# An Examination of Microsoft Office Specialist Certifications and Employability Skills Sought by Georgia Employers

By

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Abstract

This study was designed to investigate response ratings for the value of computer skills, the value of Microsoft Office Specialist Certifications, which participant and/or business qualities impact the desire for given computer skills and Microsoft Office Specialist Certifications, and the employability skills employers desire. Data were analyzed using Descriptive statistics, Regression, Analysis of Variance (ANOVA), and t-tests. Respondents were Metro Atlanta employers. Most were ages 35-44, hold a Bachelor's Degree, and some form of technical certification. They represented organizations that employee 1,000+ employees, within 16-30 miles from Atlanta, in the Business Management and Administration cluster.

Spreadsheet skills were valued most positively, while desktop publishing was least valuable. Excel MOS certifications were valued most positively, whereas SharePoint and OneNote MOS certifications were less favorable. Excel MOS certifications would likely influence participants to hire a candidate, however, OneNote and SharePoint certifications would not.

Age, industry, and number of miles were predictors of the value placed on computers skills taught in high school business courses. There was a significant main effect on the type of computer skill and the value placed on the computer skill. Age, industry, number of employees, and number of miles from Atlanta were significant predictors for the value that employer's place on MOS certifications. There was a significant main effect on the type of MOS certification and the valued placed on the certification. Lastly, age, industry, and the numbers of miles from Atlanta were significant predictors in the likelihood that employers would be influenced to hire a candidate who

holds MOS certifications. There was a significant main effect on the type of MOS certification and the valued placed on the likelihood that participants would influenced.

Ethics produced the highest mean score for importance of given employability skills, while presentation skills produced the lowest. Paired-sample t-test were conducted to examine differences between the importance of given employability skills and the demonstration of the skills by new hires. There were significant differences in the importance of and demonstration of each of the following skills: teamwork, analytical, computer, ability to work under pressure, organizing, presentation, leadership, and time management.

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Table of Contents

List of Tables

List of Illustrations

# I. NATURE OF THE PROBLEM

## Introduction and Background

The 1990s marked the beginnings of a significant milestone in the modern technology era. Adoption rates for home computers and access to the Internet rose at incredible rates. As the role of technology continued to expand in people's professional and personal lives, educators came under increasing pressure to adopt technology and technology education in the classroom. In response to this surge in technical interests, former President Bill Clinton referenced technology utilization and education in his January 23, 1996 State of the Union speech. America's Technology Literacy Challenge (1996) cited Clinton as saying "In our schools, every classroom in America must be connected to the information superhighway with computers and good software" (para. 1). One month later the Technology Literacy Challenge Fund (TLCF) was proposed. TLCF was designed to help ensure that all children were technologically literate by the 21st century and equipped with the communication, math, science, reading, and critical thinking skills essential for advancing learning and improving productivity and performance. In 1996, through the same fund, former President Clinton made greater than $2 billion in grants available so that computers could be made accessible to every student (U.S. Department of Education, 1998). As computers have now become more accessible, inexpensive, and powerful, the demand for this technology has increased, leading to more frequent use of computer resources within classes (Cuban, 2001).

Predictably, the shift in technological demands and worldwide computer usage has warranted the need for computer skills in today's workforce. Soergel (2015) reported that roughly 80 percent

of middle-skill jobs (positions that can range from office assistants and nurses to lab technicians and information security analysts) now require digital and computer skills. This shift has pushed the United States government to create guidelines for educators to ensure that students are prepared to meet the demands of the 21st century. The Core Curriculum Content Standards for education are aimed at preparing students for college- and career-readiness aligned with college and work expectations (National Governors Association, 2011). A central tenant of these standards is equipping students with the proper computer skills to successfully compete in the job market.

In 2007, the Georgia Department of Education revised the requirements for obtaining a high school diploma. One such change was the elimination of the mandatory computer applications course. Because completion of a computer applications course is no longer a graduation requirement in Georgia, other ways to prepare students to be more competitive in the workforce have come about. In order to help make Georgia high school graduates more marketable in this area, the state of Georgia has implemented a new system in which business education students are given the opportunity to complete Microsoft Office Specialist (MOS) Certification Exams. MOS certification is described by Certiport (2016) as the premier credential chosen by individuals seeking to validate their skills and advance their careers. The MOS Certification exam, which allows one to demonstrate mastery of all of the features of Microsoft Office, is offered to any Georgia high school student registered for one of the following business pathways:

Business, Management and Administration Cluster:

- Business Technology
- Entrepreneurship
- Human Resources Management

Finance Cluster:

- Business Accounting
- Advanced Accounting

- Financial Services

Each pathway includes three courses, which must be completed in sequence. Students have the option to complete one of the Microsoft Office exams in each of the three classes, at no charge. Based upon the recommendation of the teacher, and in accordance with individual county policy, the teacher can choose from Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Microsoft Access, or Microsoft SharePoint. The decision is typically made based upon which software has been taught in depth during a particular course (e.g., Intro to Business and Technology would test in Microsoft Word, Accounting would test in Microsoft Excel). Students who take advantage of this opportunity and complete all three courses in a given pathway could potentially graduate high school with certifications in three of the Microsoft product lines.

A significant monetary benefit to students comes through the allocation of funds under the Carl D. Perkins Vocational and Technical Education Act, which covers the cost of testing for students. According to the Association for Career and Technical Education (2016), "the purpose of Perkins is to provide individuals with the academic and technical skills needed to succeed in a knowledge- and skills-based economy" (para.1). The Federal resources provided by Perkins, which consists of contributions of approximately $1.3 billion per year, assists in "maintaining career and technical programs that are academically rigorous and up-to-date with the needs of business and industry" (Perkins Act Fact Sheet, n.d.). An example in which Perkins funds are being used to ensure schools are producing students that are equipped to meet the needs of business and industry is through the funding of MOS certification exam fees. Utilizing these funds, districts are able to cover the cost of the exams so that Georgia high school students do not have to pay the

nearly $100 fee for each test, as most examinees do. Instead, the state absorbs the cost for the student, through Perkins funds, at a discounted rate of $72 per voucher.

While supportive rhetoric and legislation were being promoted at the Federal level, Georgia began taking strides in an opposing direction. Georgia opted to eliminate a long standing state mandate of computer education as a graduation requirement for high school. While lawmakers and administrators continued their political tug-of-war, Georgia employers accumulated ever increasing numbers of entry-level employees under the new paradigm. As the eventual recipient of local high school graduates, polling Georgia employers represents a valid litmus test for employer satisfaction between the diverging views. This study will seek to determine:

1. What is the level of awareness and value that employers place on computer skills typically taught in the secondary Business Education classroom?
2. Is there a difference between the values placed on Microsoft Office Specialist Certifications when making hiring decisions?
3. Do the demographics of the survey participant and/or business impact the desire to hire employees with specific computer skills and Microsoft Office Specialist Certifications?
4. Which employability skills do employers seek when making hiring decisions and to what extent are the employability skills desired by employers demonstrated by new employees?

## Theoretical Framework

The premise behind Career and Technical Education is to prepare students with the proper skills necessary to compete in an ever-changing job market**.** Erickson (2013) weighed in on how high schools and colleges are failing our economy and students. He stated "the problem starts with learning standards that are too often not aligned with college and career needs and the reality that many students are moving from grade to grade without meeting even those misaligned standards" (para. 1). Erickson further indicated that high school students are unequipped to succeed at the

next level because they leave high school without the proper skills, and have done so for years. Given that research is unveiling these alarming facts, decision makers must plan and organize a way to bridge this gap. Albeit a huge undertaking, it is necessary for a successful future workforce.

Spiegel (2013) wrote that "there is clearly a mismatch between the education and skills that many Americans have and what employers need" (para. 1). One way that the Georgia Department of Education has elected to make an effort to bridge the technology skills gap, in part, is by utilizing federal funds to pay for MOS certification exams for high school students. This study was designed, specifically, to seek out employers' preferences for MOS Certifications when making hiring decisions.

When looking at the overall technology skills gap, it is evident that employers seek employees that can produce over and above Microsoft Office programs. One might suggest that teaching basic computer skills does not do enough to bridge the technology skills gap. In fact, Soergel (2015) quoted Matt Sigelman, the CEO of Burning Glass Technologies, as stating "basic productivity software skills, like proficiency in Microsoft Office programs, are a "minimum ticket to ride" (para. 8). While employers may need a higher level of technical skills, the Transfer of Learning Theory advocates that one can transfer their own knowledge and skills from one problem solving situation to another. Edgar (2012) wrote "transfer of learning allows learners to become more knowledge specific and able to use knowledge in a variety of situations, enabling them to be more productive citizens of the world" (p. 8). Additionally, Day and Goldstone (2012) stated "research has established that an individual's existing knowledge can provide a significant advantage in his or her ability to recognize and take advantage of deep structural content" (p. 160). Given this premise, one might conclude that teaching Microsoft basics to high school students can

prove beneficial to employers, even if students hold only a minimum body of technical knowledge. A study conducted through Cornell University "*Are Early Investments In Computer Skills Rewarded In The Labor Market?*" (Mane & Bishop, 2006) gives weight to this notion. Mane and Bishop (2006) stated "the payoff to early computer skills was substantial in jobs involving intense and complex uses of computers" (p. 5). When evaluating the payoff of computer skills of new hires they found that those with basic early computer skills were immediately more productive when the job required the use of a computer. As a result, they were placed in jobs that involve using high-level computer skills are important. Basic computer skills acquired early by employees equipped them for positions where high-level computer skills were needed. The ability to do so was made possible through transfer of learning.

Another perspective looks at transfer of learning from a different viewpoint. Much research has been dedicated to proving how transfer of learning occurs when one does something in one situation that is *similar* to something they have done in a previous situation. Marton (2006) stated that it "appears more fruitful to consider the case when the learner, having learned to do something in one situation, might be able to do something different in other situations" (para. 1). Transfer occurs because of the perceived differences *and* similarities between situations. Because transfer of learning can occur in both circumstances, and with software ever changing, Kay (2007) recommended "instead of focusing on unique software packages, teachers could concentrate on knowledge that is likely to transfer from one software application to another" (para. 1). Because of the theory of transfer of learning, having a foundation in basic concepts and software knowledge enables learners to use multiple software types, despite their differences.

Given the amount of research validating the significance of transfer of learning, where prior knowledge is crucial in reaching deeper structural content in both similar and different situations, it is evident that students must be formally equipped with computer skills that can be utilized in the workplace. In doing so, students are positioned for employment where the foundational knowledge can be utilized in higher order computer tasks and/or with varying software programs.

## Purpose of the Study

It is evident, that computer skills are necessary to successfully compete in the workplace. With a large amount of Perkins funds being allocated for MOS certification testing, however, it is imperative for the department of education to have a firm understanding of employer's expectations. This study seeks to determine how valuable MOS certifications are to employers when making hiring decisions. Should the study reveal employers place little emphasis on students obtaining certification, the state can re-evaluate its desire to continue to fund the testing through Perkins dollars. Should the study reveal that there is a strong preference for certification(s), the state can determine if it would like to be more aggressive in allocating funds for testing in order to reach a broader student population. Lastly, should a strong preference for a specific certification emerge, school districts can encourage students to pursue that certification more vigorously. While exploring employer's preferences for MOS Certification it is also important to determine what employability skills are sought by employers and determine where what gaps might exist. By identifying existing gaps, curriculum developers and teachers can develop lessons and activities to strengthen students, in determined areas, to help bridge the gap.

## Statement of the Problem

The demand for computer skills in the workplace continues to grow exponentially. Although a mandatory computer applications course is no longer a graduation requirement for Georgia high school students, the value of successful and significant computer applications skills transference cannot be overstated. As a result, it is of utmost importance to determine if student skills are correctly aligned with employer expectations. Research regarding what, if any, MOS certifications employers prefer when making hiring decisions could provide insight into current deficiencies and/or new potential areas of focus. Evaluating employers preferences for MOS certifications could be used to determine (1) if there is a need to discontinue funding MOS certification exams through Perkins dollars, should results indicate there is little to no employer preference for MOS certifications, (2) if there is a need to increase funding for MOS certification exams through Perkins dollars, should results indicate a high demand for MOS certifications, and (3) what, if any, specific MOS certifications are in high demand, allowing schools to encourage students to pursue appropriate certifications.

Lastly, employability skills in the workplace continually change and evolve. Consistent feedback from employers is necessary to ensure that educators are knowledgeable about employer expectations. Acquiring this information, positions educators to prepare students for the essential employability skills sought by employers.

## Significance of the Problem

The Georgia Career, Technical, and Agricultural Education's mission is "To provide experiences that will prepare students for postsecondary and workforce success" (Georgia Department of Education, 2014, p.1). One such way they are attempting to achieve this is through

the training, testing, and funding of the MOS certification exam(s). While this bold initiative could prove to be very beneficial to students, little is known about the value that employer's place on these costly certifications. With constant technological advances, it is imperative that state and local boards of education are aware of employer's preferences for MOS certifications. By gauging employer's preferences for the MOS certifications, decision makers are more informed to make critical financial decisions regarding the funding of the exams, as well, which exams should or should not be offered, based on employer preferences. Finally, examining the desired employability skills sought by employers could reveal valuable information for curriculum planning. Equipped with current, relevant feedback, curriculum specialists can incorporate and/or revise course standards to ensure that the appropriate content for the desired employability skills is prominent in every CTAE course.

## Research Questions

The purpose of this paper is to address the following research questions:

1. What is the level of awareness and value that employers place on computer skills typically taught in the secondary Business Education classroom?
2. Is there a difference between the values placed on Microsoft Office Specialist Certifications when making hiring decisions?
3. Do the demographics of the survey participant and/or business impact the desire to hire employees with specific computer skills and Microsoft Office Specialist Certifications?
4. Which employability skills do employers seek when making hiring decisions and to what extent are the employability skills desired by employers demonstrated by new employees?

## Definition of Terms

Career, Technical and Agricultural Education (CTAE) Pathways – Three

elective units in a coherent sequence that includes rigorous content aligned with industry-related standards leading to college and work readiness in a focused area of student interest (Georgia Department of Education, 2015)

Carl D. Perkins Career and Technical Education Act - Provides an increased focus on the academic achievement of career and technical education students, is aimed to strengthen the connections between secondary and postsecondary education, and improve state and local accountability (U.S. Department of Education, 2007)

Employability Skills - A group of essential abilities that involve the development of a knowledge base, expertise level and mindset that is increasingly necessary for success in the modern workplace (Employability skills, n.d.)

Industry-Recognized Credentialing Exams (or assessments): An industry-recognized credential is one that is either developed, offered by, or endorsed by a recognized industry association or organization representing a sizeable portion of the industry sector, or a credential that is sought or accepted by companies within the industry sector for purposes of hiring or recruitment, which may include credentials from vendors of certain products. The exam indicates that the individual has acquired (through examination) the necessary skills to perform a specific occupation or skill. Such examinations should be fair, valid, and reliable. (U.S. Department of Labor, 2010)

Microsoft Access (Database program) - Software developed and manufactured by Microsoft Corporation that creates organized collections of information with data items related to one another in some way (Rutkosky & Rutkosky, 2008).

Microsoft Excel (Spreadsheet program)- Software developed and manufactured by Microsoft Corporation that allows users to organize, format, and calculate data with formulas using a spreadsheet system broken up by rows and columns (Rutkosky & Rutkosky, 2008).

Microsoft Office Specialist Certification Exams (MOS) - the leading IT certification in the world in which one can demonstrate the knowledge, skills, and abilities to productively use Microsoft Office (Certiport, n.d).

Microsoft PowerPoint (presentation program) - Software developed and manufactured by Microsoft Corporation that allows users to create a "slide-show" of text, data, photos, and audio (Rutkosky & Rutkosky, 2008).

Microsoft Sharepoint (document management and storage system) - A platform that is used to create intranets (internal Web sites) for team collaboration, blogs, wikis and company news. It is also commonly deployed to extend certain information to customers via password-protected Web sites (PCMag, 2016).

Microsoft Word (word processing program) - Software developed and manufactured by Microsoft Corporation that allows the user to enter, store, revise and print text for letter, memos, reports, or standard business forms (Rutkosky & Rutkosky, 2008).

## Limitations

University of Southern California Research Guides (2016) defined limitations as those characteristics of design or methodology that impact or influence the application or interpretation of the results of your study. They are the constraints on generalizability and utility of findings. The limitations in this study include: (a) number of businesses responding to the survey; (b) self-reporting survey instrument; and (c) lack of prior research studies on the topic.

## Delimitations

Delimitations are choices made by the researcher that describe the boundaries that have been set for the study. The scope of this paper is limited to the state of Georgia, the Atlanta metropolitan area, and to a subset of participating Chamber of Commerce workforce council members. Statements concerning trends, statistical significance of findings, and/or the author's conclusions are not intended for theoretical application beyond the described scope.

