Evaluation of a Career Readiness Indicator

by

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Abstract

Today's high school graduates are entering a world that demands greater in-depth knowledge, higher-order thinking skills, and the ability to adapt to a workplace with ever-changing technologies. American employers need a workforce that is skilled, adaptive, and creative. Education and training are the key to success for individuals, and critical for businesses in the U.S. to be competitive in the global economy. High-quality Career and Technical Education programs (CTE), which lead to high-quality credentials are a critical and essential option to meeting these challenges. There is a lack of accurate reliable data and third-party validation of the quality of CTE programs as well as the quality of the credentials earned through these programs. The purpose of this study was to examine a Career Readiness Indicator – which is a credential that students can earn – within the Alabama High School CTE program. An exploratory sequential mixed-methods approach was used to collect evidence-based data. Participants were technical education program directors or electronics instructors from five counties within the state of Alabama. The Career Readiness Indicator Evaluation Instrument (Tucker, Kaminsky, & Witte, 2016) was created and field-tested for this study. The instrument provides a rating of one to five for six key features identified as necessary for an effective-high quality Career and Technical Education program, and high-quality credentials. The findings from this study produced a development level for the CTE programs in each of the five counties for the key features of Industry Engagement; Governance; Occupational Standards; Qualification Framework; Program Quality; Delivery and Assessment.

Acknowledgements

"So, I have decided to quit my job, and have applied to Auburn for the PhD program, what do you think?" "Okay, how are we going to pay for that?" "I am not sure right now, but we will figure it out." "Okay do it", and just like that I knew again I had the most amazing man in my life. Thank you, Ross, for ALWAYS supporting me. A journey like this takes a team. To my children Ross and Margaret, who reminded me all too often that if it were easy, everyone would have a PhD. Thank you. To my friends and family who never thought I was crazy for pursuing another degree. Thank you. It takes courage to step outside of one's comfort zone, especially in your mid 50's. It would have been easy to just walk away from the classroom and become another statistic, driven out of the education profession by an administrator who just did not get it. As a dedicated teacher who cared about the school in which I taught, working with teachers who were my family, and helping children to believe in their ability to succeed, I knew there was more for me to accomplish and so there was no fading into the sunset. I would not be here without the support of Dr. James Witte and Dr. James Kaminsky. You both believed in me when others did not, and you would not let me simply walk away. Thank you!! It is always great to have third-party validators. Thank you to Sheri Downer. You are a treasure and allowed me to fund this journey, and remain engaged with the teaching profession by having a small influence on future teachers. Thank you to Dr. Maria Witte, Dr. Wang, and Dr. Skinner for your guidance, input, and support of my work. In the words of John Dewey; Education is not preparation for life; education is life itself. I will forever be a life-long learner.

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Chapter I: Introduction

One of the most fundamental obligations of any society is to prepare its youth to lead productive and prosperous lives as adults (Harvard Graduate School of Education [HGSE], 2011). The goal of leaders in the American education system is to have every student graduate from high school ready for college and or a career. Today's high school graduates are entering a world that demands greater in-depth knowledge, higher-order thinking skills, and the ability to adapt to a workplace with ever-changing technologies (Alabama Department of Education [ADOE], 2008). A world-class education must provide all students with meaningful opportunities and preparation, which will allow them to participate successfully in the knowledge-based, global marketplace of the 21st century. In his 2012 State of the Union Address, President Obama stated that the strength of the American economy is inextricably linked to the strength of America's education system (United States Department of Education [USDOE] Office of Vocational and Adult Education, 2012). American employers need a workforce that is skilled, adaptive, creative, and equipped for success in the global market place (USDOE/Office of Planning, Evaluation, and Policy Development, 2013). Despite these visionary goals for this country's young adults, there is evidence that the United States is failing to meet its obligation to prepare millions of young adults to be successful after graduating from high school. In an era when economic success is dependent on a quality education, the United States has fallen behind other industrialized nations in educational attainment and achievement (HGSE, 2011). Every year approximately one million students in the United States leave high school or college before earning a diploma or degree (HGSE, 2011; Perry & Wallace, 2012.

Students drop out of high school and college for a variety of reasons; however, too many cannot see a clear connection between their program of study in school to tangible opportunities in the labor market and therefore choose to leave school prior to graduation (HGSE, 2011; The National Youth Agency, 2007). Education and training are key to success for individuals, and are critical for businesses in United States to be competitive in a global economy. As young adults continue to disengage in educational opportunities due to a failure to connect in-school learning to out-of-school living, the United States, and particularly, the southern section of the country is facing a workforce shortage (National Skills Coalition, 2011). A 2011 Manpower survey found that 52 percent of U.S. employers are having trouble filling mission-critical positions within their organizations (National Skills Coalition, 2011). Most of these jobs are middle-skill jobs, which require more than a high school diploma; some postsecondary education, certifications, and industry recognized credentials, but not necessarily a four-year college degree (Hoffman & Reindl, 2011; National Academies of Sciences, Engineering, and Medicine [NASEM], 2017).

In 1988, the William T. Grant Foundation published the seminal report *The Forgotten Half; Pathway to Success for America's Youth and Young Families* which revealed that there was little or no support for nearly half of the nation's youth (Rosenbaum, Ahearn, & Becker, 2015). Millions of young adults between the ages 16 – 24 years old who were not college-bound, were unprepared for the job market and had limited economic prospects allowing them access to a middle-class lifestyle (Rosenbaum et al., 2015). Educational reform efforts that began in the mid-1980s focused on the underlying assumption that an academic college bound, classroom-based approach is the only appropriate way to prepare young adults to be successful in the future (Perry & Wallace, 2012). The college-for-all era began, with the vision that all

students will go to college after high school, earn a post-secondary degree and this will guarantee success. Today, approximately 86 percent of those graduating from high school continue to some form of post-secondary institute of higher education. However, the reality is that only one in three of these young people achieve the dream of earning a bachelor's degree (HGSE, 2011). The number of young adults successfully continuing their education past high school is insufficient to fill our countries impending skills gap (Hoffman & Reindl, 2011). Young people who enroll in college and fail to earn a degree fare no better in the labor market than those with only a high school diploma (Rosenbaum et al., 2015). It is time for an honest assessment of our educational goals and the economic needs. Highly skilled innovators with advanced education will be essential to building economic growth in the United Stated; however, an even greater number of highly skilled laborers will be required to bring these innovations into the market place (NASEM, 2017).

There is little debate that education and training are critical to enhancing the United States global competitiveness, and helping young adults obtain well-paying jobs and careers (National Skills Coalition, 2011). The challenge is how to make this a reality. Looking at the secondary education system in this country through a comparative lens to other industrialized nations, a major area of weakness is that a career and technical educational pathway has not been emphasized or valued for far too long in the United States (Gonzalez, 2012). We are failing our young people,

> not because we are indifferent, but because we have focused too exclusively on a few narrow pathways to success. It is time to widen our lens and to build a more finely articulated pathways system – one that is richly diversified to align with the needs and

interests of today's young people and better designed to meet the needs of a 21st century economy (HGSE, 2011, p.11).

The U.S. cannot compete with less-developed counties on labor cost, which means we must compete on the quality of our goods and services. This requires a highly skilled workforce with a wide range of trade, technical, and professional skills and training (National Academies of Sciences, Engineering, and Medicine, 2017; Stone, 2014a). High-quality Career and Technical Education (CTE) is a critical and essential option to meeting this challenge (Perry & Wallace, 2013). This pathway offers students opportunities for career awareness and preparation by providing both academic and technical knowledge in a work-related environment. Effective, high-quality CTE programs are aligned with college and career readiness standards as well as the needs of local employers and industries (USDOE/Office of Vocational and Adult Education, 2012) and provide opportunities for all students to have access to high-skill, high-wage jobs.

Major economic forces such as globalization, new and emerging technologies, and the demands of an ever-changing workplace have placed pressure on America's employers to raise the hiring standards for new employees (National Association of State Directors of Career Technical Education Consortium [NASDTEC], 2014). The standards required of employees in tomorrow's workplace will be the ability to demonstrate adaptive skills for an evolving and ever-changing work environment (Gordon, Daggett, McCaslin, Parks, & de Moura Castro, 2015). Employers are looking for more than just credentials from future employees, and are increasingly focused on demonstrated competencies (Bray, Green, & Kay, 2014; Corporation for a Skilled Workforce [CSW], 2013; Gordon et al., 2015). The U.S. General Accounting Office examined the strategies used to prepare work-bound young adults for employment in the United States, England, Germany, Japan, and Sweden. One of the most significant findings from this study was

that the United States Career and Technical Education programs tend to measure the successful preparation of students with the completion of a program and an earned credential. The other countries have established competency-based national training standards that are used to certify skill competency in addition to an earned credential (Gordon et al., 2015). Employers are demanding that future employees be able to demonstrate the competencies that are associated with the earned credential or certification.

Lawmakers in the U.S. House of Representatives have recently introduced the Strengthening Career and Technical Education for the 21st Century Act – a piece of legislation that would reauthorize the Carl D. Perkins Career and Technical Education Act of 2006. The Carl D. Perkins Center and Technical Education Act of 2006 is the principle source of federal funding for secondary and postsecondary career and technical education programs (USDOE/Office of Vocational and Adult Education, 2010). One of the key issues that has emerged in conversations within the CTE community is the need to measure achievement with academic performance, the acquisition of industry credentials, and demonstrated skill development including technical competencies (CSW, 2013; Kotamraju, 2010; Lumina Foundation, 2015). These are the essential elements of a high-quality credential. For this reason, organizations such as The Association for Career and Technical Education [ACTE] (2013, 2014, 2016, 2017), and NASDCTEC (2010, 2012, 2013, 2014) are working collaboratively to address a crisis of credibility in education and workforce credentialing process. Stakeholders at all levels are concerned with the proliferation of programs offering credentials without a quality assurance mechanism which provide students, employers and government agencies with the true market value of the credentials being offered (NASEM, 2017). The term transparency is used in these conversations to describe what a credential represents, the

competencies the holder should have and be able to demonstrate and the rigor associated with the process for earning the credential to ensure the validity of the credential (Bray et al., 2014). President Trump's 2018 budget proposal recommends the reduction of federal funding specifically for career and technical education programs (ACTE, 2017). Although the House of Representatives has requested that funding remain at the current level, it is critical that current programs provide evidence of academic attainment, program quality, with work-based learning opportunities. Accountability requirements in the Perkins Act are measured by students earning recognized post-secondary credentials; however, programs must also provide evidence that students are trained effectively and can demonstrate the skills required for in-demand jobs. Programs that show poor performance results risk losing federal funding (ACTE, 2017). In 2013 the state of Alabama invested $50 million dollars in the improvement of the state's CTE programs (Holzer, Linn, & Monthey, 2013). It is important to provide evidence for the return on this investment to secure future funding.

Statement of the Research Problem

The Alabama State Department of Education, Office of Career and Technical Education/Workforce Development has a list of certifications and licensures in the career and technical education program identified as Career Readiness Indicators (ADOE/Career and Technical Education, 2016). According to the state these are industry-recognized credentials that a student can attain while in high school. The list of credentials was developed through partnerships with educational leaders, local advisory committees and input from industry partners (ADOE, 2011; J. Laney, personal communication, 2016). When evaluating employer engagement in CTE, the NASDCTEC (2014) stated that there is limited information regarding what is happening consistently and systematically between state education leaders and employer

engagement. One of the greatest needs is to identify, validate, and keep current the technical and workforce readiness skills that should be taught within a career and technical education program of study (NASDCTEC, 2014). Monitoring that the program of study by which the credential is earned is of the highest quality and executed with fidelity is critical. There is a lack of accurate, reliable data available to quantify the return on federal investment evaluating that all CTE programs are truly functioning as required by the Perkins IV Act, and not simply a plan existing on paper (NASDCTEC, 2013; Richard, Klein, Pfeiffer, & Schoelkopf, 2013; Stipanovic, Shumer, & Stringfield, 2012). Many programs lack third-party or industry validation of the process by which the credential is earned to ensure quality and relevance (CSW, 2013). No examination of the State of Alabama Career Readiness Indicators by an outside third-party using the criteria from the Perkins IV Act of 2006 for effective and high-quality program and high-quality credential has been conducted. Nor has an extensive survey of the state's employers regarding the rigor and legitimacy of the list of Career Readiness Indicators been conducted by an outside third-party.

Purpose of the Study

The purpose of this study was to examine a Career Readiness Indicator within the Alabama High School CTE program as requested by the Alabama State Department of Education, Office of Career and Technical Education/Workforce Development to validate the legitimacy of the indicator and the rigor of the program, which leads to an earned credential. Can one trust that this indicator provides a student with a legitimate credential demanded by employers within the state of Alabama, and assure employers that the holder of this credential has the knowledge, skills and abilities to perform at the level employers want and expect?

Significance of the Study

The National Assessment of Career and Technical Education Final Report (2014) identified the need for further research in the evaluation of CTE programs to provide supporting evidence of quality. Extensive research has been conducted evaluating the implementation of Program of Study, reform efforts related to CTE and student enrollment and outcome performance in CTE programs; however, there is little evidence of the evaluation of the quality of these programs in relationship to the credentialing process (Holzer, Linn, & Monthey, 2013; NASDCTEC, 2013; USDOE, 2014; USDOE/Office of Planning, Evaluation and Policy Development, and Program Studies Services, 2013). With Career and Technical Education growing in popularity with industry partners, policymakers, practitioners, and students, rigorous evaluation of existing programs must continue to expand. The Strengthening Career and Technical Education for the 21st Century Act, legislation for the reauthorization of the Carl D. Perkins IV Act and the Perkins National Activities authority support research efforts aimed at improving the quality and effectiveness of CTE programs which lead to industry-recognized credentials (ACTE, 2016; USDOE/Vocational Education National Programs, 2015). Ensuring that students complete high school, and are college and or career ready has been identified as important national policy goal (USDOE/Office of Planning, Evaluation, and Policy Development, and Program Studies Services, 2013) and critical for the State of Alabama's economic development (ADOE, 2015). Economic and education projections for the South suggest that this region is likely to face continued shortage of middle-skill workers in the future (National Skills Coalition, 2011). Creating an alternate educational pathway for students in high school and after graduation is a start; however, ensuring that this option is of the highest quality, effective in supporting the educational needs of young adults and the economic needs within the

state is vital for the program to achieve the desired state and national goals. According to the Corporation for a Skilled Workforce (2013) quality assurance mechanisms are lacking in career and technical education programs. The Lumina Foundation (2015) states that no mechanism exists to ensure the quality of credentials. External third-party validators have the potential to ensure that career and technical education credentials are earned via a rigorous high-quality program which provide evidence that the holder of the credential also has the competencies to perform as demanded by employers (CSW, 2013; Imperatore & Hyslop, 2015; NASDCTEC, 2010). This process also provides assurance of compliance that the plan on paper is happening with fidelity in the CTE programs (USDOE, 2014). The College Board (Holzer et al., 2013) suggest that assessment tools and accountability systems need to be developed to evaluate technical skills to expand high-quality CTE. This can be achieved with more innovation and rigorous evaluation of current programs. The results from this study contribute significantly to the accreditation of the state of Alabama's High School Career and Technical Education Program and credentialing process, and provide a meaningful tool that other states can use to evaluate their credentialing process. "In essence, a high-quality credential provides good evidence that the holder has the knowledge, skills and abilities to perform at the level employers want and expect" (CSW, 2013, p. 17) and this is achieved through a rigorous, effective, high-quality competency-based credentialing process and CTE program.

Research Questions

This study investigated the following research questions:

1. At what developmental levels was the credentialing process for the Career Readiness Indicator for an Electronics Technicians Association - Basic Direct Current (DC) credential within the Manufacturing cluster of the Alabama High School Program on

the key features governance, occupational standards, qualification framework, program quality, and deliverance and assessment?

2. At what developmental level on the key feature industry engagement was the Career Readiness Indicator for an Electronics Technicians Association - Basic Direct Current (DC) credential within the Manufacturing cluster of the Alabama High School Program?
3. Describe the results for the field-testing of the Career Readiness Indicator Evaluation Instrument as an effective tool to evaluate the credentialing process of an indicator.

Limitations and Assumptions

Delimitations. The study included only those participants who were identified by the Assistant Director of Workforce Development Alabama Department of Education as experts in educational issues of the Manufacturing cluster for the Alabama State Department of Education, Office of Career and Technical Education. Additionally, the industry partners selected to participate in the study were identified by the Assistant Director based on association with the Career Readiness Indicator for an Electronic Systems Technicians Association – Basic DC credential only. For these reasons, purposive sampling included participants from only Cherokee, Etowah, Jefferson, Lawrence, and Shelby Counties in the state of Alabama.

Limitations. Participants purposefully selected based on the criteria stated under the delimitation section above had the freedom to agree to participate in the research study. The validity of the data obtained from participants during the interviews served as a potential limitation in that it reflects the individuals' perspective and representation of their personal experiences and knowledge as related to the Career Readiness Indicator for an Electronic

Systems Technicians Association – Basic DC credential. As the researcher, my own personal biases must be a considered limitation in the study.

Assumptions. The participants identified to engage in the research study are experts in educational issues related to the Manufacturing cluster for the Alabama Department of Education High School Career and Technical Education program and the Career Readiness Indicator for an Electronics Technicians Association – Basic DC credential. The industry partners identified to engage in the research study represent authentic partners of the state of Alabama. Responses received from the participants accurately reflect their professional opinions and interview questions were answered openly and honestly.

Definition of Terms

- Career Readiness: The attainment and demonstration of requisite competencies that broadly prepare students for successful transition to the workplace. Career readiness involves three major skill areas: core academic skills, employability skills, and technical job-specific skills (National Association of Colleges and Employers [NACE], 2017).
- High-Quality Career and Technical Education Program: Programs aligned with college- and career- readiness standards as well as the needs of employers, industry, and labor. They provide students with a curriculum that combines integrated academic and technical content and strong employability skills. They provide work-based learning opportunities that enable students to connect what they are learning to real-life career scenarios and choices. Students participating in effective CTE programs graduate with industry certifications or licenses and postsecondary certificates or degrees that prepare them for in-demand careers within high-growth industry sectors (United States Department of Education Office of Vocational and Adult Education, 2012).

- High-Quality Credential: A high-quality credential provides good evidence that the holder of the credential has the knowledge, skills, and abilities to perform at the level employers want and expect (CSW, 2013).
- Market Value: Relationship between quality and the market and the importance to students, consumers, and programs (Haigh, Sheets, Koch, King, & Imperatore, 2014).
- Transparency: Users must be able to easily understand what a credential represents, including what competencies holders should have, what has to be accomplished to obtain it, and the rigor of how it was developed to ensure the validity (ACTE, 2013; NASDCTEC, 2014).
- Career Readiness Indicator: Credentials/certificates made available to students enrolled in a program where career and technical skill proficiencies are aligned with industry-recognized standards.
- Validate: Trustworthiness, credibility, authenticity, and conducted with integrity (Creswell, 2014).
- Relevance: In-demand credential within high-growth industry sectors (United States Department of Education Office of Vocational and Adult Education, 2012).
- Rigor: Creating an environment in which each student is expected to learn at high levels, each student is supported so that he or she can learn at high levels, and each student demonstrates learning at high levels (Williamson & Blackburn, 2008).
- Trust: Users need to be able to know that a credential accurately reflects the competencies it asserts (ACTE, 2014; NASDCTEC, 2014).

- Program of Study: A comprehensive, structured approach for delivering academic and career and technical education to prepare students for postsecondary education and career success (USDOE/Office of Vocational and Adult Education, 2010).

Organization of the Study

This chapter introduced the study by presenting the problem, purpose, significance, research questions, limitations, assumptions, and definition of terms. The remainder of the study includes four chapters, a bibliography, and appendixes organized in the following manner. Chapter II presents an introduction, which include a historic perspective, the influence of the progressive philosophy, and the history of federal funding and the Perkins Act. Additional foundational information is provided addressing a knowledge-based society and an understanding of the skills gap. This chapter concludes with a review of literature on research conducted in the evaluation of programs of study and the impact this has on the credentialing process. Chapter III provides the research design, methodology of the study, and purposive sampling of participants. The procedures followed to collect data via in-person interviews, and the instrument used to analyze these data are also included in this chapter. The findings of the study are presented in Chapter IV, and include the coding process, analysis and discussion of the findings. Chapter V contains a discussion and summary of the findings, conclusions, implications, and recommendations for future research. The study concludes with a bibliography and appendixes.

Chapter II: Review of Literature

One of the most fundamental obligations of any society is to prepare its youth to lead productive and prosperous lives as adults (HGSE, 2011). The primary goal of education today is to have all students graduate from high school ready for college and or a career. Today's high school graduates are entering a world that demands greater in-depth knowledge, higher-order thinking skills, and the ability to adapt to an ever-changing work environment (ADOE, 2015). A world-class education system must provide all students with meaningful opportunities and preparation, which will enable them to successfully participate in the knowledge-based, global marketplace of the 21st century. However, in the words of John Dewey, you cannot teach today the same way you did yesterday to prepare students for tomorrow (Dewey & Dewey, 1915).

There is little debate that education and training are critical to enhancing the United States global competitiveness, and the means to help our young adults obtain well-paying jobs and careers (National Skills Coalition, 2011). The challenge is how to make this a reality. If we compare secondary education in this country to other industrialized nations, a major area of weakness is that a career and technical educational pathway has not been emphasized or valued, particularly at the secondary educational level. For over a century, the United States led the world in preparing its young adults with the education they would need to succeed. In the late 1800s the United States had the most educated youth in the world. By 1940, the typical 18-year-old had a high school diploma. After World War II, the Servicemen's Readjustment Act of 1944 helped many Americans go beyond just a high school diploma, and move into higher education and complete advance degrees (Gray & Herr, 1998). U.S. Baby Boomers are some of the most

well-educated individuals in the world (HGSE, 2011), and yet today our young adults are struggling to find jobs. The Center for Labor Market Studies at Northwestern University (HGSE, 2011) found that employment rates for the nation's teens and young adults are at a post-World War II low – a true labor market depression. At the end of the first decade of the 21st century, there were troubling signs that the U.S. is now failing to meet its obligations to properly prepare millions of young adults for success. In an era in which education has never been more important to economic success, the U.S. has fallen behind many other nations in educational attainment and achievement (HGSE, 2011). Schooling must change to meet the demands of the workplace of the future.

Schools have always been responsible for the preparation of young adults for work; however, global competition and the shift to a knowledge-based economy has changed the nature of work, the requirements of employers, and the skills workers need to be successful in the future (Education Services Australia, 2014). To meet these needs, secondary-level CTE is in a state of transition to broaden its educational goals from simply preparing students for entry-level positions in occupations requiring specialized skills to integrating rigorous core academic skills, employability skills, and technical skills using research-based instructional strategies that meet the demands of today's employers. Employers expect students to graduate from high school prepared to navigate a workplace with the ability to interact and collaborate with others; plan and organize collectively; make decision independently; identify and problem solve; be creative and innovative, all within todays digital technological workplace (National Research Center for Career and Technical Education, 2010). This expanded vision for CTE requires teachers to have a wider range of skills and knowledge to better meet the educational needs of their students. Career and Technical Education is no longer about taking shop class or home economics, but

rather a viable option for students to be better prepared to engage, compete, and succeed in today's global economy (Hersperger, Slate, & Edmonson, 2013). It is no longer a pathway for the economically disadvantaged, minorities, or those who struggle academically. In fact, according to the National Center for Education Statistics, almost all high school students earn credits in CTE, and more than half earn three or more credits (ACTE, 2014). In additions to this research, the National Research Center for CTE has conducted numerous studies over the past 15 years and found that students who enroll in CTE courses are more likely to complete high school, achieve at the same level as other students, are more likely to move on to post-secondary education options, and are prepared to enter the workforce (Stone, 2014b). Career and Technical Education in the United States must evolve to provide our young adults with a high-quality program (Aliaga, Kotamraju, & Stone, 2014; HGSE, 2011), and it must provide professional development for teachers to transition to this new vision for workforce education.

In 2011 Harvard Graduate School of Education published *Pathway to Prosperity* a report which presented the following statistics about the U. S. economy in relationship to future jobs and challenged the mantra of college for all as the only way for young adults to succeed in the workplace of tomorrow. The Center on Education and the Workforce at Georgetown University projects that the U.S. economy will create approximately 55 million jobs by the year 2020 (ACTE, 2014). Nearly half of these 55 million jobs will require workers to have at least a high school diploma and some post-secondary education or an earned credential (ACTE, 2014). These are middle skill jobs such as electrician, construction manager, dental hygienist, machinist, assembly team leader, welder, and police officers. There are critics who may feel these jobs are not as prestigious as those filled by B.A. holders; however, it is worth noting that many of these jobs pay more than jobs held by those with a bachelor's degree. In fact, 27% of people with

post-secondary licenses, certificates, or credentials can earn more than the average person with a bachelor's degree (HGSE, 2011). A person with a CTE credential will earn on average between $4000 and $19,000 more a year than a person with a degree in humanities (ACTE, 2014; Lumina Foundation, 2015). The National Governors Association (2017) report similar statistics, by 2020 two-thirds of all new jobs will require some education and training beyond high school and specialized certifications or credentials. The National Student Clearinghouse (Vedder & Strehle, 2017) reports that between 2011 and 2016 the number of students enrolled in institutes of higher education has declined each year. There is evidence that the rising cost to attend college is no longer off-set by the financial benefit of earning a college degree (Vedder & Strehle, 2017). Today, the earning advantage associated with a bachelor's degree compared to a high school diploma continues to decline. For this reason, many people are suggesting that students skip a traditional four-year college, and look at alternate educational pathways for academic and economical success (SREB, 2015; Vedder & Strehle, 2017). It is critical that our young people discover the connection between their education, training options, and career opportunities. Secondary-level CTE is broadening its purpose to achieve this goal (National Research Center for Career and Technical Education, 2010). This pathway offers students opportunities for career awareness and early preparation in soft skills which employers say many young adults do not have. With the combination of academic and technical knowledge students can earn certifications and credentials while in high school. These skills and credentials can immediately transfer to post-secondary education, the workplace, or both. This research study evaluated one such credential and the program through which the credential is earned.

Chapter Organization

Chapter II will begin by exploring the historic foundation of career and technical education in the American school system. This will include the progressive influence and the design of this program in high schools. Next, the Perkins Act and the influence this body of legislation has had on CTE from the inception in 1963 up to the most recent amendments will be discussed. This will be followed by a discussion of a knowledge-based society and the economic impact of the skills gap and how both affect employers. The chapter will conclude by examining the literature related to quality. This will include research conducted for high-quality programs of study, high-quality credentialing, and finally high-quality CTE programs.

Purpose of the Study

The purpose of this study was to examine a Career Readiness Indicator within the Alabama High School Program of Study as requested by the Alabama State Department of Education, Office of Career and Technical Education/Workforce Development to validate the legitimacy of the indicator and the rigor of the program, which leads to an earned credential. Can one trust that this indicator provides a student with a legitimate credential demanded by employers within the state of Alabama, and assure employers that the holder of this credential has the knowledge, skills and abilities to perform at the level employers want and expect?

Research Questions

This study investigated the following research questions:

1. At what developmental levels was the credentialing process for the Career Readiness Indicator for an Electronics Technicians Association - Basic Direct Current (DC) credential within the Manufacturing cluster of the Alabama High School Program on

the key features governance, occupational standards, qualification framework, program quality, and deliverance and assessment?

2. At what developmental level on the key feature industry engagement was the Career Readiness Indicator for an Electronics Technicians Association - Basic Direct Current (DC) credential within the Manufacturing cluster of the Alabama High School Program?
3. Describe the results for the field-testing of the Career Readiness Indicator Evaluation Instrument as an effective tool to evaluate the credentialing process of an indicator.

Historic Perspective

Unfortunately, although employers are desperate for skilled workers and students are choosing alternate educational option - CTE programs still battle a negative stigma associated with this educational pathway. To understand why pursuing a career and technical pathway in high school invokes such a negative image for many today, it is important to examine the origins and history of this educational pathway. The first formalized vocational education system in America began with the apprenticeship system brought over from Europe (Gordon et al., 2015; Gray & Herr, 1998). The colonies used this method to help care for orphans, poor children, and delinquents. The vision of this system was that local tradesmen would provide care, some basic level of academic instruction, and train the children in a trade. For this service, they would have free labor, and ultimately the children would eventually become self-sufficient by learning a trade. This is the premise of the "skills-employability" paradigm, which is the idea that those living in poverty are a threat to society, and to avoid this threat, these individuals should be trained in a skill to obtain a job. By having a job, they would no longer live in poverty, and therefore not be a burden or a threat to society (Gray & Herr, 1998).

After the Civil War, workforce education was expanded to African Americans, particularly in the South (Gray & Herr, 1998). Separate schools were established for African Americans with the primary focus being job training. Booker T. Washington supported this development, and emphasized that there was dignity and honor in pursuing a vocational pathway. He recognized that academic development was just as important as learning a skill or a trade. Washington (1895) stated, "No race can prosper till it learns that there is as much dignity in tilling a field as in writing a poem" (as cited in Gordon, 2003, p. 24).

Progressive Influence

America in the late 1800's and into the 20th century was in a state of transition. The agrarian life of rural America was changing because of industrialization and urbanization (Rockefeller, 1991). The Industrial Revolution created not only a working class demanding new educational opportunities, but also jobs requiring an entirely new type of educated worker (Gordon, 2003). This era saw the rise of capitalism. Motivated individuals could take advantage of economic opportunities and the average person for the first time could reap the benefits of an extended education. Schools became the mechanism for survival and the means of upward mobility in society (Galvin, 2003). The needs of society were changing as social privilege from aristocracy gave way to ambition (Galvin, 2003). Horace Mann in the mid 1850's published a series of annual reports in which he expressed his opinions on educational issues that set the stage for the educational system that is still in place today (Gutek, 2014). Mann believed that economic wealth would increase through an educated public (Galvin, 2003) and argued that every child had the natural right to be educated, and that society improves as a result of an educated public (Gutek, 2014).

