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Investigating employability: A study to ascertain whether attaining stackable credentials increases opportunity for employment for career technical graduates

By

Amy Green Whittington

A Dissertation
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
in Community College Leadership
in the College of Education

Mississippi State, Mississippi

May 2017

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Investigating employability: A study to ascertain whether attaining stackable credentials increases opportunity for employment for career technical graduates

By

Amy Green Whittington

Approved:

_____

Arthur D. Stumpf
(Major Professor)

_____

Linda Coats
(Committee Member)

_____

Stephanie B. King
(Committee Member)

_____

William M. Wiseman
(Committee Member)

_____

James E. Davis
(Committee Member/Graduate Coordinator)

_____

Richard L. Blackbourn
Dean
College of Education

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Name: Amy Green Whittington

Date of Degree: May 5, 2017

Institution: Mississippi State University

Major Field: Community College Leadership

Committee Chair: Arthur D. Stumpf

Title of Study: Investigating employability: A study to ascertain whether attaining stackable credentials increases opportunity for employment for career technical graduates

Pages in Study 69

Candidate for Degree of Doctor of Philosophy

Career technical education plays an important part in the mission of community colleges – providing educational opportunities needed by members of their communities. Career technical programs prepare students for entry into the workforce. Accountability standards for career technical programs, from local, state, and federal bodies, monitor placement of career technical graduates in jobs related to their field of study. To help these students become more competitive in the job market, curricula are being aligned with national certifications to help students graduate from career technical programs with stackable credentials. Stackable credentials refer to the idea of "stacking" degrees, certifications, and credentials along the way to an education in a particular field of study. Some of these credentials can be costly, though, requiring career technical program administrators to question whether implementing this stackable credential structure is truly beneficial for the students.

The purpose of this study was to examine survey results of industry representatives who serve on advisory committees for career technical programs at a rural community college to ascertain whether earning stackable credentials in career technical

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programs at a rural community college does increase opportunities for employment. Data were obtained from an Industry Input Survey conducted at a rural community college. Descriptive statistics were used for data analysis.

Results of this study indicate that while entry-level employment requirements focus more on a high-school diploma or high school equivalency exam and an earned Associate of Applied Science degree, the majority of participants did indicate that holding a national certification would give a potential employee hiring preferences. Results of the analysis are presented in narrative and table form. Conclusions and recommendations for future research follow discussion of analysis.

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DEDICATION

This dissertation is the result of many years of support and love from a great family support system. First, to my Nanny and Pappaw for all of their encouragement, every bit of sacrifice, and all of the wisdom they shared with me along the way. They formed the foundation of who I am and who I want to be. To my in-laws who have helped out so much the past few years and made this a real possibility, I could never repay you for your love and kindness and how you accepted me into your family as your own. Most importantly, to my wonderful husband and children. You believed in me when I thought I couldn't do anymore. Your love and support mean the world to me, and I strive every day to be the wife and mother you deserve.

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TABLE OF CONTENTS

www.manaraa.com

www.manaraa.com

LIST OF TABLES

www.manaraa.com

LIST OF FIGURES

www.manaraa.com

CHAPTER I

INTRODUCTION

Background

From its conception, a major function of the community college has been a focus on transfer. Students could complete the first two years of an undergraduate degree at the community college and then transfer to a university to finish a 4-year degree (Kane & Rouse, 1999). However, the mission of the community college has evolved as communities and workforce needs change. Career and technical education is now just as much a part of the community college mission as transfer (Kane & Rouse, 1999). Community colleges can help provide career pathways for students looking to gain employment or adult workers looking to advance. With options for a 1- or 2-year degree and also opportunities for non-credit continuing education, community colleges can provide training for differing needs. This training can also be customized to certain industry needs in their respective communities.

In career and technical education, there is a great emphasis on job placement. Accountability for job placement comes from many organizations – one being the Carl D. Perkins Career and Technical Education Act (Perkins Act, 2002). Student placement in a job is one of five core indicators of performance under the Perkins Act. The most recent version of this act – Perkins IV – was signed into law on August 12, 2006. This Perkins Act makes federal funds available for vocational-technical programs (revised to be called

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career technical programs in the 2006 reauthorization) to use toward the purchase of equipment, staff development, services for special populations, expansion of programs, etc. This act defines career and technical education as

> organized educational programs offering sequences of courses directly related to preparing individuals for paid or unpaid employment in current or emerging occupations requiring other than a baccalaureate or advanced degree. Programs include competency-based applied learning which contributes to an individual's academic knowledge, higher-order reasoning, problem solving skills, and the occupational-specific skills necessary for economic independence as a productive and contributing member of society (U.S. Department of Education, 2002, para. 1).

Funding for this act has exceeded $1.1 billion during the Perkins IV term. As stated by the U.S. Department of Education (2002) "The purpose of the Perkins Act is to prepare a workforce with the academic and vocational skills needed to compete successfully in a world market" (para. 7).

One of the accountability standards used to assess programs receiving Perkins funds is job placement. Placement is tracked according to whether or not graduates gained employment in their field of study, whether they gained employment at all, or whether they decided to continue their education. The most commonly preferred situation is for a graduate to gain employment in their field of study.

An analysis of the Shifting Gears Initiative in the Great Lakes region of the United States shows that career pathways which provide a sequential curriculum leading to industry-valued credentials can help low-skilled, low-income workers attain

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employment (Bragg, Dresser, & Smith, 2012). These credentials, also referred to as certifications, are usually awarded by a nationally recognized professional body or accrediting agency (Nemec & Legere, 2008). Attainment of a nationally-recognized certification indicates that the holder has met or exceeded the standard of knowledge set by that respective body (Nemec & Legere, 2008).

In the state of Mississippi, one of the community colleges' responses to the need for more highly-skilled workers has been to redefine the way career and technical program curricula are built, by adding an emphasis on credential and certification attainment opportunities. This creates the opportunity for students to earn stackable credentials. According to a policy brief published by ACT (2011), the United States Department of Labor defines stackable credentials as, "part of a sequence of credentials that can be accumulated over time and move an individual along a career pathway or up a career ladder" (p. 8) and encourage workforce agencies to offer training in "smaller units each of which is stackable and linked to other modules that culminate in an industry-recognized credential" (p. 7-8). Industry representatives are also involved in the curricula development process to gain a better understanding of the skills necessary to attain open positions (Mississippi Community College Board [MCCB], 2014). These stackable credentials or certifications are designed to help students gain employment, with their chances for better employment increasing with each credential attained.

Statement of the Problem

The problem of this study was to ascertain whether increased opportunities for employment are experienced by students who obtain stackable credentials in career technical programs in a rural community college in Mississippi. As career technical

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program curricula are developed and revised, they are structured in a format with opportunities to earn stackable credentials. Rebuilding curricula can be time consuming for both faculty and industry representatives involved. Certifications included in some curricula can cost as much as $1000. Another concern from community college administration is retention of students through the credentials all the way to completion of the associate of applied science degree. Students may be apt to leave a program at certain exit points after obtaining just enough credentials to gain employment. If employment is a standard of accountability for career technical programs, though, and attainment of stackable credentials does lead to increased employment opportunity, then the purpose of stackable credentials would be fulfilled. While the college itself cannot ensure employment, it can be responsible for preparing the student to the best of its ability to seize employment opportunities. Determining which credentials and certifications industry representatives see as necessary to gain entry-level employment can help career technical programs focus their efforts on preparing students to be employed.

Purpose of the Study

The purpose of this study was to analyze survey results of industry representatives who serve on advisory committees for career technical programs at a rural community college using the Industry Input Survey developed by the MCCB to ascertain whether earning stackable credentials in career technical programs at a rural community college does increase opportunities for employment. This survey was conducted at a rural community college to assess goals set by the Career Technical department in revising curricula with industry input. It included questions pertaining to requirements for entry-

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level positions and certifications considered significant in the hiring process. Data collected were analyzed to ascertain whether utilizing the stackable credentials route does indeed help better position a student for attaining employment.

Research Questions

The research questions used to address the purpose of the study were as follows:

- What education requirements do industry members have for entry-level employees?
- Are national or state certifications required to work in the industry fields surveyed?
- Does a potential employee receive hiring preferences if he/she has a national certification?

Delimitations

Permission was requested from the college to use results of a survey which had been disseminated to a group of industry representatives who serve on advisory committees for career technical programs at a rural community college for institutional research purposes. Key demographics of the sample included the following:

- Program of study represented
- Industry represented

To be included in the survey, a participant had to be an industry representative serving on an advisory committee for a career technical program at a rural community college.

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Limitations

Results of this study could be generalizable to associate degree programs which add stackable credential options at a rural community college in the future. Results could also be generalized to similar rural community colleges with stackable credential options, both inside and outside of the state of Mississippi. If results were not found to be generalizable, the reason could be differing industry needs and requirements by program of study or even differing industry needs and requirements by geographic location.

Significance of the Study

Today's workforce demands a different type of worker than it has demanded before. The skill level required for an entry-level position is rising. Many community college graduates are competing with individuals who have more experience and higher degrees in the workforce for limited jobs. In an effort to make graduates more employable and satisfy needs of industry, some program curricula are moving to a stackable credentials format with nationally recognized credentials built into the curricula at different points of exit. This change could produce positive results for graduates of these programs, who may be able to gain employment in positions otherwise not attainable. They may also be able to enter the workforce faster than they once could, which would produce favorable results for community colleges when tracking job placement of students.

Community colleges have a large mission to accomplish. With their open-door access, they accept many students who may not be college-ready and/or may not have any idea of their intended career path. Career technical programs are also held accountable for placement of students in a job upon completion of a degree, preferably a

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job in a field related to their program of study. Admission and accountability are the ends of the spectrum upon which career technical programs at community colleges must operate. The idea of stackable credentials and implementation of this structure in program curricula is fairly new to the Mississippi community college system. Research done in this study will be beneficial for community colleges to determine whether this curricula structure actually produces returns in the workforce for students in the form of employment opportunities or not.

Definitions of Terms

1. Advisory committees - consist of industry representatives with knowledge in their respective fields who advise instructors and administrators of career technical programs on changes in industry which may affect career technical programs directly. Career technical programs are encouraged to have an active advisory committee. Advisory committee members also participate in curricula development and revisions for career technical programs.
2. Career technical education - also referred to as career and technical education, is defined by the Carl D. Perkins Act of 2006 as, "organized educational programs offering sequences of courses directly related to preparing individuals for paid or unpaid employment in current or emerging occupations requiring other than a baccalaureate or advanced degree. Programs include competency-based applied learning which contributes to an individual's academic knowledge, higher-order reasoning, problem solving skills, and the occupational-specific skills necessary for economic independence as a productive and contributing member of society" (U.S. Department of Education, 2002, para. 1). Career technical education has

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been referred to as vocational training as well, often resulting in a terminal degree. While the transfer function of a community college is accomplished through academic coursework offerings, career technical programs provide vocational training for specific skills, often resulting in a terminal Associate of Applied Science degree.

3. Carl D. Perkins Act of 2006 - makes federal funds available for vocational-technical programs (revised to be called career technical programs in the 2006 reauthorization) to use toward the purchase of equipment, staff development, services for special populations, expansion of programs, etc. The most recent version of this act – Perkins IV – was signed into law on August 12, 2006. As stated by the U.S. Department of Education (2002) "The purpose of the Perkins Act is to prepare a workforce with the academic and vocational skills needed to compete successfully in a world market" (para. 7).
4. Credentials - also referred to as certifications, can be defined as recognition awarded by a professional body or accrediting agency which is nationally recognized (Nemec & Legere, 2008). Attainment of a nationally-recognized certification indicates that the holder has met or exceeded the standard of knowledge set by that respective body (Nemec & Legere, 2008). These credentials are often times just as important as or more important than the completion of a college degree for hiring purposes in some industries.
5. Mississippi Community College Board (MCCB) - serves as the coordinating board for the community colleges in Mississippi. MCCB houses an Office of Career and Technical Education and an Office of Curriculum and Instruction.