# II. REVIEW OF LITERATURE

The review of literature consists of the following major topics:

Introduction

Employability Skills

Carl D. Perkins Vocational and Technical Education Act

Background of Computer Applications in Georgia

Changes in Georgia Curriculum

Industry Credentialing

Summary

## Introduction

Cooke and Mings (2005) wrote "Academic research should inform workplace practices and workplace practices should inform academic research and education. However, a gap often exists between academia and industry" (p. 296). Skills needed for workplace success change as the needs of the workforce change. State Boards of Education must continually monitor and adjust course offerings and/or curriculum to make sure that students are prepared to meet these ever-changing needs. Research shows, as described below, that computer skills rank high as one of the employability skills sought by employers. Furthermore, computer skills are enablers of growth, through increased productivity, and are crucial to thrive in the global market (Ejiaku, 2015). Given this, districts must evaluate how to ensure that graduating students adequately acquire these skills.

In previous years, completion of a computer applications course was mandatory for high school graduation. To date, however, few states still hold this standard as part of their requirements. Those who have discontinued this requirement have sought other ways to incorporate computer skills into course curriculum. The Georgia Department of Education has elected to create a system in which students who are registered for business education courses are given the opportunity to complete MOS Certification test, free of charge. Unlike prior systems, where all students were required to complete a computer applications course, this system reaches out to a small percentage of the overall high school student population.

Another notable change made by the Georgia Department of Education was the introduction of career pathways accompanied by end-of-pathway certification tests. One such end-of-pathway certification test is the MOS Certification. To date, there is no evidence that proves that employers seek out these certifications when making hiring decisions, begging one to consider if it is worth government funding for students to complete this testing. The study will focus specifically on employer preferences for MOS Certification exams, as well as, evaluate the employability skills sought by the top employers in the state of Georgia.

## Employability Skills

The U.S. Department of Education (n.d.) defined employability skills (also known as soft skills) as general skills that are necessary for success in the labor market at all employment levels and in all sectors. “Behavioral science research in psychology and economics suggests that soft skills are as important or even more important in determining success in school and in the workplace” (Kyllonen, 2013, p. 22). While opinions of what should fall under the umbrella of “employability skills” may vary from place to place, some skills tend to be universally valued.

For example, Youth Central (2017) listed eight skills that employers seek in an employee, despite the industry. The list includes communication, teamwork, problem solving, initiative and enterprise, planning and organizing, self-management, learning, and technology. Similarly, the AARP Foundation WorkSearch Information Network (n.d.) listed employability skills as basics skills, critical thinking skills, personal qualities skills, and technology skills.

Numerous studies have determined that a combination of hard and soft skills are necessary in order to be successful in the workforce. What is alarming however, are the number of studies reporting a gap in employees with solid employability skills. Zakaria, Yatim, and Ismail (2014) determined that "although graduates are said to possess specific skills they still lack employability skills" (para. 1). More specifically, research is finding that the workforce is lacking in technical skills. For example, a study conducted by Lim, Lee, Yap, and Ling (2016) sought to determine early employment problems from employer's perspectives. The research found that lack of technical knowledge was one of three main problems arising with new employees. With employers reporting such gaps, policy makers must ensure that decisions are being made to close these gaps, as quickly and efficiently as possible. Johnson (2015) wrote that the skills gap is an education problem in that we are failing to "prepare the workforce with the skills needed to thrive in a digital economy" (para. 5).

In 2015, President Obama announced the TechHire Initiative which will made 100 million in federal grants available to "support innovative approaches to training and successfully employing low-skill workers who face barriers to entering tech-intensive fields that often require extensive training and certification" (Soergel, 2015). The initiative was designed to help close the skills gap that currently exists in technical fields and with middle-skilled workers. The demand for

employees that have computer skills are rising at an astronomical rate. In fact, Soergel (2015) reported that roughly 80 percent of middle-skill jobs – positions that can range from office assistants and nurses to lab technicians and information security analysts – now require digital and computer skills. When discussing opportunities available to middle-skilled workers and the skills needed, Soergel (2015) quoted Matt Sigelman, CEO of Burning Glass Technologies, as stating "basic productivity software skills, like proficiency in Microsoft Office programs, as a "minimum ticket to ride" (para. 8).

Given this premise, it is of utmost importance that schools properly train high school students in computer technology so that they can compete in the job market. Osman (2011) stated "Even roles in non-computer related departments need to make use of computer technology. This makes it a necessity for every employee to acquire related computer skills if they don't have them already" (para. 1).

In this digital age, it is rare to find a home or business that does not have a computer. The last U.S. Census Bureau (2014) reported that approximately 78.5% of U.S. households have a desktop or laptop computer. Furthermore, 96% of working Americans use new communications technologies as part of their daily life (United States Department of Commerce, 2011). Despite the overwhelming number of household computers and businesses that require them, Caron (2011) reported that not all students have the right computer skills. Caron, (2011) cited Certiport CEO, Ray Kelly, as stating "Solid technology skills are essential for every student. Teaching digital literacy skills ultimately falls upon educators. Schools need to go beyond the 'three R's' to improve college and career readiness with technical skills" (para. 3). An article written by Dr. Susan Fenner (2014), who has made a career out of following workplace and workforce trends, recommended

that employers use the Office Proficiency Assessment and Certification (OPAC) program. OPAC can measure Microsoft applications like Word, Excel, PowerPoint, Outlook, Windows, and Access. Employers utilize these assessments to evaluate applicants in the actual tools they will be using on the job (OPAC, n.d.). Employers have the ability to set questions that are relevant to the skills an applicant will need in order to do his/her potential job. If we do not properly equip our students with these skills they will surely be overlooked for positions where OPAC scores are used as a hiring determination, however, this research seeks to answer: do students need to be Microsoft Office certified?

## Carl D. Perkins Vocational and Technical Education Act

The Carl D. Perkins Vocational and Technical Act was first introduced in 1984. The Act, named after former member of the House of Representatives, Carl Dewey Perkins, was implemented to increase the quality of technical education (Scott & Sarkees-Wircenski, 2004). The premise behind the Act was to equip students with academic and technical skills to be able to compete in both a knowledge and skills based economy. In 1990, the act was revised to provide help to school systems teach the skills necessary for the technologically advanced society (Scott & Sarkees-Wircenski, 2004). The Act took on the name The Carl D. Perkins Vocational and Applied Technology Education Act (Perkins II) and aided the disadvantaged with vocational opportunities.

A reauthorization was issued in 1998 to allow more flexibility for states and local boards to develop CTE programs. State distribution of funds, as well as, local use of funds provided this flexibility, but also made recipients more accountable for student performance. Another

component of the reauthorization included closer linkages between work and school and integration of academic and vocational education (Scott & Sarkees-Wircenski, 2004).

Finally, in 2006, the Act reauthorized again and became known as the name Carl D. Perkins Career and Technical Education Improvement Act of 2006. The reauthorization was focused on building in accountability and improving programs, making secondary and post-secondary connections, linking to rigorous academics, and creating a stronger focus on business partnerships (Scott & Sarkees-Wircenski, 2004).

The original Act and subsequent re-authorizations have played a large role in what CTE looks like today and the funding in which it receives. The Act is the principle source of dedicated federal funding for Career and Technical Education (Association for Career and Technical Education, 2012). The almost $1.3 billion annual contribution to career and technical education programs in all 50 states provides for innovation and program improvements (Perkins Act Fact Sheet, n.d.). Federal funding through Perkins is vital to the success of CTE programs. The funding provides a "strong return on investment, as students involved in CTE programs are more engaged, perform better academically and graduate at higher rates" (Association for Career and Technical Education, 2016). Furthermore, it provides the means for educators to better equip students with the academic, technical, and employability skills they need to be successful in the workforce.

## Background of Computer Applications Requirements in Georgia

Prior to 2008, completion of a computer applications course was mandatory for all Georgia high school graduates (Board of Regents of the University System of Georgia, 2008). Every graduating student left with a body of knowledge that included advanced Microsoft Word, PowerPoint, and Publisher skills, as well as, basic Microsoft Excel and Access skills. Due to

changes in the graduation requirements, however, computer applications was phased out as a mandatory class and offered only as an elective through certain CTE career pathways. As a result, most Georgia students are now graduating with little to no formal computer applications training. While students are encouraged to complete a computer applications course in middle school this, too, is only a recommendation, not a requirement. Although the majority of middle school students do, in fact, elect to take a computer class, the amount of time between middle school and when the student enters the workforce to utilize the skills spans several years. Skill transference is minimal at that point as software and technologies continuously change. In addition, the lack of continuous usage results in skill dumping-the basic adage of "Use It or Lose It". In the book titled *Career Readiness for Teens* Foster (2011) stated that "skills must be learned, skills can be learned at an early age, and skills only improve when they are practiced. No skills…..no chance of being career ready…..and no way you will succeed" (p. 22). To that end, students that learn computer skills at an early age but do not continue regular practice will not improve. Therefore, teaching computer applications at the middle school level, with little to no other formal training afterwards, will lead to students be unequipped with the computer skills needed to be successful at the post-secondary level.

According to the Education Commission of the States (2017), graduation requirements vary greatly among states. In recent years many states have implemented policies that align graduation requirements to state standards or to college admission standards. Although Georgia, and many other states, have phased out computer applications as a high school graduation requirement, some states see the importance of the skills obtained through completion of a computer applications class and still include it as a mandatory course, or demonstration of mastery

of computer skills. Table 1 is a compilation of states that still have an official requirement in place for computer/technology classes as part of graduation. The table was created utilizing links to individual state department of education sites, which were housed on the National Center on Educational Outcomes website.

Table 1

*Computer Applications Requirements in Other States*

| State | Requirements for Computer Applications/Technology |
|---|---|
| **Kentucky** | Demonstrate performance-based competency in technology |
| **Maryland** | 1 Unit Foundations of Technology or Principles of Engineering |
| **Mississippi** | Technology Foundations, ICT, 9th STEM, or Computer Applications and Keyboarding |
| **Nevada** | ½ credit "use of computers" |
| **New Hampshire** | ½ credit or demonstrate proficiency |
| **Oklahoma** | (2 units or sets of competencies) Foreign Language or Computer Technology |
| **South Carolina** | 1 Unit |
| **Utah** | .5 unit of Computer Technology or successful completion of Board-approved competency examination |

*Note:* Adapted from National Center on Educational Outcomes (2016). Retrieved from http://www.cehd.umn.edu/nceo/TopicAreas/Graduation/StatesGrad.htm

As represented in the table, approximately 14% of the state's place value on the necessity of computer and/or technology courses and continue to implement a mandatory requirement for them. With 86% of the states eliminating this as a required course, it leaves one to wonder if students are adequately prepared as they enter the workforce. This question drives the purpose of this research.

A study released by Brachio (2005) reported that students felt "under-prepared for the rigors of college technology use and that they were mostly self-motivated and self-taught" (para. 2). In a separate study, students were asked to complete a self-assessment and a computer based assessment. When comparing the results of the self-assessment with the computer-based assessment, researchers discovered that over 3/4 of the participants inaccurately assessed their own computer skills. More specifically, males tended to over-assess their computer skills, while females tended to under-assess their skills. Lastly, respondents assessed their Internet skills most accurately and general concepts least accurately (Lahore, 2008).

Given that post-secondary institutions are seeing a deficit in computer skills, students are stating that they feel under-prepared, and self-assessment scores are showing some as being over-confident in their skills, it begs one to question why computer applications as a graduation requirement was phased out in most states. One might conclude that it is necessary to better prepare all students in way of computer skills, not just a subset of the overall student population, so that they are more confident about their skills and abilities once they leave high school. Wallace (2009) stated "educators are faced with classrooms filled with future workers who are digital natives. Digital natives have been born into today's technology" (para. 1). While this may be true, are they adequately prepared with the computer skills employers seek? Simply being digitally savvy does not necessarily translate to computer literate.

## Changes in Georgia Curriculum

Georgia graduation requirements changed for freshmen entering high school in 2008. This change eliminated the required computer applications course and included new career and

technical education pathways. The Georgia Department of Education implemented the following criteria, as indicated in Table 2, for students to be eligible for graduation. Requirements include:

Table 2

*Georgia High School Graduation Requirements*

| Class | Required Units |
|---|---|
| **English/Language Arts** | 4 Units |
| **Mathematics** | 4 Units |
| **Science** | 4 Units |
| **Social Studies** | 3 Units |
| **CTAE and/or Modern Language/Latin and/or Fine Arts** | 3 Units |
| **Health and Physical Education** | 1 Unit |
| **Electives** | 4 Units |
| **TOTAL UNITS (MINIMUM) 23** | |

*Note:* Adapted from Georgia Department of Education (2011). *High School Graduation Requirements for Students Entering 9th Grade for the First Time 2008-2009 and Subsequent Years* Retrieved from http://archives.gadoe.org/_documents/doe/legalservices/160-4-2-.48.pdf

Perhaps the biggest change that affected the need for a computer applications course was the integration of career clusters/pathways. Colleges Creating Dual Enrollment Programs to Promote Career Pathways (2016) stated "students need to see why subject material is relevant to something important, such as gaining employment" (para. 1). Incorporating career pathways is one way to reinforce this. The Georgia Department of Education identified 17 Career Clusters/Pathways to help students to be more successful in college and career. Listed below are the 17 career clusters, each embedded with program concentrations/pathways, which are offered to Georgia students:

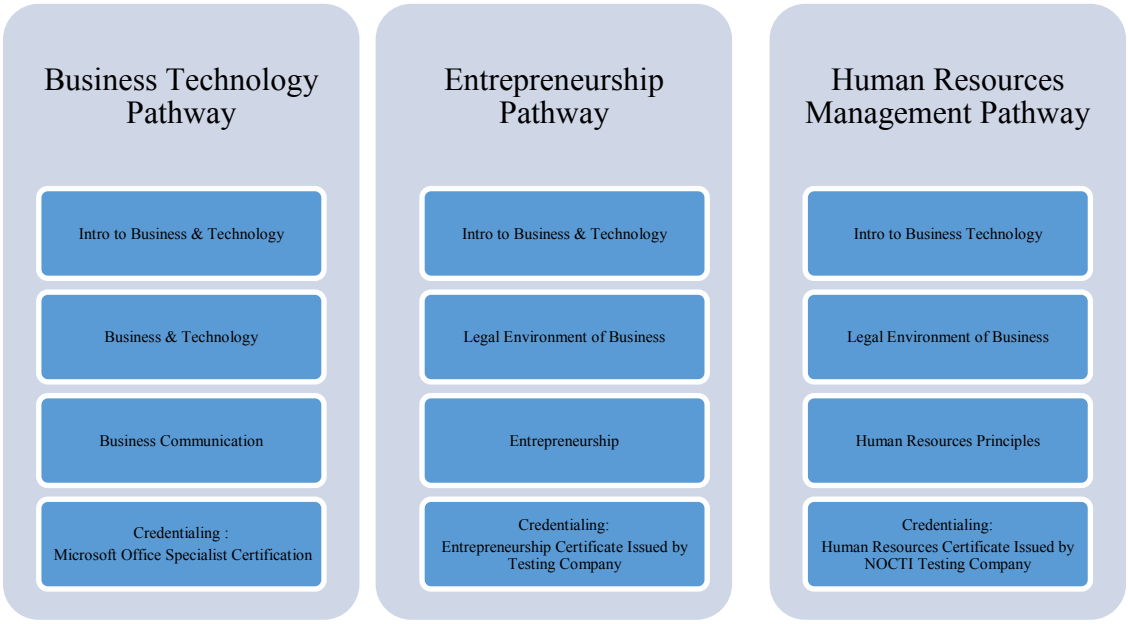
- Architecture & Construction
- Agriculture, Food & Natural Resources

- Arts, Audio/Video Technology & Communications
- Business Management & Administration
- Education and Training
- Energy
- Finance
- Government & Public Administration
- Health Science
- Hospitality & Tourism
- Human Services
- Information Technology
- Law, Public Safety, Corrections & Security
- Manufacturing
- Marketing
- Science, Technology, Engineering & Mathematics
- Transportation, Distribution & Logistics

Upon completion of a career pathway, students are administered an end-of-pathway assessment (EOPA). The EOPA was established because the State wanted to incorporate a way to evaluate the level of technical skill attainment of its career pathway completers. The process implemented was a "direct response to the Perkins IV Legislation, specifically, Core Indicator 2S1 which requires states to implement a valid and reliable assessment model linked directly to industry validated standards" (Georgia Department of Education, 2015, para.1). Students who have successfully completed the three or four designated courses in the pathway, as outlined in the example in Figure 1 for the Business Management and Administration pathway, are eligible to take the EOPA. Once the student has successfully completed all three courses, they are given a standardized end-of-pathway exam. Those who pass the EOPA exam will earn an industry recognized certification/credentials. The certifications, however, vary between each district as the individual counties select which exam they would like to administer for each pathway