Early in the 20th century the views of John Dewey, Charles Prosser, and others supporting the progressive philosophy worked to reform the authoritarian style education approach and create a public education system that supported the values established by Horace Mann years earlier. These individuals also felt that teachers and schools should work to solve the social, political, and economic problems in society (Gutek, 2014). The challenge was how to make this a reality within schools. The primary focus of these debates was, what was the primary purpose of education? Dewey believed the purpose of an education was to foster the growth of democratically minded citizens (Gordon, 2003). He saw no distinction between the educational needs of the owner of a factory or the worker on the factory floor. Government regulation of the economy and the restructuring of social institutions, such as schools, was needed to create a truly democratic society free of oppression (Rockefeller, 1991). The economic and societal needs during this time were to prepare massive numbers of students, who were now remaining in school, for jobs in manufacturing (Perry & Wallace, 2012). Public schools had the potential to become the training ground for line workers who could perform laborious tasks in an efficient, regimented manner (Gordon, 2003; Perry & Wallace, 2012). Efficiency was to be achieved by concentrating all the decision making at the managerial level, and ensuring that the line workers on the factory floor made very few if any decisions (Gray & Herr, 1998). Charles Prosser embraced this idea, and believed the purpose of education was to develop human capital in order to have a successful industrial economy. For this reason, the industrialized assembly line concept was applied to education with the factory-model classroom (Aliaga et al., 2014; Rose, 2012). Educational policies, particularly in the establishment of vocational education in high schools emerged because of these discussions and societal needs. High school vocational curriculum was viewed as a way to prepare a great number of people for the most common

occupations available to them after high school. Educational opportunities for all were at the forefront of these arguments, however societal, economical, and political influences shaped the design and structure of the program.

This era was also influenced by social Darwinism, the idea of the survival of the fittest, social Darwinism was applied to society by the economist Herbert Spencer in 1860. His view was that social class was inevitable. Those who are rich are the fittest, and those who are poor are the weakest. His thinking was that this social hierarchy is inevitable, and therefore it is only equitable to tailor one's education based on their educational needs. At this same time intelligence was believed to be of two mutually exclusive types. People were believed to have dexterity, or "hand mindedness", or they were believed to have more conventional intelligence, "book knowledge". This thinking created the rationale for the differentiation of the high school curriculum. It was argued that vocational education was for those who were believed to have hand mindedness, and the general education was for those who were considered academically minded (Gray & Herr, 1998). Dewey opposed the idea of differentiation, and believed all young adults needed a broad education with an understanding of vocation and a strong academic curriculum (Rockefeller, 1991). Today this thinking would be linked to trait-and-factor theory, first introduced by Frank Parson in 1909 (Grey & Herr, 1998). The idea is that individuals have certain traits, interests, or skills and that different occupations or educational options align with these various traits. By examining these interests, one can align an individual's traits with various career or educational options. It is used in many career guidance models and is based on differential psychology, which is concerned with identifying and measuring individual differences.

Vocational Education in Public High Schools

By 1900 it was clear that publicly supported workforce education would become part of the American high school curriculum, but what this would ultimately look like was still debated, and these discussions involved primarily those associated with education. In 1910 industry representatives became involved in the discussion. Initially opposed to vocational education in schools, the American Federation of Labor and the National Association of Manufactures gave support and approval to establish trade instruction in schools (Gordon et al., 2015). By 1914, Woodrow Wilson appointed a special commission to study if vocational education in public schools was warranted. Charles Prosser was the principal author of the final report and described a successful vocational education required the combination of two elements. These two elements included, practice and thinking about practice, and doing and thinking about the doing (Gordon, 2003). Although this description appears to encourage the combination of academic work and practical application the final recommendation to Congress was an educational program that would be separately administered with a narrow focus in the areas of manufacturing, agriculture, and home economics. This pathway would help nonacademic students gain employment after high school (Gordon et al., 2015). The chairman of the commission Senator Hoke Smith declared that the establishment of vocational training in public schools was an urgent social and educational need of society (Gordon et al, 2015).

The Smith-Hughes Act of 1917 is viewed as the formalized beginning of vocational education in the public schools (Gordon, 2003). For the first time, the federal government required schools to develop vocational programs for their students. The act also provided government funds so schools could purchase the necessary equipment to teach these subjects properly and hire teachers with vocational experience. States were required to have separate

boards for vocational education programs and regular school programs. Although both programs were housed in the same school building, this created an image that the two pathways were in fact separate and different. Vocational teachers were often viewed by public education teachers as not being real teachers, and in many case this was an accurate description, for many did not have college degrees but instead had extensive work experience in specific trades or industries. The vocational education system in place up until the 1990s was based on much of this thinking and history (Gray & Herr, 1998).

History of Federal Funding and the Perkins Act

The Smith-Hughes Act marked the beginning of federal funding for vocational education. This funding was based on specific career pathways, which included only jobs related to agriculture, home-making, and trade and industry. With each new amendment to the Act over the years federal policy evolved and funding increased based on the social and economic needs in the United States (ACTE, 2017; Gordon, 2003). For example, in 1936 the George-Deen Act expanded to include jobs training in marketing, and for the first-time funds were provided for teacher training. "The year 1963 was the most significant in the legislative history of vocational education since the passage of the 1917 Smith-Hughes Act." (Gordon, 2003, p. 84). The Perkins-Morse Bill, or the Vocational Education Act of 1963 was signed into law by President Lyndon B. Johnson. The significance of this law was that for the first-time funding was based on the educational needs of students, not just the employment needs of industry (Gordon, 2003). Funds were no longer allocated for specific vocational pathways, but rather for particular age groups. According to Calhoun and Finch (1982) 50 percent of the funds were to be used for the 15 to 19 age group, 20 percent for the 20 to 25 age group, 15 percent for the 25 to 65 age group, and 5 percent for all age groups (as cited in Gordon, 2003). The intent of this change was to

provide educational training opportunity to all members of the community. This was the progressive philosophy of Dewey and others at the beginning of the 20th century in which government had a responsibility to provide equal access to skilled jobs for all members of the society (Gray & Herr, 1998). Over the next 20 years each new amendment expanded support for specialized groups. Initially, it was for disadvantaged individuals and students with disabilities. In the '70s, the needs of limited English proficient students were addressed. In 1976 equal opportunities for women were included in the amendment. This era also marked a change in the focus of vocational education. Schools continued to operate with separate systems, one for those following an academic pathway and one for those interested in entering the workforce directly after high school; however, discussions began to shift to one of rigor versus relevance or academic versus real-world application (Perry & Wallace, 2012). A broader view of this educational pathway began to expand into business and commerce classes, and for the first time an examination of program quality and need for improvement entered the discussion. This coincided with the education reform efforts of the mid 1980s because of the publication of *A Nation at Risk* in 1983 (Perry & Wallace, 2012). This report found that the U.S. was becoming less competitive in international economic markets due to low educational standards, which resulted in poor student performance particularly on international tests. The focus of this reform effort was to improve the proficiencies of college-bound students in language, mathematics, and science while virtually ignoring the needs of work-bound students (Perry & Wallace, 2012). In 1988 the William T. Grant Foundation published the report known as the *Forgotten Half* (Rosenbaum et al., 2015). Although reform efforts were focused on college-bound students this report showed that over half of U.S. high school graduates did not attend college, and this fact holds true even today (HGSE, 2011; Holzer et al., 2013).

The reality was that schools were failing to prepare a large segment of the population, approximately one million students each year, for high-skilled, high-wage jobs. The Carl D. Perkins Vocational Act of 1984, known as the Perkins Act stressed that effective vocational programs were essential to the nation's future as a free and democratic society (Gordon et al., 2015) and therefore established two important goals for this educational pathway. The economic goal was to improve the skills of the labor force, and the social goal was to provide equal opportunity for all adults (Hersperger et al., 2013). These were the original ideals of the Smith-Hughes Act in 1917. The 1990 amendment to the Act ushered in a new era and contemporary vocational education began to take shape. The Carl D. Perkins Vocational and Applied Technology Education Act of 1990 embraced accountability, alignment of secondary and post-secondary course of study, academic integration, and business partnerships (ACTE, 2017). These changes began the true transformation of CTE from a separate educational pathway of either college or career to one of choices and opportunity. All students graduating from high school would be held to high academic standards. The 1998 amendment reflect the societal and economic changes taking place in the country with a shift from job-specific training to rigorous skill-based career education (ACTE, 2017). The final transformation of the pathway occurred with the Perkins Act of 2006, which has been in place for the past 10 years and had great influence on current educational policy. The term vocational education was retired and Career and Technical Education was born. In the age of accountability, the addition of a Program of Study was viewed as a commitment to improve quality for CTE (Shumer, Stringfield, Stipanovic, & Murphy, 2011), and with $1.3 billion in federal funding support, career and technical education was firmly established as a valid and credible educational pathway for students.

Knowledge-Based Society

It has been 100 years since the Smith-Hugh Act became law, and once again the nation's social, economic, and political needs have changed. The progressive ideals of individual liberation and social reconstruction (Rockefeller, 1991) are relevant and necessary once again. Dewey stated that, "democracy has to be born anew every generation and education is the midwife" (Rockefeller, 1991, p. 234). Rose wrote that the Information Age has facilitated a reinvention of nearly every industry except education (2012). Education must evolve to meet the needs of the world today, which is complex and diverse, with powerful technical capacity. To properly prepare students for work in the 21st century it is important to first recognize the world has changed. Global competition due to technological advancements and the shift to a knowledge-based economy has influenced the nature of work, the requirements of employers, and the skills that workers need to succeed today. In 1996 the Organization for Economic Co-Operation and Development (OECD) presented a report, which provided trends, definitions and descriptions of the skills required for a knowledge-based society. Researchers stated that knowledge is now recognized as the driving force of productivity and economic growth in countries around the world. Changes in technology are making skilled labor more valuable, and unskilled labor less so. A postindustrial economy needs skilled workers with higher-order thinking skills. Automation and technology have eliminated the need for the uneducated worker standing in an assembly line awaiting a decision from a manager (Hersperger et al., 2013). Employers demand workers who can think independently and problem solve on their own. Employment in the knowledge-based economy is characterized by the demand for highly-skilled workers, who can continuously adapt to an ever-changing workplace. To better understand the

impact of these implications on the preparation of future employees, it is critical to first understand the terminology.

It is recognized that technology has changed the world (Gordon et al., 2015). Technology is defined as a discipline or body of knowledge and the application of this knowledge combined with resources to produce outcomes in response to human desires and needs (Gordon et al., 2015). Government policies must embrace the investment in human capital through education (OECD, 1996). Employers now pay more for knowledge workers than for unskilled individuals who engage in manual work (OCED, 1996). According to the OCED (1996) knowledge is organized into four distinct categories: Know-what, Know-why, Know-how, and Know-who. Know-what refers to knowledge of facts, it is typically known of as information. Know-why is scientific knowledge based on principles and laws of nature. As the nature of society has shifted to the Information Age, Know-how and Know-who have become more important. Know-how is having the skills or capacity to do something well. Know-who involves the formation of special relationships to access experts and use their knowledge efficiently. This is especially important in today's technological society in which new information is produced at an accelerated rate. The creation of new knowledge produces a work environment which is in a constant state of change. Employers need workers who can adapt to this new workplace. Soft skills, such as collaboration, communication, and networking are in great demand by employers. Know-what and Know-why are readily available in the Information Age with the click of a button; however, Know-how and Know-who require practical experience and social engagement. These skills are not easily transferred. In a knowledge-based economy learning by doing is paramount (OCED, 1996). The factory-model approach to education, which

served the needs of society in 1917, will no longer meet the needs of the knowledge-based society in 2017.

Skills Gap – Employer Needs

According to the National Governors Association (2017) by 2018, 63 percent of the jobs, or approximately 30 million jobs will require some postsecondary education or industry-recognized credential but not a four-year college degree (Hoffman & Reindl, 2011). Currently the United States does not have enough skilled workers to fill these positions. In 2015 a survey of governors found that the greatest obstacle for economic growth in their states was the workforce skills gap (State House News Service, 2016). Many governors expressed the need to build a skilled workforce to fill current jobs which will drive the economy in their states forward. These findings were supported by research conducted by the Lumina Foundation in 2015. In a survey of CEOs from top U.S. companies, 97 percent of the respondents stated the skills gap as a major problem, and reported trouble finding people with the skills they need to fill available jobs (Lumina Foundation, 2015). Information technologies have radically changed the nature of work and the workplace environment over the last couple of decades. Employers have difficulty finding workers who can make the most of these new technologies (Collins, 2015). The Lumina Foundation (2015) survey confirmed this challenge as well, as 62 percent of CEOs reported trouble finding applicants for jobs requiring information technology and advanced computer knowledge. For example, automation has transformed U.S. manufacturing. Automated factories require skilled workers who can operate, program, and maintain new computerized equipment (Whoriskey, 2012). Know-how has replaced Know-what and why. Preparation for middle-education jobs is growing in importance while jobs requiring only a high school education or less have basically disappeared (Education Services Australia, 2014; Gonzalez, 2012). P. J.

Thompson, president of Trans-Matic stated, “It used to be that a factory owner would say, I need 20 guys, and pull them right off the street, now it’s: I need 20 guys with very specialized technical skills.” (Whoriskey, 2012, p. 3). A 2011 Manpower survey found that 52 percent of U.S. employers are having trouble filling mission-critical middle skill jobs. These are jobs that require a high school diploma, but not a four-year college degree. The hardest jobs to fill are those requiring a skilled trade (National Skills Coalition, 2011). In 2011, the National Skills Coalition recommended that states could close the workforce skills gap with the implementation of three specific strategies. First, education and training must align with the skill needs of local industries. Partnerships with stakeholders connected to industry, labor and trade associations, and educational institutions must be forged and strengthened. Second, well aligned career pathways, workforce education, and training provide future employees with access to academic skills, job training and industry-recognized credentials while still in high school. Students with earned credentials can immediately enter the workforce after graduation and are prepared for post-secondary education options. Finally, in the current fiscal climate it is more important than ever for states to monitor and evaluate the return on investment to achieve better outcomes for future workers and industry partners. This will require the collection of outcome data across the full range of agencies. Due to the accountability requirements of Perkins IV, many states measure success of students with the attainment of a credential. It is critical to also collect data validating the quality of the credential earned. Can employers trust that the holder of these credentials has not only the knowledge and skills, but can also demonstrate competency to perform the job associated with the earned credential (Holzer et al., 2013)? Career and Technical Education programs can close the middle-skills employment gap. High-quality high

school CTE programs offer career pathways, and in most cases the ability for students to earn industry-recognized credentials in high-demand, high-wage jobs.

Quality Defined

James R. Stone III, the director of the National Research Center for Career and Technical Education at the Southern Regional Education Board states, "The essence of what CTE needs to look like for the 21st century is captured in the phrase, *high-quality CTE*." (Stone III, 2014a, p. 27). This catch-phrase is how national organizations, policy makers, and educational leaders are differentiating between the old shop class of the past and the valid quality career preparation educational pathway of today's CTE programs. To understand quality CTE it is important to recognize that it is a combination of two co-dependent elements: (1) A high-quality program, which leads to (2) A high-quality credential. A quality program provides the means for attainment of academic, employability, and technical skills with a rigorous Program of Study as required by Perkins IV Act. As recipients of Perkins IV funds states must include the following elements in Programs of Study: (1) Alignment of secondary and postsecondary elements; (2) Include academic and CTE content in a coordinated, non-duplicated progression of courses; (3) Offer opportunity, where appropriate for students to acquire postsecondary credits; and (4) Lead to an industry-recognized credential or certificate at the postsecondary level, or an associate or baccalaureate degree (USDOE, 2010). Programs of Study were added to the 2006 legislation as a way to improve the quality of all CTE programs. The goal was to establish a comprehensive, structured approach for delivering academic and career and technical education (Perkins Collaborative Resource Network, 2017) rather than allowing states to have a mishmash of individual programs. An earned credential is one measure of accountability states can use to evaluate student success in CTE programs. A quality credential earned through a quality

program provides employers proof and assurances that the holder has demonstrated proficiency and has the competency to perform the skills associated with the specific credential. The combination of all these elements, according to the ACTE, represents a career ready student. The research literature provides various definitions of these elements based on various national organizations.

High-quality program of study. In 2012, the National Association of State Directors of Career Technical Consortium defined quality by establishing a set of Common Career Technical Core standards. The standards, which include 12 Career Ready Practices, provide benchmarks for 16 Career Clusters. According to the NASDCTE the standards represent the knowledge and skills students should know and be able to do after completing a program of study. The standards are quite broad and for this research study do not provide benchmarks for an electronics program of study. The Career Ready Practices represent employability skills such as the ability to communicate clearly, demonstrate creativity and innovation, use critical thinking, and work productively in teams. Southern Regional Education Board (2015) state quality CTE programs of study are aligned with college and career-readiness standards; engage students through intellectually demanding, project-based assignments; use academically and technical knowledge and skills to produce products or services of value beyond the classroom. These elements align with the characteristics of a high-quality CTE program of study as described by the College Board (Holzer et al., 2013) which include being a part of a career-oriented system in secondary and postsecondary schools, the integration of rigorous academic curricula into CTE, employability skill, and project-based or work-based educational settings. Finally, the National Research Center for Career and Technical Education, an organization which has conducted extensive research on CTE, state that high-quality programs integrate rigorous academic and

technical skills through the application to real-world problems (Shumer et al., 2011). Learning must include work-based opportunities, which actively include employers in the training and education of students. Successful high-quality CTE programs have active student organizations and extensive and ongoing professional development for teachers. These elements are similar to those of the NASDCTE and the College Board. The research study utilized the following definition: (as defined in the Perkins IV Act of 2006) a comprehensive, structured approach for delivering academic and career and technical education to prepare students for postsecondary education and career success (USDOE, 2010).

Credential versus Competency. As stated in the introduction of Chapter I, the U.S. General Accounting Office examined the strategies used to prepare work-bound young adults for employment in the United States, England, Germany, Japan, and Sweden. One of the most significant findings from this study was that the United States Career and Technical Education programs tend to measure the successful preparation of students with the completion of a program and an earned credential. Other countries have established competency-based national training standards that are used to certify skill competency in addition to an earned credential (Gordon et al., 2015). This aligns with the accountability component associated with Perkins IV Act in which one measure for student success is an earned certification or credential. In 2006, a study conducted by the National Center for Vocational Research examined vocational education training in Australia, the United Kingdom, and Germany and found that all three countries focused on practical training according to national industry competency or occupational standards (Misko). Personal development and education of knowledge and skills ensures that students are competent in the performance of skills foremost, and assessment and accredited qualification, or credentialing is earned only after students are able to demonstrate proficiency of

skills in the workplace. The focus is on demonstrated competency not just the earned credential. The Association for Career and Technical Education (2014), and the National Association of State Directors of Career and Technical Education Consortium (2014) have addressed this concern as a crisis of credibility in education and workforce credentialing process. Stakeholders at all levels are concerned with the proliferation of programs offering credentials without a quality assurance mechanism which provide students, employers and government agencies with the true market value of the credentials being offered (CSW, 2013; Lumina Foundation, 2015).

Postsecondary credentials represent the knowledge and skills a student has acquired through a Program of Study. The credential represents a student's currency, or access to additional educational opportunities, potential jobs, and career pathways (Lumina Foundation, 2015). Traditionally, students, workers, and employers have used academic credentials such as diplomas, degrees, or CT credentials and certifications as a way to show competence for a job. Perkins IV mandated that one component of a Program of Study is for students to have the opportunity to earn industry-recognized credentials. States have been urged to use technical skills assessments aligned with industry-recognized standards to measure students' CTE technical achievement. The purpose of this addition to the legislation was to improve instruction and to provide future employers with proof that students had acquired the knowledge and skills required for a job (NRCCTE, 2010). The acquisition of some form of postsecondary credential is essential for both students who will enter the workforce and the nation's economy. In 1973 only 28 percent of all jobs in the U.S. required some form of postsecondary degree or credential. Labor market economists predict that by 2020 approximately 65 percent of jobs will require some form of postsecondary education, training, or credential (Lumina Foundation, 2015). One of the greatest challenges employers face is determining if prospective employees have the

knowledge and skills required for a job. In addition to this challenge, the Corporation for a Skilled Workforce (2013) report that employers have a chronic problem finding the right people with the right skills for specific jobs. There appears to be a mismatch between employer needs and the skills potential employees have obtained. For employers, it is difficult to determine if a prospective new hire is truly qualified. In 2015 the Lumina Foundation described this challenge as a crisis of credibility in our credentialing system. There appears to be a lack of transparency in defining what a credential means, the true market value of the credential, and how it was earned – the quality of the credential.

As the demand for credentials has grown so has the number of providers. The National Center for Education Statistics in 2012 stated that there were approximately 26,000 postsecondary providers, in addition to traditional education institutions, offering some form of certification or credential (Lumina Foundation, 2015). There are more than 4,000 organizations in the U.S. that operate with the sole purpose of offering various credentials. Less than 10 percent of these agencies are accredited or reviewed by a third party. This decentralized mixture of both educational institutions and for-profit organizations has created a credentialing system which lacks quality assurance for the true market value of the credential (CSW, 2013; Lumina Foundation, 2015). Students and future employers must be able to rely on the true quality of the credential. This means that the holder of the credential has the knowledge, skills, and competency to perform the job represented by the earned credential (Lumina Foundation, 2015).

Comparing the U.S. credentialing process to that of other industrialized nations, the greatest difference is that our CTE programs tend to measure the successful preparation of students with the completion of a program and an earned credential. The other countries have established competency-based national training standards that are used to certify skill

competency in addition to an earned credential (Gordon et al., 2015). The Corporation for a Skilled Workforce state, "The U.S. desperately needs a more coherent competency-based credentialing system" (2013, p. 7), to ensure that students and future employers get the most out of educational training and certification. A poll conducted by Gallup and Lumina Foundation found that Americans want an education system that is focused on learning and demonstrated competencies, rather than just seat time (2015). Traditionally, credentials earned in the U.S. CTE programs, have been primarily based on the completion of credit hours based on time in class. While some credentials represent some defined knowledge and skills, many represent completion of an education program which may not necessarily have clearly defined learning outcomes (Lumina Foundation, 2015). In a knowledge-based society this represents know-what and know-why; however, as the needs of employers has shifted based on technological advancements in the workplace this approach is no longer adequate. Certainly, the focus of educational reform efforts to improve the quality of CTE programs are designed to address this challenge; however, reform to the credentialing process is also necessary. The focus has been on the quality of CTE programs, and this must also address the quality of the credential earned through the CTE program. Current quality assurance mechanisms are lacking in the validation of the credentialing process which must include quality curricula, learner engagement, work-based assessments tied to industry standards, all of which provide knowledge and skills, but most importantly competency. According to the Corporation for a Skilled Workforce, many credentials lack third party validation to ensure quality and relevance to workforce needs (2013). Based on these challenges and a review of literature, national reports, and industry recommendations, CSW created the following descriptions, which include the essential components of a high-quality credentialing process.

High-Quality Credentialing Process. Credentials are indicators of skills and knowledge gained by an individual and are a measurement, assessment, and documentation of skills acquisition. Although one of the elements that states must include in a Program of Study as required by the Perkins IV Act of 2006 is that the CTE program must lead to an industry-recognized credential or certification at the post-secondary level, however there has been limited research conducted on the credentialing process. The focus has been primarily on the quality of CTE programs. The Southern Regional Education Board (2015), and the Corporation for a Skilled Workforce (2013) are two organizations that have provided research and guidance specifically for credentials and the credentialing process. A high-quality credentialing process must include process standards. These describe how credentials are developed to include competencies, standards, curriculum, assessments, and ultimately validation. The most important element of a high-quality credential is validated competencies. This is a measurable pattern of acquired knowledge, skills, abilities, and behaviors that an individual needs to perform work roles or occupations. These are based on industry standards, which describe what a person must know and be able to do to perform work at a specific job or occupation. This is achieved through the acquisition of skills and knowledge with informal learning and competency-based curriculum. Learning must include assessments. This is the process of measuring and documenting an individual's competency. Effective assessments are deeply embedded at all stages of the learning process. Competency attainment based on competency-based assessments must replace seat-time or credit hours earned as the primary metric for credential attainment. A high-quality credential require validation by a third party. According to the Corporation for a Skilled Workforce, the vast majority of credentials have no third-party validation (2013). The current process for credential validation is based on seat-time or credit earned from an

educational institution based the completion of a program. Finally, a high-quality credentialing process must include a component for continuous improvement. This requires on-going review and a modification process which ensures that credentials and the related components (competencies, skills, curriculum, and assessments) remain updated and market relevant. Based on this literature the following definition of a high-quality credential was used for this research study: a high-quality credential provides good evidence that the holder of the credential has the knowledge, skills, and abilities to perform at the level employers want and expect (Corporation for a Skilled Workforce, 2013).

High-Quality Career and Technical Education Program. A high-quality credential is earned through a high-quality CTE program. To validate the quality of a credential, the program through which the credential is earned must also be evaluated and validated. In 2010, the USDOE, Office of Vocational and Adult Education produced a self-assessment tool which states could use to evaluate the quality of their CTE programs. The instrument was created to provide states with a guideline for their CTE programs to meet the requirements mandated by the Perkins IV Act of 2006. These same requirements are included in the current legislation for the re-authorization of the Act, and are, therefore, still relevant today. The *Program of Study Framework* contains 10 supporting elements that are viewed by CTE practitioners as essential for a high-quality CTE program. The framework begins with the need for strong legislation and policies that include all stakeholders. This includes funding support at the national, state, and local level. Decisions for program policies must include partnerships and collaboration between local industry partners, workforce agencies, and educational institutions at both the secondary and postsecondary level. As required by the Perkins Act, programs must provide students with non-duplicative sequences of courses, which align secondary and postsecondary courses. This

alignment provides a seamless and smooth transition to postsecondary educational options with credit transfer agreements. A high-quality program provides students with learning opportunities which include innovative and creative instructional practices. These include contextualized, work-based, project-based and problem-based learning approaches. The goal is to provide students with the opportunity to gain academic and technical skills proficiencies. The high-quality programs do not separate academic coursework from technical skills, but rather align college and career readiness standards in a cohesive integrated manner. Accountability and evaluation components must provide evaluations based on knowledge, skills and demonstrated competency associated with an earned credential. Finally, high-quality CTE programs provide support for instructors through professional development, and support services for students, which include both academic and career advisement. Since the inception of this framework in 2010, most of states have used the assessment instrument to evaluate, monitor, and improve their CTE programs.

In 2010, the National Research Center for Career and Technical Education produced a report based on extensive field-based research conducted over several years which examined the development and implementation of Programs of Study in various states. The report, *A Cross-Study Examination of Programs of Study* (Shumer et al., 2011) provided specific details from three of these studies, which outlined common elements, or attributes of mature, well-established, highly-developed, and most importantly successful CTE programs. Six themes emerged from this work, and align closely to the characteristics described in the *Program of Study Framework* (USDOE/Office of Vocational and Adult Education, 2010). The first attribute of a high-quality CTE program is engagement. Student engagement in meaningful learning requires opportunities to apply academic skills in the work environment. Strong student learning

focused on both academic and technical skills illustrate that both components are critical for success. A separate pathway will no longer provide students with the knowledge and skills necessary for success in their postsecondary life. The goal of the learning process is to achieve some form of degree, or industry-recognized certification. The certification process must include the demonstration of acquired knowledge, skills, and competencies. There must be a system with seamless connection and transition between secondary and postsecondary options. One of the greatest challenges for CTE programs is overcoming the negative stigma associated with this educational pathway. High-quality programs, through student success, can advocate, raise understanding, and ultimately respect for this option. Finally, as with all learning opportunities, one of the greatest influences on student success is a high-quality teacher (Hattie, n.d.). Instructional practices include the integration of both academic subject matter and technical skills, with project-based or work-based learning.

As a final item in this review of literature related to high-quality CTE programs, the College Board (Holzer et al., 2013) provided the results of their research and highlight the important characteristics of a high-quality CTE program. These too align with the work presented by the U.S. Department of Education and the National Research Center for Career and Technical Education. When students leave high school, if the K-12 system has served them well they are both college (postsecondary) and career ready. This requires a system that is career-oriented which integrate academic and technical skills, involve employers, and provide a seamless transition between secondary and postsecondary pathways. The system must be inclusive and flexible providing all students with guidance, accessibility, and options for their unique values, desires, and needs. By placing value on options, the idea of tracking students will be eliminated. To ensure that CTE curricula are rigorous academically, they should be aligned

with state core academic standards. Technical skills should align with industry-recognized standards. Instructional practices should include contextual learning, project-based, work or community based-learning opportunities. Collaboration with industry partners on curricula development ensure that technical content is current and relevant. Assessments should provide evidence of demonstrated competencies. Employability skills such as communication, reasoning, problem solving, work ethic, and the ability to work collaboratively must also be included. Finally, support services for both teachers and students allow for continuous improvement in quality. Professional development provides teachers with up to date best-practices instructional awareness. Guidance and career options counseling for students provide the support to ensure that they are prepared to make the best choices for their postsecondary path and are truly career ready. See Table 1 for a visual representation of the alignment of the three models with the Career Readiness Indicator Evaluation Instrument (Tucker, Kaminsky, & Witte, 2016).

Table 1

Alignment of High-Quality CTE Program Literature and the Career Readiness Evaluation Instrument designed for this research study

Career Readiness Indicator Evaluation Instrument (Tucker, Kaminsky, & Witte, 2016)	Rigorous Program of Study Framework (U.S. DOE/OVAE, 2010)	Program of Study A Cross-Study Examination (NRCCTE, 2011)	The Promise of High-Quality Career and Technical Education (College Board, 2013)
Governance	Legislation and Policies	Raised understanding and respect for CTE	Strong options for all students
Industry Engagement	Partnerships		Career-oriented educational system
Delivery and Assessment	Professional Development		Professional Development for teaching staff/leaders
Delivery and Assessment Program Quality	Accountability/ Evaluation		Rigorous Academic Curriculum and Assessment/ Accountability
Program Quality	College/Career Readiness Standards	Strong focus on student learning	Career-oriented educational system and alignment of academic curricula
Qualification Framework	Course Sequence		Strong options for students
Qualification Framework	Credit Transfer Agreements	Connecting secondary and postsecondary systems	Career-oriented system with seamless transition and dual enrollment
Delivery and Assessment	Guidance/Academic Counseling		Strong options for students with guidance and student support services
Delivery and Assessment	Teaching and Learning	Student engagement and high-quality teachers	Rigorous Academic Curricula
Governance Occupational Standards	Technical Skills Assessments	Certification of knowledge and skills	Rigorous Technical Skills Development

Based on this review, the following definition of a high-quality career and technical education program was used for this study:

> Programs aligned with college- and career- readiness standards as well as the needs of employers, industry, and labor. They provide students with a curriculum that combines integrated academic and technical content and strong employability skills. They provide work-based learning opportunities that enable students to connect what they are learning to real-life career scenarios and choices. Students participating in effective CTE programs graduate with industry certifications or licenses and postsecondary certificates or degrees that prepare them for in-demand careers within high-growth industry sectors (United States Department of Education Office of Vocational and Adult Education, 2012).