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These divisions work with community colleges to help implement new career technical programs, coordinate curriculum development, and assess arising needs for training.

6. Stackable credentials - refers to a student's ability to earn multiple credentials along the way to completion of an associate degree. Students may "stack" these credentials as they follow a program of study outlined for their particular field of interest. For example, a student may be able to earn a 30-hour certificate after one year of coursework while also being eligible to sit for some type of national credential exam. This could happen again at the 45-hour and 60-hour milestones. According to a policy brief published by ACT (2011), the United States Department of Labor defines stackable credentials as, "part of a sequence of credentials that can be accumulated over time and move an individual along a career pathway or up a career ladder" (p. 8).

Summary

This chapter gave an introduction to the study, including background information related to the topic of the study, the statement of the problem, the purpose of the study, and the significance of the study. Research questions were outlined, and limitations and delimitations were stated. The chapter concluded with a listing of terms and their definitions to help the reader have a clearer understanding of unfamiliar terms used in the study.

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CHAPTER II

LITERATURE REVIEW

Career Technical Education

Providing career technical education is one of the many functions of a community college. The call for providing this type of occupational education at the community college level began as early as 1900 when William Rainey Harper suggested that students who were hesitant to enter four years of study might be willing to try a 2-year program (Cohen & Brawer, 2008). By 1937, 35% of offerings at public junior colleges were terminal; moreover, by 1939, over 41,000 students were enrolled in terminal curricula in both public and private institutions across America (Cohen & Brawer, 2008). Real growth for these programs, though, came in the 1960s when enrollment for career technical programs began to grow at a faster rate than liberal arts enrollment. Cohen and Brawer (2008) attribute this growth to several factors, including

> …the legacy left by early leaders of the junior college movement and the importunities, goading, and sometimes barbs of later leaders; the Vocational Education Act of 1963 and later amendments; the increase in the size of public 2-year colleges; the increase in part-time, women, disadvantaged, disabled, and older students; the community colleges' absorption of adult education programs and postsecondary occupational programs formerly operated by the secondary schools; and the changing shape of the labor market (p. 253).

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Terminology used for career technical education has shifted over the years from terminal to vocational to career technical. The Carl D. Perkins Act of 2006 defines career and technical education as

> …organized educational programs offering sequences of courses directly related to preparing individuals for paid or unpaid employment in current or emerging occupations requiring other than a baccalaureate or advanced degree. Programs include competency-based applied learning which contributes to an individual's academic knowledge, higher-order reasoning, problem solving skills, and the occupational-specific skills necessary for economic independence as a productive and contributing member of society (U.S. Department of Education, 2002, para. 1).

Over the past two centuries, the calling from William Harper Rainey has expanded to include a wide variety of opportunities for education in many career fields.

The need for a qualified workforce has become a global issue. More and more, industries are looking to career technical education programs to help train and retrain workers in an attempt to help unemployed and underemployed individuals become skilled enough to fill open positions (Hyslop, 2011). In a brief issued by the Association for Career and Technical Education, Hyslop (2011) states that, "it is projected that by 2018, 63% of all jobs will require some form of postsecondary education – a total that will significantly outnumber the population pursuing and completing these forms of preparation" (p. 2). A study done in the United Kingdom focused on the potentially significant increased need for skilled workers and the proportion of qualified individuals to fill this need (Bosworth, Jones, & Wilson, 2008). This study indicated that

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globalization has led to an increased need for more highly-skilled workers. The data presented indicated they would have an adequately-skilled population to meet their future needs, mostly due to the retirement of older, less-skilled workers and the hiring of younger, more highly-skilled workers (Bosworth et al., 2008). This study was based primarily on projections, though, which are subject to change. Here in the United States, the issue of having an adequately-skilled workforce is one of national importance. In a report by Martino (2011) on manufacturing industry needs, she quotes President Barack Obama saying that "private sector industry, universities and the government" (p. 36) need to come together to address needs of the manufacturing industry to help bring that industry back into worldwide competition. President Obama also helped launch the Advanced Manufacturing Partnership (AMP) during the summer of 2011 to address the manufacturing industry and "its connection to a healthy economy" (Martino, 2011, p. 36). Through the AMP, $500 million were invested toward improvement of manufacturing processes to help this industry sector become more competitive in the global market (Martino, 2011).

Stackable Credentials

As businesses and community colleges look for ways to address the growing need for more highly-skilled workers, stackable credentials is one option. The Association for Career and Technical Education (2013) states that the term *credential*, "encompasses educational certificates, degrees, certifications and government-issued licenses" (para. 1). The Association also identifies two criteria which define an industry-recognized credential. They state that a credential is one which:

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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" (Association for Career Technical Education, 2013, para. 7).

The significance of credentials seems to be gaining momentum. According to Moore (2016), stackable credentials are resume builders. Moore (2016) writes about the implementation of stackable credentials into technical programs in Alabama and how this concept has been received. He quotes Wallace State Community College's dean of applied techniques, Jimmy Hodges, as saying "Stackable credentials are multiple entrance and exit points in a person's career pathway. The more credentials a student can get, the more employable they become" (Moore, 2016, para. 4). Data provided through the U.S. Department of Education in June 2015 report that of adults 18 and older, 22% have a work credential (Hudson & Ewert, 2015). Another interesting point made in the same Data Point article was that, "over half of those who hold a work credential (53%) have less than a bachelor's degree" (Hudson & Ewert, 2015, para. 4). Moore's (2016) article shares data from the American Association of Community Colleges showing where, "from 2000 to 2014 the number of certificates awarded by community colleges grew by 150%, compared with a 59% jump in associate degrees and a 47% increase in bachelor's degrees" (para. 7).

de la Torre and Wells (2014) state that stackable credentials are "the way towards subsequent academic advancement" (p. 20) for students pursuing a technical field. This

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study, which focused more on the transfer function of community colleges, did outline the need for increased transfer agreements in vocational programs to allow for possible attainment of degrees higher than an associate degree for technical students. They note the growing interest in stackable credentials by the workforce and see this as an opportunity for institutions of higher learning to add to the "stack" of credentials for a student (de la Torre & Wells, 2014).

A study of a project in Nebraska by Killingsworth and Grosskopf (2013) takes the stackable credentials idea one step further and draws in curricula development. The syNErgy project was one designed to help unemployed or underemployed industry workers gain the skills necessary to become employed in the green energy field (Killingsworth & Grosskopf, 2013). Career pathway models and the idea of stackable credentials were used to address workforce development needs in this area. Curricula were developed to train adult basic education learners, semi-skilled workers, and skilled workers to be employable in the green energy industry (Killingsworth & Grosskopf, 2013).

Industry-recognized credentials are becoming an important piece of the career puzzle for career technical graduates. The attainment of industry-recognized credentials identifies the recipient as one who has mastered skills and knowledge necessary to work in his or her respective field (Goodman, Meyer, & Imperatore, 2014). Goodman et al. (2014) define an industry-recognized credential as one which

> is sought or accepted by employers within the industry or sector as a recognized, preferred or required credential for recruitment, screening, hiring, retention or advancement; and, where appropriate, is endorsed by a nationally recognized

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> trade association or organization representing a significant portion of the industry or sector (p. 15).

Realizing that this initiative to attain stackable credentials is not just a fad, many colleges are beginning to incorporate credentials into curriculum.

Retention to Completion

The question of whether offering additional exit points and stackable credentials will negatively affect retention at community colleges is still to be considered. de la Torre and Wells (2014) see stackable credentials as a ladder on which to climb to greater academic achievement. Conflicting information can be found in other studies. When looking at retention issues in community colleges, some attrition has been attributed to students who have no goal of completing an entire degree (Hirschy, Bremer, & Castellano, 2011). These students are often attending the community college in hopes of refreshing their skills or gaining just enough education or additional credentials to gain advancement in their current position or in a new job. Once this credential is attained, students may leave the institution, possibly never to return and complete a degree (Hirschy et al., 2011).

Retention in career and technical programs can be positively affected in many different ways. Data collected by the U.S. Department of Education relating to persistence showed that, "Among beginning postsecondary students in 2003-04 who initially sought a subbaccalaureate credential, 56% continued to seek or had attained a credential 6 years later (in 2009), compared to 79% of students who initially sought a bachelor's degree" (Roberts, 2016, para. 3). Further research from the National Center for Education Statistics showed that, "the proportion of students who had not earned a

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credential but were still enrolled was higher among subbaccalaureate students than among baccalaureate students (16% versus 12%, respectively)" (Roberts, 2016, para. 5).

Research done to assess psychological factors affecting student retention, though, indicates that students in clearly-defined vocational tracks have an increased educational employment connection, which leads to increased retention at the community college level (Luke, Redekop, & Burgin, 2015). The education employment connection refers to a student's idea that he or she will be able to gain employment in their field of study (Luke et al., 2015). One study of community college graduates shows that about 50% of graduates in career and technical programs become employed in full-time positions, with about 65% of those being employed in closely related fields and 15% in partially related fields (Fichten et. al, 2012). Also, increased self-efficacy can predict intent and actual retention (Luke et al., 2015). Career and technical students are also shown to have an easier time making career choice decisions, possibly due to the fact that they are primarily older and more career driven than academic students (Kelly & Hatcher, 2013). Another favorable characteristic of career and technical students is career adaptability – the ability to manage challenges presented in a changing work environment (Packard, Leach, Ruiz, Nelson, & DiCocco, 2012). No matter the type of student, retention requires both student and institutional involvement. Results of a study of retention in an Associate Degree nursing program show that retention strategies must be "intensive, comprehensive, and mandatory" to be effective (Fontaine, 2014, p. 98).

Credentials as Assessments

The Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV) sets accountability standards for career technical programs. Some of the core indicators

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of performance for post-secondary programs include technical skill attainment and credential, certificate, and degree completion (U.S. Department of Education, 2002). In Mississippi, the most widely used assessment for technical skill attainment in career technical programs in the past has been the Mississippi Career Planning and Assessment System (MS-CPAS; MCCB, 2014). The Mississippi Department of Education (2016) defines the MS-CPAS as, "a Career and Technical Education (CTE) assessment used to provide a fair means of establishing accountability for both the secondary and postsecondary CTE programs" (para. 1). The assessment is developed by a team of program area experts (Mississippi Department of Education, 2016). During each curriculum development or revision session at the postsecondary level, an item development or alignment is held in conjunction with the writing sessions (Mississippi Community College Board, 2014).

In an attempt to better align with industry needs, there is now a push to move from using the MS-CPAS to national credentials for technical skill attainment assessment. The MCCB (2014) states in its Office of Curriculum and Instruction policies and procedures that, "College administrators and instructors will be asked to come to a consensus on a common national credential or certification that can be used as the technical skill attainment for performance reporting" (p. 18). Support at both the state and local level to align to industry standards has led to increased use of national certifications as the preferred skill attainment indicator.