Figure 1

*Business Career Cluster and Pathway Courses*

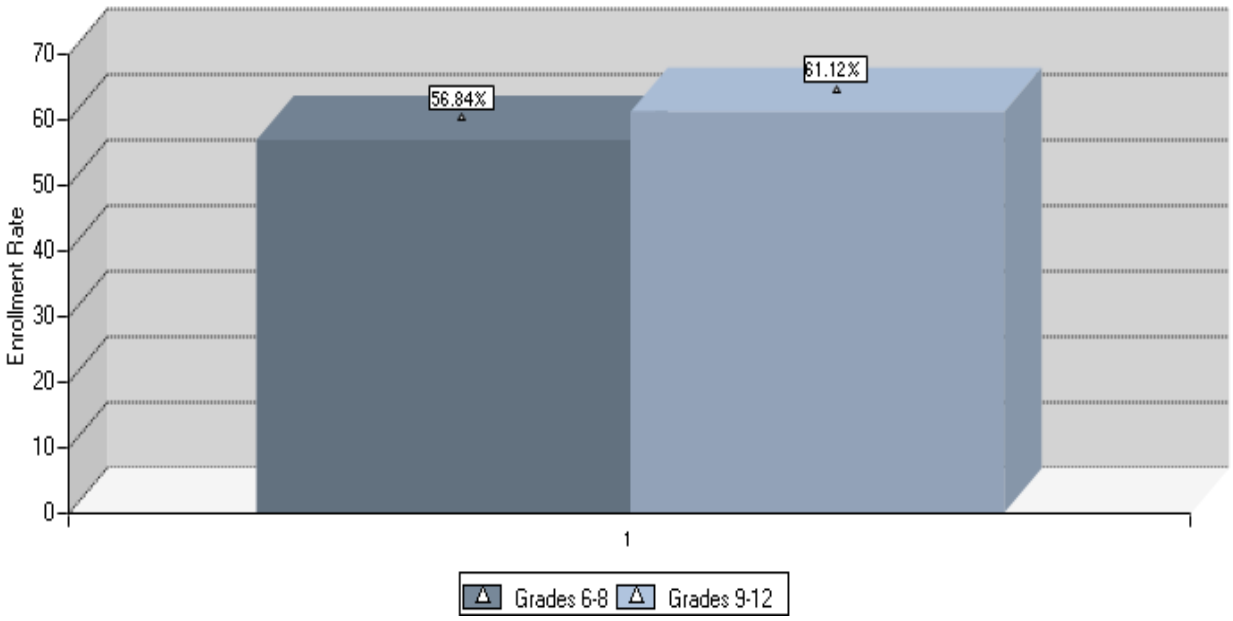



*Note:* Adapted from Georgia Department of Education. (2015).Technical Skill Assessment Inventory - Business, Management and Administration. Retrieved from http://www.gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Pages/tsai-bma.aspx

The various career clusters provide students with opportunities to explore numerous fields. While this is highly beneficial for those who are unsure about a career path to pursue, unfortunately, the only two career clusters in which Microsoft Office skills are taught are embedded in the Business Management & Administration and Finance clusters. As a result, a large student base never receives formal computer training throughout their high school career. As previously noted computer technical skills are highly sought after by employers and, unfortunately, a large portion of students are already at a deficit when beginning their job hunt. Furthermore, it is worth noting that of the total Georgia student population only 61.12% of high school students are enrolled in on one of the 17 CTAE clusters, as indicated in Figure 2 published by the GA DOE.

Figure 2

*CTAE Enrollment Rate FY 2014*

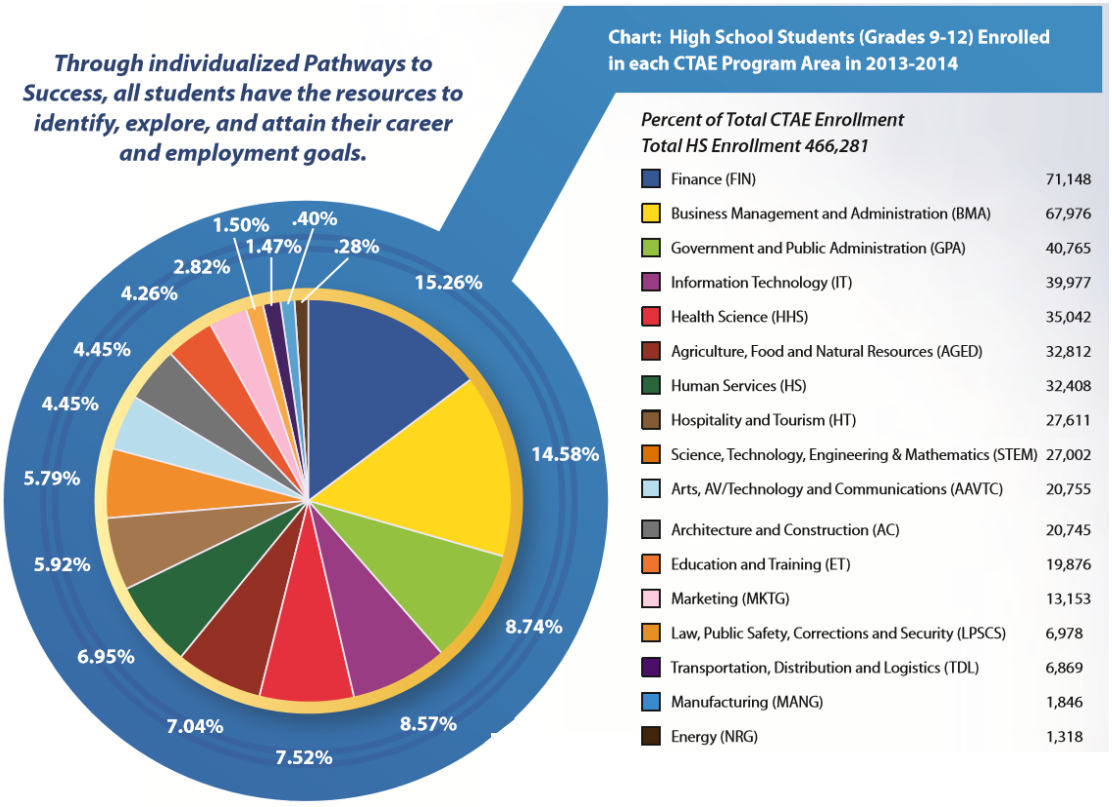



*Note*: Reprinted from Georgia Department of Education (2014). CTAE Enrollment. Retrieved from http://archives.gadoe.org/ReportingFW.aspx?PageReq=218&PID=219&PTID=222&Source=enrollment&StateId=ALL&T=1&FY=2014

The good news, however, is that of the 61.12% of students in a CTAE cluster, The Georgia Department of Education CTAE Annual Report (2014) showed that 29.8% are categorized as Business Management and Administration and Finance Cluster students, as indicated in figure 3.

Figure 3

*Business Management and Administration Pathway Enrollment*




*Note:* Reprinted from Georgia Department of Education (2014). *CTAE Annual Report*. Retrieved https://www.gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Documents/CTAE-Annual-Report-2014.pdf

When assessing the data in figure 3 above, it is apparent that there is a large portion of an un-reached student population. While creating opportunities for students to earn MOS Certification is a step in the right direction, it is not without flaws. Perhaps the most notable flaw is that the current structure of the program extends the opportunity to a limited number of students; those enrolled in a business class. Ritz (2011) believed that "school children of all ages need to become more literate about technologies they use" (p. 33). In fact, he reported that "in

some countries the study of design and technology has become mandatory. In others it is an elective subject" (p. 33). Unfortunately, the state of Georgia is an example of the latter.

A more noteworthy statistic is the number of students who earned MOS Certification in the 2015-2016 year. Table 3 below is derived from data provided by the Georgia Department of Education Business Program Specialist. As indicated in the table, 15,003 earned some form of MOS Certification in the school year ending June 2016 (D. Halgin, personal communication, July 29, 2016). A very impressive figure, no doubt, however when looking at the total public high school population of approximately 501,252 (Georgia Department of Education, 2015) that is roughly only 2.9% of students receiving formal computer applications education/training. This data, of course, does not account for those students that may have received training but did not earn the certification or did not complete the exam. Nevertheless, there is a clear evidence that a large portion of the overall population is receiving inadequate training.

Table 3

*Georgia High School Students Who Earned MOS Certifications in 2015-2016*

| Certifications | # Earned |
|---|---|
| **MOS Master Certifications** | **87** |
| MOS Master Student Certifications | 80 |
| MOS Master Teacher Certifications | 7 |
| | |
| **Total MOS Certifications Earned** | **15,392** |
| Student Certification | 14,923 |
| Teacher Certifications | 469 |
| | |
| **MOS Certifications by Type** | |
| Word Certifications | 6,922 |
| PowerPoint Certifications | 5,398 |
| Excel Certifications | 2,221 |
| Access Certifications | 350 |
| Outlook Certifications | 197 |

(Table Continues)

(Table 3 Continued)

*Georgia High School Students Who Earned MOS Certifications in 2015-2016*

| Certifications | # Earned |
|---|---|
| Word Expert Certifications | 22 |
| Excel Expert Certifications | 27 |
| OneNote Expert Certifications | 47 |
| SharePoint Expert Certifications | 1 |

*Note:* Adapted from D. Halgin (personal communication, July 29, 2016)

Perhaps a noteworthy way of ensuring that all students graduate with a strong body of knowledge in computer applications is to follow the initiative set forth in Canada. The Government of the Province of Alberta in Canada mandated curriculum known as the Information and Communication Technology Program of Studies. The curriculum incorporates what students are expected to know and be able to do with respect to technology. To date, the Information and Communication Technology Program still exists, with the ICT curriculum infused within core courses and programs (Alberta Education, 2016). A program such as this could expose a larger student population with the skills that they need in order to be computer literate upon graduation.

This may not be a viable solution, however, for our failing system. Instead, one might consider returning to the notion of computer applications, or a course with computer applications skills embedded, as a mandatory class for graduation. Under this system every graduating senior will be equipped with a higher degree of the computer skills that are necessary for the workplace. Prior to 2008, completion of a computer applications course was, in fact, mandatory for all Georgia high school graduates (Board of Regents of the University System of Georgia, 2008). School districts could rest assured that graduates left school with a particular level of knowledge in Microsoft Word, Microsoft Excel, Microsoft PowerPoint, and Microsoft Access. This requirement

coupled with the opportunity to add MOS Certification could be a viable solution for equipping students with adequate computer skills. Nevertheless, with the amount of funding earmarked to administer the exams, it is worth evaluating the value that employers place on all of the available credentials when making their hiring decisions.

## Industry Credentialing

Association for Career and Technical Education (n.d.) employed the following definition of "industry-recognized" when referencing credentials. This uniform definition, utilized across federal legislation, means a credential that:

A. is sought or accepted by employers within the industry or sector involved as a recognized, preferred, or required credential for recruitment, screening, hiring, retention or advancement purposes; and,

B. where appropriate, is endorsed by a nationally recognized trade association or organization representing a significant part of the industry or sector (p. 2).

Credentials earned through certifications, degrees, licenses, and/or certificate are beneficial to both job applicants and employers. Applicants benefit as they are able to demonstrate mastery of a skill, educational attainment, and the authority to perform a task or operation. This is, in turn, assists employers in determining the skill or education level of applicants.

Credentials, as described by Association for Career and Technical Education (n.d.), are comprised of certificates, certifications, licenses, and/or degrees. Certificates are awarded by an educational institution and are usually completed in less than two years. Attainment of certificates result from a course of study and indicates some level of education. Certifications are awarded by business, trade associations, and/or industry and are vary in time of completion. Certifications are

earned based on results from an assessment and indicates skill mastery. Licenses are issued by a government agency and results from meeting the given requirements. Time for completion varies and indicates legal permission to practice. The final form of credentials is a degree. Degrees are awarded by an education institution and indicates course of study. It is typically completed in two or more years and indicates some level of education.

This study is devoted to MOS Certifications Credentials specifically. MOS certification is described by Certiport (2016) as the premier credential chosen by individuals seeking to validate their skills and advance their careers. The MOS Certification exam allows one to demonstrate mastery of all of the features of Microsoft Office. Certiport (2016), "the world leader in performance-based certification exams and practice test solutions for academic institutions, workforce and corporate technology markets" administers MOS Certification exams.

There is much debate about MOS certifications in the workplace. An Internet inquiry about the value of MOS certifications shows there are differing opinions on the necessity of certifications for employment purposes. An example of one who feels that certifications aren't valuable is CandidAnn (2012), a well- known blogger who worked in Investment Banking for over 15 years. She advised readers to create a portfolio rather than get certified, as employers will typically want perspective employees to demonstrate their abilities. Another example, Bolton (2015) wrote that software (in general) is different and changes quickly. He stated "knowledge that's relevant today will seem hopelessly outdated sooner than you think" (para. 4). Finally, Heise (2009) stated "certifications may or may not adequately reflect the talents and proficiencies of the certification bearers" (para. 1). While his study focused on IT Certifications, the same can be said for any

technical certification. Certifications alone do not always represent an applicant's ability to perform certain tasks.

In a separate study conducted by Bartlett, Horwitz, Ipe, and Liu (2005), however, researchers reported that certifications do play a role in hiring decisions. According to the report "significant differences were found in the perceived influence of such credentials on the recruitment process when comparing IT employees with credentials and those without" (para. 1). Another study conducted by Tarver, Tarver, Varnardo, and Wright (2009) sought to determine "Is Microsoft Certification Worth Its Salt"? Results of the study concluded that 67.5% of participants believed that they benefited by having the certification and 56% answered that MOS certifications did, in fact, help them gain employment. Over 32%, however, stated that they did not experience any benefit. Statistics such as this indicates that MOS certifications may be beneficial when seeking employment. In fact, in a posting called Is Getting an Administrative Certification Worth It? (2016), a reputable staffing company, advised workers to seek out MOS Certifications. They reported MOS certifications put applicants in a position to earn up to 8% more when starting a new job.

The differing viewpoints regarding certifications in general help drive the purpose of this study. With little to no research conducted on the significance of MOS Certifications, specifically, it is imperative to seek out the true value placed on them so that decision makers can ensure we are meeting employer demands and spending federal funds wisely.

## Summary

The Georgia Department of Education elected to follow the example of other states and change the overall landscape of Career, Technical, and Agricultural Education programs in

Georgia. One major change was the introduction of career pathways. The incorporation of career pathways has afforded students the opportunity to earn industry recognized certifications upon completion of self-selected career pathway(s). Students that complete a series of 3-4 courses in a given pathway are administered an end-of-pathway exam. Those who pass the standardized exam are awarded an industry recognized certificate for the field/pathway in which they tested.

Next was the elimination of the computer applications course as a graduation requirement. This change left computer applications skills to be taught only in the Business, Management, and Administration career cluster and within two career pathways, leaving many high school students lacking computer skills upon graduation. Like other career pathways students completing the Business and Technology pathway have the potential to earn an industry recognized certification. This particular pathway offers students the opportunity to secure MOS Certifications.

This study, in part, was designed to determine what value employers place on MOS certifications for high school students when making hiring decisions. Much debate regarding the relevance MOS Certifications exist. With such a large number of federal dollars being earmarked for testing, it is essential to determine the importance placed on these credentials by employers. In doing so, law makers and administrators will able to evaluate the effectiveness of the initiative and assess the benefits of continuing to fund the testing with federal dollars.

# III. METHODS AND PROCEDURES

## Introduction

The intent of this research was to identify the extent to which Georgia employers value the technical skills taught in high school, understand what significance offering MOS Certifications might have on employment decisions, to explore the impact of various business qualities (education, age, number of certifications held by participant, employee count, industry, and location) against these factors and determine what employability skills employers seek in a candidate. Special attention was given to quantifiable traits of the survey participants, such as age, education level, and certifications held by participants, and how they correlate to survey responses.

Upon submission of the Human Subjects Research Protocol Review Form, an information letter (Appendix A), and a copy of the survey instrument (Appendix B), approval to conduct the study was granted by the Auburn University Institutional Review Board on January 5, 2017 (Appendix C).

Survey participants were provided an information letter that explained the nature of the study and assurance that the information would be anonymous and that no identifiable information would be collected. In addition, participants were informed that all results would be reported as aggregate figures and that at no time would an individual survey participant's results be singled out or distributed. Lastly, it informed participants that responses would be compiled for use in academic research and, at the researcher's discretion, could be posted, published, quoted, and/or

paraphrased. Permission was granted from the participants by the submission of their completed survey.

## Population

Metro Atlanta employers of the state of Georgia were the target population for this study. According to a Georgia Department of Labor (2016) estimate, in December of 2015, the civilian labor force population was approximately 4.7 million. In an effort to control the scale of this research, members of the Chamber of Commerce Workforce Council was utilized as the sample population. This survey group consisted of members representing various industries in the Metro Atlanta area.