Chapter Summary

There is little debate that education and training are critical to enhancing the United States global competitiveness, and the means to prepare our youth with the knowledge and skills needed to lead productive prosperous lives as adults. High-quality CTE is a valuable educational option to make this a reality. This work began one hundred years ago, and is evident in the current legislation for the reauthorization of the Perkins IV Act of 2006 to raise the bar to ensure that CTE programs are of the highest-quality for all students. In the words of James R Stone III (2014a) "career and technical education has been rediscovered by federal, state, and local policy-makers; however, it must move from good to great" (p. 27) to continue to improve. Using other industrialized nations as a guide, Americans need a more comprehensive education system which is better equipped to meet the different needs, interest, and abilities of our young people (HGSE, 2011). School reform efforts must continue to broaden the educational pathway options for all

students to successfully transition from secondary education to adulthood. This will require collaboration with industry partners, and ultimately society as well. High-quality credentials earned through high-quality CTE programs can make this a reality; however, it will require a transformation and release of some of our deepest cultural beliefs and biases regarding this educational pathway.

Schools have always been responsible for the preparation of young adults for work. The shift to a knowledge-based economy has changed the nature of work, the requirements of employers, and the skills workers need to be successful in the 21st century. Labor market economist predict that by 2020 approximately 65 percent of jobs will require some form of postsecondary education, training, or credential (Lumina Foundation, 2015). Credentials represent a student's currency, or access to educational opportunities, potential jobs, and career pathways. Currently the U.S. does not have enough skilled workers to fill mission critical jobs. High-quality CTE programs can close the middle-skills employment gap. The essence of a high-quality CTE program is the combination of two co-dependent elements; a high-quality program, which leads to a high-quality credential. To validate the quality of a credential, the program through which the credential is earned must also be evaluated and validate. The literature suggests that mature, well-established, highly-developed, and most importantly, successful CTE programs, which include high-quality Programs of Study, which lead to high-quality credentials, have common attributes. Using these characteristics as a guideline the purpose of this study was achieved to validate the legitimacy of a Career Readiness Indicator as requested by the Alabama State Department of Education.

Chapter III presents the process used in this study. Specifically, it describes the research design, methods used to conduct the study, selection process of the participants, development

and field testing of the evaluation instrument to include data collection process and finally data analysis.

Chapter III: Methods

The Alabama State Department of Education, Office of Career and Technical Education/Workforce Development has a list of certifications and licensures in the Career and Technical Education program identified as Career Readiness Indicators. These are industry-recognized credentials that a student can attain while in high school. According to state employees the list of Career Readiness Indicators was established through partnerships with educators, local advisory committees, and input from industry partners (J. Laney, personal communication, 2016). The National Association of State Directors of Career Technical Education Consortium (2014), which evaluates employer engagement in career and technical education programs, suggests that there appears to be limited information or evaluation regarding what is happening consistently and systematically between state education leaders and employers. Very few states use third-party monitoring methods to review current employer engagement activities, or evaluate if programs of study are executed with fidelity. One of the greatest needs is to identify, validate, and keep current the technical and workforce readiness skills that should be taught within a Career and Technical Education Program (NASDCTEC, 2014). No examination of the State of Alabama Career and Technical Education credentials and the CTE program by which the credential is earned has been conducted by an outside third-party to evaluate the rigor of the program which leads to the earned credential using the criteria from the Perkins IV Act of 2006 for effective and high-quality programs, and the criteria for a high-quality credential has been conducted. Additionally, a survey of the state's employers regarding

the rigor and relevance of the list of Career Readiness Indicators has not been conducted by an outside third-party.

Chapter Organization

This chapter presents the process used in this research study. Specifically, it describes the research design, methods used to conduct the study, selection process of the participants, development and field testing of the evaluation instrument to include data collection process and finally data analysis.

Purpose of the Study

This research study examined a Career Readiness Indicator within the Alabama High School Program of Study as requested by the Alabama State Department of Education, Office of Career and Technical Education/Workforce Development to validate the legitimacy of the indicator and the rigor of the program which leads to an earned credential for high school students. Can one trust that this indicator provides a student with a relevant credential demanded by employers within the state of Alabama, and assure employers that the holder of this credential has the knowledge, skills and abilities to perform at an entry-level position employer will expect?

Research Questions

This study investigated the following research questions:

1. At what developmental levels was the credentialing process for the Career Readiness Indicator for an Electronics Technicians Association – Basic Direct Current Direct Current credential within the Manufacturing cluster of the Alabama High School Program on the key features governance, occupational standards, qualification framework, program quality, and deliverance and assessment?

2. At what developmental level on the key feature industry engagement was the Career Readiness Indicator for an Electronics Technicians Association - Basic Direct Current credential within the Manufacturing cluster of the Alabama High School Program?
3. Describe the results for the field-testing of the Career Readiness Indicator Evaluation Instrument as an effective tool to evaluate the credentialing process of an indicator.

Design of the Study

This study was guided by the researcher's personal philosophical assumptions. Viewing the world as a pragmatist, the desire to design a study that provided evidence-based answers to these research questions and provide the Alabama State Department of Education, Office of Career and Technical Education/Workforce Development with an evaluation instrument that could be applicable for future use was critical (Creswell, 2014). A descriptive research methodology was selected for the study with the use of an exploratory sequential mixed methods approach to collect evidence-based data, which were used to examine the rigor and relevance of the credentialing process to validate the Career Readiness Indicator credential. This design approach was selected because it provided the means to describe systematically, factually, and accurately the evidence to validate the relevance of the indicator and the rigor of the program of study which leads to an earned credential within the Alabama Career and Technical Education program and then organize the information in a practical numeric manner providing a quantitative analyses and interpretation of the data (Roberts, 2010).

Participants

All participants in this study were adults 18 years of age or older. Participants were employees of the state of Alabama Department of Education at both the state and local level. Additional participants were industry partners of the Alabama Department of Education.

Purposive sampling was used to identify participants who met the following criteria for selection:

1. Participants identified by the Senior Director of Workforce Development Alabama Department of Education as experts in educational issues of the Manufacturing cluster for the Alabama State Department of Education, Office of Career and Technical Education/Workforce Development programs.
2. Industry partner of the Alabama Department of Education as identified by the Senior Director of Workforce Development Alabama Department of Education associated with the Career Readiness Indicator for an Electronics Technicians Association – Basic DC.
3. Willingness to participate in the research study.

The rationale for establishing the first two criteria for the selection of participants was based on the focus of the research study which was to describe the credentialing process for the Career Readiness Indicator credential as an Electronics Technicians Association – Basic DC within the Alabama High School Career and Technical Education program. It was necessary to obtain evidence for analysis from the individuals who were actively engaged in all aspects of this program. This included stakeholders from both education and industry. The third criterion suggests that each of the participants were willing to devote sufficient time and effort to provide accurate information for the research study (Roberts, 2010). A list of participants, industry partners, and educational sites was created in the planning stage of the research study during a face-to-face meeting between the researcher, university faculty, the Senior Director of Workforce Development Alabama Department of Education, and the Education Administrator of the Manufacturing cluster of the state's Career and Technical Education program. It was

determined that participants would be selected from Cherokee, Etowah, Jefferson, Lawrence, and Shelby counties in the state of Alabama. The director selected these counties because they had high school students who earned the Electronics Technicians Association – Basic DC Career Readiness Indicator credential in their systems during the 2015-2016 school year.

Ethical Considerations

The purposes and procedures for this research study were thoroughly detailed through written directives and responses. The research protocol, authorization letter, informed consent, introductory, scheduling, and confirmation emails, and the evaluation instrument were carefully reviewed and approved by the researcher's dissertation committee, and Auburn University's Institutional Review Board for the Protection of Human Subjects in Research (see Appendix A). The researcher completed all Collaborative Institutional Training Initiative required by Auburn University for individuals engaged in a research study. The courses completed were: Conflict of Interest; International Research; Research in Public Elementary and Secondary Schools; Research with Children; Social, Behavioral, and Education Sciences; and Students in Research. All courses were successfully passed with 100 percentage points. The risks associated with participating in this study were coercion to participate, psychological stress due to an in-person interview, and having work related activities analyzed by a third-party. Additionally, the potential for breach of confidentiality with the collection and linkage to identifiable information existed. To minimize these risks, the researcher emphasized that participation was voluntary with no penalty for nonparticipation or for withdrawing consent to participate. All participants were assured anonymity throughout the process and were assigned a coded identifier. The interviewing sessions began with an unscripted informal welcome and thank you for participation to create a relaxed and comfortable environment. Participants were provided with

the opportunity to review the informed consent form, interview features, and ask questions prior to, during, and after the interview. As recommended by Creswell (2014), member checking was used to validate the accuracy of the transcription of each interview providing participants with a sense of trustworthiness in the authenticity of the representation of their personal views and perspectives.

Methods

An exploratory sequential mixed methods design is organized into two phases. Phase One, the qualitative phase, requires the researcher to explore the views of participants (Creswell, 2014). This was achieved with the use of in-person semi-structured interviews (see Appendix B) for the interview protocol. Phase Two of an exploratory sequential mixed methods design, the quantitative phase, requires coding and analysis of data collected in Phase One. Data collected in the qualitative research phase may serve to build an instrument which is used provide a quantitative interpretation of the data. For the purpose of this research study the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016) was field tested as a means to organize and then analyze the evidence collected in Phase One in order to answer the research questions. These data were coded, analyzed and then rated based on five stages of development. Each stage of development builds on the previous stage, where Level 1 indicates that there is no evidence of the feature within a specific domain and Level 5 represents a well-established feature with a review and improvement process in place. Each level of development within the six key features were assigned a percentage value. These percentage values were totaled in a practical numeric manner providing a quantitative interpretation to answer the research questions (Creswell, 2014; Roberts, 2010). As stated in the final report (USDOE, 2014) from the National Assessment of Career and Technical Education Center, there exist the need to evaluate the

quality of career and technical education programs and the credentialing process. The Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016) is an assessment tool, which designed for this research study to evaluate the quality of a career and technical education credentialing process. The field-testing of this instrument was incorporated into the research study to determine if it was a reliable instrument, which could be applicable for future use, by the Alabama Department of Education, Office of Career and Technical Education/Workforce Development for the evaluation of other Career Readiness Indicators.

Data Collection Procedures – Phase One

The protocol for the Examination of a Career Readiness Indicator Participant Interviews was designed to follow the structure of the Career Readiness Indicator Evaluation Instrument, which was then used in Phase Two to analyze and interpret the data collected during the in-person interviews (see Appendix B). The protocol consisted of both a scripted and semi-scripted section. Participants received a hard copy of the definition of the terms high-quality Career and Technical Education Program and high-quality credential which guided all aspects of the research study. Participants also received a copy of page three of the Career Readiness Indicator Evaluation Instrument (see Appendix C) to use as a visual aid during the interviewing session.

The data collection process began once full approval to conduct the research study was granted by Auburn University Institutional Review Board. Initial contact with potential research study participants occurred via email with an introductory email (see Appendix D), an authorization letter from the Alabama Department of Education (see Appendix E), and an informed consent (see Appendix F). The introductory email and informed consent provided a brief overview, purpose of the research study, what would be required of participants, and the benefit of such research. Research study participants who indicated a willingness to participate

by emailing the researcher with a statement of, “Yes, I consent” were sent an interview scheduling email (see Appendix G). This email communication requested from the participants available dates, times and location for the interviews. Once the interview sessions were scheduled, participants were sent a confirmation emails (see Appendix H). The informed consent form signed by the participants were collected by the researcher prior to the start of the interviewing session. Participants were provided a copy of both forms. A voice recorder was used to capture the interviews, in addition to written notes taken by the researcher. The interviews were conducted in March 2017, and took place in Cherokee, Etowah, Jefferson, Lawrence, and Shelby counties in the state of Alabama. Research participants were sent via email a synopsis of the interviews, and were requested to validate the accuracy of the transcriptions. Once the participants validated the accuracy of the transcriptions, the voice recorded interviews were erased from the device. All participants validated the accuracy of the transcriptions.

Instrumentation

The purpose of this research study was to examine a Career Readiness Indicator within the Alabama High School CTE program to validate the relevance of the indicator and the rigor of the program, which leads to an earned credential. The Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016) is an assessment tool designed to evaluate the quality of a career and technical education credential (see Appendix I). The rating scale is evidence-based. The evaluation instrument allows the user to produce a rating of one to five for six key features, identified as necessary for an effective, high-quality Career and Technical Education program and high-quality credential. This combination provides an evaluation of the core elements of a quality, competency-based credentialing process. The six key features are Industry Engagement;

Governance; Occupational Standards; Qualification Framework; Program Quality; Delivery and Assessment. The instrument was developed after an extensive review of literature was conducted to identify a current evaluation instrument, which would address the needs of this research study. Several evaluation instruments exist designed to evaluate the implementation of career and technical education programs of study, the *Program of Study: Local Implementation Readiness and Capacity Self-Assessment* is an example of one such instrument (USDOE, 2010). This instrument is over 30 pages in length and addresses ten components of a career and technical education program. It is better suited as an evaluation instrument to review an entire program of study, particularly in the initial or implementation stage. The focus of this instrument was too broad and could not provide the level of detailed evidence-based data of a specific credential within a career and technical education program which was required for this research study. For this reason, the *TVET Assessment Framework* (TAFE Australia, 2014) was used as a template to create a more manageable instrument, which would provide specific, detailed, evidence-based data for analysis. Permission to use the *TVET Assessment Framework* was granted by Martin Riordan, CEO TAFE Directors Australia (2016). The Career Readiness Indicator Evaluation Instrument is aligned with the accountability requirements of the current Carl D. Perkins Career and Technical Education Act of 2006 (USDOE, 2010), which is the primary source of federal funding for career and technical education programs. These requirements call for career and technical education programs to incorporate and align secondary and postsecondary education elements; include academic and CTE content in a coordinated, non-duplicated progression of courses; offer the opportunity, where appropriate, for secondary students to acquire postsecondary credits which lead to an industry-recognized credential or certificate at the postsecondary level, or an associate or baccalaureate degree. The Career

Readiness Indicator Evaluation Instrument (Tucker et al., 2016) also incorporates elements of *Investing in America's Future – A blueprint for transforming Career and Technical Education* (2012) which is work published by the U. S. Department of Education Office of Vocational and Adult Education. These recommendations state that career and technical education programs be rigorous, relevant, and result driven through alignment, collaboration, accountability and include innovation.

The field-testing of this instrument was incorporated into the research study. Since the Career Readiness Indicator Evaluation Instrument was created specifically for this research study it was critical that some degree of validity for the instrument was established prior to the start of the study. A Q-sort technique was used to establish content validity. The Q-sort technique provides individuals with a set of items or statements, usually on cards, and asks them to place them into specified categories (Gay, 1980). Roberts (2010) recommends that five to 10 people be selected to test the instrument and provide feedback. A six-member review panel examined the instrument using the Q-sort technique. The panel members were not involved in the study but represented similar individuals that were part of the study (Roberts, 2010). This included former educational leaders, active military members, and various industry professionals. Panel members were provided six envelopes. Each envelop was labeled with one of the six key features of the Career Readiness Indicator Evaluation Instrument, and the description of each feature. The key features were: Industry Engagement; Governance; Occupational Standards; Qualification Framework; Program Quality; and Delivery and Assessment. Members also received 22 separate statements called strand descriptors. The strand descriptors are elements, which are to be evaluated within each of the key features. The panel members were instructed to place each labeled envelop on a table, and then place each of the strand descriptors under the

appropriate key feature based on the description of the feature. Upon completion, panel members were instructed to place the strand descriptors into the respective envelopes and seal the envelopes. The results of each Q-sort were reviewed, and feedback was received from panel members. Revisions were made based on panel feedback, and the process was repeated until an average of 77 percent of agreement was reached among the panel members. The greatest area of disagreement appeared to be between the key features of Industry Engagement and Governance. Feedback received from panel members showed that it was challenging for them to separate various elements from each of these key features into either the Industry Engagement or Governance category. Members felt there was a true overlap between these two key features. This would align with the description of a high-quality CTE program as defined by the U.S. Department of Education Office of Vocational and Adult Education (2012) in which there exist the need for strong collaboration among secondary institutions, employers, and industry partners. Although 77 percent is a low level of agreement, the decision was made to proceed with the use of the evaluation instrument with the understanding that during the field testing specific areas of weakness would be identified and used to refine the instrument once the research study was completed. The refinement of the instrument will be discussed in Chapter V.

Data Coding and Analysis – Phase Two

Traditionally in mixed methods research, qualitative data are analyzed using qualitative methods, and the quantitative data are analyzed using quantitative methods (Creswell, 2014). For the purpose of this research study content analysis was used to systematically code and analyze the qualitative data collected in the exploratory stage of phase one of the research study. Content analysis involves the tagging of text with codes derived from prior knowledge (Bernard & Ryan, 2010). Codes were established based on the criteria for a high-quality program and a

high-quality credential which were incorporated into the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016) see Table 2. Data collected in Phase One through in-person interviews were transcribed once the interviews were completed. Creswell states, that because text data "are so dense and rich, not all of the information can be used in a qualitative study" (2014, p. 195). For this reason, these data were winnowed during analysis. This is a process which allows the researcher to focus in on some of the data and disregard other parts of the data collected during the interviews (Creswell, 2014). The focus for data coding and analysis was based on the levels of development for each of the key features represented in the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016). Research participants were sent via email a synopsis of the transcribed interviews to validate the accuracy of the transcription.

These data were coded, analyzed and then rated based on five stages of development. Each stage of development builds on the previous stage, where Level 1 indicates that there is no evidence of the feature within a specific domain and Level 5 represents a well-established feature with a review and improvement process in place. Each level of development within the six key features were assigned a percentage value. These percentage values were totaled in a practical numeric manner providing a quantitative interpretation to answer the research questions (Creswell, 2014; Roberts, 2010). This conversion of qualitative data into numerical codes that could be analyzed quantitatively is known as quantitizing (Miles & Huberman, 1994; Tashakkor & Teddie, 1998). The rationale for the use of this analytical approach was based on the field-testing, development and expansion of this instrument as a reliable evaluation tool for future use (Onwuegbuzie & Combs, 2011). "The pragmatist researchers look to the, *what* and *how* to research based on the intended consequences" (Creswell, 2014, p. 11). The qualitative approach was necessary to describe systematically, factually, and accurately the credentialing process of

one Career Readiness Indicator – the *what* and *how*. The transformation of these data into a quantitative numeric interpretation appealed to the researcher's desire to produce a valid and reliable evaluation instrument that had value for future application and usage. To further ensure the reliability of the evidence-based analysis and rating, an outside third-party member was engaged to rate the development level in addition to the rating conducted by the researcher. See Appendix L for a comparison of the two rater's level of agreement. The inter-rater reliability was within one development level higher or lower for both raters on all six key features.

Chapter Summary

This chapter provided an introduction, research design, selection process and criteria for the participants, instrumentation development, data collection and analysis. The methods used for data collection and analyses required the creation and use of the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016). A detailed description of the process employed to establish content validity for this evaluation instrument was provided. The instrument was field tested during this research study. The chapter concluded with the approach used for data analysis. Chapter IV will provide an examination of the findings, which will include a detailed narrative summary of the finding and the field-testing of the evaluation instrument.

Chapter IV: Findings

As stated in Chapter I, the Alabama State Department of Education has a list of credentials and licensures in the career and technical education program identified as Career Readiness Indicators. The National Assessment of Career and Technical Education Final Report (USDOE, 2014) identified the need for further research in the evaluation of CTE programs in order to provide supporting evidence of quality. Research has been conducted evaluating the implementation of programs of study and student enrollment in CTE programs which were requirements with the reauthorization of the Perkins IV Act in 2006; however, there is little evidence of the evaluation of the quality of these programs in relationship to the credentialing process (USDOE Office of Planning, Evaluation, and Policy Development, 2013). The Strengthening Career and Technical Education for the 21st Century Act, which is the current legislation for the reauthorization of the Perkins IV Act recommend research efforts aimed at improving the quality and effectiveness of career and technical education programs (ACTE, 2016).

Chapter Organization

Chapter IV explores the findings of this research study to answer the research questions stated above. The chapter begins with a description of participants and the design and elements of the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016), which was created and field tested for the study. Next, the research design, how data were coded and organized for analysis are presented. This is followed by a detailed narrative description of the findings. Based on these findings a summary of the data analysis is provided. The research questions are

answered based on these finding and analysis. The following tables are included in this chapter to provide clarification and a visual representation of the information presented: Table 2 presents the six key features of the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016) and the sub-elements. Table 3 expands on the information in Table 2 by adding the codes used for analysis. Table 4 is the Career Readiness Indicator Evaluation Instrument rating scale. See Appendix K for the Career Readiness Indicator Evaluation results matrix. Chapter IV will conclude with a summary of the findings from this research study to answer the research questions.

Purpose of the Study

The purpose of this study was to examine a Career Readiness Indicator within the Alabama High School CTE program as requested by the Alabama State Department of Education, Office of Career and Technical Education/Workforce Development to validate the relevance of the indicator and the rigor of the program, which leads to an earned credential. Can one trust that this indicator provides a student with a relevant credential demanded by employers within the state of Alabama, and assure employers that the holder of this credential has the knowledge, skills and abilities to perform at the level employers want and expect?

Research Questions

This study investigated the following research questions:

1. At what developmental levels was the credentialing process for the Career Readiness Indicator for an Electronics Technicians Association - Basic Direct Current (DC) credential within the Manufacturing cluster of the Alabama High School Program on the key features governance, occupational standards, qualification framework, program quality, and deliverance and assessment?

2. At what developmental level on the key feature industry engagement was the Career Readiness Indicator for an Electronics Technicians Association - Basic Direct Current (DC) credential within the Manufacturing cluster of the Alabama High School Program?
3. Describe the results for the field-testing of the Career Readiness Indicator Evaluation Instrument as an effective tool to evaluate the credentialing process of an indicator.

Participants

The study included only those participants who were identified by the Senior Director of Workforce Development Alabama Department of Education as experts in educational issues related to the Manufacturing cluster and specifically the Career Readiness Indicator for an Electronic Systems Technicians Association – Basic DC credential only. For these reasons, purposive sampling included participants from only Cherokee, Etowah, Jefferson, Lawrence, and Shelby Counties in the state of Alabama. The director selected these counties because they had high school students who earned the Career Readiness Indicator credential as an Electronics Technicians Association – Basic DC in their systems during the 2015-2016 school year. The career technical education directors, and the career technical education instructors from Cherokee, Etowah, Lawrence, and Shelby Counties agreed to participate in the study. The career and technical education instructor from Jefferson County agreed to participate in the study. In the design stage of this study participants were to include employees of the state of Alabama Department of Education at both the state and local level, and industry partners of the Alabama Department of Education. In the end, no list of partners were provided to the researcher as requested to serve as potential participants.

Instrumentation

The Career Readiness Indicator Evaluation Instrument [CRIEI] (Tucker et al., 2016) is an assessment tool designed specifically for this research study to evaluate the quality of a career and technical education credential (see Appendix K). The rating scale is evidence-based. The evaluation instrument produces a rating of one to five for six key features, identified as necessary for an effective, high-quality career and technical education program and high-quality credential. This combination provides an evaluation of the core elements of a quality, competency-based credentialing process. The six key features are Industry Engagement; Governance; Occupational Standards; Qualification Framework; Program Quality; Delivery and Assessment (see Table 2). The instrument was developed after an extensive review of literature was conducted and failed to identify a current evaluation instrument, which would address the specific needs of this research study. The CRIEI is aligned with the accountability requirements of the current Carl D. Perkins Career and Technical Education Act of 2006 (USDOE, 2010) which is the primary source of federal funding for career and technical education programs. The field-testing of this instrument was incorporated into the research study. A Q-sort technique was used at the beginning of the study to establish content validity for the instrument. Several revisions were made to the instrument based on feedback from a review board panel, which was used for the validation process. Eventually a 77 percent of agreement was reached. Although this is a low level of agreement, the decision was made to proceed with the use of the evaluation instrument with the understanding that the field testing during the study would provide specific data and areas of weakness which would be used to refine the instrument once the research study was completed. The researcher and an outside third-party member rated the coded data for development levels to

establish intercoder reliability. Recommendations for modifications will be discussed in Chapter V to refine and improve the validity and reliability of the evaluation instrument.

Data Coding and Analysis

A descriptive research methodology was selected for the research study with the use of an exploratory sequential mixed methods approach to collect evidence-based data, which was used to examine the rigor and relevance of the credentialing process in order to validate the Career Readiness Indicator credential. An exploratory sequential mixed methods design is organized into two phases. Phase One, the qualitative phase, requires the researcher to explore the views of participants (Creswell, 2014). This was achieved with the use of in-person semi-structured interviews (see Appendix B), which allowed the researcher to collect evidence based on the six key features incorporated into the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016). The six key features and sub-elements are listed in Table 2. The interviews were transcribed, and verified by each participant prior to coding and analysis. Phase Two of an exploratory sequential mixed methods design requires coding and analysis of data collected in Phase One, and the construction of an instrument which is used to interpret the data in a quantitative manner.

Table 2

Key Features of the Career Readiness Indicator Evaluation Instrument

Key Feature	Sub-Elements of the Key Feature
(1) Industry Engagement	• Determining Skills Priority • Workforce Training • Support for Industry Partnerships • Curriculum Development
(2) Governance	• Defined Roles and Responsibilities • Defined Policies for Technical Skills Attainment • Defined Policies for Funding Career Readiness Indicator • Policies for Access and Equity
(3) Occupational Standards	• Incorporate Industry-Recognized Technical Standards • Incorporate Essential Knowledge and Skills • Competency Based Curriculum
(4) Qualification Framework	• Stackable Credentials • Systematic and Seamless Pathway of Progression • Credit Transfer Agreements
(5) Program Quality	• Learner Engagement • Work-based Learning • Interdisciplinary Teaching • Data Collection and Analysis
(6) Delivery and Assessment	• Teacher and or Trainer • Student Support Services • Assessment Guidelines • Validation and Moderation Processes

Content Analysis. For the purpose of this research study content analysis was used to systematically code and analyze the qualitative data collected in Phase One. Content analysis involves the tagging of text with codes derived from prior knowledge (Bernard & Ryan, 2010). Codes which were created based on the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016) are presented in Table 3. There are seven major steps in content analysis (Bernard & Ryan, 2010). Step one requires the formulation of research questions based on prior

research. This was achieved by aligning the research questions with the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016), which was based on research commissioned by the Commonwealth Secretariat, UK to review and benchmark the career, and technical education programs of five Commonwealth countries in 2011-2012 (TAFE Australia, 2014). As stated in Chapter III, the *TVET Assessment Framework* (TAFE Australia, 2014) was used as a template for the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016). Step two requires the selection of a set of texts to test the research questions. The transcriptions of data collected in Phase One through in-person interviews were reviewed and winnowed to focus on the specific set of texts which addressed the research questions.

Coding. Step three in content analysis is to create a set of codes. The codes are presented in Table 3 based on the six key features of the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016) and the sub-elements. Steps four and five are the actual coding of text. Bernard and Ryan (2010) recommend that coding be pretested and any inconsistencies in coding be fixed prior to applying the codes to the remaining text. Since the coding was part of the researcher's dissertation and the field-testing was incorporated into the study, modifications were not made at this stage in the process. Modifications at this stage would have required an amendment to the approved IRB. Recommendations for modifications to the coding process will be included in Chapter V. Step Six is to create a matrix from the coded text (see Appendix K).

Table 3

Career Readiness Indicator Evaluation Instrument Codes

Code	Key Features and Sub Elements
1	Industry Engagement
1.1	Determining Skills Priority
1.2	Workforce Training
1.3	Support of Industry Partnerships
1.4	Curriculum Development
2	**Governance**
2.1	Defined Roles and Responsibilities
2.2	Defined Policies for Technical Skills Attainment
2.3	Defined Policies for Funding Career Readiness Indicator
2.4	Policies for Access and Equity
3	**Occupational Standards**
3.1	Incorporate Industry-Recognized Technical Standards
3.2	Incorporate Essential Knowledge and Skills
3.3	Competency Based Curriculum
4	**Qualification Framework**
4.1	Stackable Credentials
4.2	Systematic and Seamless Pathway of Progression
4.3	Credit Transfer Agreements
5	**Program Quality**
5.1	Learner Engagement
5.2	Work-based Learning
5.3	Interdisciplinary Teaching
5.4	Data Collection and Analysis
6	**Delivery and Assessment**
6.1	Teachers and/or Trainers
6.2	Student Support Services
6.3	Assessment Guidelines
6.4	Validation and Moderation Processes

Analysis. The final step in content analysis is to analyze the matrix using an appropriate analysis approach. The research questions focused on levels of development on six key features and sub-elements which make up the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016) for this reason the coded text within the matrix were rated based on five stages of development. Each stage of development builds on the previous stage, where Level 1 indicates

that there is no evidence of the feature within the domain and Level 5 represents a well-established feature with a review and improvement process in place. The Career Readiness Indicator Evaluation Instrument rating scale is presented in Table 4. Each sub-element represented varying percentages of the key element, based on degree of importance. To rate the level of development the percentage values of each of the sub-elements were totaled and then divided by 20 in a practical numeric manner providing a quantitative interpretation of the qualitative data and establishing the level of development for each of the six key features (see Appendix K) for the score sheets and evaluation results by county.

Table 4

Career Readiness Indicator Evaluation Instrument Rating Scale

Level of Development	Definition of Level
Level 1	Indicates there is no evidence of this feature with the category
Level 2	Indicates there is some evidence of this feature, but it may be informal or sporadic
Level 3	Indicates there is evidence of this feature, but collaboration and connections are weak among all stakeholders
Level 4	Indicates there is evidence of this feature, with communication and engagement from all stakeholders
Level 5	Indicates there is evidence of this feature, with well-established communication and engagement from all stakeholders. There is also in place a systematic process of review and evaluation to have continuous improvement for an effective program

Description: The rating scales consist of five stages of development. Each stage of development build on the previous stage where Level 1 indicates that there is no evidence of this feature with the domain and Level 5 represents a well-established feature with review and improvement processes in place. The general rating scale is listed above.