Challenges and Advantages

Incorporating the stackable credentials concept into career technical programs comes with both challenges and advantages. Goodman et al. (2014) point out many

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challenges that come along with utilizing the stackable credentials model. First, choosing the proper credential can be difficult. Credentials chosen should be valuable to those seeking to use them toward attaining a job. Which credentials are of true value is a challenging determination because "fewer than 10 % of certifications have received third-party accreditation" (Goodman et al., 2014, p. 19). Without an outside body to validate value, colleges must set their own rules for determining which credentials are valid and valuable. With most credentials coming from a third-party, collecting data on results can be challenging (Goodman et al., 2014). Institutions also lack control over when and where testing is administered for the certification, which makes it difficult for institutions to use "certification exam data for instructional improvement and makes reporting student certification attainment difficult" (Goodman et al., 2014, p. 19). One of the biggest challenges with credentials is the cost. Some certifications can be very expensive. This presents fiscal challenges to both the student and the educational institution. A determination must be made on who is going to be responsible for paying fees associated with the certification – the student or the educational institution (Goodman et al., 2014). To address this challenge, a combination of sources can be considered, such as sharing the costs among students, employers, educational institutions, or private contributors (Goodman et al., 2014).

There are also many advantages to utilizing national credentials. First, as stated by Foster and Pritz (2006), "Various types of credentials help make individuals' knowledge and skills more marketable" (p. 14). When comparing having a national credential to a degree alone, Foster and Pritz (2006) note that "Rather than depending on time spent or credits gained, most certificates signify achievement of a set of very

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specific competencies in relation to benchmarks or standards set by experts in that field" (p. 15). Another benefit is that integrating credentials into program curriculum can "enhance the connection between community college programming and the credentials demanded by business" (Goodman et al., 2014, p. 18). Colleges can then more easily transcribe credit for credentials a student may hold prior to entry into a program as well (Goodman et al., 2014). Ensuring the "portability and transferability of credits and skills attained" is a focus of the ACTE in looking at stackable credentials as well (Hyslop, 2008, p. 41). Perhaps one of the major advantages of holding nationally recognized credentials, though, is that, "Often that means that those who hold certificates will be paid higher starting salaries, and it may reduce the time spent looking for a job" (Foster & Pritz, 2006, p. 15).

Summary

Today's workforce is demanding a different type of worker than it has before. The skills required for an entry-level position are becoming more rigorous. As the community colleges respond to this need in their communities, they must rely on a variety of sources to build appropriate curricula. Additional exit points which allow for attainment of credentials may be attractive to displaced workers or people trying to modify their skills in order to achieve advancement in different positions. While this may increase enrollment at some institutions, it may not lead directly to an increased number of graduates earning a job in a related field. Community colleges must work closely with industry representatives in their communities to ensure curricula are built appropriately to arm students with the skills and credentials necessary to fill vacant positions.

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CHAPTER III

METHOD

The purpose of this study was to analyze the results of a survey of industry representatives who serve on advisory committees for career technical programs at a rural community college to ascertain whether earning stackable credentials in career technical programs at a rural community college does increase opportunities for employment. The survey was conducted at a rural community college using the Industry Input Survey developed by the MCCB for institutional research purposes. This chapter will address the research design, research questions, participants, instrumentation, data collection, and data analysis methods used to assess findings of this study.

Research Design

Preexisting data were used for this study. Data to be analyzed were collected using a survey research approach. Data analysis was done to appropriately answer the stated research questions. For survey research, Fraenkel, Wallen, and Hyun (2012) identify two main types of surveys – cross-sectional and longitudinal surveys. The survey used for this study was a cross-sectional survey – one in which information is gathered from a predetermined population at a particular point in time. This survey was administered to industry representatives who serve on advisory committees for career technical programs at a rural community college for institutional research purposes. The instrument questions adequately addressed research questions stated in this study.

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Because of increased use of technology and rapid result collection, the survey was web-based, utilizing Survey Monkey. Emails were sent to participants to request their participation and remind them periodically if they had not completed the survey. Both closed-ended and open-ended questions were used to gather responses from participants. Permission was granted by the college to access survey results before data were analyzed to answer research questions. Analysis included descriptive statistics, such as total size of sample and percentage of responses, for each item.

Research Questions

The research questions used to address the purpose of the study were as follows:

- What education requirements do industry members have for entry-level employees?
- Are national or state certifications required to work in the industry fields surveyed?
- Does a potential employee receive hiring preferences if he/she has a national certification?

Participants

This study was conducted at a rural community college in Mississippi using preexisting data gathered at Holmes Community College using the MCCB Industry Input Survey instrument. The Industry Input Survey was disseminated to industry representatives who serve on advisory committees of career technical programs at a rural community college. The survey was made available electronically via Survey Monkey. Key demographics of the sample included the following:

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- Program of study represented
- Industry represented

To be included in the survey, a participant had to be an industry representative serving on an advisory committee for a career technical program at a rural community college.

Instrumentation

The preexisting data were gathered via a survey at a rural community college for institutional research purposes. The instrument used to collect data was the Industry Input Survey utilized by the MCCB (2016). Permission was obtained to use their survey. The survey consisted of 11 items, which address demographic information, program curricula, and hiring practices and challenges. Questions included in the survey to address research questions were closed-ended and open-ended questions.

While no statistics have been gathered by the MCCB to prove validity and reliability, the history of use and results of curricula revision processes have been shared to substantiate its use. The Industry Input Survey has been used by the MCCB Office of Curriculum and Instruction for the past few years as a beginning step in its curriculum development and revision process. Questions were developed by Office of Curriculum and Instruction staff who have years of experience in industry and education in order to guide the curriculum development and revision process. The questions are modeled after those used for industry visits made during the curriculum development and revision process. According to Dr. Angela Bryan, Director of Curriculum and Instruction at the MCCB, the questions were drafted with the intent of gaining adequate information from industry on what skills are necessary in the workforce (personal communication, August 30, 2016). An overview of the curriculum development cycle is provided to clarify how

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the instrument is used. The first step is to gain recognition of industry needs and expectations. This step is when the Industry Input survey is conducted. This instrument is used by MCCB in this step to determine entry and exit points for students in the workforce and relevant industry certifications for career technical programs in order to align curricula to meet industry needs. After surveys are collected, industry site visits are conducted to verify responses received in the Industry Input Survey and to conduct follow-up interviews with industry representatives. Industry representatives are also present at the actual curriculum development meetings to join with instructors in developing curricula. Once the curricula have been developed and validated by industry, instructors, and appropriate MCCB personnel, the MCCB does an evaluation to determine whether implementation was successful for both instructors and industry in order to make any necessary adjustments (MCCB, 2014).

Data Collection

Permission was granted from Holmes Community College to use preexisting data which had been collected by the community college using the MCCB Industry Input Survey. The survey used to collect data was disseminated electronically to participants via Survey Monkey. Survey Monkey is an online survey software used to distribute questionnaires via the web and collect responses. Surveys were sent to advisory committee members' email addresses. The email included a link to the survey, which could be completed and responses collected in real time. Because participation in surveys is often low, surveys were sent to all industry representatives serving on advisory committees of all career technical programs at a rural community college.

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Data Analysis

Descriptive statistics were used to analyze survey results. Percentages, sums, pie charts, and bar graphs would be examples of descriptive statistics used to summarize data. Results are conveyed in narrative and table format.

Summary

Information presented in this chapter described methods used to conduct this study. Research design and research questions were presented, along with a description of participants and plans for collection of data. The instrument used for data collection was also described.

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CHAPTER IV

RESULTS OF THE STUDY

The purpose of this study was to analyze data collected from the results of a survey of industry representatives who serve on advisory committees for career technical programs at a rural community college to ascertain whether earning stackable credentials in career technical programs at a rural community college does increase opportunities for employment. This chapter presents analysis of data obtained from results of that survey. Permission was granted by and survey data obtained from the Institutional Research department at a rural community college. There were 61 individuals who serve on advisory committees for career technical programs at a rural community college who responded to this survey. Survey responses are summarized in each section as necessary. Descriptive statistics were used to summarize results and address research questions presented in this study. All survey responses are included in this chapter as well.

Research Question 1: What education requirements do industry members have for entry-level employees?

Answer choices for this question included the following:

- High school diploma or high school equivalency exam
- On the job training
- 1-year certificate
- 2-year certificate

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- Associate of Applied Science Degree
- Other

A summary of results is presented below in Figure 1.

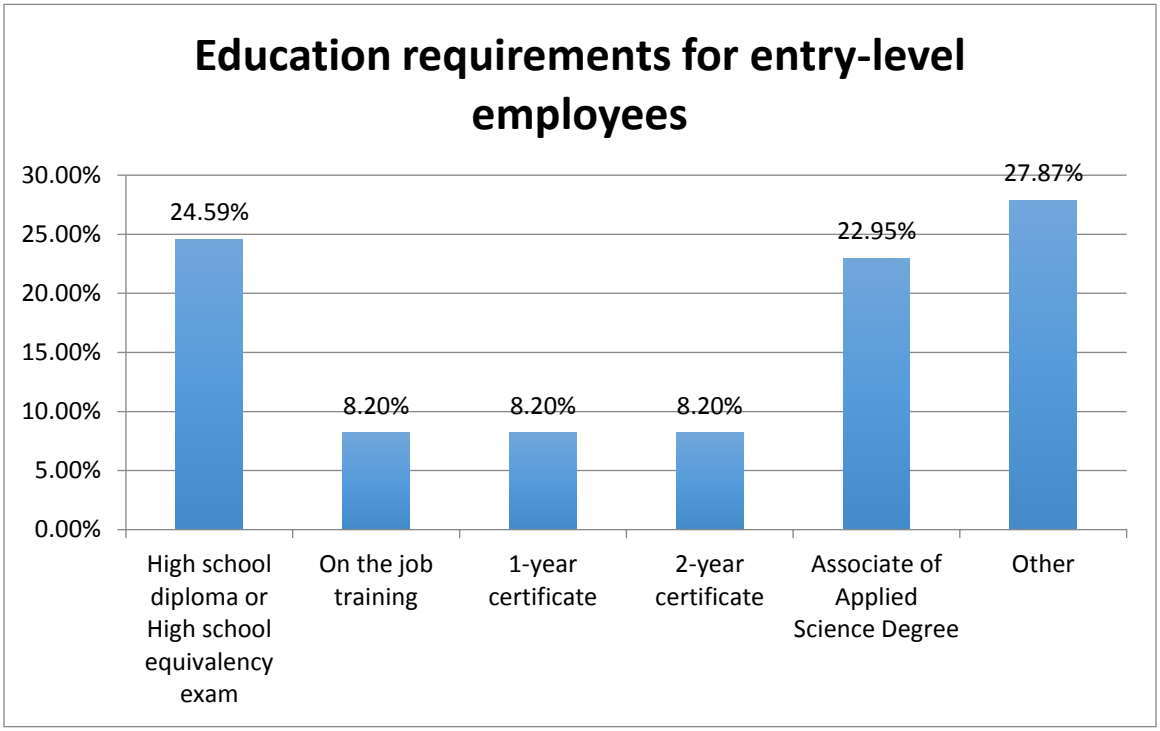

Figure 1. Education requirements for entry level employees.

Of the educational levels provided as options, 24.59% reported that a high school diploma or high school equivalency exam is required for entry-level employment. Over 39% of respondents indicated a level of education greater than a high school diploma or high school equivalency exam is required for entry-level employees. Approximately 23% indicated that their industry requires an Associate of Applied Science Degree. A 1-year certificate was indicated to be a minimum requirement for entry-level employment

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by 5 respondents, or 8.20%. Five respondents also chose the 2-year certificate as a requirement for entry-level positions. On the job training was chosen as the requirement for 5 respondents, or 8.20%, as well. Responses for this research questions are summarized in Table 1.

