted regarding the topic of this thesis. New hires could be interviewed to gain their perspective on the technology expectations of CPA firms to determine if they believed that their academic experience provided adequate and appropriate technology preparation for entering the accounting profession. A more in-

depth analysis of the course content for accounting curriculums at universities could verify the extent in which a class containing a technology reference in its title is actually a technologically-integrated course. An analysis of a course syllabus could also help researchers to determine the objective(s) of the course and to determine if the course enables students to work directly with current software and technology. While many of the universities are offering classes on information systems, computer applications, microcomputer applications, etc., it could be beneficial for more universities to incorporate popular accounting software programs, such as QuickBooks, in undergraduate courses and allow students the opportunity to gain first-hand experience through use of the software. Adequate education in technology and accounting software programs helps students meet the technology expectations of CPA firms when they graduate. When the university accounting curriculum reflects and incorporates the technology expectations of the firms, the curriculum can be sure to provide the education necessary to promote high success for new hires entering the profession.

TABLE 1**Summary of Respondents**

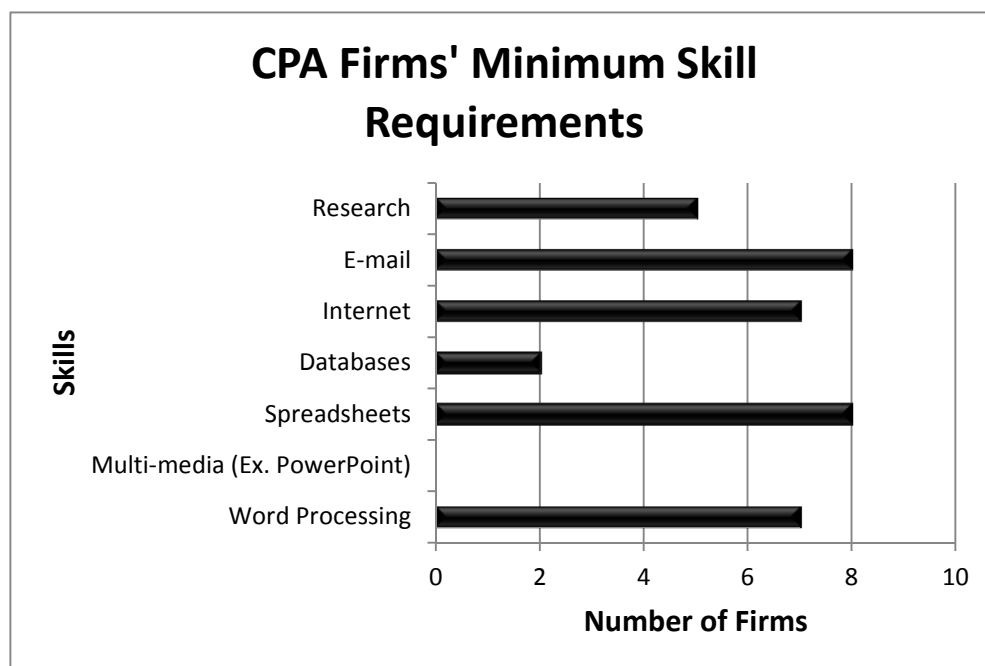
Summary of Total Respondents			
	Alabama	Mississippi	Total
Sole Practitioners	11	8	19
CPA Firms	6	3	9
Total	17	11	28

Summary of CPA Firm Respondents			
	Alabama	Mississippi	Total
Local	4	3	7
State	1	0	1
Regional	1	0	1
National	0	0	0
Total	6	3	9

TABLE 2

Ranking of Communication Methods

Method of Communication	Number of Firms Ranking the Method as:				Total
	Most Frequently Used (Rank 1)	More Frequently Used (Rank 2)	Less Frequently Used (Rank 3)	Least Frequently Used (Rank 4)	
E-mail	5	1	2	1	9
Telephone	4	4	1	0	9
Mail	0	0	1	8	9
Face-to-face	0	4	5	0	9
Total	9	9	9	9	

FIGURE 1

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APPENDIX A: Survey Instrument

CPA Firm Survey for Technology Expectations



THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

The purpose of this survey is to gather research on the technology expectations that CPA firms have for new hires. For this study, CPA firms and sole practitioners may take this survey. This research is being conducted to gather data for a senior honors thesis for the Honors College at The University of Southern Mississippi. The study is aimed at determining if technology skills are an important consideration of firms in the hiring process and will also give insight into what skills CPA firms are looking for when hiring. The survey may take anywhere from 5 - 15 minutes to complete. Participation in this survey is completely voluntary. Participation may be discontinued at any time without penalty or prejudice to the subject. If the participant continues with the survey, this will be considered as consent to participate.

Are you taking this survey for a CPA firm or as a sole practitioner?