Narrative Description of Findings

The narrative description of the findings is organized in the following manner. Each section will begin with the definition of the key feature followed by the definition of the sub-elements of the feature. Next, the level of development that was assigned to each of the counties based on evidence collected within each of the sub-elements is presented. The important

components or aspect of the specific element is discussed followed by a brief description or explanation for the choice in rating levels for each county. This section will conclude with the level of development earned in each key feature by Jefferson, Etowah, Shelby, Lawrence, and Cherokee Counties to answer the research questions.

Industry Engagement. The first feature of the Career Readiness Indicator Evaluation Instrument is effective industry engagement. The role of industry is critical to ensuring that a Career Readiness Indicator meet the workforce needs of the state, the nation, or the global economy. The input from industry in determining skills priorities, workforce training, and curriculum development is fundamental to keeping CRIs relevant and current. The partnership with industry must include open communication and the authority to influence practical and effective choices made by state education decision-makers. The key sub-elements of this feature include determining skills priority, workforce training, support of industry partnerships, and curriculum development.

Determining Skills Priority. Defined as industry partners' collaboration with state educators to identify, validate, and keep current the technical and workforce readiness skills that should be taught. Partners validate that the CRI is relevant for current workforce needs. Etowah, Shelby, and Lawrence counties received a rating of Level 5 for this sub-element. The important component of this element is the collaboration with partners to keep skills relevant for current workforce needs. This requires ongoing consultation between industry and educators. These counties provided strong evidence of this relationship to have continuous improvement for their program. Statements such as, "This is what I need for an industry business partner – input and feedback. Let us know what you need so we can better prepare our students" (Etowah County) illustrate this point. Jefferson and Cherokee counties were rated at a Level 4 for this sub-

element. There was evidence of formal contribution from industry partners; however, the on-going consultations with a systematic process for review to improve the program appear less evident.

Workforce Training. Integrating learning with work is fundamental to an effective program. This integration, driven by industry, ensures students can apply their skills and knowledge in real work situations. Jefferson, Etowah, Shelby, and Cherokee counties received a rating of Level 3 for this element. Lawrence County was rated at Level 2. Research tells us that students gain a greater level of understanding and retain knowledge and skills better when they can engage in real life work environments (Alabama Department of Education Office of Career and Technical Education, 2015). All counties had some opportunities for students to engage in real life work environments; however, the opportunities in Lawrence County were more informal. In Jefferson County students had the opportunity to install smoke detectors in homes throughout the community. The majority of real life work experience was achieved with field trips to various industry partners' worksites or companies within the state. Although this provides exposure to the work environment, it does not allow students to actively engage in the application of their knowledge and skills. There did not appear to be evidence of strong formal continuous arrangements with industry for permanent workforce training opportunities for students.

***Support of Industry Partnerships*.** Partners should have the authority to influence decisions and have the authority to communicate information to decision-makers. Conduct ongoing analyses of economic and workforce trends to identify statewide (or regional) needs to create, expand or discontinue the CRI. Etowah, Shelby, and Lawrence counties were rated at a Level 4 for this element. Support for industry partnerships requires that these partners have the

authority to communicate information to educational leaders and this information influences decisions related to various Career Readiness Indicators. Each of these counties provided evidence of the impact communication with industry partners had on decisions, which were made to improve their programs. For example, Shelby County restructured the Electronics Technicians Association Basic courses to incorporate the concepts of Direct Current as they apply to the field of robotics. This change was the result of communication with partners and their feedback for the increase use of automation in industries. Jefferson and Cherokee counties were rated at Level 3. The difference between Level 3 and Level 4 is permitting communication with partners to influence decisions. Engaging in the conversation is the first step, but using this communication to create, expand, or discontinue a Career Readiness Indicator is the most important component of this element.

Curriculum Development. Partners should have ongoing and extensive input in the development, validation, and evaluation of curriculum to support the CRI. Jefferson County was rated at a Level 4, Lawrence County at a Level 3, Etowah and Shelby at a Level 2, and Cherokee at a Level 1. The focus is for partners to have extensive input in the development of curriculum. In order to rate this element accurately there was a need for evidence of input in the development, not simply the validation of curriculum in use.

Governance. The second key feature of the Career Readiness Indicator Evaluation Instrument is effective governance. Strong programs result from coordination across state, local, and stakeholder agencies with defined roles and responsibilities for each. The sub-elements of this feature include defined roles and responsibilities, policies for technical skills attainment, defined policies for funding, and policies for access and equity.

Defined Roles and Responsibilities. A framework that define the responsibilities of each stakeholder, including State Department of Education employees, advisory members, industry partners, etc. in the development and maintenance of the CRI. There is a memorandum of understanding that describes the roles and responsibilities of each member of the partnership. Each of the five counties received a rating of Level 5 for this element. The state of Alabama Department of Education (2013) has roles and responsibilities for all stakeholders well defined in the Handbook for Career and Technical Education/Workforce Development Advisory Councils and Advisory Committees. Each county provided detailed evidence of the bi-annual meetings with the advisory councils, in addition to informal meetings with the advisory committees.

Defined Policies for Technical Skills Attainment. An explicit policy identifying the technical skills attained with the CRI. Employ industry-approved technical skill assessments based on industry standards. Incorporate a defined policy for performance-based assessment items where students must demonstrate the application of their knowledge and skills. Each of the five counties received a rating of Level 5 for this element. The Alabama State Department of Education define Career Readiness Indicators as credentials/certificates made available to all students enrolled in a program where career and technical skill proficiencies are aligned with industry-recognized standards. The credential provides proof that the student possesses the minimum skills required for entry-level employment. Testing can occur at the discretion of the Local Education Agency and Career and Technical Director depending on student readiness and pre-assessment required (Alabama Department of Education Career and Technical Education, 2016).

Defined Policies for Funding of the Career Readiness Indicator. A defined plan that lay out provisions for funding the initial development of the CRI, and a plan for continued

sustainability. Jefferson, Etowah, and Cherokee counties received a rating of Level 5 for this element. Shelby and Lawrence counties were rated at Level 4. The career and technical education instructors in Shelby and Lawrence counties are new to the programs, and may not fully understand where and how to access funding. The instructors from Jefferson and Etowah have a long-term relationship with the Career and Technical Education director at both the state and local level, therefore are better informed and prepared to request funding for specific needs. Grants are made available through state funding for testing, educational materials, and improved equipment.

Policies for Access and Equity. Equitable availability of opportunity throughout the entire state for the CRI. Each of the five counties earned a rating of Level 5 for this element. The Electronics Technicians Association Basic DC credential is on the list of state approved career readiness indicators available for systems to offer to their students. Of the 75 counties in the state, electronics courses are offered in only ten counties, Jefferson, Etowah, Shelby, Lawrence, and Cherokee are five of those ten counties. For this reason, the students within these counties have access to this credential. Career and Technical Education courses are elective options for all students within the state of Alabama. Any student may choose to enroll in the CTE courses; however, if the career readiness indicator is not offered in the school system equitable availability of opportunity to all students within the state are restricted. This is an issue that will be addressed in Chapter V in the implication section. For the purpose of this study this credential was available within these five counties providing equitable availability opportunities to all students in their systems.

Occupational Standards. The third key feature of the Career Readiness Indicator Evaluation Instrument is occupational standards. An occupational standard is defined as the

knowledge, skills, and attitudes required to perform specific tasks or role in the workplace. The focus is on demonstrating occupational competency of industry-recognized and validated technical standards related to the specific CRI. This is achieved with competency-based curriculum. The sub-elements of this feature include incorporating industry-recognized technical standards, incorporating essential knowledge and skills, and competency-based curriculum.

Incorporate Industry-Recognized Technical Standards. Assessments of competencies identified for use are industry-validated and aligned to industry-recognized technical standards. All five counties earned a Level 5 rating for this element. The Basic DC state standards align with the international technical skills standards from the Electronics Technicians Association to include performance-based assessments. Each site provided evidence for assessments of competencies with industry-recognized standards. All counties shared similar comments such as these one shared by participants from Jefferson and Etowah Counties, “I give a hands-on final” using the NIDA system. “This is a learning lab, “this is hands-on, I do a lot of kits”.

Incorporate Essential Knowledge and Skills. Essential knowledge and skills include such things as team-building and collaboration, critical thinking, problem-solving, and communication skills which are required to be performed in the workplace. Jefferson, Etowah, and Shelby counties earned a rating of Level 5 for this element. Lawrence and Cherokee were rated Level 4. In 2016 the Alabama Department of Education Career and Technical Education (2015) office began the implementation of Simulated Workplace in all Career and Technical Education Centers. The objective of this program is to provide students with career ready skill sets. This is a combination of core academic skills, employability skills, and technical skills. Simulated Workplace provide students with an understanding and knowledge of how career and technical education courses utilize project-based learning, along with work ethics, work place

processes and behavior required for successful employment (Alabama Department of Education Career and Technical Education, 2015). Participants from Jefferson, Etowah, and Shelby counties provided detailed evidence such as having students clock in and out each day, application and interviewing processes students use, safety training, weekly meetings with various student teams, and job rotations. Participants from Lawrence and Cherokee stated challenges with including these skills into the regular classroom schedule; "I haven't found where I can get that in along with all the other stuff we're doing" (Lawrence County).

Competency Based Curriculum. A competency-based curriculum is made up of work tasks, which are expressed through a series of occupational standards. The occupational standards by themselves are not a curriculum. Students should engage in learning opportunities which allow them to demonstrate competencies related to the CRI. All counties earned a rating of Level 5 for this element except Cherokee County, which earned a Level 3 rating. Work tasks with engaging learning opportunities which allow students to demonstrate competencies were described in this way by the instructor from Shelby County, "We do hands-on couple different ways. We start looking at just basic electronics in our book and lab book, we have multi-sim software so we can build it virtually and test it, then we have breadboard kits and rest of the components; they can build it and troubleshoot it if it doesn't work." This same process was utilized in Jefferson and Etowah counties as well. The director in Cherokee County stated that work tasks were 50 percent bookwork and 50 percent hands-on. This approach provides students with less opportunity to demonstrate competencies, which was the reason for a lower rating.

Qualification Framework. The fourth feature of the Career Readiness Indicator Evaluation Instrument is an effective qualification framework. A qualification framework describes the range, levels of qualification and stackable credentials available to students with

non-duplicative sequences of courses, and a seamless pathway for progression. It also includes credit transfer agreements with post-secondary institutions.

Stackable Credentials. Certifications and credentials that reflect mastery of knowledge and/or skills as they relate to a specific component of a Career and Technical Education program and may lead to a Career Readiness Indicator.

The Career Readiness Indicators are organized in a stackable manner. In the electronics cluster Electronics Technicians Association Basic Direct Current is listed as the first credential, followed by Basic Alternate Current, Basic Analog, and finally Basic Digital. The variance in rating for each county was based on evidence of how these courses were implemented, scheduled or taught. Evidence of collaboration, connections, and communication needed to be provided in order to receive a higher level of development. Jefferson, Shelby, Lawrence, and Cherokee counties received a Level 4, and Etowah received a Level 3.

Systematic and Seamless Pathway of Progression. The framework starts broad at the secondary level and lead to specialization through the educational process. Courses are articulated to build depth of knowledge and skills without duplication. The pathway should offer students the opportunity to transition into the workplace and/or post-secondary education. The important component of this element is non-duplication of knowledge and skills and opportunities to transition into the workplace or post-secondary education. All five counties were rated at a Level 2 for this element. There was some evidence; however, it was sporadic. It appeared as if this process was not fully developed with communication and collaboration with industry partners, workplace opportunities, or educational institutions.

Credit Transfer Agreements. Through a qualification framework the alignment of the secondary and postsecondary levels and to provide a non-duplicative progression of courses,

agreements may be forged between institutions to offer college credit for attainment of postsecondary knowledge and skills by secondary students. Establish procedures for students to transfer these credits to two-year or four-year institutions. The instructors from Jefferson and Etowah counties referred to credit transfer agreements that existed with local community colleges; however, actual copies of the agreements were not provided. Both counties were rated at a Level 4 for this reason. Cherokee County received a Level 3 rating, and Shelby and Lawrence counties received a Level 2 rating. The evidence was weak or sporadic.

Program Quality. The fifth key feature of the Career Readiness Indicator Evaluation Instrument is program quality. An effective, high-quality career and technical education program provide students with a curriculum that combines integrated academic and technical content and strong employability skills. They provide work-based learning opportunities that enable students to connect what they are learning to real-life career scenarios and choices (United States Department of Education, Office of Vocational and Adult Education, 2012). The sub-elements of this feature include learner engagement, work-based learning, interdisciplinary teaching, and the use of data collection and analysis.

Learner Engagement. Students have opportunities to delve deeply into material and create solutions and projects that reflect their gained skills and knowledge. Teachers use problem-solving and project-base instruction and take on the role of facilitator allowing students to work in teams and guide the learning process. Jefferson, Shelby, and Lawrence counties scored at a Level 5 for this element. These instructors provided strong evidence of how students are actively engaged in the learning process. The use of Nida software provides students with the ability to practice skills safely on the computer, and then transfer these skills to hands-on components. Nida offers a complete line of training equipment and courseware for electronics.

It began in 1972 from the aerospace industry developing high-technical training for the U.S. military. The program incorporates computer assisted instruction and performance-based technical training. The assessment tool allows instructors to monitor students' progress and then use this data to guide and improve instruction. The instructor in Etowah County also use the Nida system, however the director of the program stated that, "We are trying to be maximum lab minimum seat time is our goal. There is time when we must have seat time. It's going to lead to something that we are going to put our hands on and that we are going to do." It appeared as if instruction was not as hands-on as Jefferson and Shelby counties, and for this reason the rating was Level 4. Cherokee County was rated at a Level 2. There was some evidence of student engagement but it was sporadic and limited. The director stated that he hoped to add some project-based learning for the coming school year.

Work-based Learning. Work-based learning provides students with educational opportunities that typically cannot be replicated in the classroom. Work-based experiences are designed to make learning relevant, improve graduation rates, and better prepare student for careers or continued education and to connect information learned in the classroom with skills obtained in an occupational setting (ADECTE, 2014). Etowah County scored a Level 5 for this element. The director shared that they have job shadowing, some internships, and apprenticeship programs. The other four counties Jefferson, Shelby, Lawrence and Cherokee were rated at Level 4. These counties primarily use field trips and industry site visits to provide work-based exposure.

Interdisciplinary Teaching. Students receive academic and technical instruction in integrated ways. Coursework is created through collaboration of academic and technical education teachers. Interdisciplinary teaching is supported by administrative staff and teachers

are provided common planning time to achieve this level of collaboration. The schools do not integrate academic and technical instruction. The instructor from Jefferson County stated, "In 20 years, I have never had to use the academic teacher more than maybe once, and it was me reaching out to them." For this reason, Jefferson, Shelby and Cherokee counties were rated at Level 1 for this element. In Etowah County, the career center does have three mathematic teachers on site. The mathematics and career and technical education classes are separate, however, there are times when "we find some time to work some specific technical math as part of or as it applies to career tech course" (Etowah County). In Lawrence County, the instructor has on occasion used the English teacher to review resumes. For these reasons Etowah and Lawrence counties were rated at Level 2.

Data Collection and Analysis. Data capture and analysis is essential for monitoring performance and fosters a culture of continuous improvement. Data are regularly used and evaluated for planning, development, implementation, and improvement purposes. It should be shared with faculty and analyzed for program and classroom improvement. Jefferson and Lawrence counties were rated at Level 5. Etowah County at level 4, and Shelby and Cherokee at Level 3. The difference for the various levels was based on evidence provided for how the data was used to evaluate performance and then used this to guide instruction to improve students' performance. Jefferson County has a 100 percent pass rate for students earning the ETA Basic DC credential. The instructor monitors students' progress with formative assessments, and uses data to guide instruction. The other counties collect data but are not as successful in using these data to evaluate, plan, or implement improvement to instruction.

Delivery and Assessment. The sixth feature of the Career Readiness Indicator Evaluation Instrument is delivery and assessment. Today's workplace demands that all workers

be lifelong learners in order to advance in their careers. This will require, not only, the design of high-quality Career and Technical Education Programs, but also commitment from all stakeholders for the assurance that programs are delivered and assessed in an effective manner to provide guidance, support and success for all students. The sub-elements of this feature include teachers and or trainers, student support services, assessment guidelines, and validation and moderation processes.

Teachers and or Trainers. The quality of career and technical education teachers is recognized as a major contributor to levels of education and skills attained by students. The classroom teacher has the greatest influence on student success and the delivery of content. Teachers should have access to professional development, which provide academic and career and technical education teachers the opportunity to create genuinely integrated coursework. Career and Technical education teachers must have current industry experience or qualifications. The instructors from Jefferson, Etowah, Shelby, and Cherokee counties were rated at a Level 4. Each of these instructors provided evidence of current relevant industry experience. The instructor from Jefferson County currently serves on the board of directors for the Electronics Technicians Association at the national level. The instructor from Lawrence County has teaching experience, however, he is new to the field of electronics and is in the process of gaining additional training and educational experience in this field.

Student Support Services. The provision of student support services enhances the student experience. Student support services are services offered to the student outside of the teaching and learning areas and may include counseling, support for students with disabilities, academic support and career coaching and guidance. The rating scale is evidence based. Participants needed to provide evidence of the support provided to students to receive a higher rating.

Neither the Career Coaches nor the school counselors participated in the research study; therefore, a true picture for the level of support provided to students by these individuals was limited. It was clear that each school system handles this position and the level of support in different ways. Jefferson, Etowah, and Lawrence counties received a rating of Level 3. These systems did have either a Career Coach or a counselor onsite or who visited the career centers. Etowah County discussed collaboration between their Career Coach and the Gadsden State Career Coach. This partnership provides additional support and guidance for their students at the post-secondary level. Shelby County was rated at a Level 2. The support appeared to be irregular and not consistent. Participants from Cherokee County provided no evidence of a Career Coach or counselor and for this reason received a rating of Level 1.

Assessment Guidelines. Assessment guidelines are an important component of teaching and learning. Guidelines should refer to all processes employed by teaching staff to make judgement about the achievement of students, and to the extent that is practicable, be aligned with international benchmarks so students are prepared to succeed in a global economy. Jefferson and Etowah counties were rated at Level 5 for this element. Both instructors rely on the Nida software to monitor students' progress and performance, and use this information for continuous improvement. Shelby County received a Level 4 rating, and Lawrence and Cherokee counties received a rating of Level 3.

Validation and Moderation Processes. Validation and moderation processes ensure that the assessment of students' work is reliable and fair. It refers to an assessment quality review process that is coordinated ideally by an external body, which has the authority to review and moderate the assessment process for the earned credential.

The focus of this element was to review the assessment process to validate the earned Electronics Technicians Association (ETA) Basic DC credential earned by students. Etowah, and Shelby counties earned a rating of Level 5. Both locations are certified testing centers; however, in order to maintain the highest level of quality the certification test is not administers to the students by the electronic instructor. "We are a certified testing center. I am a certified tester. Now I will not test the kids that are in my class. We have plenty of people who can come in here and administer the test" (Shelby County). Jefferson and Lawrence counties were rated at Level 4. The instructors are certified to administer the ETA Basic DC test, and test their students. Cherokee County was rated at Level 3.

Data Analysis Summary

The purpose of this study was to examine a Career Readiness Indicator within the Alabama High School CTE program as requested by the Alabama State Department of Education, Office of Career and Technical Education/Workforce Development to validate the relevance of the indicator and the rigor of the program, which leads to an earned credential. Can one trust that this indicator provides a student with a relevant credential demanded by employers within the state of Alabama, and assure employers that the holder of this credential has the knowledge, skills and abilities to perform at the level employers want and expect? This was achieved with the use of the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016). The developmental level for each of six key features, identified as necessary for an effective, high-quality career and technical education program and high-quality credential are presented by county (see Appendix K for evaluation score sheets and Evaluation Results Matrix).

Research Question One: Research Question One asked, "At what developmental levels was the credentialing process for the Career Readiness Indicator for an Electronics Technicians

Association - Basic Direct Current (DC) credential within the Manufacturing cluster of the Alabama High School Program on the key features governance, occupational standards, qualification framework, program quality, and deliverance and assessment?"

Jefferson County. The Career Readiness Indicator for an Electronics Technicians Association – Basic Direct Current credential within this system was rated at a developmental Level 5 for the key feature of governance. Level 5 for occupational standards. Level 3.4 for qualification framework. Level 3.9 for program quality. Level 4 for delivery and assessment.

Etowah County. The Career Readiness Indicator for an Electronics Technicians Association – Basic Direct Current credential within this system was rated at a developmental Level 5 for the key feature of governance. Level 5 for occupational standards. Level 3.1 for qualification framework. Level 3.9 for program quality. Level 4.2 for delivery and assessment.

Shelby County. The Career Readiness Indicator for an Electronics Technicians Association – Basic Direct Current credential within this system was rated at a developmental Level 4.8 for the key feature of governance. Level 5 for occupational standards. Level 2.6 for qualification framework. Level 3.5 for program quality. Level 3.8 for delivery and assessment.

Lawrence County. The Career Readiness Indicator for an Electronics Technicians Association – Basic Direct Current credential within this system was rated at a developmental Level 4.8 for the key feature of governance. Level 4.8 for occupational standards. Level 3 for qualification framework. Level 4.1 for program quality. Level 3.2 for delivery and assessment.

Cherokee County. The Career Readiness Indicator for an Electronics Technicians Association – Basic Direct Current credential within this system was rated at a developmental Level 5 for the key feature of governance. Level 4 for occupational standards. Level 2.6 for qualification framework. Level 2.6 for program quality. Level 3 for delivery and assessment.

Research Question Two. Research Question Two asked, "At what developmental level on the key feature industry engagement was the Career Readiness Indicator for an Electronics Technicians Association - Basic Direct Current (DC) credential within the Manufacturing cluster of the Alabama High School Program?"

Jefferson County. The Career Readiness Indicator for an Electronics Technicians Association – Basic Direct Current credential within this system was rated at a developmental Level 3.6 for the key feature of industry engagement.

Etowah County. The Career Readiness Indicator for an Electronics Technicians Association – Basic Direct Current credential within this system was rated at a developmental Level 3.8 for the key feature of industry engagement.

Shelby County. The Career Readiness Indicator for an Electronics Technicians Association – Basic Direct Current credential within this system was rated at a developmental Level 3.8 for the key feature of industry engagement.

Lawrence County. The Career Readiness Indicator for an Electronics Technicians Association – Basic Direct Current credential within this system was rated at a developmental Level 3.8 for the key feature of industry engagement.

Cherokee County. The Career Readiness Indicator for an Electronics Technicians Association – Basic Direct Current credential within this system was rated at a developmental Level 3 for the key feature of industry engagement.

The Career Readiness Indicator Evaluation Instrument was created specifically for this research study. It was aligned with the elements of a high-quality career and technical education program as defined by the U.S. Department of Education Office of Vocational and Adult Education (2012) and a high-quality credential as defined by the Corporation for a Skilled

Workforce (2013). An effective high-quality career and technical education program align with college and career readiness standards, and the needs of employers, industry, and labor markets. The curriculum integrates academic, technical content, and employability skills. An effective program provides work-based learning opportunities and allow students to graduate with industry recognized certificates or credentials that prepare them for in-demand careers. A high-quality credential provides good evidence that the holder of the credential has the knowledge, skills and abilities to perform at the level employers want and expect. A six-member review panel tested the instrument using a Q-sort technique to establish content validity prior to the start of the research study. The instrument was refined based on feedback from the panel members until an average of 77 percent degree of agreement was reached. The field-testing of the instrument was incorporated into the research study.

Research Question Three. Research Question Three asked, "Describe the results for the field-testing of the Career Readiness Indicator Evaluation Instrument as an effective tool to evaluate the credentialing process of an indicator." Participants described during the interviewing process how each of their programs address the six key features and sub-elements of the Career Readiness Indicator Evaluation Instrument. Evidence was presented verbally and then transcribed. Based on data analysis using the instrument as a guide, participants provided evidence of employer and industry engagement within feature one. Evidence for curriculum development and competency-based curriculum were explored in feature one and three. The integration of academic and technical content skills, to include college and career readiness standards were examined in feature three and five. The incorporation of employability skills and work-based learning opportunities were evaluated in feature three and five. Industry-recognized certification or credentials were examined in feature one, three, and four. Finally, the quality of

the credential providing good evidence that the holder of the credential has the knowledge, skills and abilities to perform at the level employers want and expect were evaluated in feature two, three, five, and six. The field-testing of the instrument provided valuable information for areas of improvement and refinement of the instrument to improve the content validity score. This will be discussed in Chapter V in the recommendation section. Based on these points, the Career Readiness Indicator Evaluation Instrument is an effective tool to use in the evaluation of the credentialing process of an indicator.

Chapter Summary

This chapter described the finding from this research study and examined the developmental level on six key features, identified as necessary for an effective, high-quality career and technical education program and high-quality credentialing process. Developmental ratings were based on evidence provided by participants from Jefferson County, Etowah County, Shelby County, Lawrence County, and Cherokee County within the state of Alabama. Chapter V will provide a discussion and summary of these findings, conclusions, and implications for the variance in developmental levels between each system within a specific key feature. Chapter V will also provide recommendation based on the field testing of the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016). The chapter will conclude with a discussion for future research and a summarization of the research study.

Chapter V: Discussion

The purpose of this research study was to examine a Career Readiness Indicator within the Alabama High School Career and Technical Education program as requested by the Alabama State Department of Education, Office of Career and Technical Education/Workforce Development to validate the legitimacy of the indicator and the rigor of the program which leads to an earned credential for high school students. Can one trust that this indicator, which is an industry recognized credential, provides students with a relevant credential demanded by employers within the state of Alabama, and assure employers that the holder of this credential has the knowledge, skills and abilities to perform at an entry level position employers will expect? An exploratory sequential mixed methods approach was used to collect evidence-based data, which were used to examine the rigor and relevance of the credentialing process to validate the Career Readiness Indicator credential. This was achieved with the use of the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016), which was designed and field-tested to investigate the following research questions.

Research Questions

1. At what developmental levels was the credentialing process for the Career Readiness Indicator for an Electronics Technicians Association - Basic Direct Current (DC) credential within the Manufacturing cluster of the Alabama High School Program on the key features governance, occupational standards, qualification framework, program quality, and deliverance and assessment?

2. At what developmental level on the key feature industry engagement was the Career Readiness Indicator for an Electronics Technicians Association - Basic Direct Current (DC) credential within the Manufacturing cluster of the Alabama High School Program?
3. Describe the results for the field-testing of the Career Readiness Indicator Evaluation Instrument as an effective tool to evaluate the credentialing process of an indicator.

Evidence was collected through semi-structured interviews. The participants were selected by the Senior Director of Workforce Development Alabama Department of Education, and the Education Administrator of the Manufacturing cluster for the state's CTE program. Initially the list of participants was to include stakeholders who were actively engaged in all aspects of the credentialing process for this CRI. This was to be both education and industry partners from Cherokee, Etowah, Jefferson, Lawrence, and Shelby counties. These counties were selected because they had high school students who earned the ETA Basic DC credential during the 2015-2016 school year. In the end only the CTE directors and the electronics instructors in each county participated in the research study. These participants did not provide the researcher with any industry partners, postsecondary educational institution partners, or student support staff members who could be contacted in order to serve as potential participants. The interviews were guided by the six key features of the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016), which include elements related to Industry Engagement, Governance, Occupational Standards, Qualification Framework, Program Quality, and Delivery and Assessment. These are the elements of a high-quality CTE program, which leads to a high-quality credential. As reviewed in the literature these elements align with research conducted by the U.S. Department of Education Office of Vocational and Adult Education (2010), the National

Research Center for Career and Technical Education (Shumer et al., 2011), and the College Board (Holzer et al, 2013). The interviews were transcribed, coded, analyzed, and based on these data the credential was rated for each of the five counties based on the evidence provided. As was described in Chapter III, the ratings are based on five stages of development. Each stage of development builds on the previous stage, where Level 1 indicates that there is no evidence of the feature within a specific domain and Level 5 represents a well-established feature with a review and improvement process in place. Each level of development within the six key features have an assigned percentage value. These percentage values were totaled, divided by 20, which converted the percentage back to the rating scale of Level 1 to 5 providing a quantitative interpretation with a development level of the qualitative data to answer the research questions.

Chapter Organization

Chapter V will provide a discussion and summary of the findings, conclusions, and implications for the variance in developmental levels between each system within a specific key feature. Chapter V will also provide recommendation based on the field testing of the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016). The chapter will conclude with a discussion for future research and a summarization of the research study.

Discussion of Findings

Credentials are indicators of skills and knowledge gained by an individual, and are a measurement, assessment, and documentation of skills acquisition (CSW, 2013). Based on the literature from the Corporation for a Skilled Workforce (2013), and the Southern Regional Education Board (2015) a high-quality credentialing process must include process standards. These describe how credentials are developed to include competencies, standards, curriculum,

assessments, and ultimately validation. Validation as defined by the Association for Career and Technical Education (2014) means the indicator measures what they are intended to measure. According to both of these organizations the most important element of a high-quality credential is validated competencies. This is a measurable pattern of acquired knowledge, skills, abilities, and behaviors that an individual needs to perform work roles or occupations associated with an earned credential. These are based on industry-recognized standards, which describe what a person must know and the work he or she is able to perform for a specific job or occupation. These criteria were used to summarize the findings from this research study.

Summary of Findings

Skills. Evidence for determining skills priorities and basing these skills on industry recognized standards were sub-elements in feature one Industry Engagement, and feature two Governance of the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016). All five counties provided strong evidence for the development, incorporation, and active engagement of students in skills needed for the ETA Basic DC credential. The counties were rated at a development Level of 4 or 5 for these features. This was an area of strength for all five counties.

Knowledge. There was evidence for opportunities of knowledge acquisition related to the ETA Basic DC credential at both the formal and informal level. These findings are reported in feature three Occupational Standards. All counties were rated at a development Level 5 for incorporating industry-recognized standards to guide the knowledge students needed to acquire. This was achieved with the use of competency-based curriculum. Four of the five counties were rated at a Level 5, with Cherokee County receiving a rating of Level 3 for competency-based curriculum. An understanding of the essential knowledge and skills required for employment,

often referred to as soft skills or employability skills were rated in this feature, and all five counties were rated at a development Level of either 4 or 5.