Table 1

Numeric Responses for Education Requirements for Entry Level Employees

Answer choices	Responses
High school diploma or High school equivalency exam	15
On the job training	5
1-year certificate	5
2-year certificate	5
Associate of Applied Science Degree	14
Other	17
Total	61

Of the 17 respondents who indicated other requirements for entry-level positions, 4 respondents indicated that some type of education is preferred. Four others indicated that experience is the factor necessary for entry-level employment. Two indicated that a Bachelor's degree is required, and four indicated that some type of licensure is required to obtain an entry-level position. Table 2 summarizes responses from those who chose "Other" as an answer.

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Table 2

Responses From Those Who Chose "Other"

Other responses	Total
Some education preferred	4
Experience preferred	4
Licensure required	4
N/A	3
Bachelor's Degree	2
Total	17

Research Question 2: Are national or state certifications required to work in the industry fields surveyed?

Of those who responded, 20, or 32.78%, listed some type of national or state certification as one required to work in their respective industry field. The breakdown of these 20 required certifications is shown in Figure 2.

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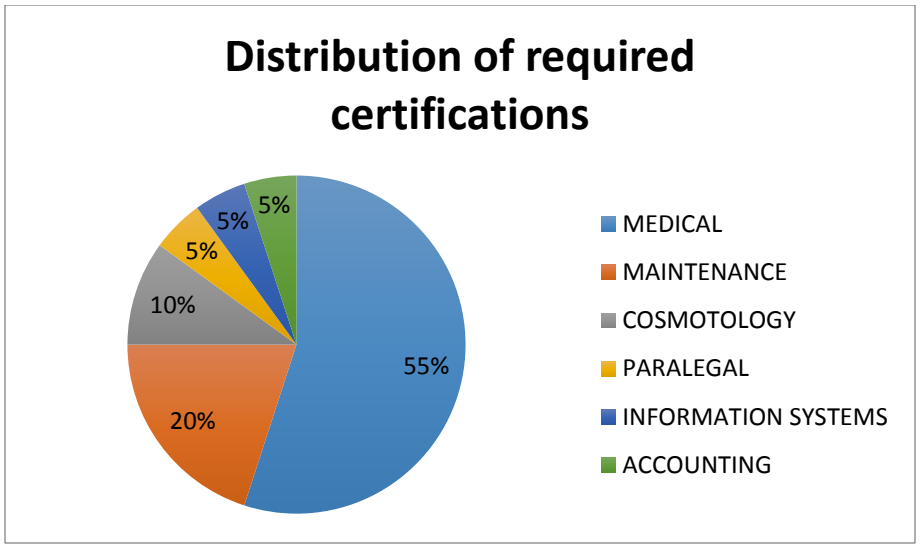

Figure 2. Distribution of required certifications.

Of these 20, 11 of the certifications listed were related to the medical field. This accounted for 55% of the respondents who noted that a certification was required. Four of the certifications listed were related to the maintenance industry, accounting for 20% of the certifications listed. Two, or 10%, of the certifications listed were related to the cosmetology industry. One was related to the paralegal industry, one was related to the information systems industry, and one was related to the accounting industry, accounting for five percent each. Results are presented in Table 3.

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Table 3

Responses Listed for Certifications Required to Work in the Industry Field

INDUSTRY	Certification listed	Total responses
MEDICAL	LPN or RN	6
	EMS certifications	3
	CPC, CCS, LPN, RN	1
	CPC, CCA, CCS	1
MAINTENANCE	CRC, CMRT, CMRP	1
	EPA	3
COSMETOLOGY	Cosmetology	2
PARALEGAL	Certified Legal Assistant (NALA)	1
INFORMATION SYSTEMS	CST	1
ACCOUNTING	CPA	1

Research Question 3: Does a potential employee receive hiring preferences if he/she has a national certification?

Of the 61 respondents, 42 indicated that a potential employee does receive hiring preference if he/she has a national certification. This represents 68.85% of the respondents. Only 19, or 31.15%, indicated that having a national certification would not give a potential employee hiring preference. Results are summarized in Figure 3 and Table 4.

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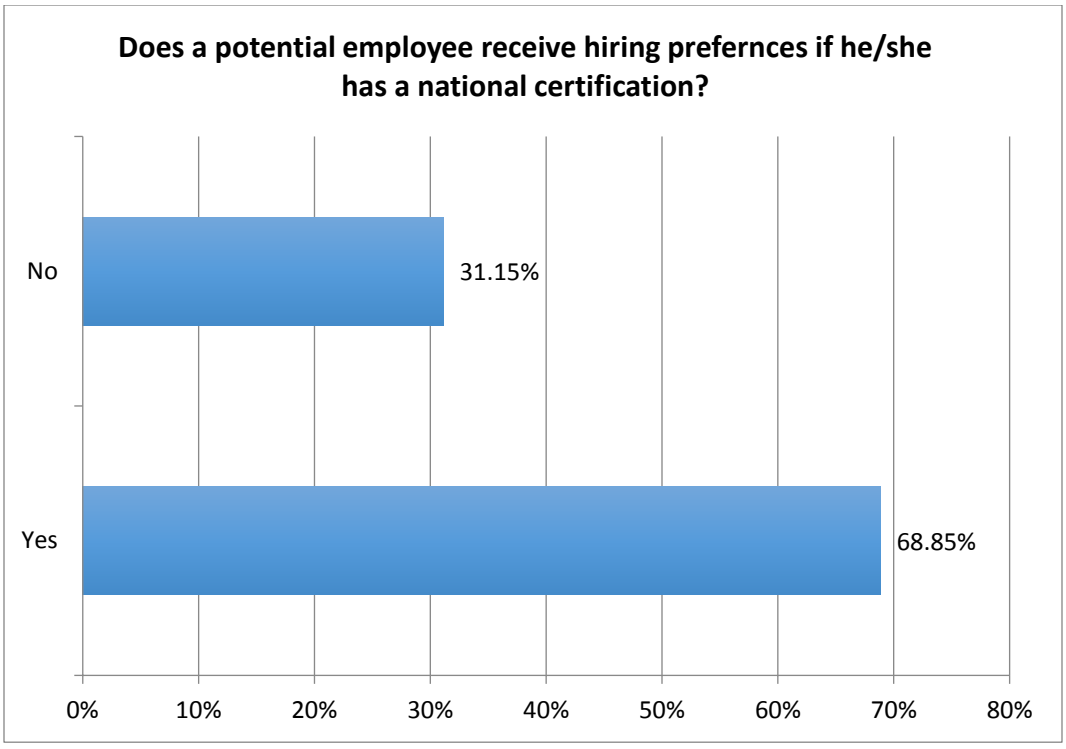

Figure 3. Hiring preferences for a national certification.

Table 4

Number Who Indicated That Potentials Employees Receive Hiring Preferences for Having a National Certification

	Yes	No	Total
Does a potential employee receive hiring preferences if he/she has a national certification?	42	19	61

Survey Results

Data analyzed for this study were obtained from the MCCB Industry Input Survey conducted at a rural community college for institutional research purposes. Results of the

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entire survey are included in Figure 4 below.

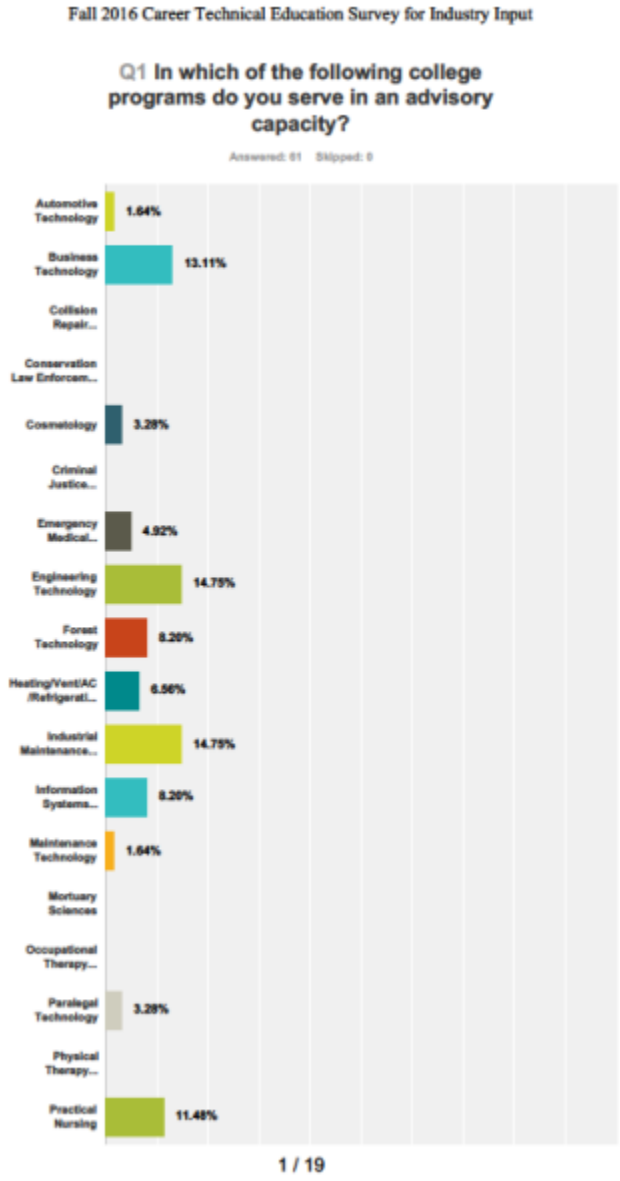

Figure 4. Industry Input Survey.

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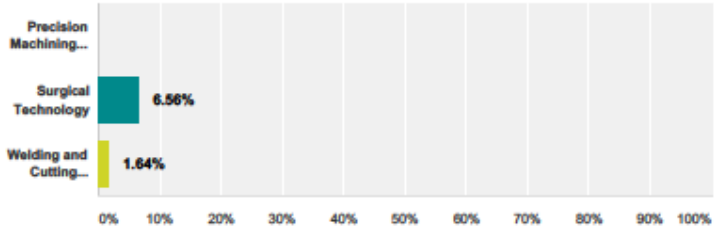
Fall 2016 Career Technical Education Survey for Industry Input



Answer Choices	Responses	
Automotive Technology	1.64%	1
Business Technology	13.11%	8
Collision Repair Technology	0.00%	0
Conservation Law Enforcement Technology	0.00%	0
Cosmetology	3.28%	2
Criminal Justice Administration Technology	0.00%	0
Emergency Medical Sciences	4.92%	3
Engineering Technology	14.75%	9
Forest Technology	8.20%	5
Heating/Vent/AC/Refrigeration Technology	6.56%	4
Industrial Maintenance Technology	14.75%	9
Information Systems Technology	8.20%	5
Maintenance Technology	1.64%	1
Mortuary Sciences	0.00%	0
Occupational Therapy Assistant Technology	0.00%	0
Paralegal Technology	3.28%	2
Physical Therapy Assistant	0.00%	0
Practical Nursing	11.48%	7
Precision Machining Technology	0.00%	0
Surgical Technology	6.56%	4
Welding and Cutting Technology	1.64%	1
Total		61

2 / 19

Figure 4 (Continued)

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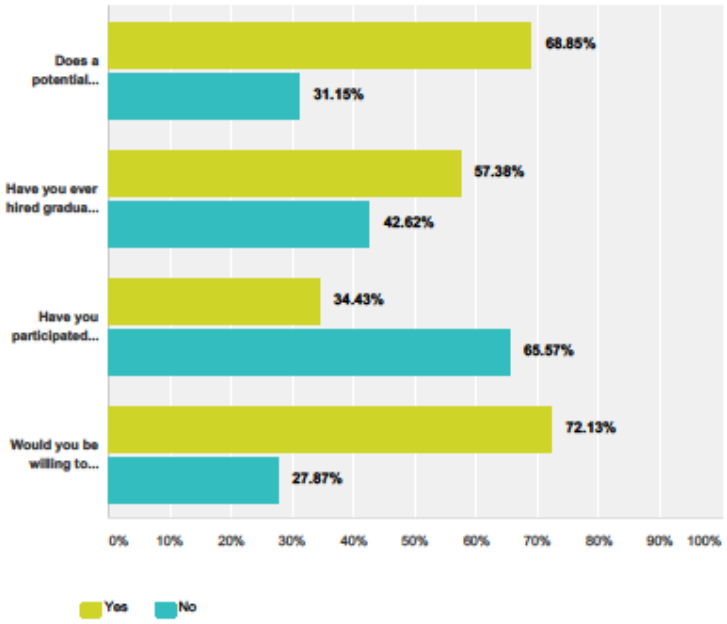
Q2 Please respond to the following questions.