Given that the Chamber of Commerce was unable to release member's contact information, a pre-determined representative from the Metro Atlanta Chamber of Commerce, Douglas County Chamber of Commerce, and Cherokee County Chamber of Commerce distributed the survey link to the target population.

## Instrumentation

Primary sources of data for this research included survey results, Georgia Department of Labor records, Georgia Department of Education data, and calculated figures. The survey was developed with a twofold intent. First and foremost, the survey attempted to directly address the stated research questions. Secondly, it attempted to provide supplementary statistical insight based on quantitative factors of both survey participants and their corresponding businesses.

The stated research questions were evaluated utilizing data extracted from survey question results. Table 4, below, shows which survey questions, variables and analysis were used to evaluate the research questions in the study.

Table 4

*Research Question Variables and Analysis Used*

| Research Question | Survey Question | Variables SQ Evaluated | Analysis Used |
|---|---|---|---|
| **Research Question 1:**<br><br>**What is the level of awareness and value that employers place on computer skills typically taught in the secondary Business Education classroom?** | SQ5 (multiple choice):<br>Are you aware that the following skills are being taught in select business courses at the high school level? | Level of Awareness | Frequency Table, Mean, Standard Deviation |
| | SQ6 (Likert scale):<br>The following computer skills are being taught in the select business courses. What value do you place on these skills when making hiring decisions? | Value Placed on Computer Skills | Frequency Table, Mean, Standard Deviation, One Way Repeated Measures ANOVA |
| **Research Question 2:**<br><br>**Is there a difference between the values placed on Microsoft Office Specialist Certifications when making hiring decisions?** | SQ1 (Likert scale):<br>How familiar are you with the following Microsoft Office Specialist Certifications? | Familiarity with MS Certifications | Frequency Table, Mean, Standard Deviation, One Way Repeated Measures ANOVA |
| | SQ2 (Likert scale):<br>How valuable do you feel the following Microsoft Office Specialist Certifications are for high school graduates? | Value of MS Certifications | Frequency Table, Mean, Standard Deviation, One Way Repeated Measures ANOVA |
| | SQ3 (Likert scale):<br>How likely is it that you would be influenced to hire a candidate holding a Microsoft Office Specialist Certification? | Perceived Influence of MS Certifications | Frequency Table, Mean, Standard Deviation, One Way Repeated Measures ANOVA |
| | SQ4 (Likert scale):<br>In your opinion, how important do you think it is for schools to continue paying for Microsoft Office Specialist Certification exams for high school students utilizing federal funds? | Importance of Paying for MS certifications | Frequency Table, Mean, Standard Deviation |

(Table Continues)

(Table 4 Continued)

*Research Question Variables and Analysis Used*

| Research Question | Survey Question | Variables SQ Evaluated | Analysis Used |
|---|---|---|---|
| **Research Question 3:**<br><br>**Do the demographics of the survey participant and/or business impact the desire to hire employees with specific computer skills and Microsoft Office Specialist Certifications?** | SQ11 (multiple choice):<br>Please select your highest level of completed education. | Level of Education | Descriptive Stats/ Regression |
| | SQ12 (multiple choice):<br>Please select the group that best indicates your age | Age | Descriptive Stats/ Regression |
| | SQ10 (multiple choice):<br>What, if any technical certifications do you hold? Please check all that apply. | Technical Certifications | Descriptive Stats/ Regression |
| | SQ13 (multiple choice):<br>Which industry cluster does your organization best fit? | Industry | Descriptive Stats/ Regression |
| | SQ14 (multiple choice):<br>Approximately how many people are employed with your organization? | Number of Employees | Descriptive Stats/ Regression |
| | SQ15 (multiple choice):<br>Approximately how many miles are you from downtown Atlanta? | Miles from Downtown Atlanta | Descriptive Stats/ Regression |
| **Research Question 4:**<br><br>**Which employability skills do employers seek when making hiring decisions and to what extent are the employability skills desired by employers demonstrated by new employees?** | SQ7 (Likert Scale):<br>Please select the importance of the following employability skills when making hiring decisions | Importance of Employability Skills | Frequency Table, Mean, Standard Deviation, Paired Sample T-Tests |
| | SQ9 (Open Ended):<br>In your opinion, are there any particular certifications that would help employees develop these skills? | Helpfulness of Particular Certifications | Frequency Table, Mean, Standard Deviation |
| | SQ7 (Likert Scale):<br>To what extent are newly hired employees able to demonstrate each of the employability skills? | Demonstrability of Skills | Frequency Table, Mean, Standard Deviation, Paired Sample T-Tests |
| | SQ8 (Open Ended):<br>In your opinion, are there any important lost employability skills not listed above? If so, why is the skill(s) so important? | Importance of Employability Skills | Frequency Table, Mean, Standard Deviation |

A five option Likert scale was used for most questions. Instances where Likert scale formats were not suitable, multiple choice and/or open text entry questions were utilized. The participant demographic information, such as age and education level and the business characteristics (number of miles from Atlanta, number of employees, industry) questions were written as multiple choice questions so that participants could quickly select from an identifiable range. In order to determine what certifications participants hold, a multiple choice question was written with an "other" option. The "other" option included a text entry box so that participants could add certifications not included in the list of choices. Lastly, a text entry option was utilized for participants to list any lost employability skills not provided in the survey, along with a text entry option for participants to list any certifications that would help employees develop the skills.

The survey was formatted for electronic delivery via Qualtrics and consisted of fifteen questions. The questions were constructed to best address the research questions without unduly burdening the survey participant. No question randomizing was utilized or deemed necessary as the majority of questions utilize progressive responses of less to more value, familiarity, importance, etc. Question and answer syntax were closely monitored to ensure only common terms were used and limited the amount of education/technical jargon. Questions in which participants may not have been familiar with the content or acronyms were written in greater detail to provide background information. Lastly, questions were kept as brief and direct as possible to limit the amount of time for completion and/or misinterpretation.

Research question one (What is the level of awareness and value that employers place on computer skills typically taught in the secondary Business Education classroom?) was analyzed utilizing responses from survey question five. The specific survey question listed the concepts

taught in a high school computer applications course. Respondents were asked to select yes if they were aware that students were being taught the particular concept in high school or no if they were not aware. This particular question helped determine the level of awareness hiring managers have of the skills being taught at the high school level. Survey question six was set up on a Likert scale, where employers indicated what value they place on the same skills when making hiring decisions (1- Not at all valuable; 2-Somewhat valuable; 3-Valuable; 4-Very valuable; 5-Extremely valuable).

Research question two (Is there a difference between the values placed on Microsoft Office Specialist Certifications when making hiring decisions?) was assessed using responses from survey questions one, two, three, and four. Each of the questions were set up on a Likert scale, using a five choice model of increasing amounts of value and likelihood, as indicated below. Participants rated the following survey questions:

How familiar are you with the Microsoft Office Specialist Certifications? (1-Not familiar at all valuable; 2-Somewhat familiar; 3- Familiar; 4-Very familiar; 5- Extremely familiar)

How valuable do you feel Microsoft Office Specialist Certifications are

for high school graduates? (1-Not at all valuable; 2-Somewhat valuable; 3- Valuable; 4-Very valuable; 5- Extremely valuable)

How likely is it that you would be influenced to hire a candidate holding a Microsoft Office Specialist Certification? (1-Not likely; 2-Somewhat likely; 3 - Likely; 4 -Very likely; 5-Extremely likely)

In your opinion, how important do you think it is for schools to continue paying for Microsoft Office Specialist Certification exams for high school students utilizing federal

funds? (1-Not important; 2–Somewhat important; 3–Important; 4-Very important; 5-Extremely important)

Research question three (Do the demographics of the survey participant and/or business impact the desire to hire employees with specific computer skills and Microsoft Office Specialist Certifications?) was evaluated using multiple questions. Questions ten through twelve provided necessary background information about the respondents, as they directly related to the survey participant and his/her familiarity with the general survey topics. Question eleven was a multiple choice question and asked the participant to indicate his/her highest level of completed education. This answer was compared to later responses to determine the effects of education on participant responses. Question twelve, another multiple choice question, requested the participant's age bracket to determine the effects of age on answer responses and value assignment. Question ten was a multiple choice question with an option to write in choices not provided in the given list. This question asked respondents to select the certifications held by the survey taker. This question was used to explore the possibility of bias between participants who hold certifications and those who do not and how that difference is highlighted in their respective survey responses.

In addition to participant's qualities, business qualities were also used to evaluate research question three. Survey questions thirteen through fifteen were all multiple choice questions designed to inquire about the characteristics of the organization such as, the size, industry, and location. Question thirteen sought to identify the industry in which their organization operates, question fourteen asked respondents to indicate the size of the organization, and question fifteen was used to determine how far the organization is from Atlanta. Results from these questions helped determine if the industry, size, or location from a major city played any role in the

organizations preference for MOS Certifications, as well as, how these factors may or may not play a role in the employability skills sought by employers.

Research question four, the final question for this study, asked which employability skills do employers seek when making hiring decisions and to what extent are the employability skills desired by employers demonstrated by new employees?

This research question was answered utilizing survey questions seven through nine. For survey question seven, participants were given a list of the top employability skills and asked to rate the level of importance of each skill (1-Not important; 2-Somewhat important; 3-Important; 4-Very important; 5-Extrememly important). The question was designed as a side-by-side question where respondents were also asked to rate the extent in which they feel newly hired employees demonstrate the same employability skills. The questions provided insight into the importance of various employability skills and how much the skills are being demonstrated in the workplace. Survey question eight was an open-ended question that asked respondents to list any particular certifications that they felt would help employees develop these skills. Survey question nine was also an open-ended question that asked participants if, in their opinion, there are any important lost employability skills not listed in the provided list. This question ensured that all important, relevant employability skills were included. While the bulk of this research was aimed at determining employer's preferences for computer skills, it was pertinent to gauge employer's preferences for soft skills, as well.

## Validity and Reliability

Survey questions and applied numeric data were selected to best answer the stated research questions. To evaluate content validity, a panel of professors of Career and Technical Education

(or related fields) from Auburn University, as well as, a Chamber of Commerce representative that partners with the Georgia Department of Education, reviewed each question. By allowing academic experts and business professionals to review and supply feedback the questions were subjected to relevant and appropriate scrutiny. A group of Human Resources professionals were asked to take the survey and provide feedback as a test group for the target survey population to ensure face validity.

Cronbach's alpha is a common measure of internal consistency. Items used to form a scale should measure the same thing, thus, demonstrate internal consistency (Bland & Altman, 1997). Cronbach's Alpha was calculated in this study to establish reliability for the following scaled items of the survey instrument: value that employers place on MOS certifications for high school students, the likelihood that employers would be influenced to hire a candidate who holds MOS certifications, and the value employers place on computer skills taught in select high school business courses. Results of the test revealed a high level of internal consistency for each of the scales. The scale frequency for the value employers place on MOS certifications for high school students yielded a coefficient of .934. The scale frequency for the likelihood that employers would be influenced to hire a candidate who holds MOS certifications yielded a coefficient of .939. Finally, the scale frequency for the value employers place on computer skills taught in select high school business courses yielded a coefficient of .917. Results are shown in table 5.

Table 5

*Reliability of Scales*

| Item | N | Cronbach's Alpha |
|---|---|---|
| Value that employers place on MOS certifications for high school students | 7 | .934 |
| Likelihood that employers would be influenced to hire a candidate who holds MOS certifications. | 7 | .939 |
| Value employers place on computer skills taught in select high school business courses. | 5 | .917 |

## Data Collection

The survey was created in Qualtrics and distributed electronically. Because the Chamber of Commerce was unable to provide the employer's contact information, a link to the survey was be e-mailed to a pre-determined Chamber of Commerce representative. The representatives distributed a brief introduction, a summarized explanation of the research, access to a copy of the approval granted by the Auburn University Institutional Review Board, and a link to the survey. Survey takers were assured that company specific information would not be released outside of aggregated figures and that a copy of the research would be provided to them when completed, upon request. In an effort to reach non-respondents, The Chamber of Commerce representatives sent a follow-up email approximately two weeks after the initial e-mail to encourage participation. Due to the confidentiality rule of the Chamber of Commerce and their members, telephone contact information was unavailable. As a result, one final attempt was made to reach non-responding companies via e-mail approximately 2 weeks after the second attempt.

To incentivize business members to participate in the study, and yield a higher response rate, all respondents were entered in a drawing to earn one of eight $25 Darden Restaurant gift cards upon completion of the survey. The giveaway was organized through Amazon, where a unique link to the drawing was generated. The link was included in a custom end of survey message in Qualtrics, where participant were instantly notified of their winning status.

## Data Analysis

Statistical data was calculated using the software application Statistical Package for the Social Science (SPSS). All research data was subjected to a battery of standard descriptive statistics measures.

Research question one used data derived from survey questions four and five. The survey question sought to determine the respondent's familiarity with high school computer applications curriculum and the value that he/she placed on the computer concepts taught in a high school business courses when making hiring decisions. To determine selection counts and rates of occurrence a frequency table was used to explore research question one and included the mean and standard deviations of each item. Frequency is a measure of the number of occurrences of a particular score in a given set of data. A frequency table is a method of organizing raw data in a compact form by displaying a series of scores (Salkind, 2013). Analysis of Variance (ANOVA) is a test for the difference in two or more means (Salkind, 2013). A one-way repeated-measures ANOVA was used to determine if there was a significant main effect on the type of computer skill and the value placed on the computer skill.

Research question two was explored utilizing survey questions three, six, seven, eight, and nine. The questions sought to determine what, if any, professional and/or certifications respondents

hold, how familiar respondents are with MOS Certifications, how valuable respondents feel MOS Certifications are for high school graduates, how likely respondents would be influenced to hire a candidate holding a MOS Certification and the importance of schools continuing to fund MOS testing utilizing federal funds. Frequency distributions, along with the mean and standard deviations of each item, were also used to determine selection counts and rates of occurrence for research question two. A one-way repeated-measures Analysis of Variance (ANOVA) was used to determine if there was a significant main effect on the type of MOS certification and participant's familiarity with the certification, if there was a significant main effect on the type of MOS certification and the valued placed on the certification, and if there was a significant main effect on the type of MOS certification and the valued placed on the likelihood that participants would influenced by the MOS certification when making hiring decisions.

Research question three explored the survey participant qualities and business qualities (education, age, number of certifications held by participant, employee count, industry, and location) and the impact the qualities had on his/her interest in offered credentials. Data derived from each survey question was used to calculate the following:

- Descriptive statistics for quantitative factors (frequency, mean, standard deviation, sample). Salkind (2013) defined descriptive statistics as values that organize and describe the characteristics of data, sometimes called data set.
- Regression analysis to determine if a participant's response can be reliably predicted based on the data available in this study. Regression analysis, as defined by Salkind (2013) is used to evaluate the degree of relationship between two quantitative variables.

Finally, research question four explored employability skills employers look for when making hiring decisions. Data was derived from survey questions ten and eleven. The questions sought to determine the level of importance of each given employability skill when making hiring decisions, as well as, determine which skills the respondent felt applicants lack. Frequency distributions, along means and standard deviations, were used to determine selection counts and rates of occurrence for research question four. A paired-sample t-test was used to examine differences between the importance of given employability skills and the demonstration of these skills by new hires.

# IV. STATISTICAL ANALYSIS AND RESULTS

## Introduction and Restatement of Problem

The demand for computer application skills is prominent in every industry. The Georgia Department of Education implemented a system where students can earn MOS certifications to demonstrate mastery of these in demand skills. With local boards of education utilizing federal dollars to pay for the exams it is important to gain insight into employer's preferences for MOS certifications. In addition, it is important to have a firm understanding of the employability skills that employer's desire so that graduates are well-equipped with all of the skills necessary to successfully compete in the workforce.

This study was designed to evaluate the value that employer's place on computer skills being taught in high school business courses, the value that employer's place on MOS certifications when making hiring decisions, the likelihood that employer's would be influenced by MOS certifications when considering applicant's and to examine the overall employability skills sought by employers. This chapter presents the analysis of the data collected by employer's in the Metro Atlanta area, representing various industries and company sizes, utilizing the researcher-developed survey instrument. There were seventy-four responses collected. Most participants indicated that they hold a Bachelor's degree, are ages 35-44 years old, and have some form of technical certification. Furthermore, they represent organizations that employee over 1,000 employee, within the Business Management and Administration cluster, and are were 16-30 miles

from downtown Atlanta.

## Descriptive Analysis and Results

Statistical data was calculated using the software application Statistical Package for the Social Science (SPSS). Descriptive statistics, including frequencies, percentages, means, and standard deviations were conducted in SPSS to summarize, organize, and describe the data. The descriptive data were used to answer research questions one, two, three and four. In addition, a One-Way Repeated Measures ANOVA was conducted to further evaluate research questions one and two, while multiple regression was conducted to further describe the data for research question three.