Measurement and Assessment. Learning must include assessments (CSW, 2013). This is the process of measuring and documenting an individual's knowledge and competency. Evidence was collected in feature five Program Quality, and feature six Delivery and Assessment. The data collection and analysis in Program Quality related to the use of formative assessments which were used to guide instruction. Jefferson and Lawrence counties provided the strongest level of evidence for this feature and were rated at a development Level 5. Etowah County was rated at a development level 4. Shelby and Cherokee counties received a rating of Level 3. The evidence to use the formative assessments to improve instruction were weaker in these counties. In feature six Delivery and Assessment, the development levels were similar to those in Program Quality with two counties receiving a rating of Level 5, two at Level 4, and one at Level 3. The variance was based on the use of third-party administration of the credentialing test. The counties that used third-party testers received a higher development level.

Demonstrated Skills Acquisitions. This is the ability to perform, demonstrate, and apply the knowledge gained related to the ETA Basic DC credential. These are abilities, behaviors, and competency. Evidence of these components were collected within several features of the Career Readiness Indicator Evaluation Instrument (Tucker et al, 2016). The ultimate goal or most desirable setting to demonstrate the acquisition of skills is the workplace. Opportunities for workforce training through apprenticeships, job shadowing, or even field trips were evaluated in feature one Industry Engagement. This was an area of weakness across all five counties. The development Levels were a 2 or 3. Field trips to industry locations were the primary source of workforce training. These opportunities provided exposure for students in the application of

skills within the workplace, however it did not provide students with the opportunity to demonstrate their skills in the workplace. This influenced the development level rating for learner engagement within feature 5 Program Quality. The ratings varied from Level 2 to 5 in this category. Actively engaging students in opportunities to demonstrate and apply their skills in real world situations is critical for the validation of a high-quality credential. The literature suggests learning opportunities must go beyond seat time, and actively engage students in the learning process (CSW, 2013; Lumina Foundation, 2015). The final element rated within this category was work-based learning within the Program Quality feature. Work-based learning provides students with the opportunity to make the learning relevant to the workplace. The ultimate goal would be to provide students the opportunity in an actual workplace, however, the reality and practicality of this is limited. The five counties provided strong evidence however of making every effort to make learning relevant to the workplace. For this reason, the development Levels for this element were 4 or 5.

Credential Earned versus Industry Needs. Current research revealed there is "real potential and troubling weak spots in the current credentialing" process (CSW, 2013, p. 4). Where credentials have been most successful, employers have played a central role through the entire credential development process, from identifying competencies and skill standards to developing assessments and ultimately recognizing and using credentials in hiring and advancement (CSW, 2013). The National Skills Coalition state that education and training must align with the skill needs of local industries (2011). This is supported by research conducted by the CSW (2013) in which employers have a chronic problem finding the right people with the right skills for specific jobs. There appears to be a mismatch between employer needs and the skills potential employees have obtained. This was confirmed in the data from this research

study. All five counties provided strong evidence for the use of industry-recognized standards and were rated at a development Level 5. All counties used competency-based curriculum based on these standards, with 4 out of 5 counties receiving a rating of Level 5 for this element. All five counties have policies for engaging industry partners in advisory committees, and provided evidence of mandatory bi-annual meetings with partners. As stated above the weak spot is allowing and engaging partners actively in an ongoing conversation with extensive input in the development, validation, and evaluation of curriculum in order to ensure that the credential is relevant and current. This is a sub-element of feature one Industry Engagement of the Career Readiness Indicator Evaluation Instrument. The evidence for this component was indeed the weakest. Development Levels were 1 (no evidence) for one county; two counties at Level 2 (sporadic evidence); and the remaining counties were rated at Level 3 and Level 4. This confirms the concern stated in literature from the Corporation for a Skilled Workforce (2013) and the National Skills Coalition (2011). Certainly, the goal is to align the state standards for a specific credential with industry recognized standards, and to use this to guide instruction with the use of competency based curriculum. The mismatch occurs when industry partners are not fully engaged in the decision-making process. The conversation between educators and their industry partners must shift from, educators stating "this is what we are doing", to one of "what should we be doing and how?" It does industry no good if the standards being taught for a credential do not align with their needs. Additionally, it does not serve the students well to earn a credential with certain skills if those skills are not needed by industry. The one constant in a knowledge-based economy is change. Employers demand workers who are able to continuously adapt to an ever-changing workplace. Educators must be prepared to adapt CTE programs to meet this demand.

Development Levels

Research Question One and Two. See Appendix K for the detailed evaluation results for each county. This study had two primary goals: (1) Determine the developmental level of the credentialing process for the Career Readiness Indicator for an Electronics Technicians Association – Basic Direct Current credential on the key features Industry Engagement, Governance, Occupational Standards, Qualification Framework, Program Quality, and Deliverance and Assessments; and (2) Field test the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016). For Research Question One, "At what developmental levels was the credentialing process for the Career Readiness Indicator for an Electronics Technicians Association - Basic Direct Current (DC) credential within the Manufacturing cluster of the Alabama High School Program on the key features governance, occupational standards, qualification framework, program quality, and deliverance and assessment?" and Research Question Two, "At what developmental level on the key feature industry engagement was the Career Readiness Indicator for an Electronics Technicians Association - Basic Direct Current (DC) credential within the Manufacturing cluster of the Alabama High School Program?" The results were as follows:

Industry Engagement. Jefferson County Development Level 3.6; Etowah County Development Level 3.8; Shelby County Development Level 3.8; Lawrence County Development Level 3.8; and Cherokee County Development Level 3.

Governance. Jefferson County Development Level 5; Etowah County Development Level 5; Shelby County Development Level 4.8; Lawrence County Development Level 4.8; and Cherokee County Development Level 5.

Occupation Standards. Jefferson County Development Level 5; Etowah County Development Level 5; Shelby County Development Level 5; Lawrence County Development Level 4.8; and Cherokee County Development Level 4.

Qualification Framework. Jefferson County Development Level 3.4; Etowah County Development Level 3.1; Shelby County Development Level 2.6; Lawrence County Development Level 3; and Cherokee County Development Level 2.6.

Program Quality. Jefferson County Development Level 3.9; Etowah County Development Level 3.9; Shelby County Development Level 3.5; Lawrence County Development Level 4.1; and Cherokee County Development Level 2.6.

Delivery and Assessment. Jefferson County Development Level 4; Etowah County Development Level 4.2; Shelby County Development Level 3.8; Lawrence County Development Level 3.2; and Cherokee County Development Level 3.

Research Question Three. For Research Question Three, "Describe the results for the field-testing of the Career Readiness Indicator Evaluation Instrument as an effective tool to evaluate the credentialing process of an indicator." based on evidence collected in the six key features and sub-elements of the Career Readiness Indicator Evaluation Instrument which are based on the criteria from the literature for a high-quality CTE program and a high-quality credential the results are as follows:

- Employer and industry engagement – Evidence was collected within feature one.
- Curriculum development and competency-based curriculum – Evidence was collected in feature one and three.
- Integration of academic, technical content skills, and college and career readiness standards - Evidence was collected in feature three and five.

- Employability skills and work-based learning – Evidence was collected in feature three and five.
- Industry-recognized certification or credentials – Evidence was collected in feature one, three, and four.
- Knowledge, skills and abilities to perform – Evidence was collected in feature two, three, five, and six.

Based on these points, the Career Readiness Indicator Evaluation Instrument is an effective tool to use in the evaluation of the credentialing process of an indicator.

Conclusions

The purpose of this research study was to validate the legitimacy of the ETA Basic DC Career Readiness Indicator credential for the state of Alabama Department of Education Office of Career and Technical Education. The need for validation is to assure stakeholders that this is a credential demanded by employers in the state, and that the holder of the credential has the knowledge, skills, and abilities to perform. A high-quality credential is earned through a high-quality Career and Technical Education program. In the state of Alabama there is a lack of accurate, reliable data, validated by a third-party evaluating the CTE program by which this credential is earned is of the highest quality. The Alabama State Plan, which is required by the Carl D. Perkins Career and Technical Education Act of 2006, describe how the state will meet or exceed the federal requirements of this Act for quality. The literature revealed that stakeholders at all levels are concerned with the offering of credentials without quality assurance mechanism in place to ensure students, employers, and government agencies that a credential has true market value. The National Association of State Directors of Career and Technical Education Consortium (2014) state there is limited information regarding what is happening consistently

and systematically between state educational leaders and employers in CTE programs. In Alabama, no evaluation of the CTE program or the credentialing process has been conducted by a third-party to ensure that the elements as described in the State Plan are being executed with fidelity and are not simply a plan on paper. The literature provides extensive support from national organizations, such as the Association for Career and Technical Education, National Association of State Directors of CTE Consortium, ACTE, and the College Board, for the need of external third-party validators of CTE programs. External third-party validators have the potential to ensure that CTE credentials are earned via a rigorous high-quality program. One of the greatest concerns after conducting this exploratory study is the inconsistencies that were found between information in the Alabama State Plan, information provided by employees in the Office of Career and Technical Education at the state level, information found on the state Department of Education website, and the evidence provided by the local school employees who participated in this study. Below are listed a few of these inconsistencies and areas of concern.

Industry Engagement. Critical to the success of any CTE program in preparing students for the workplace is the involvement of local, state, and/or regional employers (CSW, 2013; Holzer et al., 2013; Southern Regional Education Board, 2015). Employers must do more than visit schools, talk with students in CTE courses, and sit on advisory boards. Business involvement must include input in the development of curriculum, academic and technical skills, and industry recognized standards for current relevant skills needed for specific jobs. The Alabama Plan as stated in the Handbook for Career and Technical Education/Workforce Development Advisory Councils and Advisory Committees (ADOE, 2013) requires that school systems meet two times per year with their advisory boards. There was evidence that the systems who participated in this study did meet with their boards; however, these appeared to be

opportunities for the CTE students and instructors to show and tell what they were doing in their programs rather than a collaboration with educators to improve their programs. As stated earlier educators share with partners what they "are" doing, rather than to engage with industry partners to determine what they "should" be doing. This creates the mismatch between the skills, standards, and credentials that are earned and the needs required by businesses and industries. Industry partners must have the authority to influence program design, curriculum, assessments, and credential standards. This is critical to address the skills gap which has economic implications for the state, as well as the nation. A concern that must be noted, although industry partners were to be interviewed for this research study, no list of partners were provided to the researcher as requested to serve as potential participants. This raises the question as to how truly involved the industry partners are with the CTE programs in each of the five counties.

Employability Skills. These are skills such as the ability to interact and collaborate with others, plan and organize information collectively, make decisions independently, identify and problem solve, think creatively, and general work ethic. Employers state these skills are of the greatest concern and challenges they face with young adults who enter the workplace today. To address this challenge in 2015 the state of Alabama implemented the use of Simulated Workplace. The program provides teachers with a curriculum to teach employability skills. Teachers are to create a simulated workplace within their CTE programs. This includes such things as having the students to clock in and out, assume leadership roles which are earned through an application and interviewing process, and evaluation and monitoring of peers. There was inconsistent evidence for the implementation of this program within the five counties. Some teachers provided detailed description for how the program works in their classroom, others stated that they had the manual, and others were honest and shared that it was a challenge to

incorporate these skills in addition to all the other requirements. A plan on paper to address a very important need for employers does not serve the students well if it is not implemented with fidelity. In conversations with the Senior Director for Workforce Development for the state, he confirmed that the state does not have a mechanism for compliance to ensure that programs that are to be implemented at the local level, are in fact happening.

Work-based Learning. The following information is from the state's Career and Technical Education website regarding work-based learning. Research has indicated that work-based experiences invigorate learning and that students participating in work-based learning were more likely to stay in school, take more difficult courses, and graduate (Swail & Kampits, 2004). Work-based learning provides students with educational opportunities that typically cannot be replicated in the classroom. The Carl D. Perkins Career and Technical Education Act of 2006 emphasizes the necessity of providing students with strong experiences in, and comprehensive understanding of, all aspects of the industry that the student is preparing to enter (ADOECTE, 2014). This manual provides a framework for meeting this mandate through rigorous, relevant experiences in the classroom and a work-based learning setting. Sounds good, but if it is not actually happening in the CTE classrooms it does not properly prepare students for the workplace. This also influences the quality of the credential earned in various schools. The ETA Basic DC credential earned from a school that has a strong work-based learning environment is of higher quality than that earned from a school that does not provide students with the opportunities to engage at this level. This addresses the differences between the U.S. CTE programs and those of other industrialized countries. Demonstrated competencies and the abilities to perform the skills related to a credential are of foremost importance in other countries. The U.S. system assumes that if a student has earned the credential he or she has the knowledge,

skills, and abilities to perform. This sentiment was expressed repeatedly by the state's Senior Director for Workforce Development. In his opinion, an earned credential represented competency. A high-quality credential is earned through a high-quality program which provides opportunities to gain knowledge, skills, and must include a component for demonstrating competencies and abilities. The most desirable environment to demonstrate these skills would be in an actual workplace. Without this option a work-based learning environment is the next best choice. The sites that participated in this study provided evidence of varying levels of implementation of this state mandated program. One location provided students with the opportunity to go out into the community to install smoke detectors to OSHA standards. Other locations gave students the opportunity to apply their skills within the school building, and then others engaged in computer based simulation. Although each county had some version of work-based learning, and the ratings were at a development Level of 4 or 5, the evidence was not as detailed or as explicit as that defined on the state website for work-based learning. As the literature showed, Americans want an education system that is focused on learning and demonstrated competencies rather than just seat time (Lumina Foundation, 2015). In a knowledge-based society Know-how and Know-who, are the keys to success.

Third Party Validation. Employers must be able to trust that the holder of this credential has the knowledge, skills, and demonstrated competencies and is able to perform the job associated with this credential immediately upon entrance into the workplace (Holzer et al., 2013). As defined by the Corporation for a Skilled Workforce (2013) a high-quality credential provides good evidence that the holder of the credential has the knowledge, skills, and ability to perform. The purpose of this study was to validate the ETA Basic DC CRI credential and in order to do this the CTE program by which the credential was earned also had to evaluated and

validated. The Career Readiness Indicator Evaluation Instrument was designed and field-tested for this primary purpose. According to the Holzer et al. (2013) assessment tools and accountability systems need to be developed for technical and employability skills. Without this mechanism for accountability the full development and expansion of high-quality CTE programs, which lead to high-quality credentials will be impeded. There needs to be more innovation and rigorous evaluation, and models that work should be replicated. External third-party validators have the potential to ensure that career and technical education credentials are earned via a rigorous high-quality program and assure all stakeholders that the holder has the knowledge, skills, and competencies demanded by employers. The Career Readiness Indicator Evaluation Instrument is one such assessment tool that can be used to help achieve this goal. The challenge is to encourage the state's CTE leadership to embrace this level of support to guide improvements in the quality of the credentials available to students.

Equity and Access. The vision of the Alabama CTE program, as stated on the website, is to give all students the opportunities they need to be prepared for success. Stakeholders at all levels within the state want students to be well-equipped for top careers in Alabama's workforce. A high-quality CTE program is the means to help make this a reality. To achieve these goals there must be equitable availability of opportunity throughout the entire state. This requires access. The ETA Basic DC credential is one of hundreds of credentials on the state approved list of Career Readiness Indicators which are available to schools within the state to offer in their CTE programs. There are approximately 75 counties in Alabama with about 360 high schools. For the 2015-2016 school year only 10 of the 75 counties offered courses in electronics. Only five of the 10 counties offered the ETA Basic DC class, and four of these five counties had students who earned this credential. For the 2015-2016 school year 50 ETA Basic DC

credentials were earned by students. Based on data from the Alabama Commission on Higher Education (2015) High School Report during the 2014-2015 school year there were 48,416 high school graduates; 25,528 were college bound (self-reported data); and 22,888 were available to go directly into the military or the workforce. In a report from Achieve and the National Association of State Directors of Career Technical Education (2014), *Making Career Readiness Count*, there is concern with the rhetoric from states versus the reality of what is truly happening within their CTE programs. The goal of K-12 education is to prepare all students to graduate high school ready for college and careers, unfortunately in a handful of states the priority "sputters out" (p. 3) after the word college (Achieve & NASDCTE, 2014). It is critical that all students within the state of Alabama have access to opportunities for success. With the potential for over 22,000 students who may enter the workforce each year for only 50 ETA Basic DC credentials to be earned is a concern. That is 0.002 percent of the students. This credential was available in only 6 percent of the state's counties. So, what is the big deal? Volts are replacing nuts and bolts (Battery University, 2017). Batteries are a big deal. Batteries power everything from laptops, telephones to planes, trains, and automobiles. Battery research is advancing at a rapid pace. The search for the super battery, which is one that is cheap, last longer, and is environmentally friendly is the primary focus of this research (Pogue, 2017). The greatest impact of this emerging technology is in the automobile industry. According to many experts, electric vehicles are the future (The Editorial Board, 2017). By 2040 all new vehicles in Europe are projected to be electric. The potential for electric cars is greater now than ever before with major industry leaders such as General Motors, Volkswagen, Volvo, and Tesla all engaged in this new technology. Two of the largest industries in the state of Alabama, Airbus and the automobile industry such as Mercedes-Benz recognize that battery technology is an important

"brick" in their companies work (Airbus, 2017). This all begins with an understanding of Basic Direct Current. If the state truly wants to prepare students for success in top jobs in the state of Alabama access to valuable credentials such as this one must become a reality for all students.

Career Readiness Indicator Evaluation Instrument. This instrument was designed specifically for this research study, and was field tested in order to determine if it is an effective tool to evaluate and then validate the credentialing process. Two concerns emerged as a result of the field testing. First, the collection of qualitative data is particularly vulnerable to what Bernard and Ryan (2010) call the "missing data trap". The design of this study was exploratory with the use of semi-structured interviews for data collection. During the coding and analysis phase it became evident that there were gaps in the data. Data are missed sometimes because participants are unwilling to answer specific questions, or more often the researcher fails to ask the correct questions in the first place or probe for details. It is important to recognize that from the time the request was made to validate a Career Readiness Indicator from the Office of Career and Technical Education/ Development until the actual interviews were conducted was about two years. Getting past the gatekeepers, those who provided access to the individuals in the actual schools was a slow process. Once access was finally gained, it was critical that the interviewing process was handled in a delicate manner, hence the exploratory nature of the study. The interviews were also conducted within a week of the resignation of the Assistant Superintendent of Career and Technical Education for the state. The participants were sensitive and very concerned with this development and what it would mean for the future of their jobs and programs. Rather than pushing and probing for explicit evidence, a more relaxed approach was required in which the participants simply shared how their programs operated. It was

important to convey that the purpose of this study was to explore their programs, not to make judgement or to criticize their work. For these reason, there are gaps in the data.

A Q-sort technique was used at the beginning of the study to establish content validity for the instrument. Several revisions were made to the instrument based on feedback from a review board panel, which was used for the validation process. Eventually a 77 percent of agreement was reached. Although this is a low level of agreement, the decision was made to proceed with the use of the evaluation instrument with the understanding that during the field testing specific areas of weakness would be identified and used to refine the instrument once the research study was completed. The greatest area of concern that emerged was a clear understanding of the sub-elements within several of the key features. How an element is defined needs improvement. The organization of the sub-elements within the key features also need to be adjusted. These modifications to the instrument should also improve inter-rater reliability. The developmental levels were scored by the researcher and an outside third-party to establish reliability. The inter-rater reliability was within one or two development level higher or lower for both raters on all six key features (see Appendix L).

Implications

A world-class education must provide all students with meaningful opportunities and preparation, which will allow them to participate successfully in the knowledge-based, global marketplace of the 21st century. A high-quality CTE program, which provide students with the opportunity to earn high-quality credentials while in high school, is a means to make this a reality. The state's educational system however cannot do this alone. The state of Alabama Department of Education, and the Office of Career and Technical Education can strengthen the quality of the CTE program by embracing support from stakeholders at all levels. These include

members of industry both large and small, workforce development organizations, government agencies, and universities (Edmund & McColskey, 2007). These partnerships must go beyond bi-annual meetings and casual conversations to honest meaningful work in evaluating what is being done in the CTE programs, and address ways to make improvements. Industry partners need to have a real voice in curriculum development. This external input could provide educators with an expanded vision for certain credentials and how to restructure instructional practices to be meet the demands of employers and the workplace. For example, the curriculum for the Basic Direct Current credential could explore how these skills can apply to robotics, automation, and electric automobiles. The engagement must shift from one of this is "what we are doing", to one of "what should we be doing"? Partnerships with Auburn University can provide support in the form of professional development for teachers, administrators, and state educational leaders. The Southern Regional Education Board (2015) and the College Board (Holzer et al., 2013) state that embracing support from universities is an area that is often overlooked and not fully utilized by state departments of education. For example, professional development that provides teachers with strategies for collaboration between the CTE instructors and academic instructors can provide students with contextual application of core academic subjects within their CTE classes. University partners can serve as liaisons with industry partners in establishing work-based learning opportunities. Service Learning, rather than formal apprenticeship should be explored. This would provide students with real life workplace exposure, and reduces the risk and liability for industry partners. Industry partners could engage in the creation of podcasts or Face time with students during classes from the industry location. Students could ask questions and engage in the workplace remotely. Money and time are major concerns for local schools, so using the resources available to university personnel could help

address these challenges. The Association for Career and Technical Education (2017) stress that educational partners need to advocate for CTE programs and this could encourage the expansion of access for valuable credentials such as the ETA Basic DC credential. Student success is the responsibility of all members within the society. Strengthening these partnerships can make this a reality.

The National Assessment of Career and Technical Education Final Report in 2014 identified the need for further research in the evaluation of CTE programs in order to provide supporting evidence of quality (USDOE, 2014). The significance of this study was to provide a way to address this need. As the literature has shown quality assurance mechanisms are lacking in CTE programs. External third-party validators have the potential to ensure that credentials are earned via a rigorous high-quality CTE program, which provides evidence that the holder of the credentials has the knowledge, skills, competencies, and the ability to perform as demanded by employers (CSW, 2013; Lumina Foundation, 2015; Southern Regional Education Board, 2015). The creation of the Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016) is a tool that was designed specifically for the state of Alabama to evaluate the state's CTE programs and credentialing process. It is the hope of this researcher that the state will recognize the value of this preliminary exploratory research study, and expand the evaluation by a third-party validator of all the state's credentials to ensure the quality of the programs and the credentialing process. In conversations with the Senior Director for Workforce Development (2017), he confirmed that the state does not have a mechanism in place to ensure compliance. A plan on paper does not serve the students in the state well if the elements of a high-quality CTE program are not implemented with fidelity.

Research does not occur in a vacuum. Creswell (2014) states that qualitative research is an approach for exploring and understanding the meaning individuals or groups assign to social or human problems. Although this study included both qualitative and quantitative components, it would be irresponsible and negligent of this researcher if I were not to address the current state of affairs within the state of Alabama's Department of Education. The participants are currently dealing with real social problems. Work began on this research study in 2015, and since that time the state's Department of Education Superintendent, the Governor, and the Assistant Superintendent of Career and Technical Education have all resigned. The current state Department of Education Superintendent is enthralled in a lawsuit, under investigation, and his performance is being reviewed by the state board of education. He could potentially be removed from his position. This state of chaos from the educational leadership at the top is of great concern for all stakeholders in the state. The quality of the state's educational system has economic implications. Industries have moved into the state for the financial benefits; however, having access to a well-educated and skilled labor market is of critical importance. As stated by the Alabama Workforce Council, building Alabama's next-generation workforce depends on teamwork (2017). Forging a partnership with a major educational institution such as Auburn University could serve as a way to assure students, parents, educators, employers, and government agencies that despite the chaos that is currently happening at the top, the quality of the work that is taking place in the schools every day is of the highest quality. This partnership can serve as a means to restore the confidence in the state educational system for all stakeholders.

Recommendations for Future Research

The Career Readiness Indicator Evaluation Instrument was designed and field-tested for this research study. Based on the results of this testing refinements to the instrument will be made, and a second Q-sort technique will be administered using participants from the state's Career and Technical Education office. The goal is to improve the content validity for the instrument from the original 77 percent of agreement to at least 90 percent. This should also improve inter-rater reliability as well. Although this study utilized descriptive data collected through semi-structured interview, if the project were to be expanded to evaluate and validate the entire list of Career Readiness Indicators the incorporation of a random assignment process could provide a more rigorous evaluation of the credential.

A review of literature conducted by the National Assessment of Career and Technical Education (USDOE, 2014) revealed that extensive research has been conducted evaluating the implementation of programs of study, student performance, and engagement in CTE programs, but there is limited work exploring the impact this has on the credentialing process. This is confirmed by the literature from the Southern Regional Education Board (2015) and the Corporation for a Skilled Workforce (2013). High-quality credentials are earned through high-quality CTE programs. The quality of a credential can be validated by validating the quality of the CTE program by which it has been earned. Future research to evaluate the entire list of the state of Alabama's list of Career Readiness Indicators in order to validate the quality of the credential would be a valuable contribution to this body of work.

Chapter Summary

The purpose of this study was to examine a Career Readiness Indicator within the Alabama High School CTE program as requested by the Alabama State Department of

Education, Office of Career and Technical Education/Workforce Development to validate the legitimacy of the indicator and the rigor of the program, which leads to an earned credential. Can one trust that this indicator provides a student with a legitimate credential demanded by employers within the state of Alabama, and assure employers that the holder of this credential has the knowledge, skills and abilities to perform at the level employers want and expect? The Career Readiness Indicator Evaluation Instrument (Tucker et al., 2016) was designed and field-tested to achieve this purpose. This chapter began with a discussion and a detailed summary of the findings from this research study. Based on these findings specific conclusions were addressed related to industry engagement, employability skills, work-based learning, third-party validation, equity and access, and the Career Readiness Indicator Evaluation Instrument. Next three practical suggestions were provided based on the conclusions reached in this study, which include recommendation for how to achieve these suggestions. These suggestions include forging meaningful partnerships with all stakeholders, embracing the support from a major university to serve as a third-party validator of the list of credentials, and using this partnership to instill confidence in the work that is happening every day in the state's schools despite current challenges occurring in the Department of Education. This chapter concludes with recommendations for future research, which include the refinement and re-testing of the Career Readiness Indicator Evaluation Instrument, and the hope for additional research for the state of Alabama to validate the entire list of Career Readiness Indicator credentials.

As was stated in the opening paragraph of this study, one of the most fundamental obligations of any society is to prepare its youth to lead productive and prosperous lives as adults. A world-class education provides all students with meaningful opportunities and

preparation. A high-quality Career and Technical Education program is a critical and essential option to achieve this goal.

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Appendix A

Auburn University IRB Approval of Research Study

AUBURN UNIVERSITY INSTITUTIONAL REVIEW BOARD for RESEARCH INVOLVING HUMAN SUBJECTS

REQUEST for MODIFICATION

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

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

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

1. **Protocol Number:** 16-428 EP 1701
2. **Current IRB Approval Dates: From:** 01-12-2017 **To:** 01-11-2018
3. **Project Title:** Examination of a Career Readiness Indicator

4.

Heidi Tucker	Doctoral Can	EFLT	770-356-3446	hzt0011@auburn.edu
Principal Investigator	**Title**	**Department**	**Phone**	**AU E-Mail** (primary)
Heidi Tucker	12546 Chatter Creet Ct., Colorado Sp			rtucker@bellsouth.net
PI Signature	**Mailing Address**			**Alternate E-Mail**
Dr. James Witte	EFLT		334-844-3054	witteje@auburn.edu
Faculty Advisor	**FA Signature**	**Department**	**Phone**	**AU E-Mail**

Name of Current Department Head: Sherida Downer **AU E-Mail:** downesh@auburn.edu

5. **Current External Funding Agency and Grant number:** N/A

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

N/A

b. List any other IRBs associated with this project: N/A

7. **Nature of change in protocol: (Mark all that apply)**

- ☐ **Change in Key Personnel** (attach CITI forms for new personnel)
- ☐ **Change in Sites** (attach permission forms for new sites)
- ☐ **Change in methods for data storage/protection or location of data/consent documents**
- ☐ **Change in project purpose or questions**
- ☐ **Change in population or recruitment** (attach new or revised recruitment materials as needed)
- ☐ **Change in consent procedures** (attach new or revised consent documents as needed)
- ☐ **Change in data collection methods or procedures** (attach new data collection forms as needed)
- ☑ **Other (explain):** Change to anticipated completion date for data collection

FOR ORC OFFICE USE ONLY

DATE RECEIVED IN ORC: _____ by _____
DATE OF IRB REVIEW: _____ by _____
DATE OF IRB APPROVAL: _____ by _____
COMMENTS:

MODIFICATION # _____
PROTOCOL APPROVAL CATEGORY: _____
MODIFICATION APPROVAL CATEGORY: _____
INTERVAL FOR CONTINUING REVIEW: _____

8. **Briefly list** *(numbered or bulleted)* **the activities that have occurred up to this point, particularly those that involved participan**

- Submission of new Research Protocol Review Form to IRB for initial approval

- Submission of a revised Research Protocol Review Form to IRB to address review comments

- Email and telephone communication with Josh Laney, Alabama Department of Education/Workforce Development to discuss procedures to begin the research study

9. **For each item marked in Question #7, describe the requested changes to your research protocol, with an explanation and/o rationale for each.** (*Additional pages may be attached if needed to provide a complete response.)*

(1) Page 6 - #12 (in the approved document) it states, "Data collection is anticipated to be completed by January 31, 2017".

CHANGE TO: Data collection is anticipated to be completed by March 31, 2017.

(2) Appendix B: Introductory Email (in the approved document) it states, "This study will begin January 5, 2017, and data collection will be concluded by January 31, 2017".

CHANGE TO: This study will begin January 5, 2017, and data collection will be concluded by March 31, 2017.

Rationale: Due to the approval process, necessary revision approval processing time which affected scheduling issues the collection of data can not be completed by the original deadline; therefore additional time is required.

10. **Identify any changes in the anticipated risks and / or benefits to the participants.**

There are no anticipated risks to the participants with this change. The extension for the conclusion of data collection will provide participants additional flexibility to schedule interviews and this will reduce potential stress if they agree to participate.