Answered: 61 Skipped: 0



	Yes	No	Total	Weighted Average
Does a potential employee receive hiring preferences if he/she has a national certification?	68.85% 42	31.15% 19	61	1.31
Have you ever hired graduates from Holmes Community College?	57.38% 35	42.62% 26	61	1.43
Have you participated in a curriculum writing process before?	34.43% 21	65.57% 40	61	1.66
Would you be willing to participate in a 1-2 day meeting to assist in revision of curriculum?	72.13% 44	27.87% 17	61	1.28

3 / 19

Figure 4 (Continued)

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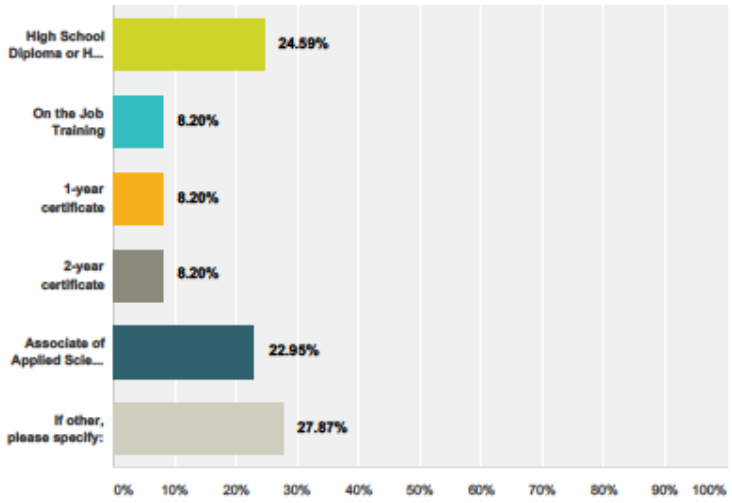
Q3 What education requirements do you have for entry level employees?

Answered: 61 Skipped: 0



Answer Choices	Responses	
High School Diploma or High School Equivalency Exam	24.59%	15
On the Job Training	8.20%	5
1-year certificate	8.20%	5
2-year certificate	8.20%	5
Associate of Applied Science Degree	22.95%	14
If other, please specify:	27.87%	17
Total		61

#	If other, please specify:	Date
1	N/A	11/3/2016 11:30 AM
2	Bachelor's Degree	11/2/2016 7:10 AM
3	Bachelors Degree	11/1/2016 9:29 PM
4	Associate preferred, but not required	11/1/2016 8:32 AM
5	I am retired.	11/1/2016 7:53 AM
6	Have to be at least 16 or have GED	10/26/2016 4:20 PM
7	Nursing degree	10/26/2016 11:24 AM
8	An Associate's degree is preferred, certifications and professional experience also factor in the equation.	10/25/2016 9:47 AM

Figure 4 (Continued)

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9	most want exp	10/25/2016 8:32 AM
10	Certificate or Associate Degree in Technical field for Maintenance Employee	10/25/2016 6:07 AM
11	Cosmetology license	10/24/2016 6:08 PM
12	Depends upon the position. Many positions require a 2 or 4-year degree, depending. Some positions may allow an applicant to supplement some lack of college hours with work experience.	10/24/2016 3:59 PM
13	N/A My facility teaches high school students wanting to go into the medical field.	10/24/2016 1:35 PM
14	Employeesa are offered employment based on their education and experience.	10/24/2016 1:03 PM
15	High school diploma and Cosmetology license	10/24/2016 1:03 PM
16	For nurses, graduation of an accredited SON and passing of the state board licensure examination	10/24/2016 11:36 AM
17	CRC Silver	10/24/2016 10:42 AM

Figure 4 (Continued)

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Q4 What additional pre-employment requirements do you have for those hired by your company?

Answered: 50 Skipped: 11

#	Responses	Date
1	PLC and ethernet network experience is required	11/2/2016 9:32 AM
2	None	11/2/2016 7:10 AM
3	N/A	11/1/2016 11:43 PM
4	Love to see hands on experience but not required	11/1/2016 9:57 PM
5	experience pertaining to job duties, generally extracurricular	11/1/2016 9:29 PM
6	Know Safety/PPE	11/1/2016 8:33 PM
7	None for drafting, for other departments there may be some.	11/1/2016 3:32 PM
8	Need Hvac license	11/1/2016 12:07 PM
9	Depending on the position some college preferred	11/1/2016 11:54 AM
10	Cover letter, completed application for employment and two reference letters	11/1/2016 9:07 AM
11	Clean /clear Driving license and a clean business casual business dress	11/1/2016 9:03 AM
12	Background checks, MVR, Drug Screen	11/1/2016 8:54 AM
13	N/A	11/1/2016 8:49 AM
14	background and drug screening	11/1/2016 8:32 AM
15	Some level of maturity, ability to apply what one has learned previously to the problem at hand, decent grammar when speaking.	11/1/2016 8:21 AM
16	Experience with our type of work.	11/1/2016 7:53 AM
17	On the job training is always helpful	11/1/2016 7:48 AM
18	none	11/1/2016 7:23 AM
19	CRC	11/1/2016 7:23 AM
20	Must pass Ramsey Mechanical Aptitude Test for entry level. Must pass Ramsay Maintenance Test for experienced maintenance technicians.	11/1/2016 7:11 AM
21	Prefer national board certification	10/28/2016 10:38 AM
22	Drug screening	10/27/2016 12:32 PM
23	some medical office knowledge or experience	10/27/2016 9:29 AM
24	Have to pass drug test	10/26/2016 4:20 PM
25	CPR	10/26/2016 2:09 PM
26	Active license	10/26/2016 11:24 AM
27	Experience is alway a plus	10/25/2016 9:45 PM
28	Experience	10/25/2016 3:40 PM
29	Good verbal and social skills	10/25/2016 11:21 AM
30	A skills and interests assessment, telephone interview and a face-to-face interview with area managers.	10/25/2016 9:47 AM
31	N/A	10/25/2016 8:02 AM
32	Drug screen	10/24/2016 8:32 PM

6 / 19

Figure 4 (Continued)

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33	16 OR HIGHER ON ACT TEST	10/24/2016 8:08 PM
34	Interview and skill assessment	10/24/2016 6:08 PM
35	Computer and Linguistic skills	10/24/2016 5:26 PM
36	Drivers license, Citizenship. The rest is job specific, but could include training/experience with specific equipment and/or a minimum number of credit hours of a specific topic/course (i.e., biology, forestry, etc.).	10/24/2016 3:59 PM
37	N/A	10/24/2016 1:35 PM
38	High School diploma is the minimum	10/24/2016 1:03 PM
39	US Citizen	10/24/2016 1:03 PM
40	background check	10/24/2016 12:31 PM
41	Some experience or school project work	10/24/2016 12:27 PM
42	Prefer CRC certification Silver or higher	10/24/2016 12:26 PM
43	Equipment/System Operations, Maintenance Experience, HVAC Experience	10/24/2016 12:21 PM
44	n/a	10/24/2016 11:36 AM
45	None	10/24/2016 11:07 AM
46	No requirements, but strong written/verbal communication skills, work experience, and leadership qualities preferred	10/24/2016 10:57 AM
47	certificatons	10/24/2016 10:47 AM
48	Additional experience	10/24/2016 10:46 AM
49	24 hours of basic Accounting and Business courses	10/24/2016 10:44 AM
50	none	10/24/2016 10:42 AM

Figure 4 (Continued)

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Fall 2016 Career Technical Education Survey for Industry Input

Q5 What are the national or state certifications required to work in the field(s) of your company?

Answered: 61 Skipped: 0

#	Responses	Date
1	N/A	11/3/2016 11:30 AM
2	N/A	11/2/2016 9:32 AM
3	None	11/2/2016 7:10 AM
4	Certified Legal Assistant (NALA)	11/1/2016 11:43 PM
5	Prefer lpn or rn	11/1/2016 9:57 PM
6	none	11/1/2016 9:29 PM
7	None	11/1/2016 8:33 PM
8	Drafting would be a 2 year certificate (preference)	11/1/2016 3:32 PM
9	None	11/1/2016 12:07 PM
10	None	11/1/2016 11:54 AM
11	n/a	11/1/2016 9:07 AM
12	none	11/1/2016 9:03 AM
13	None	11/1/2016 8:54 AM
14	N/A	11/1/2016 8:49 AM
15	NREMT, EVOC and MS EMScertifications	11/1/2016 8:32 AM
16	none	11/1/2016 8:21 AM
17	None	11/1/2016 7:53 AM
18	None are required, but any type of lighting design certification is helpful.	11/1/2016 7:48 AM
19	none	11/1/2016 7:23 AM
20	Unsure at this time	11/1/2016 7:23 AM
21	We don't require any - prefer them.	11/1/2016 7:11 AM
22	not required	10/28/2016 10:38 AM
23	None	10/27/2016 12:32 PM
24	CPC, CCA, CCS	10/27/2016 9:29 AM
25	None	10/26/2016 4:20 PM
26	CST exam	10/26/2016 2:09 PM
27	RN	10/26/2016 11:24 AM
28	Not sure	10/25/2016 9:45 PM
29	CPC, CCS, LPN, RN	10/25/2016 3:40 PM
30	None	10/25/2016 11:21 AM
31	Valid Driver's license, High School or GED, AA Degree or some university level classes or undergraduate degree.	10/25/2016 9:47 AM
32	n/a	10/25/2016 8:32 AM
33	N/A	10/25/2016 8:02 AM

8 / 19

Figure 4 (Continued)

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34	No State or Federal Requirments	10/25/2016 6:07 AM
35	EPA certification	10/24/2016 10:35 PM
36	License with MS Board of Nursing	10/24/2016 8:32 PM
37	FF1001-I-II AND E.M.T.	10/24/2016 8:08 PM
38	Cosmetology license	10/24/2016 6:08 PM
39	Nursing degree	10/24/2016 5:26 PM
40	None	10/24/2016 4:20 PM
41	N/A	10/24/2016 3:59 PM
42	none	10/24/2016 1:37 PM
43	N/A	10/24/2016 1:35 PM
44	No requirements	10/24/2016 1:03 PM
45	Cosmetology license	10/24/2016 1:03 PM
46	none	10/24/2016 12:44 PM
47	none	10/24/2016 12:31 PM
48	None	10/24/2016 12:27 PM
49	Recomended: CRC, CMRT, CMRP,	10/24/2016 12:26 PM
50	EPA Universal Technician in the handling and use of Refrigerants as required by 40 CFR Part 82, Sub Part F.	10/24/2016 12:21 PM
51	E P A section 608 refrigerant certification	10/24/2016 11:50 AM
52	none	10/24/2016 11:37 AM
53	State Board of Nursing licensure	10/24/2016 11:36 AM
54	Depends on position	10/24/2016 11:07 AM
55	NA	10/24/2016 10:57 AM
56	Emt	10/24/2016 10:51 AM
57	none	10/24/2016 10:47 AM
58	license from the board of nursing	10/24/2016 10:47 AM
59	None	10/24/2016 10:46 AM
60	Certified Public Accountant CPA	10/24/2016 10:44 AM
61	none	10/24/2016 10:42 AM

Figure 4 (Continued)

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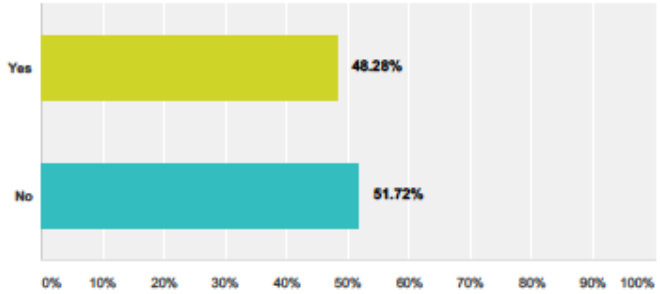
Q6 Are there any skills you need your future workers to have that you are currently not getting from your applicant pool?