☐ CPA firm

☐ Sole practitioner

>>

Please classify the size of your CPA firm:

- ☐ Local (business focused primarily on nearby counties)
- ☐ State (business throughout the state)
- ☐ Regional (business in 2 - 10 states)
- ☐ National (business in 11 or more states in the U.S.)

Number of employees for the overall firm:

Number of employees at local firm:

Location of your CPA firm or practice:

- ☐ Mississippi
- ☐ Alabama

Does your CPA firm (or do you as a sole practitioner) use professional software packages to complete accounting, tax, audit and/or financial reporting tasks?

- ☐ Yes
- ☐ No

Please list the software packages used:

Does your CPA firm (or do you as a sole practitioner) use a specific program for e-mail (ex. Microsoft Office Outlook, etc.)?

- ☐ Yes
- ☐ No

Please list the program(s) used for e-mail:

What type of computer does your firm (or do you as a sole practitioner) use?

- ☐ Apple Products (Mac)
- ☐ PC

From recent recruiting and hiring experiences at your firm, what percentage of your firm's new hires are recent college graduates (i.e. graduated from college within the last 3 - 5 years)?

- ☐ 1 - 25 %
- ☐ 26 - 50 %
- ☐ 51 - 75 %
- ☐ 76 - 100 %

Does the CPA firm employ training programs to educate new hires on the accounting programs used in the office?

- ☐ Yes
- ☐ No

Entry-level employees are prepared with the necessary technological skills for entering the accounting profession:

- | | | | | |
|-----------------------|-----------------------|-------------------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Neither Agree nor
Disagree | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Technological skills of new hires are an important hiring qualification:

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In the past 3 - 5 years, new hires have met the technological expectations of the firm:

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

College graduates from 4-year universities should have experience with accounting, tax, audit, and/or financial reporting software prior to being hired at a CPA firm:

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The use of technology in your CPA firm/practice will most likely _____ in the next 5 years.

- ☐ Decrease
- ☐ Remain the same
- ☐ Increase

When hiring an employee for the CPA firm, which of the following skills are a minimum requirement for new hires to have? (Please select all that apply.)

- | | |
|---|-----------------------------------|
| <input type="checkbox"/> Word Processing | <input type="checkbox"/> Internet |
| <input type="checkbox"/> Multi-media (ex. PowerPoint) | <input type="checkbox"/> E-mail |
| <input type="checkbox"/> Spreadsheets | <input type="checkbox"/> Research |
| <input type="checkbox"/> Databases | |

Please drag and drop the following methods of communication to rank in the order of most frequently used (1) to least frequently used (4) by your CPA firm (or you as a sole practitioner) in communication with clients.

E-mail

Telephone

Mail

Face-to-face

APPENDIX B: IRB Approval Letter



INSTITUTIONAL REVIEW BOARD
 118 College Drive #5147 | Hattiesburg, MS 39406-0001
 Phone: 601.266.6820 | Fax: 601.266.4377 | www.usm.edu/irb

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
 Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: C13013008
 PROJECT TITLE: Technology Expectations of CPA Firms: Hiring and the Accounting Curriculum
 PROJECT TYPE: Change in Previously Approved Project
 RESEARCHER(S): Kristy Wilson
 COLLEGE/DIVISION: College of Business
 DEPARTMENT: Accounting
 FUNDING AGENCY/SPONSOR: N/A
 IRB COMMITTEE ACTION: Expedited Review Approval
 PERIOD OF APPROVAL: 6/06/2013 to 06/05/2014

Lawrence A. Hosman, Ph.D.
Institutional Review Board

APPENDIX C: Curriculum Analysis

	BSBA or Accounting Courses Related to "Accounting Information Systems" or "Accounting Systems"	BSBA or Accounting Courses Related to "Management Information Systems," "Information Systems," or "Systems"	Other Relevant Technology-Related Courses	Total
Alabama				
Alabama A & M University	1	1	1	3
Alabama State University	0	2	2	4
Athens State University	0	1	0	1
Auburn University	1	0	3	4
Auburn University at Montgomery	1	0	0	1
Jacksonville State University	1	0	3	4
Troy University	1	0	2	3
The University of Alabama	2	0	3	5
University of Alabama at Birmingham	1	1	0	2
University of Alabama at Huntsville	1	0	0	1
University of Montevallo	0	1	1	2
University of North Alabama	1	0	0	1
University of South Alabama	1	1	1	3
University of West Alabama	0	2	1	3
Mississippi				
Akorn State University	1	0	2	3
Delta State University	1	1	3	5
Jackson State University	1	0	1	2
Mississippi State University	2	2	0	4
Mississippi University for Women	1	0	1	2
Mississippi Valley State University	1	1	1	3
The University of Mississippi	0	2	0	2
The University of Southern Mississippi	0	2	0	2
	Percentage of Universities Offering:			
	1 Course	18%		
	2 Courses	27%		
	3 Courses	27%		
	4 Courses	18%		
	5 Courses	9%		
		100%		