## Research Questions

Research Question One: *What is the level of awareness and value that employers place on computer skills typically taught in the secondary Business Education classroom?*

Two survey questions were used to answer research question one. To obtain pertinent background information, survey question five was used to determine the level of awareness the survey participants had regarding the computer skills being taught in select high school business courses. A list of the Microsoft computer skills was provided, which included Microsoft Word, Microsoft Excel, Microsoft PowerPoint, and Microsoft Access. Participants were asked to indicate whether they were aware that each of the skills were being taught in select high school business classes. Respondents reported that they were aware that Microsoft Word (77%), Microsoft Excel (66.2%), and PowerPoint (66.2%) are taught in high school. Most respondents, however, were not aware that Microsoft Access (63.5%) and Microsoft Publisher (55.4%) are taught, as well. Results are shown in table 6.

Table 6

*Level of Awareness Regarding Microsoft Office Skills Taught in High School*

| Skill | % Aware |
|---|---|
| Microsoft Word | 77.0 |
| Microsoft Excel | 66.2 |
| Microsoft PowerPoint | 66.2 |
| Microsoft Publisher | 44.6 |
| Microsoft Access | 36.5 |

n = 74

Survey question six was also used to address research question one. The survey question specifically asked participants the value that they place on the high school computer skills when making their hiring decisions. A list of the Microsoft computer programs was provided, which included Word, Excel, PowerPoint, and Access. Participants were asked to rate how valuable each of the skills are when making hiring decisions, using the following scale: 1-Not at All Valuable, 2-Somewhat Valuable, 3-Moderately Valuable, 4-Very Valuable, or 5-Extremely Valuable. When assessing the software programs in which respondents indicated the skill was extremely valuable, Microsoft Excel ranked the highest at 48.6%, followed closely by Microsoft Word at 47.3% and Microsoft PowerPoint at 35.1%. All programs received low responses for "Not Valuable at All". Results are shown in table 7.

Table 7

*Value of Computer Skills Taught in High School Business Courses*

| Item | Extremely Valuable % | Very Valuable % | Moderately Valuable % | Somewhat Valuable % | Not At All Valuable % | M | SD |
|---|---|---|---|---|---|---|---|
| Excel | 48.6 | 29.7 | 10.8 | 6.8 | 4.1 | 4.12 | 1.11 |
| Word | 47.3 | 21.6 | 16.2 | 9.5 | 5.4 | 3.96 | 1.23 |
| PowerPoint | 35.1 | 25.7 | 24.3 | 9.5 | 5.4 | 3.76 | 1.19 |
| Access | 25.7 | 29.7 | 17.6 | 17.5 | 9.5 | 3.45 | 1.31 |
| Publisher | 20.3 | 23.0 | 27.0 | 18.9 | 10.8 | 3.23 | 1.28 |

n = 74

*Note:* Values are the percentages of reported scores on a 5-point scale (1=not at all valuable, 5=extremely valuable)

The results of the one-way repeated-measures ANOVA showed that there was a significant main effect on the type of computer skill and the value placed on the computer skill [$F(4, 292)=21.072$, $p <.001$, $\eta_p^2 =.193$]. Pairwise comparisons, using Bonferroni post hoc tests, revealed several differences among the types of computer skills. Overall, spreadsheet skills (Excel) were valued most positively, followed by word processing (Word) and presentation skills (PowerPoint), while database (Access) and desktop publishing (Publisher) were valued least favorably. More specifically, database and desktop publishing skills received significantly lower responses, compared to the other three skills. Presentation skills were also viewed as less favorable when compared to spreadsheet skills. Means and Standard deviation for each certification as well as pairwise differences among these means can be found in table 8.

Table 8

*Mean Comparisons of Value of Computer Skills*

| | Mean (SD) | Pairwise Comparisons – Mean Differences[a] | | | | |
|---|---|---|---|---|---|---|
| | | Excel | Word | PowerPoint | Access | Publisher |
| Excel | 4.12 (1.11) | X | | | | |
| Word | 3.96 (1.23) | .162 | X | | | |
| PowerPoint | 3.76 (1.19) | .365*** | .203 | X | | |
| Access | 3.45 (1.31) | .676*** | .514* | .311* | X | |
| Publisher | 3.23 (1.28) | .892*** | .730*** | .527*** | .216 | X |

a-absolute value of mean differences are displayed
*-p < .05, **-p<.01, ***-p<.001

Research Question Two: *Is there a difference between the values placed on Microsoft Office Specialist Certifications when making hiring decisions?*

Four survey questions were used to address research question two. To obtain background information, survey question one sought to determine how familiar respondents were with each of the MOS Certifications. A list of each certification option was provided and included MOS Word, MOS Excel, MOS PowerPoint, MOS Access, MOS Outlook, MOS OneNote, and MOS SharePoint. Participants were asked to rate their level of familiarity with each of the certifications, using the following scale: 1-Not at all familiar, 2-Somewhat familiar, 3-Moderately familiar, 4-Very familiar, or 5-Extremely familiar. Data for Word yielded a bimodal distribution with

respondents indicating both “extremely familiar” and “not familiar at all” most frequently at 23% each. Excel yielded similar results where 23% of respondents reported that they are “extremely familiar” and 21.6% reported that they are “not familiar at all” with Microsoft Excel certifications. Microsoft Access (39.2%), Microsoft OneNote (51.4%), and Microsoft SharePoint (50.7%) each yielded the highest frequency at “not familiar at all”. Results are shown in table 9.

Table 9

*Familiarity with MOS Certifications*

| Item | Extremely Familiar % | Very Familiar % | Moderately Familiar % | Somewhat Familiar % | Not Familiar at all % | M | SD |
|---|---|---|---|---|---|---|---|
| Word | 23.0 | 20.3 | 17.6 | 14.9 | 23.0 | 3.07 | 1.50 |
| Excel | 23.0 | 16.2 | 20.3 | 18.9 | 21.6 | 2.99 | 1.47 |
| Outlook | 27.0 | 12.2 | 17.6 | 13.5 | 29.7 | 2.92 | 1.53 |
| PowerPoint | 16.2 | 16.2 | 20.3 | 23.0 | 23.0 | 2.81 | 1.41 |
| Access | 6.8 | 6.8 | 24.3 | 23.0 | 39.2 | 2.15 | 1.20 |
| SharePoint | 5.5 | 5.5 | 21.9 | 16.4 | 50.7 | 1.94 | 1.61 |
| OneNote | 6.8 | 4.1 | 20.3 | 17.6 | 51.4 | 1.93 | 1.19 |

*Notes:* N=74. N’s range from 73 to 74 due to missing data for Word and PowerPoint.
Values are the percentages of reported scores on a 5-point scale (1=not at all familiar, 5=extremely familiar)

The results of the one-way repeated-measures ANOVA showed that there was a significant main effect on the type of MOS certification and participant's familiarity with the certification [$F(6, 426)=32.391$, $p <.001$, $\eta_p^2 =.826$]. Pairwise comparisons, using Bonferroni post hoc tests, revealed several differences among familiarity of the certifications. Participants were most familiar with Word MOS certifications, followed by Excel, Outlook, and PowerPoint MOS certifications. Access, SharePoint, and OneNote MOS Certifications received significantly lower responses compared to the other four certifications. More specifically, SharePoint and OneNote, along with Access, and PowerPoint were all less familiar to participants compared to Word. Means and Standard deviation for each certification as well as pairwise differences among these means can be found in table 10.

Table 10

*Mean Comparisons of Familiarity with MOS Certifications*

| | Mean (SD) | Pairwise Comparisons – Mean Differences[a] | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Word | Excel | Outlook | Power-Point | Access | Share-Point | One Note |
| Word | 3.07 (1.50) | X | | | | | | |
| Excel | 2.99 (1.47) | .083 | X | | | | | |
| Outlook | 2.92 (1.60) | .153 | .069 | X | | | | |
| Power-Point | 2.81 (1.41) | .264* | .181 | .111 | X | | | |
| Access | 2.15 (1.20) | .917*** | .833*** | .764*** | .653*** | X | | |
| Share-Point | 1.94 (1.61) | 1.125*** | 1.042*** | .972*** | .861*** | .208 | X | |
| OneNote | 1.93 (1.19) | 1.139*** | 1.056*** | .986*** | .875*** | .222 | .014 | X |

a-absolute value of mean differences are displayed
*-p < .05, **-p<.01, ***-p<.001

Survey question two was used to determine the value that respondents place on MOS certifications for high school graduates. A list of each certification option was provided and included MOS Word, MOS Excel, MOS PowerPoint, MOS Access, MOS Outlook, MOS OneNote, and MOS SharePoint. Participants were asked to indicate the value that they place on each of the certifications for high school graduates, using the following scale: 1- Not at all valuable, 2-Somewhat valuable, 3-Moderately valuable, 4-Very valuable, or 5-Extremely valuable. The highest frequency percentage for "extremely valuable" was Excel (55.4%). OneNote held the highest response rates for "not valuable at all" with a frequency of 12.2%. While this percentage is relatively low, it is worth noting that the remaining MOS certifications ranged from 2.7% to 8.1% in the not valuable at all category. Results are shown in table 11.

Table 11

*Value of MOS Certifications for High School Graduates*

| | Extremely Valuable % | Very Valuable % | Moderately Valuable % | Somewhat Valuable % | Not at all Valuable % | M | SD |
|---|---|---|---|---|---|---|---|
| Excel | 55.4 | 21.6 | 9.5 | 10.8 | 2.7 | 4.16 | 1.15 |
| Word | 48.6 | 18.9 | 20.3 | 9.5 | 2.7 | 4.01 | 1.15 |
| PowerPoint | 37.8 | 24.3 | 21.6 | 13.5 | 2.8 | 3.81 | 1.17 |
| Outlook | 41.9 | 16.2 | 20.3 | 13.5 | 8.1 | 3.70 | 1.35 |
| Access | 31.1 | 14.9 | 27.0 | 20.2 | 6.8 | 3.43 | 1.30 |
| SharePoint | 25.7 | 16.2 | 31.1 | 18.9 | 8.1 | 3.32 | 1.27 |
| OneNote | 21.6 | 16.2 | 23.0 | 27.0 | 12.2 | 3.08 | 1.34 |

n = 74

*Note:* Values are the percentages of reported scores on a 5-point scale (1=not at all valuable, 5=extremely valuable)

The results of the one-way repeated-measures ANOVA showed that there was a significant main effect on the type of MOS certification and the valued placed on the certification [$F(6, 438)=21.409$, $p <.001$, $\eta_p^2 =.923$]. Pairwise comparisons, using Bonferroni post hoc tests, revealed several differences among the value placed on the type of MOS certifications. Overall, Excel MOS certifications were valued most positively, followed by Word and PowerPoint MOS certifications. SharePoint and OneNote MOS certifications yielded values that were less favorable. More specifically, SharePoint and OneNote received significantly lower responses, compared to the other five certifications. SharePoint and OneNote MOS Certifications, along with Access and PowerPoint MOS certifications were viewed as less valuable when compared to Excel MOS certifications. Results can be found in table 12.

Table 12

*Mean Comparisons of Value of MOS Certifications*

| | Mean (SD) | Pairwise Comparisons – Mean Differences[a] | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Excel | Word | Power-Point | Outlook | Access | Share-Point | One Note |
| Excel | 4.16 (1.15) | X | | | | | | |
| Word | 4.01 (1.15) | .203 | X | | | | | |
| Power-Point | 3.81 (1.17) | .351* | .149 | X | | | | |
| Outlook | 3.70 (1.35) | .108 | .311* | .459** | X | | | |
| Access | 3.43 (1.30) | .378* | .581** | .730*** | .270 | X | | |
| Share-Point | 3.32 (1.27) | .486* | .689*** | .838*** | .378 | .108 | X | |
| OneNote | 3.08 (1.34) | .730*** | .932*** | 1.081*** | .622*** | .351 | .243 | X |

a-absolute value of mean differences are displayed
*-p < .05, **-p<.01, ***-p<.001

Next, survey question three sought to determine the perceived influence of MOS certifications when making hiring decisions. A list of each certification option was provided and included MOS Word, MOS Excel, MOS PowerPoint, MOS Access, MOS Outlook, MOS OneNote, and MOS SharePoint. Participants were asked to indicate the likelihood that holding each of the certifications would influence their hiring decisions, using the following scale: 1-Not likely, 2-Somewhat likely, 3-Moderately likely, 4-Very likely, or 5-Extremely likely. Results showed that MOS certification in Excel (28.4%) is the only certification where respondents would be "extremely likely" to be influenced when making their hiring decision. While Word and PowerPoint were not far behind, likelihood of being influenced by each of the certifications reported the highest frequency at "very likely" with Word at 28.4% and PowerPoint at 29.7%. OneNote received the highest percentage frequency (20.3%) for not likely to be influenced. Results are shown in table 13.

Table 13

*Likelihood MOS Certification Would Influence Hiring Decisions*

| | Extremely Likely % | Very Likely % | Moderately Likely % | Somewhat Likely % | Not Likely % | M | SD |
|---|---|---|---|---|---|---|---|
| Excel | 28.4 | 33.8 | 18.9 | 10.8 | 8.1 | 3.64 | 1.23 |
| Word | 24.3 | 28.4 | 20.3 | 13.5 | 13.5 | 3.36 | 1.35 |
| PowerPoint | 20.3 | 29.7 | 23.0 | 12.1 | 14.9 | 3.28 | 1.33 |
| Outlook | 23.0 | 21.6 | 16.2 | 25.7 | 13.5 | 3.15 | 1.39 |
| Access | 17.6 | 24.3 | 21.6 | 21.6 | 14.9 | 3.08 | 1.33 |

(Table Continues)

(Table 13 Continued)

*Likelihood MOS Certification Would Influence Hiring Decisions*

| | Extremely Likely % | Very Likely % | Moderately Likely % | Somewhat Likely % | Not Likely % | M | SD |
|---|---|---|---|---|---|---|---|
| SharePoint | 14.9 | 24.3 | 24.3 | 21.6 | 14.9 | 3.03 | 1.29 |
| OneNote | 10.8 | 20.3 | 20.2 | 28.4 | 20.3 | 2.73 | 1.30 |

n= 74

*Note:* Values are the percentages of reported scores on a 5-point scale (1=not likely, 5=extremely likely)

The results of the one-way repeated-measures ANOVA showed that there was a significant main effect on the type of MOS certification and the valued placed on the likelihood that participants would influenced by it when making hiring decisions [$F(6, 438)=11.121$, $p <.001$, $\eta_p^2 =.890$]. Pairwise comparisons, using Bonferroni post hoc tests, revealed several differences among the likelihood to be influenced by the type of certification. Overall, Excel MOS certifications were most likely to influence participants, followed by Word and PowerPoint MOS certifications, while OneNote and SharePoint certifications were less likely. More specifically, OneNote MOS certification received significantly lower responses, compared to the other six MOS certifications. PowerPoint, Outlook, Access, SharePoint and OneNote MOS certifications were all viewed as less likely to influence when compared to Excel MOS certifications. Means and Standard deviation for each certification as well as pairwise differences among these means can be found in table 14.

Table 14

*Mean Comparisons of Likelihood to Be Influenced by Type of MOS Certifications*

| | Mean (SD) | Pairwise Comparisons – Mean Differences[a] | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Excel | Word | Power-Point | Outlook | Access | Share-Point | One Note |
| Excel | 3.64 (1.23) | X | | | | | | |
| Word | 3.36 (1.35) | .270 | X | | | | | |
| Power-Point | 3.28 (1.33) | .351* | .081 | X | | | | |
| Outlook | 3.15 (1.39) | .486** | .216 | .135 | X | | | |
| Access | 3.08 (1.33) | .554*** | .284 | .203 | .068 | X | | |
| Share-Point | 3.03 (1.29) | .608*** | .338 | .257 | .122 | .054 | X | |
| OneNote | 2.73 (1.30) | .905*** | .635*** | .554** | .419** | .351 | .297* | X |

a-absolute value of mean differences are displayed
*-p < .05, **-p<.01, ***-p<.001

For quick reference, table 15 shows a side by side comparison of the results, summarizing the Mean and Standard Deviation for each computer skill and the respondent's familiarity with MOS Certifications, the value that they place on MOS Certifications when making hiring decisions, and the likelihood that MOS certifications would influence them to hire candidates who hold a given MOS certification.