Answered: 58 Skipped: 3



Answer Choices	Responses	
Yes	48.28%	28
No	51.72%	30
Total		58

Figure 4 (Continued)

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Q7 If yes, please describe those skills not available from your applicant pool.

Answered: 28 Skipped: 33

#	Responses	Date
1	Many students are not getting the basic math skills needed to work with industrial automation equipment.	11/2/2016 9:32 AM
2	Not sure you can teach this but "Good work ethic"	11/1/2016 12:07 PM
3	1. learn how to apply for a job interview .	11/1/2016 9:03 AM
4	More computer literacy.	11/1/2016 8:32 AM
5	Manners, maturity, thinking skills, drug and alcohol free except for occasional and appropriate use, ability to show up on the date specified at the correct time.	11/1/2016 8:21 AM
6	Experience with our type of work.	11/1/2016 7:53 AM
7	Time Management - it seems like a lot of young workers can not prioritize tasks and put the most important first.	11/1/2016 7:48 AM
8	Basic managing skills/HR	11/1/2016 7:23 AM
9	Welding, basic mathematics,	10/27/2016 12:32 PM
10	How to interact with the people. More and more have poor interviewing skills.	10/26/2016 4:20 PM
11	N/a	10/26/2016 11:24 AM
12	Better machining knowledge-	10/25/2016 9:45 PM
13	Trained Meat Cutters/ Butchers	10/25/2016 11:21 AM
14	We generally get solid candidates from local Community Colleges, but there will be a need for more technology based job skills like instrumentation and diagnostics for distributive control systems (e.g. operations, production, environmental monitoring, etc.)	10/25/2016 9:47 AM
15	Higher Skill level in: Electrical Motor Control PLC Mechanical	10/25/2016 6:07 AM
16	N/A	10/24/2016 8:08 PM
17	Computer	10/24/2016 5:26 PM
18	We need people who are more comfortable with field skills, including operating equipment (ATVs/UTVs, boats, backing trailers, etc.), navigation in the woods, and working independently.	10/24/2016 3:59 PM
19	N/A	10/24/2016 1:35 PM
20	Electrical troubleshooting skills	10/24/2016 1:03 PM
21	communications and computer networking skills	10/24/2016 12:31 PM
22	Time management Project management	10/24/2016 12:27 PM
23	Logic and Sequencing, Timing Charts, Trouble Shooting Automation control system, Corretive Maintenance, Failure Modes Effects Analysis, Potential Failure Curve, and Preventive Maintenance	10/24/2016 12:26 PM
24	Fluid Power- (Pneaumatics and Hydraulics), More exposure to Pro-logic Controls, More Basic Mechanical in how things work, Advanced Troubke Shooting and Electrical Systems.	10/24/2016 12:21 PM
25	Better math and writing skills	10/24/2016 11:07 AM
26	Ability to focus on projects while staying off of personal devices like phones. Ability to converse. Problem solving abilities.	10/24/2016 10:46 AM
27	Most students do not possess basic Excel or Word	10/24/2016 10:44 AM
28	industrial maintenance, robotics, electronic machine control	10/24/2016 10:42 AM

11 / 19

Figure 4 (Continued)

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Q8 What types of internships or apprenticeships are offered between your company and Holmes Community College?

Answered: 50 Skipped: 11

#	Responses	Date
1	None	11/2/2016 9:32 AM
2	Pathways Program (student internship and recent graduate hiring)	11/2/2016 7:10 AM
3	None	11/1/2016 11:43 PM
4	We welcome shadowing opportunities	11/1/2016 9:57 PM
5	contract temporary positions	11/1/2016 9:29 PM
6	None	11/1/2016 8:33 PM
7	We have not had an intern in drafting to date.	11/1/2016 3:32 PM
8	None at the present time, but I would consider internships.	11/1/2016 11:54 AM
9	None at the present, but plans are to add one - two soon (after first of the year)	11/1/2016 9:07 AM
10	none	11/1/2016 9:03 AM
11	None at this time	11/1/2016 8:54 AM
12	N/A	11/1/2016 8:49 AM
13	Student ride alongs.	11/1/2016 8:32 AM
14	none	11/1/2016 8:21 AM
15	None	11/1/2016 7:53 AM
16	We have hired several students part-time while they were in school. This allows each of us to access the other.	11/1/2016 7:48 AM
17	None that I am aware of.	11/1/2016 7:23 AM
18	Currently we do not have any.	11/1/2016 7:11 AM
19	Preceptorship at hospital	10/28/2016 10:38 AM
20	Press operator training	10/27/2016 12:32 PM
21	no formal position	10/27/2016 9:29 AM
22	None	10/26/2016 4:20 PM
23	N/A	10/26/2016 2:09 PM
24	None	10/26/2016 11:24 AM
25	None at the moment	10/25/2016 9:45 PM
26	None as to date but we would be open	10/25/2016 3:40 PM
27	None	10/25/2016 11:21 AM
28	None currently.	10/25/2016 9:47 AM
29	N/A	10/25/2016 8:02 AM
30	Clinicals	10/24/2016 8:32 PM
31	N/A	10/24/2016 8:08 PM
32	N/A	10/24/2016 6:08 PM
33	None	10/24/2016 5:26 PM

12 / 19

Figure 4 (Continued)

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Fall 2016 Career Technical Education Survey for Industry Input

34	None specific. Students are encouraged to apply for any of our internship programs (we have several different types) or volunteer.	10/24/2016 3:59 PM
35	Maintenance apprenticeship	10/24/2016 1:37 PM
36	N/A	10/24/2016 1:35 PM
37	Part time position for Maintenance technology students	10/24/2016 1:03 PM
38	We provide internship to new hires	10/24/2016 1:03 PM
39	none	10/24/2016 12:31 PM
40	None, Work-study is being proposed by the Maintenance Director. Must have first half of AAS complete and B average.	10/24/2016 12:26 PM
41	Industrial Maintenance Mechanic, Industrial Maintenance Technology	10/24/2016 12:21 PM
42	none	10/24/2016 11:37 AM
43	Preceptorships	10/24/2016 11:36 AM
44	None	10/24/2016 11:07 AM
45	NA	10/24/2016 10:57 AM
46	Student rides	10/24/2016 10:51 AM
47	none	10/24/2016 10:47 AM
48	None	10/24/2016 10:46 AM
49	N/A	10/24/2016 10:44 AM
50	we have had industrial maintenance coops and manufacturing technology interns	10/24/2016 10:42 AM

13 / 19

Figure 4 (Continued)

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Fall 2016 Career Technical Education Survey for Industry Input

Q9 What fundamental skills do you look for in employees who work in your facility?

Answered: 50 Skipped: 11

#	Responses	Date
1	PLC, AC Drives, Ethernet, HMI	11/2/2016 9:32 AM
2	Communication skills, basic computer skills, and working knowlege of natural resources management	11/2/2016 7:10 AM
3	Organizational, basic law knowledge, advanced computer skills	11/1/2016 11:43 PM
4	Good work ethic, professionalism, team player, successful completion of certification, customer service skills	11/1/2016 9:57 PM
5	Timber marking/cruising, equiptment operation (tractors, chainsaw, gps etc.) skills, writing, public speaking ability, ability to apply forest and other habitat management techniques to achieve wildlife or multiple objectives	11/1/2016 9:29 PM
6	Construction	11/1/2016 8:33 PM
7	Knowledge of autocad and some 3D detailing is a preference.	11/1/2016 3:32 PM
8	Problem solving	11/1/2016 12:07 PM
9	Good work ethic and basic math skills	11/1/2016 11:54 AM
10	customer service, oral/written communication, organizational skills, ability to work with a team	11/1/2016 9:07 AM
11	ability to read and right and do math	11/1/2016 9:03 AM
12	Communication and Technology	11/1/2016 8:54 AM
13	Good attitude, Critical thinking ability, Good communication skills, Reliable	11/1/2016 8:49 AM
14	Ability to remain calm and confident under pressure and perform to standards of MS BEMS	11/1/2016 8:32 AM
15	problem solving, appropriate level of profesionalism	11/1/2016 8:21 AM
16	Communication, mathematical, cognitive, organizational, related technical, and potential for project management.	11/1/2016 7:53 AM
17	AutoCad, Microsoft Word & Excel are fundamental.	11/1/2016 7:48 AM
18	Good work ethic, integrity, entrepreneurship	11/1/2016 7:23 AM
19	For general maintenance, hydraulic and pneumatic industrial equipment skills.	11/1/2016 7:11 AM
20	Communication skills, manual dexterity, time management	10/28/2016 10:38 AM
21	Promptness, professionalism, willingness to work	10/27/2016 12:32 PM
22	EMR software knowledge, working knowledge of basic office computer applications, medical terminology	10/27/2016 9:29 AM
23	If they have people skills and if they have ever had any work or class on time management	10/26/2016 4:20 PM
24	Initiative	10/26/2016 11:24 AM
25	Mechanical aptitude, computer skills, and someone who wants to learn	10/25/2016 9:45 PM
26	Multi-tasking, personable	10/25/2016 3:40 PM
27	The ability to count money	10/25/2016 11:21 AM
28	Numerical or math skills, numerical reasoning, verbal skills, verbal reasoning, ability to write and understand written directives (follow procedure/policy, etc.)	10/25/2016 9:47 AM
29	Excellent people skills.	10/25/2016 8:02 AM
30	Troubleshooting and customer communication	10/24/2016 10:35 PM
31	Motivation	10/24/2016 8:32 PM
32	ABILITY TO FIGHT FIRE	10/24/2016 8:08 PM
33	Basic skill in field.	10/24/2016 6:08 PM

14 / 19

Figure 4 (Continued)

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Fall 2016 Career Technical Education Survey for Industry Input

34	Coworking relationship, computer savvy	10/24/2016 5:26 PM
35	Ability to work independently or with partners; communication skills (verbal and written); problem-solving/critical thinking.	10/24/2016 3:59 PM
36	Work Ethics. Come to work and come to work on time.	10/24/2016 1:37 PM
37	N/A	10/24/2016 1:35 PM
38	Mecanical and electrical troubleshooting skills	10/24/2016 1:03 PM
39	Hair cutting - color - People skills	10/24/2016 1:03 PM
40	communications, work ethic, self motivated, and IT skills	10/24/2016 12:31 PM
41	Ability to learn. Willingness to be flexible. Attitude of work.	10/24/2016 12:27 PM
42	Necessary Skills plus, Attitude, Attendance, Competitive, Life Learner, Communication	10/24/2016 12:26 PM
43	Strong Mechanical ability, Good working knowledge of Basic Electricity and Electrical System, Industrial Safety as applied to Working with and around hazardous equipment and systems	10/24/2016 12:21 PM
44	math and computer skills	10/24/2016 11:37 AM
45	Basic AutoCAD skills, ability to visualize in 3D, basical geometry, and good communication skills	10/24/2016 11:07 AM
46	Strong written/verbal communication skills, work experience, and leadership qualities preferred	10/24/2016 10:57 AM
47	Brains	10/24/2016 10:51 AM
48	basic knowledge of nursing and a current license	10/24/2016 10:47 AM
49	Verbal and written communication skills	10/24/2016 10:44 AM
50	punctuality, adaptability, cooperation	10/24/2016 10:42 AM

15 / 19

Figure 4 (Continued)

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Fall 2016 Career Technical Education Survey for Industry Input

Q10 What are some of the challenges currently facing your industry, and how will these challenges affect your industry?