11. **Identify any changes in the safeguards or precautions that will be used to address anticipated risks.**

There are no anticipated risks; therefore no additional safeguards or precautions are necessary.

12. Attach a copy of all "stamped" IRB-approved documents you are currently using. *(information letters, consents, flyers, etc.)*

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

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

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

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

1. **PROPOSED START DATE of STUDY:** 1-5-17

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

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

2. **PROJECT TITLE:** Examination of a Career Readiness Indicator

3.				
Heidi Tucker	Doctoral Candidate	EFLT	hzt0011@auburn.edu
PRINCIPAL INVESTIGATOR	TITLE	DEPT	AU E-MAIL
12546 Chatter Creek Ct., Colorado Sp., CO 80921		770-356-3446	rtucker@bellsouth.net
MAILING ADDRESS		PHONE	ALTERNATE E-MAIL

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

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

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

_____

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

_____

PROTOCOL PACKET CHECKLIST

All protocols must include the following items:

☑ **Research Protocol Review Form** (All signatures included and all sections completed)
(Examples of appended documents are found on the OHSR website: http://www.auburn.edu/research/vpr/ohs/sample.htm)

☑ **CITI Training Certificates** for all Key Personnel.

☑ **Consent Form or Information Letter** and any Releases (audio, video or photo) that the participant will sign.

☑ **Appendix A**, "Reference List"

☑ **Appendix B** if e-mails, flyers, advertisements, generalized announcements or scripts, etc., are used to recruit participants.

☑ **Appendix C** if data collection sheets, surveys, tests, other recording instruments, interview scripts, etc. will be used for data collection. Be sure to attach them in the order in which they are listed in # 13c.

☐ **Appendix D** if you will be using a debriefing form or include emergency plans/procedures and medical referral lists (A referral list may be attached to the consent document).

☑ **Appendix E** if research is being conducted at sites other than Auburn University or in cooperation with other entities. A **permission letter** from the site / program director must be included indicating their cooperation or involvement in the project. NOTE: If the proposed research is a multi-site project, involving investigators or participants at other academic institutions, hospitals or private research organizations, a letter of **IRB approval** from each entity is required prior to initiating the project.

☐ **Appendix F** - Written evidence of acceptance by the host country if research is conducted outside the United States.

FOR ORC OFFICE USE ONLY

DATE RECEIVED IN ORC: _____ by _____ PROTOCOL #

DATE OF IRB REVIEW: _____ by _____ APPROVAL C

DATE OF IRB APPROVAL: _____ by _____ INTERVAL FC

COMMENTS:

The Auburn University Institutional Review Board has approved this Document for use from 01/12/2017 to 01/11/2018
Protocol # 16-428 EP 1701

Data collection will involve the use of:

- Educational Tests (cognitive diagnostic, aptitude, etc.)
- ✓ Interview
- ✓ Observation
- Location or Tracking Measures
- Physical / Physiological Measures or Specimens (see Section 6E.)
- Surveys / Questionnaires
- ✓ Internet / Electronic
- ✓ Audio
- Video
- Photos
- Digital images
- Private records or files

Other: _____

6B. Participant Information

Please check all descriptors that apply to the target population.

☑ Males ☑ Females ☐ AU students

Vulnerable Populations

☐ Pregnant Women/Fetuses ☐ Prisoners ☐ Institutionalized

☐ Children and/or Adolescents (under age 19 in AL)

Persons with:

☐ Economic Disadvantages ☐ Physical Disabilities

☐ Educational Disadvantages ☐ Intellectual Disabilities

Do you plan to compensate your participants? ☐ Yes ☑ No

6C. Risks to Participants

Please identify all risks that participants might encounter in this research.

☑ Breach of Confidentiality* ☑ Coercion

☐ Deception ☐ Physical

☐ Psychological ☐ Social

☐ None

☑ Other: Psychological stress associated with an in-person interview

*Note that if the investigator is using or accessing confidential or identifiable data, breach of confidentiality is always a risk.

6D. Corresponding Approval/Oversight

- **Do you need IBC Approval for this study?**
  ☐ Yes ☑ No

  If yes, BUA #_____ **Expiration date** _____

- **Do you need IACUC Approval for this study?**
  ☐ Yes ☑ No

  If yes, PRN #_____ **Expiration date** _____

- **Does this study involve the Auburn University MRI Center?**
  ☐ Yes ☑ No

  Which MRI(s) will be used for this project? (Check all that apply)
  ☐ 3T ☐ 7T

  Does any portion of this project require review by the MRI Safety Advisory Council?
  ☐ Yes ☑ No

  Signature of MRI Center Representative: _____
  Required for all projects involving the AU MRI Center

  Appropriate MRI Center Representatives:
  Dr. Thomas S. Denney, Director AU MRI Center
  Dr. Ron Beyers, MR Safety Officer

7. PROJECT ASSURANCES Examination of a Career Readiness Indicator

A. PRINCIPAL INVESTIGATOR'S ASSSURANCES

1. I certify that all information provided in this application is complete and correct.
2. I understand that, as Principal Investigator, I have ultimate responsibility for the conduct of this study, the ethical performance this project, the protection of the rights and welfare of human subjects, and strict adherence to any stipulations imposed by the Auburn University IRB.
3. I certify that all individuals involved with the conduct of this project are qualified to carry out their specified roles and responsibilities and are in compliance with Auburn University policies regarding the collection and analysis of the research data.
4. I agree to comply with all Auburn policies and procedures, as well as with all applicable federal, state, and local laws regarding the protection of human subjects, including, but not limited to the following:
    a. Conducting the project by qualified personnel according to the approved protocol
    b. Implementing no changes in the approved protocol or consent form without prior approval from the Office of Research Compliance
    c. Obtaining the legally effective informed consent from each participant or their legally responsible representative prior to their participation in this project using only the currently approved, stamped consent form
    d. Promptly reporting significant adverse events and/or effects to the Office of Research Compliance in writing within 5 working days of the occurrence.
5. If I will be unavailable to direct this research personally, I will arrange for a co-investigator to assume direct responsibility in my absence. This person has been named as co-investigator in this application, or I will advise ORC, by letter, in advance of such arrangements.
6. I agree to conduct this study only during the period approved by the Auburn University IRB.
7. I will prepare and submit a renewal request and supply all supporting documents to the Office of Research Compliance before the approval period has expired if it is necessary to continue the research project beyond the time period approved by the Auburn University IRB.
8. I will prepare and submit a final report upon completion of this research project.

My signature indicates that I have read, understand and agree to conduct this research project in accordance with the assurances listed above.

Heidi Tucker	Heidi Tucker Digitally signed by Heidi Tucker Date: 2017.01.05 09:59:07 -06'00'	1-3-17
Printed name of Principal Investigator	**Principal Investigator's Signature**	**Date**

B. FACULTY ADVISOR/SPONSOR'S ASSURANCES

1. I have read the protocol submitted for this project for content, clarity, and methodology.
2. By my signature as faculty advisor/sponsor on this research application, I certify that the student or guest investigator is knowledgeable about the regulations and policies governing research with human subjects and has sufficient training and experience to conduct this particular study in accord with the approved protocol.
3. I agree to meet with the investigator on a regular basis to monitor study progress. Should problems arise during the course of the study, I agree to be available, personally, to supervise the investigator in solving them.
4. I assure that the investigator will promptly report significant incidents and/or adverse events and/or effects to the ORC in writing within 5 working days of the occurrence.
5. If I will be unavailable, I will arrange for an alternate faculty sponsor to assume responsibility during my absence, and I will advise the ORC by letter of such arrangements. If the investigator is unable to fulfill requirements for submission of renewals, modifications or the final report, I will assume that responsibility.

James E. Witte	James Witte Digitally signed by James Witte Date: 2017.01.10 12:32:11 -06'00'	1/3/2017
Printed name of Faculty Advisor / Sponsor	**Faculty Advisor's Signature**	**Date**

C. DEPARTMENT HEAD'S ASSSURANCE

By my signature as department head, I certify that I will cooperate with the administration in the application and enforcement of all Auburn University policies and procedures, as well as all applicable federal, state, and local laws regarding the protection and ethical treatment of human participants by researchers in my department.

Sherida Downer	Sherida Downer Digitally signed by Sherida Downer Date: 2017.01.04 12:28:31 -06'00'	1/4/2017
Printed name of Department Head	**Department Head's Signature**	**Date**

8. **PROJECT OVERVIEW: Prepare an abstract that includes:**
(350 word maximum, in language understandable to someone who is not familiar with your area of study):

a) **A summary of relevant research findings leading to this research proposal:**
(Cite sources; include a "Reference List" as Appendix A.)
b) **A brief description of the methodology, including design, population, and variables of interest**

a) One of the most fundamental obligations of any society is to prepare its youth to lead productive prosperous lives as adults (Harvard Graduate School of Education [HGSE], 2011). In his 2012 State of the Union Address, President Obama stated that the strength of the American economy is inextricably linked to the strength of America's education system (United States Department of Education, 2012). In an era when economic success is dependent on a quality education, the United States has fallen behind other industrialized nations in educational attainment and achievement (HGSE, 2011). Education and training are key to success for individuals, and are critical for businesses in the United States to be competitive in a global economy. Looking at the secondary education system in this country through a comparative lens to other industrialized nations, a major area of weakness is that a career and technical educational pathway has not been emphasized or valued. The U.S. General Accounting Office examined the strategies used to prepare work-bound young adults for employment in the United States, England, Germany, Japan, and Sweden. One of the most significant findings from this study was that the U.S. Career and Technical Education programs tend to measure the successful preparation of students with the completion of a program and an earned credential. The other countries have competency-based national standards that are used to certify skill competency in addition to an earned credential (Daggett, 2015). In the National Assessment of Career and Technical Education Final Report the United States Department of Education (2014) identified the need for further research in the evaluation of CTE programs in order to provide supporting evidence of quality. The legislation connected to the reauthorization of the Perkins Act and the Perkins National Activities authority support research efforts aimed at improving the quality and effectiveness of career and technical educational programs (National Skills Coalition, 2013).
b) This descriptive research study will use an exploratory sequential mixed methods approach. Phase One - qualitative research phase, will ask participants during in-person semi-structured interviews to describe their view of the credentialing process for one Career Readiness Indicator, based on the six key features of the Career Readiness Indicator Evaluation Instrument [CRIEI] (Kaminsky, Tucker, & Witte, 2016). Phase Two - these data will be analyzed and categorized based on the level of evidence as described in the CRIEI (2016). All participants will be adults who are 18 years of age or older. Purposive sampling will be used to identify participants who are deemed to be experts on educational and industry related issues of the Career Readiness Indicator for an Electronic Technician Association Basic DC of the Alabama Career and Technical High School Education Program by the Assistant Director of Workforce Development Alabama Department of Education.

9. **PURPOSE.**
a. **Clearly state the purpose of this project and all research questions, or aims.**

a. The purpose of this study is to examine a Career Readiness Indicator within the Alabama Career and Technical High School Education Program as requested by the Alabama Department of Education, Office of Career and Technical Education/Workforce Development to validate the relevance of the indicator and the rigor of the program which leads to the earned credential for an Electronics Technicians Association Basic DC.

Research Questions:
1. At what developmental levels is the credentialing process for the Career Readiness Indicator for an Electronics Technicians Association - Basic DC within the Manufacturing cluster of the Alabama HS Program on the key features governance, occupational standards, qualification framework, program quality, and deliverance and assessment?
2. At what developmental level on the key feature industry engagement is the Career Readiness Indicator for an Electronics Technicians Association - Basic DC within the Manufacturing cluster of the Alabama HS Program?

b. **How will the results of this project be used? (e.g., Presentation? Publication? Thesis? Dissertation?)**

The results of this study will be used by the researcher for a doctoral dissertation.

10. **KEY PERSONNEL.** Describe responsibilities. Include information on research training or certifications related to this project. **CITI is required. Be as specific as possible.** (Include additional personnel in an attachment.) *All key personnel must attach CITI certificates of completion.*

Principle Investigator Heidi Tucker **Title:** Doctoral Candidate **E-mail address** hzt0011@auburn.edu

Dept / Affiliation: EFLT

Roles / Responsibilities:

Providing background theory, literature review, structuring study design, design of evaluation instrument, facilitating interviews, transcribing data, interpreting results, defending findings for dissertation. CITI training and certification completed.

Individual: Dr. James Witte **Title:** Professor **E-mail address** witteje@auburn.edu

Dept / Affiliation: EFLT

Roles / Responsibilities:

Chair of the researchers dissertation committee. Oversee the study and provide guidance and detailed suggestions.

Individual: _____ **Title:** _____ **E-mail address** _____

Dept / Affiliation: _____

Roles / Responsibilities:

Individual: _____ **Title:** _____ **E-mail address** _____

Dept / Affiliation: _____

Roles / Responsibilities:

Individual: _____ **Title:** _____ **E-mail address** _____

Dept / Affiliation: _____

Roles / Responsibilities:

Individual: _____ **Title:** _____ **E-mail address** _____

Dept / Affiliation: _____

Roles / Responsibilities:

11. **LOCATION OF RESEARCH. List all locations where data collection will take place.** (School systems, organizations, businesses, buildings and room numbers, servers for web surveys, etc.) **Be as specific as possible. Attach permission letters in** Appendix E.
(See sample letters at http://www.auburn.edu/research/vpr/ohs/sample.htm)

Alabama Department of Education, Gordon Persons Building, Montgomery, AL; Alabama School Systems: Cherokee, Jefferson, Etowah, Lawrence, and Shelby County, Alabama.

12. PARTICIPANTS.

a. **Describe the participant population you have chosen for this project including inclusion or exclusion criteria for participant selection.**

☐ **Check here if using existing data, describe the population from whom data was collected, & include the # of data files.**

All participants in this study will be adults who are 18 years of age or older. Participants will include employees of the state of Alabama Department of Education at both the state and local level. Additional participants will include industry partners of the Alabama Department of Education. Purposive sampling will be used to identify participants who are deemed to be experts on educational and industry related issues of the Manufacturing cluster for the Alabama Career and Technical High School Education Program by the Assistant Director of Workforce Development Alabama Department of Education. Data collection is anticipated to be completed by January 31, 2017.

b. **Describe, step-by-step, in layman's terms, all procedures you will use to recruit participants.** *Include in Appendix B a copy of all e-mails, flyers, advertisements, recruiting scripts, invitations, etc., that will be used to invite people to participate. (See sample documents at http://www.auburn.edu/research/vpr/ohs/sample.htm.)*

1. Participants will be sent an introductory email which will include the authorization to conduct a research study from the Director of Career and Technical Education/Workforce Development Alabama Department of Education, and an Informed Consent form.
2. Participants who respond to the researcher via email with "Yes, I consent" to participate will be contacted via email to arrange a meeting date, time, and location for an interview. A signed Informed Consent form will be collected by the researcher prior to the start of the interview. Participants will be given a copy of the Informed Consent form which will include an Audio Release statement.
3. This item was removed

c. **What is the minimum number of participants you need to validate the study?** 10

How many participants do you expect to recruit? 15

Is there a limit on the number of participants you will include in the study? ☑ **No** ☐ **Yes – the # is** _____

d. **Describe the type, amount and method of compensation and/or incentives for participants.**

(If no compensation will be given, check here: ☑)

Select the type of compensation: ☐ Monetary ☐ Incentives

- ☐ Raffle or Drawing incentive (Include the chances of winning.)
- ☐ Extra Credit (State the value)
- ☐ Other

Description:

13. **PROJECT DESIGN & METHODS.**

a. **Describe, step-by-step, all procedures and methods that will be used to consent participants. If a waiver is being requested, check each waiver you are requesting, describe how the project meets the criteria for the waiver.**

- ☐ **Waiver of Consent (including using existing data)**
- ☐ **Waiver of Documentation of Consent (use of Information Letter)**
- ☐ **Waiver of Parental Permission (for college students)**

1. Participants who agree to take part in the research study will be sent a confirmation email which will contain the date, time, and location for the in-person interview.

2. Prior to data collection, potential participants will be given time to read the Informed Consent form and have the opportunity to ask any questions related to the study.

3. If participants choose to participate, they will sign the Informed Consent form and be given a copy of the form.

b. **Describe the research design and methods you will use to address your purpose. Include a clear description of when, where and how you will collect all data for this project.** Include specific information about the participants' time and effort commitment. (*NOTE: Use language that would be understandable to someone who is not familiar with your area of study. Without a complete description of all procedures, the Auburn University IRB will not be able to review this protocol. If additional space is needed for this section, save the information as a .PDF file and insert after page 7 of this form.*)

1. Dr. Phil Cleveland, the director of Career and Technical Education/Workforce Development has requested that Auburn University research and validate the list of Career Readiness Indicators. This research study will examine the first indicator which is the Electronics Technicians Association - Basic DC credential. A Career Readiness Indicator must be rigorous, industry driven, and relevant in order to be consider legitimate; therefore, the Career Readiness Indicator Evaluation Instrument (Kaminsky, Tucker & Witte, 2016) was designed to evaluate the credentialing process of an indicator to ensure that each of these elements are addressed in the program.

2. This evaluation instrument will serve as the guide for the interview with participants. Once consented, a participant and the researcher will meet at the agreed upon day, time, and location within the participant's school system for the in-person interview. The protocol for the interview is included with this submission and includes both a scripted and unscripted protocol. The interview will take no longer than 60 minutes and will not interfere with employee's work schedules or teaching duties.

3. A voice recorder will be used to capture the interview. The researcher may also take written notes during the interview. The recorded interview will be transcribed. Once transcription is completed, and validated by the participants, the voice recorded interview will be erased.

13. **PROJECT DESIGN & METHODS.** *Continued*

c. **List all data collection instruments used in this project, in the order they appear in** Appendix C.
(e.g., surveys and questionnaires **in the format that will be presented to participants**, educational tests, data collection sheets, interview questions, audio/video taping methods etc.)

1. Examination of a Career Readiness Indicator Participant Interview
2. Career Readiness Indicator Evaluation Instrument

d. **Data analysis: Explain how the data will be analyzed.**

The transcribed interviews and notes will be analyzed using the Career Readiness Indicator Evaluation Instrument (Kaminsky, Tucker, & Witte, 2016). The instrument uses an evidence-based rating scale from one to five for six key features identified as necessary for an effective, high-quality Career and Technical Education program. Data will be scored and categorized based on the level of evidence provided by the participants.

14. **RISKS & DISCOMFORTS: List and describe all of the risks that participants might encounter in this research.** ***If you are using deception in this study, please justify the use of deception and be sure to attach a copy of the debriefing form you plan to use in*** Appendix D. *(Examples of possible risks are in section #6D on page 2)*

The risks associated with participating in this study are coercion to participate, psychological stress due to an in-person interview, and having work related activities analyzed. The potential for breach of confidentiality with the collection and linkage to identifiable information.

15. **PRECAUTIONS.** Identify and describe all precautions you have taken to eliminate or reduce risks as listed in #14. If the participants can be classified as a "vulnerable" population, please describe additional safeguards that you will use to assure the ethical treatment of these individuals. ***Provide a copy of any emergency plans/procedures and medical referral lists in Appendix D. (Samples can be found online at http://www.auburn.edu/research/vpr/ohs/sample.htm#precautions)***

To minimize the risks, I will emphasize that participation is voluntary with no penalty for nonparticipation or for withdrawing consent to participate. All participants will be assured anonymity throughout the process and will be assigned a coded identifier. The interviewing session will begin with an unscripted informal welcome and thank you for participation in order to create a relaxing and comfortable environment. Participants will have the opportunity to review Informed Consent form, interview features, and ask questions prior to, during and at the conclusion of the interview.

If using the Internet or other electronic means to collect data, what confidentiality or security precautions are in place to protect (or not collect) identifiable data? Include protections used during both the collection and transfer of data.

1. The participants' coded identifier will be used at all times during the voice recording of the interview and all written notes used by the researcher.
2. Transcription will take place in the researchers private home office with closed doors. Once transcription has been completed the voice recorded interviews will be erased and perged from the device.
3. Transcribed data and written notes will be stored on an encrypted and password protected laptop with access available to the research team only.

16. **BENEFITS.**

a. **List all realistic direct benefits participants can expect by participating in this specific study.**
(Do not include "compensation" listed in #12d.) Check here if there are no direct benefits to participants. ☑

b. **List all realistic benefits for the general population that may be generated from this study.**

1. Identification of the developmental level of a Career Readiness Indicator on six key features identified as necessary for an effective, high-quality Career and Technical Education program.

2. Research and addition to body of knowledge.

17. PROTECTION OF DATA.

a. Data are collected:

☐ **Anonymously with no direct or indirect coding, link, or awareness of who participated in the study (Skip to e)**

☐ **Confidentially, but without a link of participant's data to any identifying information (collected as "confidential" but recorded and analyzed as "anonymous") (Skip to e)**

☑ **Confidentially with collection and protection of linkages to identifiable information**

b. If data are collected with identifiers or as coded or linked to identifying information, describe the identifiers collected and how they are linked to the participant's data.

All participants will be given a coded identifier which will be used for the interviewing process, written notes, transciption, and data anyalyses. The researcher will maintain the list of participants and the assigned identifier on an encrypted password protected laptop with access available to the research team only. Participants will be assigned a random number, and this will serve as the coded identifier.

c. Justify your need to code participants' data or link the data with identifying information.

In order to reduce the risks associated with participating in this study which are coercion to participate, psychological stress due to an in-person interview, having work related activities analyzed, and the potential for breach of confidentiality with the collection and linkage to identifiable information the use of a coded identifier will provide participants with a degree of personal protection.

d. Describe how and where identifying data and/or code lists will be stored. (Building, room number?) **Describe how the location where data is stored will be secured in your absence. For electronic data, describe security. If applicable, state specifically where any IRB-approved and participant-signed consent documents will be kept on campus for 3 years after the study ends.**

The transcriptions of the interviews, and data analyses will be stored on the researcher's personal encrypted password protected laptop with access available to the research team only. Any hard copy of data will be stored at the researchers home: 12546 Chatter Creek Court, Colorado Springs, CO 80921 in a locked filing cabinet. IRB-approved and participant-signed consent documents will be kept on campus for 3 years after the study ends, stored in a locked filing cabinet in Haley Center 4013.

e. Describe how and where the data will be stored (e.g., hard copy, audio cassette, electronic data, etc.)**, and how the location where data is stored is separated from identifying data and will be secured in your absence. For electronic data, describe security**

The participants' coded identifiers will be stored in the researcher's home: 12546 Chatter Creek Court, Colorado Springs, CO 80921 in a locked filing cabinet.

f. Who will have access to participants' data?
(*The faculty advisor should have full access and be able to produce the data in the case of a federal or institutional audit.*)

Heidi Tucker
Dr. James Witte

g. When is the latest date that identifying information or links will be retained and how will that information or links be destroyed?
(Check here if only anonymous data will be retained ☐)

December 30, 2017
The information and links will be destroyed by deleting all data permanently from all devices.

Appendix B

Interview Protocol

Examination of a Career Readiness Indicator
Participant Interview

Date	
Participant by Coded Identifier	
Participant's Title	
School System	
Start Time	
Stop Time	

Protocol: The session will begin with an unscripted informal welcome and thank you to the participant in order to ease into the interview and create a relaxing and comfortable environment. This will last only a few minutes, and the participant will be informed that the interview will take no longer than one hour. Informed Consent and Audio Release forms will be reviewed, concerns or questions addressed, signed and collected.

Scripted: Dr. Phil Cleveland, Deputy State Superintendent for Career Technical and Workforce Development has requested that Auburn University research and validate the list of Career Readiness Indicators [CRI]. I am getting the project started for my doctoral dissertation. Through communication with Josh Laney and Chris Kennedy the first CRI to be examined will be the Electronics Technicians Association – Basic DC credential. You have been selected to participate in the research study because you were identified as an expert in educational or industry related issues for this credential.

Josh (Laney) has impressed upon the research team that a CRI must be rigorous, industry driven, relevant, and legitimate. So, the Career Readiness Indicator Evaluation Instrument has been designed to evaluate the credentialing process to ensure that each of these elements are part of the process. I would like to review the evaluation instrument with you because it will serve as the guide for today's interview.

Semi-scripted: [Provide participant with a hard copy of definition of quality for the research study, and use a visual aid of page 3 of the Career Readiness Indicator Evaluation Instrument (Kaminsky, Tucker, & Witte, 2016) to provide procedure for the interview]. We are going to work through each of these features. I will give you an opportunity to read the description of the key feature and the sub-categories within the feature. Please ask questions so you feel comfortable with the description, and then I would ask that you share any information, understanding, working relationship, involvement based on your role in the school system and this CRI. If you have nothing to share in connection to a particular feature please share that with me as well, and we will skip that feature and move on to the next one. Do you have any concerns before we begin? I will begin the voice recorder now, and I will also take notes as we go through the interview.

1. Industry Engagement

The first feature of the Career Readiness Indicator Evaluation Instrument is effective industry engagement. The role of industry is critical to ensuring that a Career Readiness Indicator meet the workforce needs of the state, the nation, or the global economy. The input from industry in determining skills priorities, workforce training, and curriculum development is fundamental to keeping CRIs relevant and current. The partnership with industry must include open communication and the authority to influence practical and effective choices made by state education decision-makers

Determining Skills Priority

Industry partners collaborate with state educators to identify, validate, and keep current the technical and workforce readiness skills that should be taught. Validate that the CRI is relevant for current workforce needs.

Workforce Training

Integrating learning with work is fundamental to an effective program. This integration, driven by industry, ensures students have the opportunity to apply their skills and knowledge in real work situations.

Support of Industry Partnerships

Partners should have the authority to influence decisions and have the authority to communicate information to decision-makers. Conduct ongoing analyses of economic and workforce trends to identify statewide (or regional) needs to create, expand or discontinue the CRI.

Curriculum Development

Partners should have ongoing and extensive input in the development, validation, and evaluation of curriculum to support the CRI.

Determining Skills Priority

Workforce Training

Support of Industry Partnerships

Curriculum Development

2. Governance

The second key feature of the Career Readiness Indicator Evaluation Instrument is effective governance. Strong programs result from coordination across state, local, and stakeholder agencies with defined roles and responsibilities for each.

Defined Roles and Responsibilities

A framework that define the responsibilities of each stakeholder, including State Department of Education employees, advisory members, industry partners, etc. in the development and maintenance of the CRI. There is a memorandum of understanding that describes the roles and responsibilities of each member of the partnership.

Defined Policies for Technical Skills Attainment

An explicit policy identifying the technical skills attained with the CRI. Employ industry-approved technical skill assessments based on industry standards. Incorporate a defined policy for performance-based assessment items where students must demonstrate the application of their knowledge and skills.

Defined Policies for Funding of the Career Readiness Indicator

A defined plan that lay out provisions for funding the initial development of the CRI, and a plan for continued sustainability.

Policies for Access and Equity

Equitable availability of opportunity throughout the entire state for the CRI.

Defined Roles and Responsibilities

Defined Policies for Technical Skills Attainment

Defined Policies for Technical Skills Attainment

Policies for Access and Equity

3. Occupational Standards

The third key feature of the Career Readiness Indicator Evaluation Instrument is occupational standards. An occupational standard is defined as the knowledge, skills, and attitudes required to perform specific tasks or role in the workplace. The focus is on demonstrating occupational competency of industry-recognized and validated technical standards related to the specific CRI. This is achieved with competency based curriculum.

Incorporate Industry-Recognized Technical Standards

Assessments of competencies identified for use are industry-validated and aligned to industry-recognized technical standards.

Incorporate Essential Knowledge and Skills

Essential knowledge and skills include such things as team-building and collaboration, critical thinking, problem-solving, and communication skills which are required to be performed in the workplace.

Competency Based Curriculum

A competency-based curriculum is made up of work tasks which are expressed through a series of occupational standards. The occupational standards by themselves are not a curriculum. Students should engage in learning opportunities which allow them to demonstrate competencies related to the CRI.

Incorporate Industry-Recognized Technical Standards

Incorporate Essential Knowledge and Skills

Competency Based Curriculum

4. Qualification Framework

The fourth feature of the Career Readiness Indicator Evaluation Instrument is an effective qualification framework. A qualification framework describes the range, levels of qualification and stackable credentials available to students with non-duplicative sequences of courses, and a seamless pathway for progression.

Stackable Credentials

Certifications and credentials that reflect mastery of knowledge and/or skills as they relate to a specific component of a Career and Technical Education program and may lead to a Career Readiness Indicator.

Systematic and Seamless Pathway of Progression

The framework starts broad at the secondary level and lead to specialization through the educational process. Courses are articulated to build depth of knowledge and skills without duplication. The pathway should offer students the opportunity to transition into the workplace and/or post-secondary education.

Credit Transfer Agreements

Through a qualification framework the alignment of the secondary and postsecondary levels and in an attempt to provide a non-duplicative progression of courses, agreements may be forged between institutions to offer college credit for attainment of postsecondary knowledge and skills by secondary students. Establish procedures for students to transfer these credits to two-year or four-year institutions.

Stackable Credentials

Systematic and Seamless Pathway of Progression

Credit Transfer Agreements

5. Program Quality

The fifth key feature of the Career Readiness Indicator Evaluation Instrument is program quality. An effective, high-quality career and technical education program provide students with a curriculum that combines integrated academic and technical content and strong employability skills. They provide work-based learning opportunities that enable students to connect what they are learning to real-life career scenarios and choices (USDE, OVAE, 2012).

Learner Engagement

Students have opportunities to delve deeply into material and create solutions and projects that reflect their gained skills and knowledge. Teachers use problem-solving and project-based instruction and take on the role of facilitator allowing students to work in teams and guide the learning process.

Work-based Learning

Work-based learning provides students with educational opportunities that typically cannot be replicated in the classroom. Work-based experiences are designed to make learning relevant, improve graduation rates, and better prepare student for careers or continued education and to connect information learned in the classroom with skills obtained in an occupational setting (Alabama State Department of Education Career and Technical Education, 2014).

Interdisciplinary Teaching

Students receive academic and technical instruction in integrated ways. Coursework is created through collaboration of academic and technical education teachers. Interdisciplinary teaching is supported by administrative staff and teachers are provided common planning time to achieve this level of collaboration.

Data Collection and Analysis

Data capture and analysis is essential for monitoring performance and fosters a culture of continuous improvement. Data are regularly used and evaluated for planning, development, implementation, and improvement purposes. It should be shared with faculty and analyzed for program and classroom improvement.