Table 15

*Summary of MOS Certification Data*

| Skill | Familiarity with MOS Certifications | | Value of MOS Certifications | | Likelihood MOS Certification Would Influence Hiring | |
|---|---|---|---|---|---|---|
| | M | SD | M | SD | M | SD |
| Excel | 2.99 | 1.47 | 4.16 | 1.15 | 3.64 | 1.23 |
| Word | 3.07 | 1.50 | 4.01 | 1.15 | 3.36 | 1.35 |
| PowerPoint | 2.81 | 1.41 | 3.81 | 1.17 | 3.28 | 1.33 |
| Outlook | 2.92 | 1.53 | 3.70 | 1.35 | 3.15 | 1.39 |
| Access | 2.15 | 1.20 | 3.43 | 1.30 | 3.08 | 1.33 |
| SharePoint | 1.94 | 1.61 | 3.32 | 1.27 | 3.03 | 1.29 |
| OneNote | 1.93 | 1.19 | 3.08 | 1.34 | 2.73 | 1.30 |

n =74

*Note:* Values are the percentages of reported scores on a 5-point scale (1=not familiar at all, 5=extremely familiar)

Survey question four was the final question used to address research question two. The question asked participants to rate the importance, in their opinion, for schools to continue paying for MOS certification tests utilizing federal funds. Results show clear support for the funding of MOS certifications for high school students (M = 3.73, SD=1.18), as the data revealed the following: extremely important (33.8%), very important (27.08%), and moderately important

(21.6%). A small percentage (13.58%) believe it is "slightly important" while 4.1% believe it is "not at all important".

Research Question Three: *Do the demographics of the survey participant and/or business impact the desire to hire employees with specific computer skills and Microsoft Office Specialist Certifications?*

There were six survey questions used to analyze research question three. The first group collected information about the respondent's education level, age, and the technical certifications, if any, held by the respondent. Most respondents reported that they hold a Bachelor's Degree (39%). The age category with the largest reported responses was ages 35-44 (31%). Lastly, 55% of respondents hold some form of technical certification. Data gathered from the participant's qualities will help determine whether the value placed on MOS Certifications is influenced by these qualities. Results are shown in table 16.

Table 16

*Survey Participant Demographic Data*

| *Item* | *f* | % |
|---|---|---|
| Highest Degree | | |
| GED | 1 | 2.0 |
| High School | 8 | 13.0 |
| Associates | 5 | 8.0 |
| Bachelor's | 24 | 39.0 |
| Master's | 20 | 33.0 |
| Doctorate | 3 | 5.0 |

(Table continues)

(Table 16 Continued)

| *Survey Participant Demographic Data* | | |
|---|---|---|
| Age Group | | |
| 18-24 | 2 | 3.0 |
| 25-34 | 13 | 18.0 |
| 35-44 | 22 | 31.0 |
| 45-54 | 19 | 27.0 |
| 55-64 | 12 | 17.0 |
| 65+ | 3 | 4.0 |
| | | |
| Technical Certifications Held: | | |
| Microsoft Desktop Certifications | 8 | 20.0 |
| Microsoft Database Certification | 4 | 10.0 |
| Microsoft Server Certifications | 1 | 2.0 |
| Microsoft Applications Certifications | 16 | 39.0 |
| Microsoft Developer Certification | 1 | 2.0 |
| Other Technical Certifications | 11 | 27.0 |

*Note:* N's range from 41 to 71 due to missing data.

Survey questions thirteen through fifteen collected information about the respondent's organization, such as, the approximate number of employees, the organizations industry/career cluster, and how many miles the organization is from downtown Atlanta. Data revealed that most of the organization respondent's employee over 1,000 employees (39%). The career cluster with the highest frequency reported was the Business Management and Administration cluster (15%). Finally, most organizations were 16-30 miles (48%) from downtown Atlanta. Results are shown in table 17.

Table 17

*Business Demographic Data*

| *Item* | *f* | % |
|---|---|---|
| # of Employees at the Organization | | |
| 1-100 | 25 | 35.0 |
| 101 – 500 | 11 | 15.0 |
| 501 – 1,000 | 7 | 10.0 |
| Over 1,000 | 28 | 39.0 |
| Approximate # of Miles Organization is from downtown Atlanta | | |
| 0-15 miles | 18 | 25.0 |
| 16-30 miles | 34 | 48.0 |
| 31-50 miles | 16 | 23.0 |
| 51-100 miles | 2 | 3.0 |
| Over 100 miles | 1 | 1.0 |
| Industry | | |
| Business Management and Admin | 11 | 15.0 |
| Transportation, Distribution, Logistics | 9 | 13.0 |
| Government and Public Admin | 8 | 11.0 |
| Information Technology | 7 | 10.0 |
| Architecture and Construction | 6 | 8.0 |
| Education and Training | 6 | 8.0 |
| Marketing | 6 | 8.0 |
| Finance | 4 | 6.0 |
| Law, Public Safety, Corrections & Security | 4 | 6.0 |
| Human Services | 3 | 4.0 |
| Manufacturing | 3 | 4.0 |
| Science, Technology, Engineering, Mathematics | 2 | 3.0 |
| Arts, AV/Technology, and Communication | 1 | 1.0 |
| Energy | 1 | 1.0 |
| Agriculture, Food, and Natural Resources | 0 | 0 |
| Health Science | 0 | 0 |
| Hospitality and Tourism | 0 | 0 |

*Note:* N=71 due to missing data.

Value of Computer Skills Regression

Multiple regression was run to predict the value placed on computer skills being taught in high school business courses based on the survey participant's age, education level, and number of technical certifications, as well as, the number of miles the organization is from downtown Atlanta, the number of employees at the organization, and the industry. The categorical independent variables were recoded utilizing criterion coding. There was linearity as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.278. There was a homoscedasticity, as assessed by the visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than .01. There were no studentized deleted residuals greater than $\pm 3$ standard deviations, no leverage values greater than .02, and values for Cook's distance above 1 that would affect influence. There assumption of normality was met, as assessed by Q-Q Plot. The multiple regression model results were not statistically significant in predicting the value placed on computer skills being taught in high school business courses, $F(6,61)=2.148$, $p=.061$, $R^2=17.4\%$, adjusted $R^2=9.3\%$, $p<.05$. Regression coefficients and standard errors can be found in table 18.

When using a backward regression approach, the number of certifications, education, and number of employee's variables were eliminated from the model. The restricted model, which included age, industry, and number of miles from Atlanta, resulted in an $R^2$ of .156, [$F(3,64)=3.954$, $p=.012$]. Results are shown in table 18.

Table 18

*Value of Computer Skills Regression Findings – Backward Regression*

| Factor | $R^2$ | S.E. Estimate | r | Semi-partial | Beta |
|---|---|---|---|---|---|
| **Full Model** | .174[a] | .905 | | | |
| Age | | | .145 | .133 | .137 |
| Education Level | | | .106 | .097 | .098 |
| # of Certifications | | | -.018 | -.016 | -.017 |
| # of Employees | | | .110 | .101 | .104 |
| # of Miles from Atlanta | | | .146 | .134 | .139 |
| Industry | | | .287 | .272 | .282 |
| **Restricted Model** | .156[b] | .973 | | | |
| Age | | | .162 | .151 | .153 |
| Industry | | | .316 | .306 | .311 |
| Miles | | | .158 | .147 | .150 |

*p<.05
a - F(6,61)=2.148, p=.061
b - F(3,64)=3.954, p=.012

Value of MOS Certifications Regression

Multiple regression was run to predict the value placed on MOS certifications based on the survey participant's age, education level, and number of technical certifications, as well as, the number of miles the organization is from downtown Atlanta, the number of employees at the organization, and the industry. The categorical independent variables were recoded utilizing criterion coding. There was linearity as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.009. There was a homoscedasticity, as assessed by the visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than .01. There were

no studentized deleted residuals greater than ±3 standard deviations, no leverage values greater than .02, and values for Cook's distance above 1. There assumption of normality was met, as assessed by Q-Q Plot. The multiple regression model statistically significantly predicted Value for MOS Certifications, F(6,61)=4.240, p=.001, $R^2$=29.4%, adjusted $R^2$=22.5%. All six variables added statistically significantly to the prediction, p<.05. Regression coefficients and standard errors can be found in table 19.

When using a backward regression approach, the number of certifications and education variables were eliminated from the model. The restricted model, which included age, industry, number of employees, and number of miles from Atlanta, resulted in an $R^2$ = 28%, [F(4,63)=6.115, p=.000]. Results are shown in table 19.

Table 19

*Value of MOS Certifications Regression Findings – Backward Regression*

| | $R^2$ | S.E. Estimate | | | |
|---|---|---|---|---|---|
| Factor | | | r | Semi-partial | Beta |
| **Full Model** | .294[a] | .905 | | | |
| Age | | | .221 | .191 | 1.181 |
| Education Level | | | .104 | .088 | .596 |
| # of Certifications | | | .090 | .076 | .106 |
| # of Employees | | | .227 | .196 | .814 |
| # of Miles from Atlanta | | | .202 | .173 | .3693 |
| Industry | | | .375 | .340 | .856 |
| **Restricted Model** | .280[b] | .900 | | | |
| Age | | | .241 | .210 | .212 |
| Industry | | | .392 | .362 | .371 |
| Miles | | | .186 | .160 | .163 |
| Employees | | | .217 | .189 | .192 |

*p<.05
a - F(6,61)=4.240, p=.001
b - F(4,63)=6.115, p=.001

Likelihood that Employer's Would be Influenced by MOS Certifications Regression

Lastly, multiple regression was run to predict the likelihood that employers would be influenced to hire a candidate who holds MOS certifications based on the survey participant's age, education level, and number of technical certifications, as well as, the number of miles the organization is from downtown Atlanta, the number of employees at the organization, and the industry. The categorical independent variables were recoded utilizing criterion coding. There was linearity as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.642. There was a homoscedasticity, as assessed by the visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than .01. There were no studentized deleted residuals greater than $\pm 3$ standard deviations, no leverage values greater than .02, and values for Cook's distance above 1. There assumption of normality was met, as assessed by Q-Q Plot. The multiple regression model statistically significantly predicted the likelihood that employers would be influenced to hire a candidate who holds MOS certifications, [$F(6,61)=4.525$, $p=.001$], $R^2=30.8\%$, adjusted $R^2=24.0\%$. All six variables added statistically significantly to the prediction, $p<.05$. Regression coefficients and standard errors can be found in table 20.

When using a backward regression approach, the number of certifications, education, and number of employee's variables were eliminated from the model. The restricted model, which included age, industry, and number of miles from Atlanta, resulted in an $R^2$ of .300, [$F(3,64)=9.137$, $p=.000$]. Results are shown in table 20.

Table 20

*Likelihood of Being Influenced Regression Findings – Backward Regression**p<.05

| Factor | $R^2$ | S.E. Estimate | r | Semi-partial | Beta |
|---|---|---|---|---|---|
| **Full Model** | .308[a] | .989 | | | |
| Age | | | .179 | .152 | .159 |
| Education Level | | | .070 | .058 | .062 |
| # of Certifications | | | .061 | .051 | .052 |
| # of Employees | | | .061 | .051 | .054 |
| # of Miles from Atlanta | | | .203 | .172 | .178 |
| Industry | | | .421 | .387 | .423 |
| **Restricted Model** | .300[b] | .971 | | | |
| Age | | | .188 | .160 | .162 |
| Industry | | | .460 | .433 | .447 |
| Miles | | | .190 | .162 | .166 |

a - F(6,61)=4.525, p=.001
b - F(3,64)=9.137, p=.001

Research Question Four: *Which employability skills do employers seek when making hiring decisions and to what extent are the employability skills desired by employers demonstrated by new employees?*

It is pertinent to not only gauge employer's preferences for MOS certifications when making hiring decisions but to also evaluate what employability (soft) skills employers seek out in employees. Survey questions seven through nine were utilized to provide insight into the importance of specific employability skills, how well new hires are able to demonstrate the skills, if there are any lost employability skills not included in the provided list, and if there are any certifications employers would recommend to help employees develop these skills.

Survey question seven was created with a two-fold intent. Nineteen frequently reported employability skills were included in the survey. The first part of question seven asked respondents

to select the level of importance associated with each skill when making hiring decisions. The Likert scale options included: 5-Extremely important, 4-Very important, 3-Moderately important, 2-Somewhat important, and 1-Not important. All of the listed skills received the highest frequency in "extremely important", with the exception of decision making skills and leadership skills, where "very important" was answered with the greatest frequency. The skill with the highest overall frequency reported was ethics (55.4%). At the opposite end of the scale, all skills earned a 1.4% frequency for "not important at all", except for language, presentation, and leadership skills. Each of these skills were recorded at a 2.7% frequency percentage. Results can be found in table 21.

Table 21

*Importance of Employability Skills*

| Skill | Extremely Important % | Very Important % | Moderately Important % | Somewhat Important % | Not Important % | M | SD |
|---|---|---|---|---|---|---|---|
| Ethics | 55.4 | 10.8 | 1.4 | 0 | 1.4 | 4.73 | .695 |
| Initiative | 48.6 | 18.9 | 0 | 0 | 1.4 | 4.65 | .688 |
| Teamwork | 44.6 | 23.0 | 0 | 0 | 1.4 | 4.59 | .698 |
| Problem Solving | 43.2 | 23.0 | 1.4 | 0 | 1.4 | 4.55 | .730 |
| Computer Skills | 45.9 | 16.2 | 5.4 | 0 | 1.4 | 4.53 | .809 |

(Table continues)

Table 21 Continued

*Importance of Employability Skills*

| Skill | Extremely Important % | Very Important % | Moderately Important % | Somewhat Important % | Not Important % | M | SD |
|---|---|---|---|---|---|---|---|
| Time Management | 40.5 | 27.0 | 0 | 0 | 1.4 | 4.50 | .721 |
| Oral Comm Skills | 39.2 | 24.3 | 4.1 | 0 | 1.4 | 4.45 | .783 |
| Self-Management | 40.5 | 21.6 | 5.4 | 0 | 1.4 | 4.45 | .808 |
| Critical Thinking Skills | 35.1 | 28.4 | 2.7 | 0 | 1.4 | 4.42 | .758 |
| Written Comm Skills | 36.5 | 24.3 | 6.8 | 0 | 1.4 | 4.37 | .824 |
| Ability to Work Under Pressure | 39.2 | 17.6 | 9.5 | 1.4 | 1.4 | 4.35 | .890 |
| Decision Making Skills | 31.1 | 33.8 | 2.7 | 0 | 1.4 | 4.35 | .744 |
| Ability to Handle Stress | 39.2 | 17.6 | 9.5 | 1.4 | 1.4 | 4.33 | .931 |
| Analytical Skills | 33.8 | 23.0 | 10.8 | 0 | 1.4 | 4.27 | .874 |
| Planning Skills | 28.4 | 28.4 | 10.8 | 0 | 1.4 | 4.20 | .849 |
| Organizing Skills | 25.7 | 32.4 | 9.5 | 0 | 1.4 | 4.18 | .817 |
| Language Skills | 28.4 | 21.6 | 1.8 | 5.4 | 2.7 | 3.98 | 1.12 |
| Leadership Skills | 23.0 | 27.0 | 13.5 | 2.7 | 2.7 | 3.94 | 1.02 |
| Presentation Skills | 28.4 | 16.2 | 17.6 | 4.1 | 2.7 | 3.92 | 1.12 |

*Notes:* N=51. N ranges from 51 to 74 due to missing data.
Values are the percentages of reported scores on a 5-point scale (1=not important, 5=extremely important).

The second part of question seven asked respondents to indicate the degree in which each of the nineteen skills are demonstrated by newly hired employees. The Likert scale options included: All of the time, Most of the time, Sometimes, Rarely, and Never. None of the skills earned a high frequency percentage of "all of the time". Four of the nineteen skills rated "most of the time" at the highest frequency, and included teamwork (32.4%), ethics (23%), oral communication skills (25.7%), and computer skills (33.8%). Teamwork received the highest mean. Data for five of the nineteen employability skills indicated that the given skill is "never" demonstrated by newly hired employees. The skills included: analytical, critical thinking, ability to handle stress, planning, and presentation skills. Results are shown in table 22.