Answered: 48 Skipped: 13

#	Responses	Date
1	The lack of young people filling technical positions	11/2/2016 9:32 AM
2	Slightly decreased interest in outdoor recreation both by customers and potential employees	11/2/2016 7:10 AM
3	Tort reform caused a decline in business that caused a decline in the need for office staff	11/1/2016 11:43 PM
4	Health care reform	11/1/2016 9:57 PM
5	understaffing	11/1/2016 9:29 PM
6	None	11/1/2016 8:33 PM
7	Keeping up with technology. Everyone has the best technology.	11/1/2016 3:32 PM
8	My staff is getting up in age and getting the right skill set to replace them.	11/1/2016 11:54 AM
9	n/a	11/1/2016 9:07 AM
10	drugs/ lack of drive/ can't show up everyday. no pride in there work	11/1/2016 9:03 AM
11	Finding employees that are looking for a career and invest in the company, than just having a job	11/1/2016 8:54 AM
12	Low budgets, External market demand	11/1/2016 8:49 AM
13	Electronic documentation. Knowledge of CMS requirements. Reduced reimbursement. All this means employees must be highly productive and reliable since funding will only support a limited number.	11/1/2016 8:32 AM
14	Too many to name. Cyber security.	11/1/2016 8:21 AM
15	Finding people who will work and have the desire to learn.	11/1/2016 7:53 AM
16	The electrical industry is booming right now because everything is going electric. The challenge is hiring qualified employees.	11/1/2016 7:48 AM
17	Competition with other automotive suppliers. Must be able to perform, or lose contracts.	11/1/2016 7:23 AM
18	Lack of skilled applicants.	11/1/2016 7:11 AM
19	Lack of qualified workers	10/27/2016 12:32 PM
20	Rapid changes in EMR software	10/27/2016 9:29 AM
21	Turn over and time management	10/26/2016 4:20 PM
22	Certification	10/26/2016 2:09 PM
23	Reliable workers	10/26/2016 11:24 AM
24	Same as above	10/25/2016 9:45 PM
25	High deductibles are causing more work to determine patient responsibility. May need a patient liaison position	10/25/2016 3:40 PM
26	Increasing competition	10/25/2016 11:21 AM
27	Global and domestic competition for products. Mergers and aquisitions. Technology. These things mean a smaller group of companies control an ever increasing volume of product entering the domestic and global markets.	10/25/2016 9:47 AM
28	no hands on exp	10/25/2016 8:32 AM
29	Change is happening a t a faster pace and staff must be able to adapy quickly to change.	10/25/2016 8:02 AM
30	Growing technology. No trained mechanics	10/24/2016 10:35 PM
31	Healthcare insurance	10/24/2016 8:32 PM
32	N/A	10/24/2016 8:08 PM

16 / 19

Figure 4 (Continued)

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Fall 2016 Career Technical Education Survey for Industry Input

33	A new employee will have to develop a customer base in order to be successful. This takes time and some employees give up before they become successful.	10/24/2016 6:08 PM
34	Deficiency in Problem Solving and entitlement	10/24/2016 5:26 PM
35	Funding. Fewer funded positions, so students will need to be competitive with their applications, have strong resumes (with intern/volunteer experience with some relevant field of work), and willingness to take a job in an alternate location.	10/24/2016 3:59 PM
36	Inadequate technical knowledge, trouble shooting skills, and initiative	10/24/2016 1:37 PM
37	N/A	10/24/2016 1:35 PM
38	alck of availability of trained and or with expereince in the maintenence field	10/24/2016 1:03 PM
39	Finding qualified applicants	10/24/2016 1:03 PM
40	lack of skilled self motivated applicants	10/24/2016 12:31 PM
41	Shortage of labor of all skill levels. Willingness to work at an entry level and desire to move up.	10/24/2016 12:27 PM
42	To few qualified candidates to fill the more technically avdanced positions within todays Manufactureing Industry	10/24/2016 12:21 PM
43	High turn over rates	10/24/2016 11:36 AM
44	Lack of competent and experienced designers is leading to more drafting work being performed by Professional Engineers.	10/24/2016 11:07 AM
45	Increased quality, cost control, and global competition.	10/24/2016 10:57 AM
46	Stupid ppl. They kill folks	10/24/2016 10:51 AM
47	Lack of degrees in the preferred field of Accounting	10/24/2016 10:44 AM
48	automationj	10/24/2016 10:42 AM

17 / 19

Figure 4 (Continued)

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Fall 2016 Career Technical Education Survey for Industry Input

Q11 Where do you see your industry in the next five years? Do you expect a growth or decline in your industry's output?

Answered: 52 Skipped: 9

#	Responses	Date
1	Growth is projected	11/2/2016 9:32 AM
2	Stable to slight decrease	11/2/2016 7:10 AM
3	Personal opinion - growth	11/1/2016 11:43 PM
4	Stability	11/1/2016 9:57 PM
5	I don't expect growth or decline.	11/1/2016 9:29 PM
6	Growth	11/1/2016 8:33 PM
7	We anticipate growth in both volume of tons and employees to get it done.	11/1/2016 3:32 PM
8	I see our industry growing in the next five years and do not expect a decline.	11/1/2016 11:54 AM
9	n/a	11/1/2016 9:07 AM
10	hvac/refrigeration will grow every year and needs qualified people in ever aspect	11/1/2016 9:03 AM
11	Increase of employment due to growth of business - specifically in management area	11/1/2016 8:54 AM
12	Decline	11/1/2016 8:49 AM
13	Anticipate growth in demand and fewer qualified personnel entering the profession.	11/1/2016 8:32 AM
14	growth	11/1/2016 8:21 AM
15	Growth.	11/1/2016 7:53 AM
16	Definite growth. We are projecting that our industry will continue to grow and expand into new specialty divisions that don't even exist today.	11/1/2016 7:48 AM
17	Depends on the TPP trade deal and Election 2016	11/1/2016 7:23 AM
18	We expect to grow.	11/1/2016 7:11 AM
19	growth	10/28/2016 10:38 AM
20	All industry expect to grow. It's a matter of if the workforce will be ready when it does.	10/27/2016 12:32 PM
21	a steady growth	10/27/2016 9:29 AM
22	growth	10/26/2016 4:20 PM
23	Growth by 20%	10/26/2016 2:09 PM
24	Growth	10/26/2016 11:24 AM
25	Yes, processes getting more automated; Yes our industry is expected to grow	10/25/2016 9:45 PM
26	The ever increasing complexity of medical billing is growing this industry. Expect growth	10/25/2016 3:40 PM
27	I wish I knew	10/25/2016 11:21 AM
28	We are currently in a downward cycle due to expanded production capacities. We are currently in a tightening market with falling prices. Our output should remain steady through the cycle as higher cost and less efficient producers fail or shutdown.	10/25/2016 9:47 AM
29	YES	10/25/2016 8:32 AM
30	Growth.	10/25/2016 8:02 AM
31	Growth for Technical jobs	10/25/2016 6:07 AM
32	I expect growth.	10/24/2016 10:35 PM

18 / 19

Figure 4 (Continued)

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Fall 2016 Career Technical Education Survey for Industry Input

33	Growth	10/24/2016 8:32 PM
34	GROWTH	10/24/2016 8:08 PM
35	There is always a growth in cosmetology. New techniques are always introduced and you must continue developing new skills.	10/24/2016 6:08 PM
36	Major growth nationwide	10/24/2016 5:26 PM
37	The Federal (i.e., my agency) and state land management agencies have seen a decline, but the private sector has been more stable and even shows growth in some areas. My agency is slowly starting to hire more entry-level positions and temporary workers, which will provide student more opportunities coming out of school.	10/24/2016 3:59 PM
38	growth	10/24/2016 1:37 PM
39	N/A	10/24/2016 1:35 PM
40	Our industry is growing	10/24/2016 1:03 PM
41	Our industry is growing faster then the overall economy	10/24/2016 1:03 PM
42	growth	10/24/2016 12:31 PM
43	Growth	10/24/2016 12:27 PM
44	The industry will continue to grow but unless things change drastically, it will be even more of a challenge to find technicians with skills that will be required to keep the advanced systems and equipment in working order.	10/24/2016 12:21 PM
45	growth	10/24/2016 11:37 AM
46	I expect to see a growth within our organization in the next 5 years	10/24/2016 11:36 AM
47	Currently our industry is experiencing an economic lull due to low oil prices and general slow national economy. We believe oil prices will slowly increase over the next few years which should benefit our industry.	10/24/2016 11:07 AM
48	Steady growth expected	10/24/2016 10:57 AM
49	Growth. Stupid is everywhere.	10/24/2016 10:51 AM
50	Growth.	10/24/2016 10:46 AM
51	Growth	10/24/2016 10:44 AM
52	growth	10/24/2016 10:42 AM

19 / 19

Figure 4 (Continued)

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CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents a summary of the results of the research study conducted to ascertain whether attaining stackable credentials increases opportunity for employment for career technical graduates. Along with a summary of results, conclusions drawn from the findings and recommendations for future research are presented. The purpose of this study was to analyze results of the MCCB Industry Input survey of industry representatives who serve on advisory committees for career technical programs at a rural community college to ascertain whether earning stackable credentials increases opportunity for employment for career technical graduates in a rural community college. Three research questions were used to address this purpose. The research questions used were as follows:

- What education requirements do industry members have for entry-level employees?
- Are national or state certifications required to work in the industry fields surveyed?
- Does a potential employee receive hiring preferences if he/she has a national certification?

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Results of a survey of members of career technical program advisory committees were used to answer these research questions. Descriptive statistics were used to summarize survey results.

Summary

Research Question One: What education requirements do industry members have for entry-level employees?

This research question dealt with entry-level requirements for employees. When looking at the importance of stackable credentials, one must keep in mind the main goal of career technical education – preparing students to gain employment. A student must first meet minimum employment requirements before considering what might help them advance in a job in the future. The results of this question indicated that 24.59% of industry representatives who responded to this survey only require a high school diploma or high school equivalency exam for entry-level employment. The next highest-ranking educational level was the Associate of Applied Science degree. These two educational choices only differed by one vote. These two choices combined earned almost half of the entire responses. In looking at the 1-year and 2-year certificates, those certificates only garnered 5 votes each, a very low percentage of the respondents. When looking at any college education level represented, 1-year certificate, 2-year certificate, and Associate of Applied Science degree together garnered 39.35%. When choosing "Other," the answers varied from a Bachelor's degree to licensure to experience in the field.