Learner Engagement

Work-based Learning

Interdisciplinary Teaching

Data Collection and Analysis

6. Delivery and Assessment

The sixth feature of the Career Readiness Indicator Evaluation Instrument is delivery and assessment. Today's workplace demands that all workers be lifelong learners in order to advance in their careers. This will require, not only, the design of high-quality Career and Technical Education Programs, but also commitment from all stakeholders for the assurance that programs are delivered and assessed in an effective manner in order to provide guidance, support and success for all students.

Teachers and/or Trainers

The quality of career and technical education teachers is recognized as a major contributor to levels of education and skills attained by students. The classroom teacher has the greatest influence on student success and the delivery of content. Teachers should have access to professional development which provide academic and career and technical education teachers the opportunity to create genuinely integrated coursework. Career and Technical education teachers must have current industry experience or qualifications.

Student Support Services

The provision of student support services enhances the student experience. Student support services are services offered to the student outside of the teaching and learning areas and may include counseling, support for students with disabilities, academic support and career coaching and guidance.

Assessment Guidelines

Assessment guidelines are an important component of teaching and learning. Guidelines should refer to all processes employed by teaching staff to make judgements about the achievement of students, and to the extent that is practicable, be aligned with international benchmarks so students are prepared to succeed in a global economy.

Validation and Moderation Processes

Validation and moderation processes ensure that the assessment of students' work is reliable and fair. It refers to an assessment quality review process that is coordinated ideally by an external body, which has the authority to review and moderate the assessment process for the earned credential.

Teachers and/or Trainers

Student Support Services

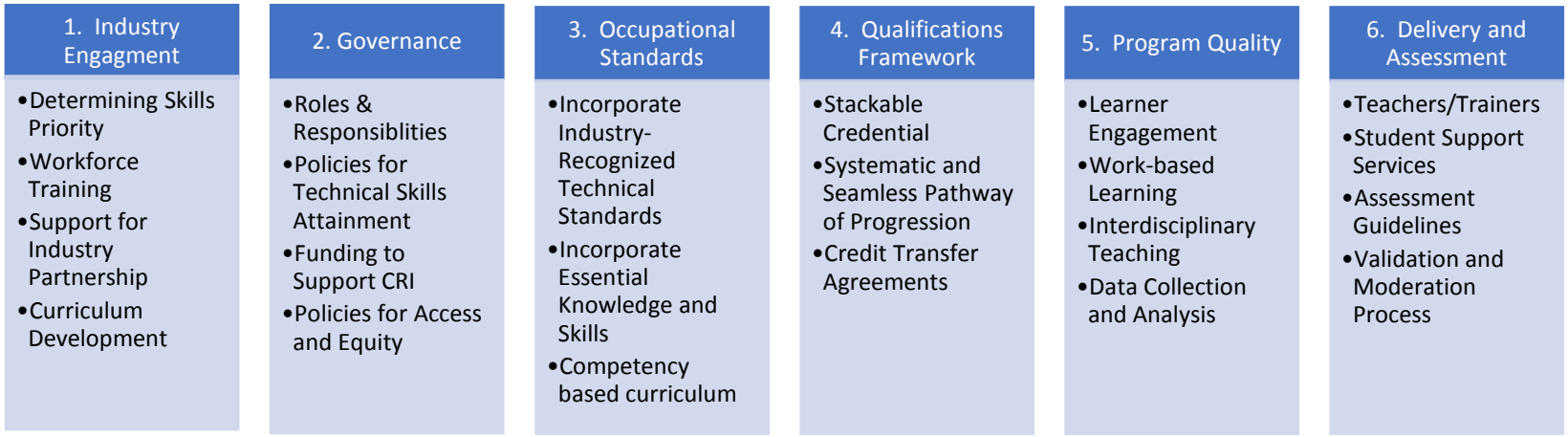
Assessment Guidelines

Validation and Moderation Processes

Appendix C

Career Readiness Indicator Evaluation Instrument – Page 3

Career Readiness Indicator Evaluation Instrument



Rating Scale: Five stages of development are applied to the sub-categories within a domain. Each stage of development build on the previous stage where Level 1 indicates that there is no evidence of this feature within the domain and Level 5 represents a well-established feature with review and improvement processes in place. The general rating scale is listed below.

Level 1	Indicates there is no evidence of this feature within the category
Level 2	Indicates there is some evidence of this feature, but it may be informal or sporadic
Level 3	Indicates there is evidence of this feature, but collaboration and connections are weak among all stakeholders
Level 4	Indicates there is evidence of this feature, with communication and engagement with stakeholders
Level 5	Indicated there is evidence of this feature, with well-established communication and engagement from all stakeholders. There is also in place a systematic process of review and evaluation in order to have continuous improvement for an effective program

Appendix D

Introductory Email

Introductory Email

To: Potential participants who are employees of the state of Alabama Department of Education at both the state and local level, and industry partners deemed to be experts on educational and industry related issues of the Manufacturing cluster for the Alabama Career and Technical High School Education Program by the Assistant Director of Workforce Development Alabama Department of Education.

You are cordially invited to participate in a research study entitled, "Examination of a Career Readiness Indicator". Dr. Phil Cleveland, Deputy State Superintendent for Career Technical Education and Workforce Development has requested that Auburn University research and validate the list of Career Readiness Indicators. Through communication with Josh Laney and Chris Kennedy the first Career Readiness Indicator to be examined will be the Electronics Technicians Association – Basic DC credential. You have been selected to participate in the research study because you were identified as an expert in educational or industry related issues for this credential. This study will begin January 5, 2017, and data collection will be concluded by March 31, 2017. It will consist of an in-person interview that will last no longer than one hour. There is no obligation to accept or reject the opportunity to participate. We value your perspective and feel that adding your expertise to this research study will benefit the educational leaders and industry partners in the state of Alabama.

Please find attached an authorization letter from Dr. Cleveland and an Informed Consent form which provides details related to the research study. If you decide that you would like to participate in the study, please respond to this email with "Yes, I consent" to participate. You will be contacted via email to arrange a meeting date, time, and location for an interview. Interviews will take place in the county of your school system. It is my desire to schedule interviews the first few weeks in March.

Thank you in advance for considering to participate in this research study. If you have questions, concerns, or need additional information, please contact Heidi Tucker at hzt0011@auburn.edu or 770-356-3446.

Sincerely,

Heidi Tucker, Ed.S.
Doctoral Candidate Adult Education
Service Learning Coordinator FOUN 3000 and 7000
Auburn University, AL
hzt0011@auburn.edu

Appendix E

State of Alabama Department of Education Authorization Letter

STATE OF ALABAMA
DEPARTMENT OF EDUCATION

Philip C. Cleveland, Ed.D.
Interim State Superintendent
of Education

Alabama
State Board
of Education

Governor
Robert Bentley
President

Matthew S. Brown, J.D.
District I

Betty Peters
District II

Stephanie Bell
District III

Yvette M.
Richardson, Ed.D.
District IV
Vice President

Ella B. Bell
District V

Cynthia McCarty, Ph.D.
District VI

Jeff Newman
District VII

Mary Scott Hunter, J.D.
District VIII
President Pro Tem

Philip C. Cleveland, Ed.D.
Interim Secretary and
Executive Officer

September 8, 2016

Auburn University Institutional Review Board
c/o Office of Research Compliance
115 Ramsay Hall
Auburn, AL 36849

To Whom It May Concern:

Please note that Mrs. Heidi Tucker, Auburn University Graduate Student, has the permission of the Alabama State Department of Education, Office of Career and Technical Education/Workforce Development, to conduct research within the state of Alabama for her study entitled "Examination of a Career Readiness Indicator."

Mrs. Tucker will contact employees of the Alabama State Department of Education via e-mail to arrange a meeting time and location in order to collect evidence required for the Career Readiness Indicator Evaluation Instrument that will be used for the research project. Her plan is to begin contacting employees on October 1, 2016. Mrs. Tucker will coordinate this effort with Josh Laney, Assistant Director for Workforce Development. Mrs. Tucker's on-site research activities will be finished by December 31, 2016.

Mrs. Tucker has agreed not to interfere with employees' work schedules or teaching duties. Mrs. Tucker has also agreed to provide my office with a copy of the Auburn University IRB-approved, stamped consent document before she contacts any employees and will also provide a copy of any aggregate results.

If there are any questions, please contact my office.

Sincerely,

Philip C Cleveland

Philip C. Cleveland
Interim State Superintendent of Education

PCC:LAK

Appendix F

Informed Consent

The Auburn University Institutional Review Board has approved this Document for use from 01/12/2017 to 01/11/2018
Protocol # 16-428 EP 1701

EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY

AUBURN UNIVERSITY
COLLEGE OF EDUCATION

(NOTE: DO NOT SIGN THIS DOCUMENT UNLESS AN IRB APPROVAL STAMP WITH CURRENT DATES HAS BEEN APPLIED TO THIS DOCUMENT.)

INFORMED CONSENT
for a Research Study entitled
"Examination of a Career Readiness Indicator"

You are invited to participate in a research study to examine the credentialing process for the Career Readiness Indicator of an Electronic Technicians Association – Basic DC within the Manufacturing cluster of the Alabama High School program. The study is being conducted by Heidi Tucker, Adult Education Doctoral Student, under the direction of Dr. James Witte, Professor, in the Auburn University Department of Educational Foundations, Leadership, and Technology. You are invited to participate because you are affiliated with this program in some capacity with or through the Alabama Department of Education as an educational expert or as an industry partner. The sample includes both male and female individuals who are 18 years of age or older.

What will be involved if you participate? Your participation is completely voluntary. If you decide to participate in this research study, you will be interviewed by Heidi Tucker in order to obtain data for the Career Readiness Indicator Evaluation Instrument (Tucker, Kaminsky, & Witte, 2016). The interview will be conducted in person and will take no longer than one hour.

Are there any risks or discomforts? The risks associated with participating in this study are coercion to participate, psychological stress due to an interview, and having work related activities analyzed. To minimize these risks, I emphasize that participation is voluntary with no penalty for nonparticipation or for withdrawing your consent to participate.

Are there any benefits to yourself or others? If you participate in this study, please do not expect to receive any personal benefits. All benefits will be for research and body of knowledge.

Will you receive compensation for participating? There is no compensation for participating in this study. Participation is voluntary.

Are there any costs? If you decide to participate, there is no cost to you associated with participation.

If you change your mind about participating, you may withdraw from the research study at any time. Participation is completely voluntary. A participants decision to participate or not, or to withdraw will not jeopardize their future relationship with the Alabama Department of Education, Auburn University, the Department of Educational Foundations, Leadership, and Technology, or Heidi Tucker.

Participant's initials

4036 Haley Center, Auburn, AL 36849; Telephone: 334-844-4460; Fax: 334-844-3072
www.auburn.edu/eflt

Your privacy will be protected. Any data obtained in connection with this study will remain confidential. All data will remain in my custody in a secure location at all times. Information collected through your participation may be used to fulfill an educational requirement, published in a professional journal, and/or presented at a professional meeting.

Audio Release. During your participation in this research study, "Examination of a Career Readiness Indicator", you will be audio recorded. Your signature on the Informed Consent gives us permission to do so, and to use the audio recording(s) for the purpose of publication in the researcher's doctoral dissertation. These audio tapes will not be destroyed at the end of this research study but will be retained until October 1, 2017, at which time they will be destroyed.

If you have questions about this study, please contact Heidi Tucker at hzt0011@auburn.edu or Dr. James Witte at witteje@auburn.edu. A copy of this document is yours to keep.

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

Contact information of the research: Heidi Tucker, hzt0011@auburn.edu, (770) 356-3446, 12546 Chatter Creek Court, Colorado Springs, CO 80921

Signed,

Heidi Tucker

Heidi Tucker, Investigator
Doctoral Student Auburn University Adult Education
Department of Educational Foundations, Leadership, and Technology

Dr. James Witte, Co-Investigator
Professor, Doctoral Committee Chair Auburn University
Department of Educational Foundations, Leadership, and Technology

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.

Participant's signature Date Investigator obtaining consent Date

Printed Name

The Auburn University Institutional Review Board has approved this Document for use from 01/12/2017 to 01/11/2018
Protocol # 16-428 EP 1701

Appendix G

Interview Scheduling Email

Interview Scheduling Email

To: Potential participants who are employees of the state of Alabama Department of Education at both the state and local level, and industry partners who responded to the Introductory Email with "Yes, I consent" to participate in the research study.

Thank you for your consent to participate in the research study, "Examination of a Career Readiness Indicator". It will be necessary for us to meet in person in order to complete the interview. Please provide the information listed below in order to schedule a meeting date, time, and location. The interview will take no longer than one hour, and should not interfere with your work schedule or teaching duties.

Date available for interview:

Time available for interview:

Address of location for interview:

A confirmation email will be sent once the interview has been scheduled. If you have questions, concerns, or need additional information, please contact Heidi Tucker at hzt0011@auburn.edu or 770-356-3446.

Sincerely,

Heidi Tucker, Ed.S.
Doctoral Candidate Adult Education
Service Learning Coordinator FOUN 3000 and 7000
Auburn University, AL
hzt0011@auburn.edu

Appendix H

Confirmation Email

Confirmation Email

To: Potential participants who are employees of the state of Alabama Department of Education at both the state and local level, and industry partners who responded to the Interview Scheduling Email.

I look forward to meeting with you in person to conduct an interview for the research study, "Examination of a Career Readiness Indicator". Your interview is scheduled for:

Date

Time

Address

If you have questions, concerns, or need additional information prior to our meeting, please contact Heidi Tucker at hzt0011@auburn.edu or 770-356-3446.

Sincerely,

Heidi Tucker, Ed.S.
Doctoral Candidate Adult Education
Service Learning Coordinator FOUN 3000 and 7000
Auburn University, AL
hzt0011@auburn.edu

Appendix I

Career Readiness Indicator Evaluation Instrument

Career Readiness Indicator Evaluation Instrument

Revised 2-1-2017

Heidi Tucker

Dr. James Kaminsky

Dr. James Witte

Auburn University, 2016

Overview

The Career Readiness Indicator Evaluation Instrument is an assessment tool designed to evaluate the quality of a career and technical education credential. The rating scale is evidence-based. The evaluation instrument produces a rating of one to five for six key features, identified as necessary for an effective, high-quality Career and Technical Education program. The instrument also includes essential components of a high-quality credential. This combination provides an evaluation of the core elements of a **Quality, Competency-Based Credentialing** process.

Quality defined

1. **High-Quality Career and Technical Education Program:** Effective, high-quality Career and Technical Education [CTE] programs are aligned with college- and career- readiness standards as well as the needs of employers, industry, and labor. They provide students with a curriculum that combines integrated academic and technical content and strong employability skills. And they provide work-based learning opportunities that enable students to connect what they are learning to real-life career scenarios and choices. Students participating in effective CTE programs graduate with industry certifications or licenses and postsecondary certificates or degrees that prepare them for in-demand careers within high-growth industry sectors (United States Department of Education Office of Vocational and Adult Education, 2012).

2. **High-Quality Credential:** A high-quality credential provides good evidence that the holder of the credential has the knowledge, skills and abilities to perform at the level employers want and expect (Corporation for a Skilled Workforce, 2013).

Alignment

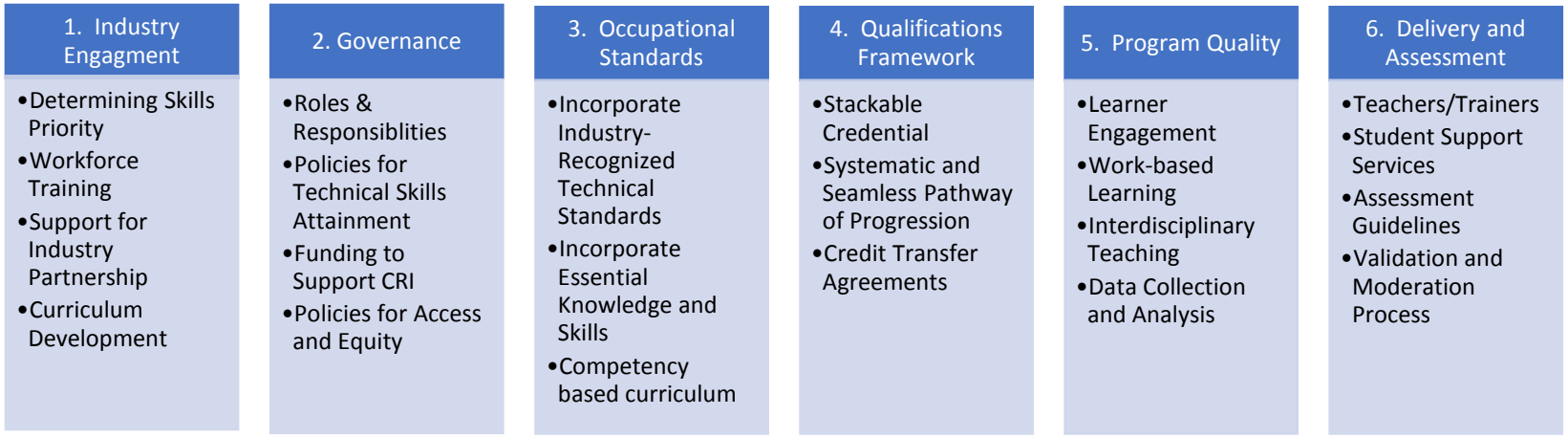
The evaluation instrument is aligned with the accountability requirements of the *Carl D. Perkins Career and Technical Education Act of 2006* (USDE). These requirements are:

- Incorporate and align secondary and postsecondary education elements
- Includes academic and CTE content in a coordinated, non-duplicated progression of courses
- Offers the opportunity, where appropriate, for secondary students to acquire postsecondary credits
- Leads to an industry-recognized credential or certificate at the postsecondary level, or an associate or baccalaureate degree

AND

Investing in America's future – A blueprint for transforming career and technical education (2012) with a focus on programs that are rigorous, relevant, and result driven through alignment, collaboration, accountability and include innovation (USED, OVAE).

Career Readiness Indicator Evaluation Instrument



Rating Scale: Five stages of development are applied to the sub-categories within a domain. Each stage of development build on the previous stage where Level 1 indicates that there is no evidence of this feature within the domain and Level 5 represents a well-established feature with review and improvement processes in place. The general rating scale is listed below.

Level 1	Indicates there is no evidence of this feature within the category
Level 2	Indicates there is some evidence of this feature, but it may be informal or sporadic
Level 3	Indicates there is evidence of this feature, but collaboration and connections are weak among all stakeholders
Level 4	Indicates there is evidence of this feature, with communication and engagement with stakeholders
Level 5	Indicated there is evidence of this feature, with well-established communication and engagement from all stakeholders. There is also in place a systematic process of review and evaluation in order to have continuous improvement for an effective program

1. Industry Engagement

The first feature of the Career Readiness Indicator Evaluation Instrument is effective industry engagement. The role of industry is critical to ensuring that a Career Readiness Indicator meet the workforce needs of the state, the nation, or the global economy. The input from industry in determining skills priorities, workforce training, and curriculum development is fundamental to keeping CRIs relevant and current. The partnership with industry must include open communication and the authority to influence practical and effective choices made by state education decision-makers

The key features of Industry Engagement include:

- Determining Skills Priority
- Workforce Training
- Support of Industry Partnerships
- Curriculum Development

Determining Skills Priority
Industry partners collaborate with state educators to identify, validate, and keep current the technical and workforce readiness skills that should be taught. Validate that the CRI is relevant for current workforce needs.

Workforce Training
Integrating learning with work is fundamental to an effective program. This integration, driven by industry, ensures students have the opportunity to apply their skills and knowledge in real work situations.

Support of Industry Partnerships
Partners should have the authority to influence decisions and have the authority to communicate information to decision-makers. Conduct ongoing analyses of economic and workforce trends to identify statewide (or regional) needs to create, expand or discontinue the CRI.

Curriculum Development
Partners should have ongoing and extensive input in the development, validation, and evaluation of curriculum to support the CRI.

2. Governance

The second key feature of the Career Readiness Indicator Evaluation Instrument is effective governance. Strong programs result from coordination across state, local, and stakeholder agencies with defined roles and responsibilities for each.

The key features of Governance include:

- Defined Roles and Responsibilities
- Defined Policies for Technical Skills Attainment
- Defined Policies for Funding of the Career Readiness Indicator
- Policies for Access and Equity

Defined Roles and Responsibilities
A framework that define the responsibilities of each stakeholder, including State Department of Education employees, advisory members, industry partners, etc. in the development and maintenance of the CRI. There is a memorandum of understanding that describes the roles and responsibilities of each member of the partnership.

Defined Policies for Technical Skills Attainment
An explicit policy identifying the technical skills attained with the CRI. Employ industry-approved technical skill assessments based on industry standards. Incorporate a defined policy for performance-based assessment items where students must demonstrate the application of their knowledge and skills.

Defined Policies for Funding of the Career Readiness Indicator
A defined plan that lay out provisions for funding the initial development of the CRI, and a plan for continued sustainability.

Policies for Access and Equity
Equitable availability of opportunity throughout the entire state for the CRI.

3. Occupational Standards

The third key feature of the Career Readiness Indicator Evaluation Instrument is occupational standards. An occupational standard is defined as the knowledge, skills, and attitudes required to perform specific tasks or role in the workplace. The focus is on demonstrating occupational competency of industry-recognized and validated technical standards related to the specific CRI. This is achieved with competency based curriculum.

The key features of Occupational Standards include:

- Incorporate Industry-Recognized Technical Standards
- Incorporate Essential Knowledge and Skills
- Competency Based Curriculum

Incorporate Industry-Recognized Technical Standards
Assessments of competencies identified for use are industry-validated and aligned to industry-recognized technical standards.

Incorporate Essential Knowledge and Skills
Essential knowledge and skills include such things as team-building and collaboration, critical thinking, problem-solving, and communication skills which are required to be performed in the workplace.

Competency Based Curriculum
A competency-based curriculum is made up of work tasks which are expressed through a series of occupational standards. The occupational standards by themselves are not a curriculum. Students should engage in learning opportunities which allow them to demonstrate competencies related to the CRI.

4. Qualification Framework

The fourth feature of the Career Readiness Indicator Evaluation Instrument is an effective qualification framework. A qualification framework describes the range, levels of qualification and stackable credentials available to students with non-duplicative sequences of courses, and a seamless pathway for progression.

The key features of the Qualification Framework include:

- Stackable Credentials
- Systematic and Seamless Pathway of Progression
- Credit Transfer Agreements

Stackable Credentials
Certifications and credentials that reflect mastery of knowledge and/or skills as they relate to a specific component of a Career and Technical Education program and may lead to a Career Readiness Indicator.

Systematic and Seamless Pathway of Progression
The framework starts broad at the secondary level and lead to specialization through the educational process. Courses are articulated to build depth of knowledge and skills without duplication. The pathway should offer students the opportunity to transition into the workplace and/or post-secondary education.

Credit Transfer Agreements
Through a qualification framework the alignment of the secondary and postsecondary levels and in an attempt to provide a non-duplicative progression of courses, agreements may be forged between institutions to offer college credit for attainment of postsecondary knowledge and skills by secondary students. Establish procedures for students to transfer these credits to two-year or four-year institutions.

5. Program Quality

The fifth key feature of the Career Readiness Indicator Evaluation Instrument is program quality. An effective, high-quality career and technical education program provide students with a curriculum that combines integrated academic and technical content and strong employability skills. They provide work-based learning opportunities that enable students to connect what they are learning to real-life career scenarios and choices (USDE, OVAE, 2012).

The key features Program Quality include:

- Learner Engagement
- Work-based Learning
- Interdisciplinary Teaching
- Data Collection and Analysis

Learner Engagement

Students have opportunities to delve deeply into material and create solutions and projects that reflect their gained skills and knowledge. Teachers use problem-solving and project-based instruction and take on the role of facilitator allowing students to work in teams and guide the learning process.

Work-based Learning

Work-based learning provides students with educational opportunities that typically cannot be replicated in the classroom. Work-based experiences are designed to make learning relevant, improve graduation rates, and better prepare student for careers or continued education and to connect information learned in the classroom with skills obtained in an occupational setting (Alabama State Department of Education Career and Technical Education, 2014).

Interdisciplinary Teaching

Students receive academic and technical instruction in integrated ways. Coursework is created through collaboration of academic and technical education teachers. Interdisciplinary teaching is supported by administrative staff and teachers are provided common planning time to achieve this level of collaboration.

Data Collection and Analysis

Data capture and analysis is essential for monitoring performance and fosters a culture of continuous improvement. Data are regularly used and evaluated for planning, development, implementation, and improvement purposes. It should be shared with faculty and analyzed for program and classroom improvement.

6. Delivery and Assessment

The sixth feature of the Career Readiness Indicator Evaluation Instrument is delivery and assessment. Today's workplace demands that all workers be lifelong learners in order to advance in their careers. This will require, not only, the design of high-quality Career and Technical Education Programs, but also commitment from all stakeholders for the assurance that programs are delivered and assessed in an effective manner in order to provide guidance, support and success for all students.

The key features of Delivery and Assessment include:

- Teachers and/or Trainers
- Student Support Services
- Assessment Guidelines
- Validation and Moderation Processes

Teachers and/or Trainers

The quality of career and technical education teachers is recognized as a major contributor to levels of education and skills attained by students. The classroom teacher has the greatest influence on student success and the delivery of content. Teachers should have access to professional development which provide academic and career and technical education teachers the opportunity to create genuinely integrated coursework. Career and Technical education teachers must have current industry experience or qualifications.

Student Support Services

The provision of student support services enhances the student experience. Student support services are services offered to the student outside of the teaching and learning areas and may include counseling, support for students with disabilities, academic support and career coaching and guidance.

Assessment Guidelines

Assessment guidelines are an important component of teaching and learning. Guidelines should refer to all processes employed by teaching staff to make judgements about the achievement of students, and to the extent that is practicable, be aligned with international benchmarks so students are prepared to succeed in a global economy.

Validation and Moderation Processes

Validation and moderation processes ensure that the assessment of students' work is reliable and fair. It refers to an assessment quality review process that is coordinated ideally by an external body, which has the authority to review and moderate the assessment process for the earned credential.