Table 22

*Extent in Which Newly Hired Employees Demonstrate Employability Skills*

| Skill | All of the Time % | Most of the Time % | Some Times % | Rarely % | Never % | M | SD |
|---|---|---|---|---|---|---|---|
| Computer Skills | 16.2 | 33.8 | 12.2 | 5.4 | 0 | 3.90 | .863 |
| Teamwork | 6.8 | 32.4 | 24.3 | 4.1 | 0 | 3.62 | .753 |
| Ethics | 13.5 | 23.0 | 21.6 | 9.5 | 0 | 3.60 | .969 |
| Oral Comm Skills | 10.8 | 25.7 | 21.6 | 9.5 | 0 | 3.56 | .929 |
| Time Management | 10.8 | 18.9 | 33.8 | 4.1 | 0 | 3.45 | .860 |
| Written Comm Skills | 9.5 | 20.3 | 24.3 | 13.5 | 0 | 3.38 | .967 |

(Table Continues)

(Table 22 Continued)

*Extent in Which Newly Hired Employees Demonstrate Employability Skills*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Language Skills | 12.2 | 13.5 | 27.0 | 14.9 | 0 | 3.34 | 1.02 |
| Initiative | 5.4 | 20.3 | 31.1 | 10.8 | 0 | 3.30 | .839 |
| Self-Management | 8.1 | 13.5 | 33.78 | 12.2 | 0 | 3.26 | .899 |
| Ability to Work Under Pressure | 10.8 | 9.5 | 32.4 | 14.9 | 0 | 3.24 | .981 |
| Organizing Skills | 9.5 | 10.8 | 31.1 | 16.2 | 0 | 3.20 | .969 |
| Problem Solving | 9.5 | 9.5 | 31.1 | 16.2 | 0 | 3.18 | .972 |
| Decision Making Skills | 8.1 | 8.1 | 36.5 | 14.9 | 0 | 3.14 | .904 |
| Ability to Handle Stress | 9.5 | 6.8 | 35.1 | 14.9 | 1.4 | 3.12 | .982 |
| Planning Skills | 6.8 | 13.5 | 29.7 | 16.2 | 1.4 | 3.12 | .961 |
| Presentation Skills | 9.5 | 9.5 | 28.4 | 18.9 | 1.4 | 3.10 | 1.03 |
| Analytical Skills | 8.1 | 10.8 | 28.4 | 18.9 | 1.4 | 3.08 | 1.007 |
| Critical Thinking Skills | 8.1 | 8.1 | 29.7 | 18.9 | 1.4 | 3.04 | .999 |
| Leadership Skills | 5.4 | 6.8 | 25.7 | 29.7 | 0 | 2.82 | .919 |

*Notes:* N=51. N ranges from 51 to 74 due to missing data.
Values are the percentages of reported scores on a 5-point scale (1=never, 5=all of the time).

For quick reference, table 23 displays a side by side comparison of the Mean and Standard Deviation for the level of importance employers place on each of the employability skills and the extent in which new hires demonstrate each skill.

Table 23

*Summary of Employability Skills Data*

| Skill | Importance of Skill[a] | | Extent in Which Skill is Demonstrated [b] | |
|---|---|---|---|---|
| | M | SD | M | SD |
| Ethics | 4.73 | .69 | 3.60 | .96 |
| Initiative | 4.65 | .68 | 3.30 | .83 |
| Teamwork | 4.59 | .69 | 3.62 | .75 |
| Problem Solving | 4.55 | .73 | 3.18 | .97 |
| Computer Skills | 4.53 | .80 | 3.90 | .86 |
| Time Management | 4.50 | .72 | 3.45 | .86 |
| Self-Management | 4.45 | .80 | 3.26 | .89 |
| Oral Comm Skills | 4.45 | .78 | 3.56 | .92 |
| Critical Thinking Skills | 4.42 | .75 | 3.04 | .99 |
| Written Comm Skills | 4.37 | .82 | 3.38 | .96 |
| Ability to Work Under Pressure | 4.35 | .89 | 3.24 | .98 |

(Table continues)

Table 23 Continued

*Summary of Employability Skills Data*

| Skill | Importance of Skill[a] | | Extent in Which Skill is Demonstrated[b] | |
|---|---|---|---|---|
| | M | SD | M | SD |
| Decision Making Skills | 4.35 | .74 | 3.14 | .90 |
| Ability to Handle Stress | 4.33 | .93 | 3.12 | .98 |
| Analytical Skills | 4.27 | .87 | 3.08 | 1.00 |
| Planning Skills | 4.20 | .84 | 3.12 | .96 |
| Organizing Skills | 4.18 | .81 | 3.20 | .96 |
| Language Skills | 3.98 | 1.1 | 3.34 | 1.02 |
| Leadership Skills | 3.94 | 1.02 | 2.82 | .91 |
| Presentation Skills | 3.92 | 1.12 | 3.10 | 1.03 |

*Notes:* N=51. N ranges from 51 to 74 due to missing data.
[a] Values are the percentages of reported scores on a 5-point scale (1=not important at all, 5=extremely important).
[b] Values are the percentages of reported scores on a 5-point scale (1=never, 5=all of the time).

A paired-samples t-test was conducted to examine differences between the importance of given employability skills and the demonstration of these skills by new hires. There were significant differences in the scores for the importance of and demonstration of the following skills: teamwork skills; t(47)=8.06, p=.027, analytical skills; t(47)=7.68, p=.026, computer skills; t(47)=4.69, p=.004, ability to work under pressure; t(47)=7.323, p=.022, organizing skills; t(47)=6.58, p=.015, presentation skills; t(47)=5.23, p=.008, leadership skills; t(47)=8.03, p=.008, and time management skills; t(47)=8.37, p=.040.

Upon completion of survey question seven, respondents were asked to share any lost employability skills not included on the survey. Utilizing an open response question, participants reported listening skills (12%) with the highest frequency. Customer service skills and negotiation skills were also listed more than once by respondents and included, resulting in 8% of the responses each. The remaining skills were reported only once per respondent, resulting in 4% of the responses each. The results are shown in table 24.

Table 24

*Lost Employability Skills Not Listed In Survey*

| Employability Skill | *f* | % |
|---|---|---|
| Listening skills | 3 | 12 |
| Customer service | 2 | 8 |
| Negotiation skills | 2 | 8 |
| Importance of attitude | 1 | 4 |
| Note taking skills | 1 | 4 |

(Table continues)

(Table 24 Continued)

*Lost Employability Skills Not Listed In Survey*

| Employability Skill | *f* | % |
|---|---|---|
| Willingness to learn | 1 | 4 |
| Transparency | 1 | 4 |
| Hiding/avoiding challenges. Instead, acknowledge shortcomings and strive for excellence | 1 | 4 |
| Office Etiquette, particularly in e-mail | 1 | 4 |
| Trainable/Coachable | 1 | 4 |
| Clear oral communication; to accustomed to texting so they have trouble with conversation | 1 | 4 |
| Keyboarding skills | 1 | 4 |
| Project management | 1 | 4 |
| Transformation management | 1 | 4 |
| Ability to ask the right question | 1 | 4 |
| Post interview skills | 1 | 4 |
| Command of English language/ demonstrate business acumen | 1 | 4 |

(Table Continues)

(Table 24 Continued)

*Lost Employability Skills Not Listed In Survey*

| Employability Skill | *f* | % |
|---|---|---|
| Attention to detail | 1 | 4 |
| Adaptability | 1 | 4 |
| Ability to conduct a self-assessment | 1 | 4 |

n = 25

Finally, a second open-response question asked respondents if, in their opinion, there are any particular certifications that would help employees develop employability skills. Overall, this question had a low response rate and did not yield any substantial results. Each recommendation was provided by a single participant.. Results are reported in table 25.

Table 25

*Certifications that Would Help Develop Employability Skills*

| Certifications | *f* | % |
|---|---|---|
| Technical certifications, specifically:<br>Java Certification<br>Oracle<br>MySql or SQL Server Certifications<br>CompTIA certs<br>Lean Six Sigma<br>PMP | 6 | 54.5 |

(Table Continues)

(Table 25 Continued)

*Certifications that Would Help Develop Employability Skills*

| Certifications | *f* | % |
|---|---|---|
| Accounting Certification | 1 | 9.0 |
| Soft Skill Certification | 1 | 9.0 |
| Toastmasters Certification | 1 | 9.0 |
| Any presentation/speaking certification | 1 | 9.0 |

n = 11

# V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

## Introduction

A common goal shared among all Georgia schools is that students will graduate high school "college and career ready". In order to achieve the goal of career ready, school systems must have a firm understanding of the value employers place on particular skills. Review of the given skills can guide curriculum and budgeting decisions to ensure that students are equipped with the key employability & computer applications skills deemed valuable by employers.

A research survey instrument was developed to determine the value Metro Atlanta employers place on MOS Certifications and specific employability skills when making hiring decisions. Data were collected and analyzed to determine the value that employers place on the specific computer skills taught in select business classes, the value that they place on MOS Certifications when making hiring decisions, which survey participant qualities and/or business qualities, influence the desire for offered credentials, and the value they place on given employability skills.

Data collected from Metro Atlanta employers, utilizing a researcher developed electronic survey were presented in Chapter IV. Discussion of the findings, conclusions, and recommendations are presented in this chapter.

## Summary of Findings

Most respondents were ages 35-44 (31%) and indicated that their highest level of education was a Bachelor's degree (39%). Fifty-five percent of respondents reported that they hold some form of technical certification. Most of the respondents work for and/or own organizations that employee over 1,000 employees (39%), however, a large portion also fell into the 1-100 range, as well (33.8%). The majority of organizations were 16-30 miles (48%) from downtown Atlanta. The industry/career cluster that most organizations were from was the Business Management and Administration cluster (15%).

Most respondents were aware that Microsoft Office Skills are being taught in high school courses, however, many were not aware that Microsoft Access (63.5%) and Microsoft Publisher (55.4%) specifically are available for students. Of the Microsoft Skills being taught at the high school level, respondents reported that Microsoft Excel (48.6%) and Microsoft Word (47.3%) are very valuable when making hiring decisions. Microsoft Publisher (20.3%) was the least valuable skill. The results of the one-way repeated-measures ANOVA showed that there was a significant main effect on the type of computer skill and the value placed on the computer skill [$F(4, 292)=21.072$, $p <.001$, $\eta_p^2 =.193$]. Overall, spreadsheet skills (Excel) were valued most positively, followed by word processing (Word) and presentation skills (PowerPoint), while database (Access) and desktop publishing (Publisher) were valued least favorably. More specifically, database and desktop publishing skills received significantly lower responses, compared to the other three skills. Presentation skills were also viewed as less favorable when compared to spreadsheet skills.

Familiarity with Microsoft Office Certifications varied greatly. Evaluating the mean showed that most were more familiar with Word MOS, while most were least familiar with SharePoint MOS. The results of the one-way repeated-measures ANOVA showed that there was a significant main effect on the type of MOS certification and participant's familiarity with the certification [$F(6, 426)=32.391$, $p <.001$, $\eta_p^2 =.826$]. Participants were most familiar with Word MOS certifications, followed by Excel, Outlook, and PowerPoint MOS certifications. Access, SharePoint, and OneNote MOS Certifications received significantly lower responses compared to the other four certifications. More specifically, Access, SharePoint, and OneNote, along with Access, and PowerPoint were all less familiar to participants compared to Word

Most respondents indicated that an Excel MOS (55.4%) would be extremely valuable for high school graduates and OneNote would be the least valuable. The results of the one-way repeated-measures ANOVA showed that there was a significant main effect on the type of MOS certification and the valued placed on the certification [$F(6, 438)=21.409$, $p <.001$, $\eta_p^2 =.923$]. Overall, Excel MOS certifications were valued most positively, followed by Word and PowerPoint MOS certifications. SharePoint and OneNote MOS certifications yielded values that were less favorable. More specifically, SharePoint and OneNote received significantly lower responses, compared to the other five certifications. SharePoint and OneNote MOS Certifications, along with Access and PowerPoint MOS certifications were viewed as less valuable when compared to Excel MOS certifications. The majority of respondent's support school funding of MOS certifications, with 33.8% indicating it is extremely important and 4.1% considering it slightly important.

When asked about the likelihood that respondents would be influenced to hire a candidate who holds given certifications, most were extremely like (28.4%) or very likely (33.8%) to be

influenced by Excel MOS certifications. OneNote earned the highest frequency (20.3%) for not likely to be influenced. The results of the one-way repeated-measures ANOVA showed that there was a significant main effect on the type of MOS certification and the valued placed on the likelihood that participants would influenced by it when making hiring decisions [$F(6, 438)=11.121$, $p <.001$, $\eta_p^2 =.890$]. Overall, Excel MOS certifications were most likely to influence participants, followed by Word and PowerPoint MOS certifications, while OneNote and SharePoint certifications were less likely. More specifically, OneNote MOS certification received significantly lower responses, compared to the other six MOS certifications. PowerPoint, Outlook, Access, SharePoint and OneNote MOS certifications were all viewed as less likely to influence when compared to Excel MOS certifications.

Regression analysis was conducted to determine what participant and/or business qualities might explain the results reported above. When evaluating the value that employer's place on the computer skills being taught in high school, the multiple regression model, which included all of the survey participant and business qualities, was not statistically significant [$F(6,61)=2.148$, $p=.061$]. A restricted model, however, yielded statistically significant results and included age, industry, and the number of miles as predictors of the value placed on computers skills taught in high school business courses [$F(3,64)=3.954$, $p=.012$]

Investigating the value that employer's on MOS certifications for high school students with multiple regression was statistically significant based on the participant and business qualities. [$F(6,61)=4.240$, $p=.001$]. Backward regression slightly improved the model [$F(4,63)=6.115$, $p=.000$]by including age, industry, employees, and miles.

Lastly multiple regression was used to calculate the likelihood that employers would be influenced to hire a candidate who holds a MOS certification. Multiple regression with inclusion of all of the variables yielded a statistically significant model [$F(6,61)=4.525$, $p=.001$]. Backward regression improved the model [$F(3,64)=9.137$, $p=.000$]and included age, industry, and miles only.

Respondents reported that all of the employability skills listed were extremely important to very important. The skill with the highest frequency of extremely important was ethics (55.4%), which also had the highest mean ($M=4.73$). The skill with lowest mean was presentation skills ($M=3.92$). Responses regarding the extent to which new hires demonstrate the given employability skills varied. The highest frequencies fell into most of the time and sometimes categories. Computer skills received the highest mean ($M=3.90$), whereas leadership skills received the lowest mean ($M=2.82$). A paired-samples t-test was conducted to examine differences between the importance of given employability skills and the demonstration of these skills by new hires. There were significant differences in the scores for the importance of and demonstration of the following skills: teamwork; $t(47)=8.06$, $p=.027$, analytical skills; $t(47)=7.68$, $p=.026$, computer skills; $t(47)=4.69$, $p=.004$, ability to work under pressure; $t(47)=7.323$, $p=.022$, organizing skills; $t(47)=6.58$, $p=.015$, presentation skills; $t(47)=5.23$, $p=.008$ leadership skills; $t(47)=8.03$, $p=.008$, and time management; $t(47)=8.37$, $p=.040$.

Few respondents provided additional skills that were not included on the provided list. Listening skills (12%), however, yielded the highest frequency. Finally, few respondents provided recommendations for certifications that would help develop employability skills. Technical certifications (54.5%) were listed at the highest frequency.

## Conclusions

The following conclusions were based on the findings of this study.

1. Most employers are aware that Microsoft Word, Excel and PowerPoint are being taught at the high school level. Many were not aware that Microsoft Access and Publisher are taught, as well. Most employers believe that the computer skills taught in high school are valuable. Respondents indicated that Microsoft Excel skills are extremely valuable, as well as, Microsoft Word skills. Publisher was the least valued skill.

2. Familiarity with the various MOS certifications varied significantly across the scales. Word MOS certifications, however, were most familiar to respondents. OneNote, received the highest frequency of not familiar at all, followed closely by SharePoint. Respondents indicated that MOS certification in Excel is extremely valuable. In addition, Word was highly rated in terms of value. OneNote was the least valuable certification. There was a strong likelihood that respondents would be influenced to hire a candidate who holds Excel MOS certifications, however, most would not likely be influenced by OneNote MOS certification. The majority of respondents support school funding of MOS certifications, with 33.8% labeling it extremely important and 4.1% labeling it slightly important.

3. There is a relationship between the value that employer's place on the computer skills being taught in high school and the number of miles the organization is from downtown and the industry. There is no relationship, however, between the age and education of the participant, the number of certifications held by the participant, or the size of the organization. Combining factors resulted in age, industry, and miles serving as significant

predictors of the value that employer's place on the computer skills being taught in high school.

4. There is a relationship between the value that employer's place on MOS certifications for high school students based on the organization's size, miles, industry, and the number of certifications that the participants hold. There was no relationship between the age or education of the participant or number of certifications held by the participant. Combining factors resulted in age, industry, number of employees and miles serving as significant predictors of the value that that employer's place on MOS certifications for high school students.

5. There is a relationship between the likelihood that employers would be influenced to hire a candidate who holds a MOS certification and industry, as well as, the number of certifications. There was no relationship between age, education, size of the organization, or miles from downtown Atlanta. Combining factors resulted in age, industry, and miles serving as significant predictors of the likelihood that employers would be influenced to hire a candidate who holds a MOS certification.

6. Respondents indicated that all of the given employability skills were extremely or very important. Ethics emerged as the most important skill and leadership received the lowest score. Listening skills were reported at the highest frequency for other lost employability skills not listed in the survey. Technical certifications were reported at the highest frequency for certifications that would help develop employability skills.