These results as they relate to the purpose of this study indicate that having a high school diploma or high school equivalency exam, then obtaining a 1-year certificate, 2-year certificate, Associate of Applied Science degree, and national certification would

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definitely better position a graduate to obtain employment. While this entire set of stackable credentials was not all noted as requirements for entry-level positions, having the set would cover most, if not all, requirements indicated for entry-level positions.

Research Question Two: Are national or state certifications required to work in the industry fields surveyed?

This research question focused on whether or not a national or state certification was required to work in the industry field surveyed. The survey question used was an open-ended question. Results of this survey indicated that only 32.78% of the industries represented indicated that some type of national or state certification is required to work in the industry field represented. The majority of those who indicated that a certification was required were connected to a medical field. Second to the medical field was the maintenance field. Results of this question indicate that holding a national or state certification may not be a requirement for employment for many career technical graduates.

Research Question Three: Does a potential employee receive hiring preferences if he/she has a national certification?

This research question addressed whether or not potential employees receive hiring preferences if he/she has a national certification. Results indicated that having attained a national certification in his or her field would in fact give a potential employee hiring preferences with almost 70% of the respondents. While 19, or 31.15%, of the respondents indicated that they would not give hiring preferences to individuals who have a national certification, 42 of the 61 respondents indicated that they would indeed give hiring preference to a potential employee who has a national certification.

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These results as they relate to the purpose of the study indicate that including national certifications in stackable credentials earned by a career technical student would indeed help increase their opportunities for employment.

Conclusions

The purpose of this study was to ascertain whether attaining stackable credentials increases opportunity for employment for career technical graduates. Stackable credentials include degrees, certificates, and credentials earned along a career pathway. As explained earlier, this is an important issue for career technical programs for many reasons. As curricula are redesigned into a stackable format to include multiple certificates and national credentials along a path to an Associate of Applied Science degree, determinations must be made at an administrative level whether the costs of making these changes are producing a value-added benefit for the student in the way of increased opportunities for employment.

Career technical programs must also keep in mind accountability standards outlined by their local governing bodies and federal funding sources, such as the Perkins Act, which monitor job placement of graduates. Results of this survey indicated that of those who responded to this survey, almost one-fourth of industries require only a high school diploma or high school equivalency exam for entry-level positions. Only 1 less industry representative indicated that an Associate of Applied Science degree was required. The 1-year and 2-year certificate options received only 5 votes each. The 1-year and 2-year certificates did not seem to be very important for obtaining an entry-level position. Results indicated that important educational achievements for many entry-level

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positions are the high school diploma or high school equivalency exam and the Associate of Applied Science degree.

There is a big push to align programs to national certifications so that when students graduate, they will leave career technical programs with not only an educational degree but also a nationally recognized certification. The results of this survey indicated that the medical field was the primary field that required a national certification for employment. While some indicated that it was preferred, only 32.78% of respondents indicated that some type of certification was required for employment. This would lead one to conclude that before a national certification was made mandatory for a program, administration should consider the cost of the certification to students against the benefit they would receive in the their respective industry.

The last research question seemed to bring the research study purpose full-circle. The first two questions addressed gaining entry-level positions and specific hiring requirements. The purpose of the study was to analyze survey results to ascertain whether attaining stackable credentials increases opportunity for employment for career technical graduates. While results for research question one indicated that the 1-year certificate and 2-year certificate were not required by many to gain entry-level employment, and results for research question two indicated that the majority of industry fields who responded did not require a national certification for employment, results for research question three indicated that having a national certification would give a potential employee hiring preferences. Of the 61 respondents, 42 indicated that holding a national certification would give a potential employee hiring preferences. So, while having stackable credentials may not be a minimum requirement for employment, survey

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results do indicate that they would increase a career technical graduate's opportunity for employment.

Results of this study seem to confirm Moore's (2016) view of stackable credentials as resume builders which help students become more employable. Foster and Pritz (2006) also noted that different types of credentials can make the holder thereof more marketable. This study further reinforces those findings by validating that holding a national certification would give a student hiring preferences with employers. As Hyslop (2001) writes, industries are looking to career technical programs to provide workers with adequate skills to fill open positions. The syNErgy project also incorporated curricula development and the stackable credentials idea to address training needs of that area (Killingsworth & Grosskopf, 2013). Results of this study indicate that creating curricula models that incorporate stackable credentials into career technical programs, as encouraged by MCCB Office of Curriculum and Instruction, could help create opportunities for students to earn degrees and credentials that would increase their opportunities for employment.

This is important information for career technical programs for many reasons. In a competitive job market, career technical programs want to do their best to prepare students to be competitive and gain employment. Knowing that having stackable credentials will increase opportunities for employment, administrators of career technical programs can make better decisions about whether or not to adopt new curricula that are aligned to national credentials. While most career technical programs do not guarantee employment for graduates, they can work to ensure that graduates will be as prepared as possible to be competitive in the workforce. Adopting curricula which allow students the

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opportunity to earn stackable credentials along their career pathway can help to open more doors to employment opportunities.

Recommendations

After analyzing the results of survey data collected to address the purpose of this study, the researcher does have recommendations for future research. First, future research could include data from multiple community colleges in the state instead of just one community college in order to make the study more generalizable. Since job requirements can vary not only by industry but also by location, including a broader area could make the results more generalizable for community colleges outside of the state.

Another consideration would be to focus on individual industry niches statewide to ascertain whether results vary based on programs of study. Career technical programs provide a wide variety of educational offerings, from medical to industrial to business office. Some of these programs also hold a program accreditation from an outside accrediting body. These accredited programs may have varying results as well.

A mixed-methods approach could be used for further research to incorporate interviews with industry representatives to determine why certain employment requirements are in place. This could help to bring further clarification to survey responses by investigating why certain industries responded in a certain manner.

In keeping with college procedures, this survey was administered using an online format, Survey Monkey. To increase the number of responses, surveys could be administered using a different approach to gather data, such as a paper survey.

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Chapter Summary

The purpose of this study was to analyze survey results of industry representatives who serve on advisory committees for career technical programs at a rural community college using results from an Industry Input Survey to ascertain whether earning stackable credentials in career technical programs at a rural community college does increase opportunities for employment. Pre-existing data were obtained from a rural community college to answer research questions presented to address the purpose of the study.

Results indicated that while stackable credentials may not be a requirement for entry-level employment, having national certifications would give a potential employee hiring preferences. Thus, having stackable credentials would increase opportunities for employment for career technical graduates.

Results of this study are significant to career technical programs and community colleges considering implementing stackable credentials curricula. With the cost of some national certifications being very high, administrators must determine whether the benefit of implementing this structure is worth the cost of both the certification itself and new curricula implementation.

As community college budgets are ever-tightened, administrators must determine whether the cost of new equipment, new books, and heightened teacher qualifications are going to result in positive effects for students. If funding for community colleges becomes performance-based, and job placement is an accountability standard for career technical programs, then implementation of stackable credentials should produce positive results through increased opportunities for job placement of graduates.

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APPENDIX A

SURVEY QUESTIONS

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Industry Input Survey

1. **In which of the following college programs do you serve in an advisory capacity?**
   Automotive Technology

   Business Technology

   Collision Repair Technology

   Conservation Law Enforcement Technology

   Cosmetology

   Criminal Justice Administration Technology

   Emergency Medical Sciences

   Engineering Technology

   Forest Technology

   Heating/Vent/AC/Refrig Technology

   Industrial Maintenance Technology

   Information Systems Technology

   Maintenance Technology

   Mortuary Sciences

   Occupational Therapy Assistant Technology

   Paralegal Technology

   Physical Therapy Assistant

   Practical Nursing

   Precision Machining Technology

   Surgical Technology

   Welding and Cutting Technology

2. **Please respond to the following questions.**
   a. **Does a potential employee receive hiring preferences if he/she has a national certification?**
      Yes or No

   b. **Have you ever hired graduates from Holmes Community College?**
      Yes or No

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c. **Have you participated in a curriculum writing process before?**
Yes or No

d. **Would you be willing to participate in a 1-2 day meeting to assist in revision of curriculum?**
Yes or No

3. **What education requirements do you have or entry level employees?**
High School Diploma or High School Equivalency Exam

On the Job Training

1-year certificate

2-year certificate

Associate of Applied Science Degree

If other, please specify:

4. **What additional pre-employment requirements do you have for those hired by your company?**

5. **What are the national or state certifications required to work in this field?**

6. **Are there any skills you need your future workers to have that you are currently not getting from your applicant pool?**

7. **If so, please describe those skills not available from your applicant pool.**

8. **What types of internships or apprenticeships are offered between your company and this community college?**

9. **What fundamental skills do you look for in employees who work in your facility?**

10. **What are some of the challenges currently facing your industry? How will this affect your industry?**

11. **Where do you see your industry in the next five years? Do you expect a growth or decline in your industry's output?**

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APPENDIX B

PERMISSION FOR DATA COLLECTION

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LINDY McCAIN
Vice-President for
Research and Development
lmcain@holmescc.edu

HOLMES COMMUNITY COLLEGE

P. O. Box 369 - Goodman, MS 39079
Phone: (662) 472-9067 Fax: (662) 472-9059
www.holmescc.edu

November 17, 2016

Amy Green Whittington
110 Belle Cove
Madison, MS 39110

Dear Mrs. Whittington,

After reviewing your request for the proposed study, "Investigating employability: A study to ascertain if attaining stackable credentials increases opportunity for employment for career technical graduates", you are granted authorization to obtain and use the requested pre-existing student data.

I am pleased that you have chosen Holmes Community College to participate in your research. We, at Holmes, look forward to viewing the results and will work with you in any way possible to aid in your study.

Sincerely,

Lindy McCain

Lindy McCain, Ed.D.
Vice-President for Research and Development

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APPENDIX C

IRB APPROVAL

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MISSISSIPPI STATE UNIVERSITY

Office of Research Compliance

Institutional Review Board for the Protection of
Human Subjects in Research
P.O. Box 6223
53 Morgan Avenue
Mississippi State, MS 39762
P. 662.325.3294

www.orc.msstate.edu

NOTICE OF APPROVAL FOR HUMAN RESEARCH

DATE:	November 18, 2016
TO:	Amy Whittington, Educational Leadership
FROM:	Jodi Roberts, HRPP Officer, MSU HRPP
PROTOCOL TITLE:	Investigating employability: A study to ascertain if attaining stackable credentials increases opportunity for employment for career technical graduates
PROTOCOL NUMBER:	IRB-16-617
	Approval Date: November 18, 2016 Expiration Date: December 31, 2017

This letter is your record of the Human Research Protection Program (HRPP) approval of this study as exempt.

On November 18, 2016, the Mississippi State University Human Research Protection Program approved this study as exempt from federal regulations pertaining to the protection of human research participants. The application qualified for exempt review under CFR 46.101(b)(4).

Exempt studies are subject to the ethical principles articulated in the Belmont Report, found at www.hhs.gov/ohrp/regulations-and-policy/belmont-report/#

If you propose to modify your study, you must receive approval from the HRPP prior to implementing any changes. The HRPP may review the exempt status at that time and request an amendment to your application as non-exempt research.

In order to protect the confidentiality of research participants, we encourage you to destroy private information which can be linked to the identities of individuals as soon as it is reasonable to do so.

The MSU IRB approval for this project will expire on December 31, 2017. If you expect your project to continue beyond this date, you must submit an application for renewal of this HRPP approval. HRPP approval must be maintained for the entire term of your project. Please notify the HRPP when your study is complete. Upon notification, we will close our files pertaining to your study.

If you have any questions relating to the protection of human research participants, please contact the HRPP by phone at 325.3994 or email irb@research.msstate.edu. We wish you success in carrying out your research project.

Jodi Roberts

Review Type:	EXEMPT
IRB Number:	IORG0000467

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