## Recommendations

Based on the conclusions, the following recommendations are made:

1. Respondents place a high value on computer skills across all industries. The current curriculum structure only provides computer applications training to those in select business courses, resulting in many high school students that do not receive formal computer training. To overcome this gap, it is recommended that a mandatory computer applications training be implemented or embedded in the curriculum within another required course, so that *all* students learn proper computer application skills. The study revealed that employer's place a high value on spreadsheet skills, therefore, the curriculum should be designed to cover spreadsheet skills in greatest detail.

2. School funding through Perkins should continue for MOS certifications. Since the likelihood that respondents would be influenced to hire candidates who hold Excel and Word MOS certifications, emphasis should be placed on students earning these certifications primarily.

3. Relationships emerged between the value that employer's place on the computer skills being taught in high school and industry. Future studies should be conducted to determine what specific computer skills are sought within each region and within each industry outside of the downtown Atlanta area.

4. Relationships emerged between the value that employer's place on MOS certifications for high school students and the organization's size, miles, and industry. Future studies should explore this relationship in greater depth. By doing so, schools can better align

certification options to meet the needs of organizations in their geographical area to meet the needs of their primary industries.

5. Relationships emerged between the likelihood that employers would be influenced to hire a candidate who holds a MOS certification and industry. Future studies should be conducted to determine which certifications, specifically, are most preferred by the various industries. Again, this would help schools align certification options to meet the needs of industries in their area.

6. All employability skills were found to be very to extremely important. Ethics, however, was the most important skill that emerged. Listening skills was not listed, yet, several participants indicated through open response that it is a lost skill. Currently, employability skills curriculum is part of every Career and Technical Education course. It is recommended that even greater emphasis be placed on ethics and listening skills. Respondents also indicated that some form of soft skills certification would be valuable to show employers that students have received training in soft skill concepts.

7. This study should be conducted outside of the Metro Atlanta area.

8. Future studies should extend beyond MOS certifications to include other end-of-pathway certifications sought by employers.

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Appendices

# Appendix A

Information Letter

AUBURN
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COLLEGE OF EDUCATION

DEPARTMENT OF CURRICULUM AND TEACHING

**INFORMATION LETTER**

**for a Research Study entitled**
"An Examination of Microsoft Office Specialist Certifications and Employability Skills Sought by Georgia Employers"

Dear Workforce Council Member:

You are cordially invited to participate in an Auburn University doctoral research study of An Examination of Microsoft Office Specialist Certifications and Employability Skills Sought by Georgia Employers. This study is being conducted by Melissa Claiborne, a doctoral student, under the direction of Dr. Elisha Wohleb, Associate Clinical Professor in Auburn University's Department of Curriculum and Teaching. You are invited to participate because you are a Metro Atlanta Employer and are age 19 or older.

Your participation in this study is completely voluntary. If you choose to participate, you will be asked to complete a web-based survey, which will take approximately 5-10 minutes to complete.

There are no risks associated with participating in this study. All responses are anonymous and information will be summarized by groups so that no individual answers will be identifiable.

There are no direct benefits for your participation. Upon completion of the web-based survey, however, you will be given the opportunity to participate in a random drawing to win one of eight $25 Amazon gift cards. You will be instantly notified of your winning status at the conclusion of the survey.

There are no costs to participate in the study.

If you change your mind about participating in the study, you can withdraw at any time by not clicking on the link below or by simply closing out of the web-based survey program. Either way your data will not be collected. However, once you've submitted anonymous data, it cannot be withdrawn since it will be unidentifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University or the Department of Curriculum and Teaching.

Any data obtained in connection with this study will remain anonymous. We will protect your privacy and the data you provide by not requesting any identifiable information. Information collected through your participation may be used to fulfill

an educational requirement, published in a professional journal, and/or presented at a professional meeting.

If you have any questions about this study, please contact Melissa Claiborne at mjc0004@tigermail.auburn.edu or Dr. Elisha Wohleb at wohleec@auburn.edu.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334)-844-5966 or e-mail IRBadmin@auburn.edu or IRBChair@auburn.edu.

Having read the information above, you must decide if you want to participate in this research project. If you decide to participate, please click on the link below. You may print a copy of this letter to keep.

_____

Investigator Date

The Auburn University Institutional Review Board has approved this document for use from _____ to _____. Protocol # _____

LINK TO SURVEY:

https://auburn.qualtrics.com/SE/?SID=SV_1HOJ0UCmpgxGUHX

Add this approval information in sentence form to your electronic information letter!

The Auburn University Institutional Review Board has approved this Document for use from 01/02/2017 to 01/01/2018 Protocol # 16-436 EP 1701

## Appendix B

Researcher Developed Survey

An Examination of Microsoft Office Specialist Certifications and Employability Skills Sought by Georgia Employers

**Q1: How familiar are you with the following Microsoft Office Specialist Certifications?**

| | Not Familiar at all | Somewhat Familiar | Moderately Familiar | Very Familiar | Extremely Familiar |
|---|---|---|---|---|---|
| Microsoft Office Word | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft Office PowerPoint | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft Office Excel | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft Office Access | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft Office Outlook | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft Office OneNote | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft SharePoint | ❍ | ❍ | ❍ | ❍ | ❍ |

**Q2: Microsoft Office Specialist Certifications are professional certifications verifying demonstrated proficiency with Microsoft products. Certifications are earned by passing one or more exams for the given content. How valuable do you feel the following Microsoft Office Specialist Certifications are for high school graduates?**

| | Not at all Valuable | Somewhat Valuable | Moderately Valuable | Very Valuable | Extremely Valuable |
|---|---|---|---|---|---|
| Microsoft Office Word | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft Office PowerPoint | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft Office Excel | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft Office Access | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft Office Outlook | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft Office OneNote | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft SharePoint | ❍ | ❍ | ❍ | ❍ | ❍ |

**Q3: How likely is it that you would be influenced to hire a candidate holding a Microsoft Office Specialist Certification**?

| | Not Likely | Somewhat Likely | Moderately Likely | Very Likely | Extremely Likely |
|---|---|---|---|---|---|
| Microsoft Office Word | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft Office PowerPoint | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft Office Excel | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft Office Access | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft Office Outlook | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft Office OneNote | ❍ | ❍ | ❍ | ❍ | ❍ |
| Microsoft SharePoint | ❍ | ❍ | ❍ | ❍ | ❍ |

**Q4: Microsoft Office Specialist Certification exams that are administered to high school students are paid for through federal funds issued by the Carl D. Perkins Career and Technical Education Act. In your opinion,**

**how important do you think it is for schools to continue paying for Microsoft Office Specialist Certification exams for high school students utilizing federal funds?**

| | Not at all Important | Slightly Important | Moderately Important | Very Important | Extremely Important |
|---|---|---|---|---|---|
| How important do you think it is for schools to continue paying for Microsoft Office Specialist Certification exams for high school students utilizing federal funds? | ❍ | ❍ | ❍ | ❍ | ❍ |

**Q5: Are you aware that the following skills are being taught in select business courses at the high school level?**

| | Yes- I was aware | No - I was not aware |
|---|---|---|
| Word Processing (i.e. Microsoft Word) | ❍ | ❍ |
| Spreadsheet creation/manipulation (i.e. Microsoft Excel) | ❍ | ❍ |
| Electronic Presentation creation/manipulation (i.e. Microsoft PowerPoint) | ❍ | ❍ |
| Database creation/manipulation (i.e. Microsoft Access) | ❍ | ❍ |
| Desktop Publishing (i.e. Microsoft Publisher) | ❍ | ❍ |

**Q6: The following computer skills are being taught in the select business courses. What value do you place on these skills when making hiring decisions?**

| | Not at all Valuable | Somewhat Valuable | Moderately Valuable | Very Valuable | Extremely Valuable |
|---|---|---|---|---|---|
| Word Processing (i.e. Microsoft Word) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Spreadsheet creation/manipulation (i.e. Microsoft Excel) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Electronic Presentation creation/manipulation (i.e. Microsoft PowerPoint) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Database creation/manipulation (i.e. Microsoft Access) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Desktop Publishing (i.e. Microsoft Publisher) | ❍ | ❍ | ❍ | ❍ | ❍ |

**Q7: Employability skills are general skills that are necessary for success in the labor market at all employment levels and in all sectors. Please respond to the following questions as they pertain to employability skills.**

| | Please select the importance of the following employability skills when making hiring decisions: | | | | | To what extent are newly hired employees able to demonstrate each of the following skills: | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Not important | Somewhat Important | Moderately important | Very important | Extremely important | Never | Rarely | Sometimes | Most of the Time | All of the Time |
| Teamwork | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Initiative | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Self-management | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Ethics | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Time Management | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Oral communication skills | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Written communication skills | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Problem solving skills | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Analytical skills | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Critical thinking skills | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Time management skills | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Computer | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Ability to work under pressure | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Language skills | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Ability to handle stress | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Planning skills | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Organizing skills | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Decision making skills | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Presentation skills | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Leadership skills | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |

**Q8: In your opinion, are there any important lost employability skills not listed above? If so, why is the skill(s) so important?**

**Q9: In your opinion, are there any particular certifications that would help employees develop these skills?**

**Q10: What, if any technical certifications do you hold? Please check all that apply:**

- ❑ Microsoft Desktop Certifications (i.e. Windows)
- ❑ Microsoft Database Certification (i.e. SQL)
- ❑ Microsoft Server Certifications (i.e. Windows Server, Exchange Server, SharePoint, Azure). If so, which one(s)? _____
- ❑ Microsoft Applications Certifications (i.e. Microsoft Office Specialist for Word, PowerPoint, Excel, Access) If so, which one(s)? _____
- ❑ Microsoft Developer Certification (i.e. Visual Studio, SharePoint Applications, Microsoft Azure). If so, which one(s)? _____
- ❑ Other Technical Certifications (i.e. Adobe, Quickbooks, etc.) _____

**Q11: Please select your highest level of completed education:**

- ❍ GED
- ❍ High School
- ❍ Associates Degree
- ❍ Bachelor's Degree
- ❍ Master's Degree
- ❍ Doctorate

**Q12: Please select the group that best indicates your age:**

- ❍ 18-24
- ❍ 25-34
- ❍ 35-44
- ❍ 45-54
- ❍ 55-64
- ❍ 65+

**Q13: The Georgia Department of Education has identified 17 Career Clusters/Pathways for curriculum design and instruction. Which cluster does your organization best fit?**

- ❍ Agriculture, Food, and Natural Resources
- ❍ Architecture and Construction
- ❍ Arts, AV/Technology and Communications
- ❍ Business Management and Administration
- ❍ Education and Training
- ❍ Energy
- ❍ Finance
- ❍ Government and Public Administration
- ❍ Health Science
- ❍ Hospitality and Tourism
- ❍ Human Services
- ❍ Information Technology
- ❍ Law, Public Safety, Corrections and Security
- ❍ Manufacturing
- ❍ Marketing
- ❍ Science, Technology, Engineering, Mathematics
- ❍ Transportation, Distribution, and Logistics

**Q14: Approximately how many people are employed with your organization?**

- ❍ 1-100
- ❍ 101-500
- ❍ 501-1,000
- ❍ Over 1,000

**Q15: Approximately how many miles are you from downtown Atlanta?**

- ❍ 0-15 miles
- ❍ 16-30 miles
- ❍ 31-50 miles
- ❍ 51-100 miles
- ❍ Over 100 miles

# Appendix C

## Institutional Review Board Approval

**AUBURN UNIVERSITY INSTITUTIONAL REVIEW BOARD for RESEARCH INVOLVING HUMAN SUBJECTS**
**RESEARCH PROTOCOL REVIEW FORM**
**FULL BOARD or EXPEDITED**

For Information or help contact **THE OFFICE OF RESEARCH COMPLIANCE (ORC)**, 115 Ramsay Hall, Auburn University
**Phone:** 334-844-5966 **e-mail:** IRBAdmin@auburn.edu **Web Address:** http://www.auburn.edu/research/vpr/ohs/index.htm

Revised 2.1.2014 **Submit completed form to IRBsubmit@auburn.edu or 115 Ramsay Hall, Auburn University 36849.**

Form must be populated using Adobe Acrobat / Pro 9 or greater standalone program (do not fill out in browser). Hand written forms will not be accepted.

**1. PROPOSED START DATE of STUDY:** December 2016

**PROPOSED REVIEW CATEGORY (Check one):** ☐ FULL BOARD ☑ EXPEDITED

**SUBMISSION STATUS (Check one):** ☑ NEW ☐ REVISIONS (to address IRB Review Comments)

**2. PROJECT TITLE:** An Examination of Microsoft Certifications and Employability Skills Sought by Top Georgia Employers

| 3. Melissa Claiborne | Doctoral Student | Curriculum and Teaching | mjc0004@tigermail.auburn.edu |
|---|---|---|---|
| PRINCIPAL INVESTIGATOR | TITLE | DEPT | AU E-MAIL |
| 5390 Yeager Rd., Douglasville, GA 31035 | 404-402-0921 | mclaibor@gmail.com | |
| MAILING ADDRESS | PHONE | ALTERNATE E-MAIL | |

**4. FUNDING SUPPORT:** ☑ N/A ☐ Internal ☐ External Agency: _____ ☐ Pending ☐ Received

**For federal funding, list agency and grant number (if available).** _____

**5a. List any contractors, sub-contractors, other entities associated with this project:**

N/A

**b. List any other IRBs associated with this project (including Reviewed, Deferred, Determination, etc.):**

N/A

**PROTOCOL PACKET CHECKLIST**

**All protocols must include the following items:**

- ☑ **Research Protocol Review Form** (All signatures included and all sections completed)
  (Examples of appended documents are found on the OHSR website: http://www.auburn.edu/research/vpr/ohs/sample.htm)
- ☑ **CITI Training Certificates** for all Key Personnel.
- ☑ **Consent Form or Information Letter** and any Releases (audio, video or photo) that the participant will sign.
- ☑ **Appendix A**, "Reference List"
- ☐ **Appendix B** if e-mails, flyers, advertisements, generalized announcements or scripts, etc., are used to recruit participants.
- ☑ **Appendix C** if data collection sheets, surveys, tests, other recording instruments, interview scripts, etc. will be used for data collection. Be sure to attach them in the order in which they are listed in # 13c.
- ☐ **Appendix D** if you will be using a debriefing form or include emergency plans/procedures and medical referral lists (A referral list may be attached to the consent document).
- ☐ **Appendix E** if research is being conducted at sites other than Auburn University or in cooperation with other entities. A **permission letter** from the site / program director must be included indicating their cooperation or involvement in the project. NOTE: If the proposed research is a multi-site project, involving investigators or participants at other academic institutions, hospitals or private research organizations, a letter of **IRB approval** from each entity is required prior to initiating the project.
- ☐ **Appendix F** - Written evidence of acceptance by the host country if research is conducted outside the United States.

**FOR ORC OFFICE USE ONLY**

DATE RECEIVED IN ORC: _____ by _____ PROTOCOL #
DATE OF IR
DATE OF IR
COMMENTS

Add this approval information in sentence form to your electronic information letter!

The Auburn University Institutional Review Board has approved this Document for use from
01/02/2017 to 01/01/2018
Protocol # 16-436 EP 1701

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Action Items

*Use IRBsubmit@auburn.edu for protocol-related submissions and IRBadmin@auburn.edu for questions and information.*
*The IRB only accepts forms posted at https://cws.auburn.edu/vpr/compliance/humansubjects/?Forms and submitted electronically.*

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Auburn University and Ocean University of China creating Joint Center for Aquaculture and Environmental Sciences

Dear Melissa,

Your protocol entitled "An Examination of Microsoft Certifications and Employability Skills Sought by Top Georgia Employers" has received approval as "Expedited" under federal regulation 45 CFR 46. Attached is a copy of your approved protocol.

Official notice:
This e-mail serves as official notice that your protocol has been approved. A formal approval letter will not be sent unless you notify us that you need one. By accepting this approval, you also accept your responsibilities associated with this approval. Details of your responsibilities are attached. Please print and retain.

Electronic Information Letter:
**Please add the following IRB approval information to your information letter:**
"The Auburn University Institutional Review Board has approved this document for use from **January 02, 2017 to January 01, 2018**. Protocol **#16-436 EP 1701**"

You must use that updated document to consent participants. *Please forward the actual electronic letter with a live link so that we may print a final copy for our files.*

-
Expiration:
Your protocol will expire on **January 01, 2018**. About three weeks before that time you will need to submit a final report or renewal request.

When you have completed all research activities, have no plans to collect additional data and have destroyed all identifiable information as approved by the IRB, please submit a final report.

If you have any questions, please let us know.
Best wishes for success with your research!

*Selena Hathcock*

Selena Hathcock
Office of Research Compliance
115 Ramsay Hall
Auburn University, AL 36849
334-844-5966

AUBURN UNIVERSITY