Career Readiness Indicator:
Career Cluster:
Pathway Name:

(1) Industry Engagement					
Sub points	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
1.1 Determining Skills Priority	There is no evidence of industry engagement with the state in determining skills priorities	There is evidence of sporadic or informal industry engagement with the state in determining skills priorities	There is evidence of some formal industry engagement with the state in determining skills priorities	There is evidence of formal contribution of industry with the state in determining skills priorities	There is evidence of ongoing consultation between industry and state CT agencies to determine and review state skill priorities, policies and CRI
Value 40%	8%	16%	24%	32%	40%
1.2 Workforce Training	There is no evidence of training delivered to CT students in the workplace or schools	There is evidence of informal workplace training delivered to CT students	There is evidence of some formal workplace training in cooperation with CT students & industry	There is evidence of formal arrangements with all relevant industry sectors and CT students	There is evidence of strong partnerships between industry, state agencies, and schools in development and delivery of workplace training for CT students
Value 20%	4%	8%	12%	16%	20%
1.3 Support of Industry Partnership	There is no evidence of provisions of financial or other support between the state and industry partners	There is evidence of limited provision of financial or other support between the state and industry partners	There is evidence of broad provision of financial or other support between the state and industry partners	There is evidence of extensive provisions of financial or other support between the state and industry partners	There is evidence of systemic provisions of financial or other support between the state and industry partners
Value 20%	4%	8%	12%	16%	20%
1.4 Curriculum Development	There is no evidence of industry contribution to the development of curriculum	There is evidence of limited industry contribution to the development of curriculum	There is evidence of a formal role for industry in the development of curriculum	There is evidence of a formal role for industry in development and validation of curriculum	There is evidence of industry's ongoing and extensive input in development, validation, and evaluation of curriculum
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score					
Divide that number by 20 to determine the level of					

Industry Engagement Development Level:

CRI:

(2) GOVERNANCE

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
2.1 Roles and Responsibilities	There is no evidence of defined roles and responsibilities for CT stakeholders related to this CRI	There is evidence of defined roles and responsibilities for CT at the state level related to this CRI	There is evidence of defined roles and responsibilities for CT at a regional level, but with weak structures and functions; little interaction between key stakeholders	There is evidence of well-defined roles and responsibilities for CT at a system/school level with established mechanisms for stakeholder involvement	There is evidence of a 'whole of government' approach to CT with defined roles and responsibilities for all stakeholders at local, system, regional and state level related to this CRI
Value 30%	6%	12%	18%	24%	30%
2.2 Policies for Technical Skills Attainment [TSA]	There is no evidence of defined development of policies/strategies for technical skills attainment for this CRI	There is evidence of policies/strategies for technical skills attainment at the state level for this CRI	There is evidence of implementation of state policies/strategies at the regional level of technical skills attainment for this CRI	There is evidence of implementation of technical skills attainment extended to the system/school level for this CRI	There is evidence of well-developed policies/strategies for technical skills attainment at all levels (local, system, region, & state) for this CRI
Value 30%	6%	12%	18%	24%	30%
2.3 Funding to Support CRI	There is no evidence of a defined policy to support funding for this CRI	There is evidence of a defined policy to support funding at a state level for this CRI	There is evidence of a defined policy at the state and regional to support funding for this CRI	There is evidence of a defined policy at the state, regional, and system/local level for funding this CRI	There is evidence of a well-defined policy at all levels to support the initial funding and continued support for this CRI
Value 20%	4%	8%	12%	16%	20%
2.4 Policies for Access and Equity	There is no evidence of policies to guarantee access and equity within CT for this CRI	There is evidence of defined policies for access and equity at the state level within CT for this CRI	There is evidence of defined policies at the state and regional level for access/equity within CT for this CRI	There is evidence of defined policies at the state, region, and system/local level within CT for this CRI	There is evidence of well-defined policies at all levels to guarantee access and equity for all stakeholders within CT for this CRI
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score					
Divide that number by 20 to determine the level					

Governance Development Level:

CRI:

(3) OCCUPATIONAL STANDARDS

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
3.1 Incorporate industry-recognized technical standards	There is no evidence for alignment to industry-recognized technical standards	There is evidence of limited alignment to industry-recognized technical standards	There is evidence of alignment to industry-recognized technical standards, but limited or sporadic implementation	There is evidence of alignment with current industry-recognized technical standards, but no formal process for obtaining an industry recognized credential/certificate	There is evidence of alignment with current industry-recognized technical standards leading to an industry recognized credential/certificate
Value 40%	8%	16%	24%	32%	40%
3.2 Incorporate essential knowledge and skills	There is no evidence of structure or process to incorporate essential knowledge and skills	There is evidence of limited structure or process to incorporate essential knowledge and skills	There is evidence of structure or process to incorporate essential knowledge and skills but limited implementation	There is evidence of a coordinated approach, structure and process which incorporate essential knowledge and skills and is being accessed by CT students	There is evidence of a coordinated approach, structure and process which incorporate essential knowledge and skills, CT students engage in application of skills; the process is subject to continuous improvement
Value 20%	4%	8%	12%	16%	20%
3.3 Competency based curriculum	CT curriculum is based on academic achievement and time served not on relevant job competencies	CT curriculum is based on academic achievement but describes some outcomes linked to job readiness	CT curriculum is based on demonstration of the knowledge, skills and attitudes required on the job	CT curriculum is based on nationally endorsed occupational standards that reflect job readiness and competencies	CT curriculum is based on nationally endorsed work standards that reflect job readiness, skills, and competencies and are subject to ongoing review
Value 40%	8%	16%	24%	32%	40%
Add the % to find the score					
Divide that number by 20 to determine the level					

Occupational Standards Development Level:

CRI:

(4) QUALIFICATIONS FRAMEWORK

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5

4.1 Stackable Credential	There is no evidence of prerequisites or a framework for pre-qualifications for this CRI	There is some evidence of prerequisites or a framework for pre-qualifications for this CRI, but the organization is sporadic	There is evidence of expectations for prerequisites or a framework for pre-qualifications for this CRI	There is evidence of an integrated qualification framework that recognizes national and international qualifications for this CRI credential	There is evidence of an integrated qualification framework that recognizes national and international qualifications for this CRI and it is continuously evaluated in order to offer the most up-to-date and current credential
Value 30%	6%	12%	18%	24%	30%
4.2 Systematic and Seamless Pathway of Progression	There is no evidence of a seamless pathway of progression for this CRI	There is some evidence of an informal pathway of progression, but it is not well articulated between secondary and postsecondary entities	There is evidence of a formal pathway of progression for this CRI	There is evidence of a defined systematic and seamless pathway of progression for this CRI from secondary to postsecondary	There is evidence of a well-defined systematic and seamless pathway of progression from secondary to postsecondary for this CRI and it is continuously evaluated and updated
Value 30%	6%	12%	18%	24%	30%
4.3 Credit Transfer Agreements	There is no evidence of an agreement or process for the transfer of credits earned at the secondary level to postsecondary programs	There is some evidence of an informal agreement or process for the transfer of credits	There is evidence of a formal agreement for the transfer of credits, but the process is sporadic and not well defined	There is evidence of an articulated agreement for the transfer of credits, but this does not include all postsecondary programs	There is evidence of an articulated agreement for the transfer of credits earned at the secondary level to postsecondary programs with a well-defined process for the transfer of credits for this CRI
Value 40%	8%	16%	24%	32%	40%
Add the % to find the score					
Divide that number by 20 to determine the level					

Qualifications Framework Development Level:

(5) PROGRAM QUALITY

CRI:

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
5.1 Learner Engagement	The student has a passive role in the learning process	There is some evidence of student engagement, but it is sporadic and informal	There is evidence of student engagement, and a formal process is in place to guide instruction	There is evidence of students engagement and a formal process is in place to guide instruction, but there is no monitoring for improvement	There is evidence that the student is fully engaged and guides learning, and the process is monitored in order to update and make improvements
Value 30%	6%	12%	18%	24%	30%
5.2 Work-based Learning	There is no evidence that learning is connected to the workplace	There is some evidence of work-based learning, but it is limited to videos, or classroom observations	There is evidence of work-based learning, which includes career day, job fairs, guest speakers	There is evidence of work-based learning which includes field trips and industry visits	There is evidence of well-developed work-based learning which includes job-shadowing, internship, on the job experiences
Value 30%	6%	12%	18%	24%	30%
5.3 Interdisciplinary Teaching	There is no evidence of collaboration between academic and CT teachers	There is some evidence of collaboration between some academic and CT teachers, but it is sporadic and inconsistent	There is some evidence of collaboration between academic and CT teachers consistently	There is evidence that academic and CT teachers collaborate consistently, but do not team teach	There is evidence that all academic and CT teachers collaborate and team teach on a regular basis consistently
Value 20%	4%	8%	12%	16%	20%
5.4 Data Collection and Analysis	There is no evidence that student data is collected and used to monitor progress	There is evidence that data is collected, but not disseminated	There is evidence that data is collected, disseminated, but the process is sporadic	There is evidence that data is collected, disseminated, but no formal use for guiding student progress	There is evidence that data is collected, disseminated, and used to monitor and guide student progress
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score					
Divide that number by 20 to determine the level					

Program Quality Performance Level:

CRI:

(6) DELIVERY AND ASSESSMENT

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
6.1 Teachers/Trainers [T/T]	There is no evidence that T/T have formal teaching qualifications or relevant industry experience/qualifications	There is evidence that T/T have formal teaching qualifications, but no relevant industry experience/qualifications	There is evidence that T/T have minimum teaching qualifications, and some industry experience/qualifications	There is evidence that the T/T have certified teaching qualifications and relevant industry experience/qualifications	There is evidence that the T/T is a certified teacher and has current industry experience/qualification and engage in professional development for both
Value 40%	8%	16%	24%	32%	40%
6.2 Student Support Services	There is no evidence of the availability of student support services	There is evidence of student support services which is available on an irregular basis	There is evidence of essential student support services available on an ongoing basis	There is evidence of a range of student support services including career advice available on an ongoing basis	There is evidence of extensive range of student support services including career advice and career placement options/support
Value 20%	4%	8%	12%	16%	20%
6.3 Assessment Guidelines	Assessment practices are determined on an individual or school basis	There is evidence of guidelines for assessment at a system level	There is evidence of guidelines for assessment at the system and regional level	There is evidence of guidelines for assessment at the system, regional and state level	There is evidence that assessment guidelines are based on national standards
Value 20%	4%	8%	12%	16%	20%
6.4 Validation and Moderation Process	There is no evidence of learning and assessment strategies being validated or moderated	There is evidence of assessment being moderated at the school level	There is evidence of processes in place for assessment moderation between schools and systems	There is evidence of processes in place for assessment moderation between systems and the state	There is evidence of assessment moderation between the state and national validation organizations
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score					
Divide that number by 20 to determine the level					

Delivery and Assessment Performance Level:

Appendix J

Coded Texts Matrix

Industry Engagement

1.1 Determining Skills Priority

Industry partners collaborate with state educators to identify, validate, and keep current the technical and workforce readiness skills that should be taught. Validate that the CRI is relevant for current workforce needs.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence of industry engagement with the state in determining skills priorities	There is evidence of sporadic or informal industry engagement with the state in determining skills priorities	There is evidence of some formal industry engagement with the state in determining skills priorities	There is evidence of formal contribution of industry with the state in determining skills priorities	There is evidence of ongoing consultation between industry and state CT agencies to determine and review state skill priorities, policies and CRI
40%	8%	16%	24%	32%	40%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J				- To ensure what is going on….and how these members can help for a certain task for an objective, and they have deadline dates for when they were supposed to come by here and meet, and they get to sign in until they do it. I show them about the Alabama Department of Labor. What it actually looks like in the different fields, so they know if this is a strong suit occupation, of course we do sell electronics and electricity, but that still qualifies them for IT jobs, and things of that nature. - During the second meeting with advisory committee) standards were reviewed, so they look at the standards as a team. We talked about some additional equipment that needs to come here, some semi-conductors, robotics, drones, PLC's, and the requirements	

Value	Level 1	Level 2	Level 3	Level 4	Level 5
E					- This is what I need for an industry business partner – input and feedback. Let us know what you need so we can better prepare our students for the workforce. We want to be a resource for business and industry. I tell them all the time, we have grown thick skin, you won't hurt our feelings if there are things we need to be doing. - I have noticed that some of the credentials we have around (industry) are more familiar with and some they are not as familiar with

Value	Level 1	Level 2	Level 3	Level 4	Level 5
S					Everything is so much more automated right now in the workforce, so that is kind of where we are. The two new classes that we're bringing on is the Arduino class…. also the robotics automation class (it was added based on workforce need)

Value	Level 1	Level 2	Level 3	Level 4	Level 5
L					- When I talked to the people at NASA about it they really emphasized ...talking about the different types of things you can do at NASA you don't just need to be a rocket scientist to work for them. There are people who need to build all of those things and people who need to wire all of those things and you could probably get in there without a college degree. - I plan to meet with the electronics teacher at Calhoun... (Be) Cause I also want to get an understanding of…I have heard from the industry people of what they see as the transition of the job field with each certification minimums and requirements. Where they see it going. Especially in this state the workforce and community colleges have been very very connected. They are a much bigger version of what we try to do at the tech school level. - (At Calhoun Community College they have a program called Alabama Fame) It's basically an advanced technicians program (post-secondary) You work three days per week and take classes two days per week. They want kids from technical background. They look at certification as a proof of that beyond the transcripts. Beyond I got an "A" in DC electronics and so, I have been trying to wrap all that around so that if you want to go here great this is what you need to get there. That is where I push certification for those who have done well in my class.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
C				Because there are more than one person offering for certain credentials. (For DC you use the ETA?) Yes, we do. We were trying to use NCCER, and a few said let's do ETA. This is what my advisory committee is telling me, so that is what we did.	

1.2 Workforce Training

Integrating learning with work is fundamental to an effective program. This integration, driven by industry, ensures students have the opportunity to apply their skills and knowledge in real work situations.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence of training delivered to CT students in the workplace or schools	There is evidence of informal workplace training delivered to CT students	There is evidence of some formal workplace training in cooperation with CT students & industry	There is evidence of formal arrangements with all relevant industry sectors and CT students	There is evidence of strong partnerships between industry, state agencies, and schools in development and delivery of workplace training for CT students
40%	8%	16%	24%	32%	40%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J			-I am trying to work with Alabama Power with a couple of my students to see exactly what we need to do so that I can get them as an internship or do job shadowing with 12th graders and that way they can look in there and see exactly what it is they want to do -We are taking part in the apprenticeship program - We were on TV and I got Lowes to donate some alarm systems, fire alarm systems for houses in this local community. Me and my students we ground and pounded the streets found some people who were in need by testing their fire alarm systems to see if they were right and working. We found a couple that didn't and we installed them to OSHA standards - I work closely with the Birmingham Electrical. As far as project based learning goes with someone like that on the outside, yes, they provide me with cables and things like that, and projects for them to learn how to …you know, strip wires, and practice wiring up circuits and things like that. - We take plenty of field trips to places like that, and Alabama Power, we go to Alabama Power a lot.		
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
E			- We started with our career coaches last couple years; we started some job shadowing programs. We are doing some internships and apprenticeship programs out and about.		
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
S			- We took a field trip to the Millwrights shop in Pelham; they have a robotics program over there - I know he's had Mercedes come out talked to our kids, and actually one of our kids is working with them, and going to school through them, so I know that partnership had been established.		
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
L		- It's kind of crazy and the purpose of the trip to NASA was to get them excited to get them out of Lawrence County to see what else is out there - Next month we are going to Torch Communication Industry…one of the things they do is develop video games simulation for the DOD - I would like to add a component for my seniors. After you get out of AC DC it becomes more project based on you are learning through trial and error. I have a tv back over there, pretty soon I am going to have some older kids take it apart and they are going to have to figure out okay why doesn't this tv work? But what I would like to do, eventually extrapolate that into some sort of a work-based learning, where they can job shadow once or twice per week.			
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
C			- I have a good machine shop for training. It is a family owned machine shop and we have a couple boys working, but most of our people are going outside the county for regular employment. - Last year they traveled to Wallace State, we had them go to the robotics technology park up around Florence - Now the electronics, we give them a lot of work here at the school…they replace things for us		

1.3 Support of Industry Partnerships

Partners should have the authority to influence decisions and have the authority to communicate information to decision-makers. Conduct ongoing analysis of economic and workforce trends to identify statewide (or regional) needs to create, expand, or discontinue the CRI.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence of provisions of financial (communication) or other support between the state and industry partners	There is evidence of limited provision of financial (communication) or other support between the state and industry partners	There is evidence of broad provision of financial (communication) or other support between the state and industry partners	There is evidence of extensive provisions of financial (communication) or other support between the state and industry partners	There is evidence of systemic provisions of financial (communication) or other support between the state and industry partners
40%	8%	16%	24%	32%	40%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J			My advisory board; I meet with that group twice per year, and three if needed. We have a membership roster where they list their emails, what they are doing, what type of field they are in. (we) are using former students that are working in the industry. That is a big plus because they have been through your program and they know exactly what it is. This is valuable for your current students to see as well.		
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
E				- Each program has an advisory committee of folks from industry and businesses. Partners from Gadsden State, or commissioners, or state delegations. (At the bi-annual meetings) …talk about career tech education, and let them….and get feedback from them….we have not had less than about 80 - In the fall we had our advisory meeting, and these are the things we talked about. I give them a breakdown of everything that is going on in each program, real quick synopsis for those that didn't know what was going on. - I email these folks from time to time, so they know what is going on…like the other day when this broke in Montgomery, I emailed them some information…and heard back from several of them	
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
S				- As a matter of fact, that's probably softs skill is more…industry says we can, if you can give them just a bit of training, but focus more on the soft skills…that's what they want. (Communicate) - Arduino class is the biomedical stuff…huge for all …the medical industry. I think it is something that has really appealed to the students….it's not automated manufacturing …it's robotics. We have students who have zero interest working over at Mercedes or Chemtech, they might want to be in biomedical …now we give them an opportunity to come here and get their feet wet. I think it is important to put that little bit of change in there. (Create) - We use our advisory council obviously and our career tech director and career coaches might bring great partnerships. I would say our career coaches….significant person on our, throughout our school system. That is how we find out about Chemtech, we have also had students, who made applications, which is through our career coach.	
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
L				- So one of the things I've started this year is coding; learning how to code. The other thing I found out from employers, is now that everything is going automated they need guys that can diagnose, identify and fix physical hardware problems, so is it wiring, resistors, is it physical things or is there a programming error, well okay you got to be able to read that code (expand) - The general advisory committee, the minimum is at least two per semester. But the (specific program advisory committee) I talked to them all the time. So it's just networking all the time. - I took the day off, took professional leave from school…I have a few friends ..Connected to the industries (in Huntsville) over there so I just go talk to them.	
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
C			I have my executive committee that I work with and I inherited some of them when I came into my position. I am swapping some out; I am going to start pulling more from my teachers' committees to serve on the executive committee. My position ….pulls me a lot…but my ability to get out and communicate with everybody hasn't been as much as I want it to be….but having our advisory committee for each program is huge because we are pulling people who work out of the county; our teachers build those relationships for each of their programs		

1.4 Curriculum Development

Partners should have ongoing and extensive input in the development, validation, and evaluation of curriculum to support the CRI.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence of industry contribution to the development of curriculum	There is evidence of limited industry contribution to the development of curriculum	There is evidence of a formal role for industry in the development of curriculum	There is evidence of a formal role for industry in development and validation of curriculum	There is evidence of industry's ongoing and extensive input in development, validation, and evaluation of curriculum
40%	8%	16%	24%	32%	40%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J				-This is the NIDA system, and it matches with the ETA testing….our advisory board voted on this, yes	

Value	Level 1	Level 2	Level 3	Level 4	Level 5
E		- I have talked to a couple folks, one that I wish we could find a way to make it where a CRI where we can pair it with something is OSHA 10 because our industries see a value…if we have students who have OSHA 10 credential, they have a tremendous advantage over other students who don't. When they are going out looking for a job in some of these machine shops. Because that is a big deal to our business industry folks. Right now that is a stackable credential.			

Value	Level 1	Level 2	Level 3	Level 4	Level 5
S		- One of the classes that has been took away from the list of classes available for us in electronics is electronics motor controls. We are kind of replacing that back around with the robotics automation, because that is same information needs to be inside that class as was in the electromechanical controls class. Because (we hear from industry) programmable controls are a huge part of the automations period. - I'll give you a perfect example; there's another company that just came two months ago, called Chemtech well they need people in four or five different areas that we have here on campus, so we wouldn't want just our kids to be like well we're going to just sent them to Mercedes, or we're going to send these kids to Chemtech, like I said we want to make as many avenues for them as possible.			

Value	Level 1	Level 2	Level 3	Level 4	Level 5
L			- I use the state standards for the robotics and as well for the electronics. When I talked to other companies in the summer, I have gotten a very different response on ETA, and it's not that they think ETA is not industry recognized or anything but I thinks it's an indication of where they think those kinds of jobs are going – NCCER for welding and industrial maintenance and ETA for electronics		

Value	Level 1	Level 2	Level 3	Level 4	Level 5
C	- Having 10th, 11th, and 12th; you have first, second, third year students working on different levels. Well, we have some simulators in there, some robots they can work on, but you still have teaching you have to do, and trying to break that up and rotate three groups around in a small area is challenging. So if I can get the bookwork down to where we are doing one set of bookwork for a semester I think it would make it easier on all of us. - This year we did DC first semester, and AC second semester. But now, we are going to change things up a little bit. I am either going to have them for two hours or two and a half hours (what do you have now?) An hour twenty, an hour fifteen. I am working with the electronics instructor, we want to make sure that we are teaching the right classes. - What would be wonderful…and I am new to this, but this is just my mind…a specific direction. I mean like, we want you to teach…and I know it is laid out in the standards, but it would be nice to have a specific book to go by, or a (standardization for instruction)				

Governance

2.1 Defined Roles and Responsibilities

A framework that defines the responsibilities of each stakeholder, including State Department of Education employees, advisory members, industry partners, etc. in the development of maintenance of the CRI.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence of defined roles and responsibilities for CT stakeholders related to this CRI	There is evidence of defined roles and responsibilities for CT at the state level related to this CRI	There is evidence of defined roles and responsibilities for CT at a regional level, but with weak structures and functions; little interaction between key stakeholders	There is evidence of well-defined roles and responsibilities for CT at a system/school level with established mechanisms for stakeholder involvement	There is evidence of a 'whole of government' approach to CT with defined roles and responsibilities for all stakeholders at local, system, regional and state level related to this CRI
40%	8%	16%	24%	32%	40%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J					- (CT director) I invite him and if he is not available, I invite the next advisory, and she has actually come out to the school. I meet with that group (program advisory committee) twice per year, and three if needed. Basically what we do….how it works, I send them out invitations at the beginning of the year, and they sign and agree to participate. We have a membership roster, where they list their emails, what they are doing; what type of field they are in. - I explained what it is we are doing, and why they are selected, and I delegate them who is going to be president…I don't let them vote, because …will be looking at each other…so I delegate the duties. - (Do you have a career coach?) No, it's just a counselor. Everybody does things different. The way this works is if you are on a campus for academics, then we are all together you are going to have just a regular counselor that does the career tech plus the…..but if you have your own technical center (you get a career coach)
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
E					- Each program has an advisory committee of folks (from local) businesses and industry. - We have two meetings a year on this campus where all of our programs here they bring their advisory folks in all our business and industry partners in and we have two half days in our system where we have professional development days and bring all those advisory folks in, all business and industry partners in from Gadsden State, or commissioners, or state delegations. - I keep them on emails, I have everybody (industry partners) in contacts.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
S					- (Who makes the decision on what direction you will go in with your course offerings?) It's a collaborative effort. Me and career tech director, and then our instructional department as well. - I don't think the state has really finalized what their set of stuff. I've talked to the instructors who are teaching this now, and we are along the same lines of agreement, that hey this is a good class for us to put this in (AC and DC in robotics) - One of the classes that has been took away from the list of classes available for us in electronics is electronics motor controls. We are kind of replacing that back around with the robotics automation, because that is same information needs to be inside that class as was in the electromechanical controls class. There is not a class to put it in, so the instructors that I have spoken to have said that's a pretty good area for that to be, and so I have, when I see the state version of what is supposed to be there, I would suspect to see something that is very heavy in programmable controllers. - Our structure even more so than me, I am involved as well, but our instructors established a lot of industry connections. We use our advisor councils, obviously, and our career tech director and career coaches might bring great partnerships.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
L					- The general advisory committee the minimum is at least two per semester. (Career Coach) Their role is a bunch of different roles, they are kind of a liaison between the schools and business and industry and help the counselors in the schools promote the programs. Close with the chamber of commerce, (do) career fair with industry coming in and everything (outreach component)
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
C					- Gadsden State partnered with me and supplied the teachers for the machine shop and drafting program. - Now we do still have dual enrollment opportunities with Gadsden State, our students can do some online classes with them - I have my executive committee that I work with. I am going to start pulling more from my teachers' committees for my committee. My position from being the CT director and principal pulls me a lot. I have spent time working with the county supervisors on our plans to change the schedule. - Now do have a large meetings at the school where we have everybody come in and meet with industry from across the county. - I do try to communicate with them, but having the advisory committee for each program is huge because we are pulling people who work out of the county. Our teachers build those relationships for each of their programs.

2.2 Defined Policies for Technical Skills Attainment

An explicit policy identifying the technical skills attained with the CRI. Employ industry-approved technical skill assessments based on industry standards. Incorporate a defined policy for performance-based assessment items where students must demonstrate the application of their knowledge and skills.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence of defined development of policies/strategies for technical skills attainment for this CRI	There is evidence of policies/strategies for technical skills attainment at the state level for this CRI	There is evidence of implementation of state policies/strategies at the regional level of technical skills attainment for this CRI	There is evidence of implementation of technical skills attainment extended to the system/school level for this CRI	There is evidence of well-developed policies/strategies for technical skills attainment at all levels (local, system, region, & state) for this CRI
30%	6%	12%	18%	24%	30%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J					- Here are some recommendations, that they have provided, and then I use that to make sure I am covering those things in my classroom. I have them as guest speakers. - We do do leadership and SKILLS USA. We don't look at it as just competition…I know everybody does, but it is a lot of leadership things that needs to get done. That is how the students, how to get some things done in life in general. They actually go through the leadership handbook.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
E					- Right now we are really getting knee deep in the simulated workplace. I am meeting with each program….to get everybody on the same page. (Soft skills?) That's the biggest things that I hear from our business industries, is the employability skills. The skills that students learn in our programs, or the credentials they earn are great and wonderful, but they say send us someone that can (1) pass the drug test, and (2) that will be here every day, who has reliable transportation. That will stay off their cell phone. (Simulated Workplace policy?) - What I need from an industry partner…Input and feedback. Let us know what you need so we can better prepare our students for the workforce. We want to be a resource for business and industry.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
S					- We do hands-on couple different ways. We…start looking at just basic electronics we have the bread boarding kits and rest of the components that we can set out and go through each individual component, and build each component for circuits and make them on bread boards, but we also have the multi-sim software so we can also build it virtually and then test it, and then of course we have all the books that go with it, the ab books that uses the multi-sim and the lab that doesn't use the multi-sim that lets us do some things with it as well. But typically what we will do is we will cover a unit in our textbook, and the textbook, the lab book and the multi-sim book all go together as one curriculum. We will start with chapter one that starts with the basics.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
L					- I think the more we do this, like I said I can't speak for him, my experience the more the teachers the more time trying using the ETA the more time teachers figure out how to strategically relay the information to the kids. We keep getting closer and closer to having the kids passing so the teachers will figure out we need this kind of instructional materials to help the kids to be successful.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
C					- What would be wonderful…and I am new to this, but this is just from my mind…a specific direction. I mean, we want you to teach…and I know it is laid out in the standards, but it would be nice to have a specific book to go by, or a (standardization)

2.3 Defined Policies for Funding of the Career Readiness Indicator

A defined plan that lay out provisions for funding the initial development of the CRI, and a plan for continued sustainability.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence of a defined policy to support funding for this CRI	There is evidence of a defined policy to support funding at a state level for this CRI	There is evidence of a defined policy at the state and regional to support funding for this CRI	There is evidence of a defined policy at the state, regional, and system/local level for funding this CRI Donation from Partners?	There is evidence of a well-defined policy at all levels to support the initial funding and continued support for this CRI
20%	4%	8%	12%	16%	20%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J					- Jefferson County has a great CT director; this is his second year, he is doing an excellent job, he is supportive of all the programs; he is placing the money where the needs are. - As a matter of fact Dr. Cleveland told me exactly what to do to get that equipment. Because he said that is a stand- alone program, this should have what you need. He said Jefferson County has enough money for you to get what you need, and he said I will talk to her. - I am also in conjunction with Jeff State; I have an advance class; they are dual enrollment. I am hearing this from my colleagues …it really hurts your numbers because you are looking for students who have a 2.5 GPA, and that is kind of hard to get sometimes. So, instead of me having 14 this time, I think I have only 12 students. And then that lowers your maintenance money, and you don't have funds to operate. - Me and my students we ground and pounded the streets found some people who were in need by testing their fire alarm systems to see if they were right and working. We found a couple that didn't and Lowes donated them to us, and we installed them to OSHA standards.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
E					- We had money that we can apply for grants (for testing) - (Electronic Instructor) has a gentleman that works for Federal Savings that is by here….and he donates a lot switches, and routers and things like that; we have some really good partners that help make this like metal for welders, and parts for things.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
S				- A lot of it's through Perkins funds obviously. Then local funds as well. Apply for grants.	
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
L				- I think we have funds for a career coach, and we do have a career coach here and at the four schools at least one day a week.	
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
C					- I had a drafting program up until this year, for a couple of years. But they pulled the financing on it, and now they returned it. - When we did the 50 million dollar bond issue…. I applied for grants, and received enough money to set up the machine shop and drafting program. - (Grants for testing?) Yes, that is made available to us through the state and Josh oversees all of that. We get with our teachers, and ask how many do you think we're going to go for this year? Which ones are we going to use? They will tell me, and we will work up pricing, and try to figure out, and try to get the very best price that we can.

2.4 Policies for Access and Equity

Equitable availability of opportunity throughout the entire state for the CRI.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence of policies to guarantee access and equity within CT for this CRI	There is evidence of defined policies for access and equity at the state level within CT for this CRI	There is evidence of defined policies at the state and regional level for access/equity within CT for this CRI	There is evidence of defined policies at the state, region, and system/local level within CT for this CRI	There is evidence of well-defined policies at all levels to guarantee access and equity for all stakeholders within CT for this CRI
20%	4%	8%	12%	16%	20%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J					Basic DC CRI offered 35 students took the course this year and 34 tested and earned the DC Credential
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
E					Basic DC CRI offered 10 students took the course this year and tested; 8 earned the DC Credential
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
S					Basic DC CRI offered
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
L					Basic DC CRI offered 12 students took the course this year and 7 will test for the Basic DC credential
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
C					Basic DC CRI offered

Occupational Standards

3.1 Incorporate Industry-Recognized Technical Standards

Assessments of competencies identified for use are industry-0validated and aligned to industry-recognized technical standards.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence for alignment to industry-recognized technical standards	There is evidence of limited alignment to industry-recognized technical standards Sporadic	There is evidence of alignment to industry-recognized technical standards, but limited or sporadic implementation Some	There is evidence of alignment with current industry-recognized technical standards, but no formal process for obtaining an industry recognized credential/certificate Formal	There is evidence of alignment with current industry-recognized technical standards leading to an industry recognized credential/certificate On-going
40%	8%	16%	24%	32%	40%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J					- We have had the electronics program at the school for five years. It comes with the software, where the students actually do functional reading. This is the NIDA system, and it matches with the ETA testing. Their objectives are the same as universal. The students can practice on the computer program, and then they can practice the same skill on the hands-on piece of equipment, and it grades it automatically. It tells them where the meter goes, and they can work safely. And it is recording it as they do it in real time. So I can go back and see what they are doing as they do it. I can go back and look to see what they are doing wrong or right, if they are rushing through it. - I give a hands-on final…I do a formative assessment are in that NIDA software. The summative assessment is the actual hands-on
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
E					- This is the learning lab…this is older school technology but this is hands-on. I do a lot of kits….I recently (ten years ago) went to the NIDA system. NIDA system same thing the military use.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
S					- (NCCER national curriculum?) Not for us, now NCCER has an electronics program….I looked at it last year….there was consideration using it…but it's not the industrial electronics like we are trying to do here, it's more residential installation. Manufacturing side, so that becomes less of a focus, and the ETA become more of a focus for us for credentials. - Basic DC credential, they earn it through the robotics course.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
L					- Yes, I use the state standards for robotics and as well for the electronics. Since welding and industrial maintenance us NCCER I do ETA.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
C					- (For DC you use ETA)? Yes, we do. We were trying to use NCCER, and a few said let's do ETA. This is what my advisory committee is telling me, so that is what we did.

3.2 Incorporate Essential Knowledge and Skills

Essential knowledge and skills include such things as team-building and collaboration, critical thinking, problem-solving, and communication skills which are required to be performed in the workplace.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence of structure or process to incorporate essential knowledge and skills	There is evidence of limited structure or process to incorporate essential knowledge and skills	There is evidence of structure or process to incorporate essential knowledge and skills but limited implementation	There is evidence of a coordinated approach, structure and process which incorporate essential knowledge and skills and is being accessed by CT students	There is evidence of a coordinated approach, structure and process which incorporate essential knowledge and skills, CT students engage in application of skills; the process is subject to continuous improvement
20%	4%	8%	12%	16%	20%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J					- We do do leadership and SKILLS USA. I tell them that before they get to become a president or vice president, what are the duties of those people, some terminology that you need to know, that how a democracy works, committees, and what kind of committees, and why you want to be on that committee, and professional development, socials, community service projects. Being a president, being a vice president….there is a great interviewing process for you to do that. - We discussed and brainstormed some ideas, and the students were like Mr. ___, you worked in TV, and you always taught us that around Christmas you have a lot of fires because people using space heaters, and you always see it on Fox News, so why don't we just check some peoples fire alarms and see if we can install them and we did - I teach them how to do their resume. 9th grade I just created a generic one, then next year…you have a basic one, show the courses that you took, show the leadership that you did….Show what organizations you are in like ETA, and SKILLS USA and show what you did. Because when I take them to Alabama Power, the first thing they are going to say is I am familiar with SKILLS USA, tell me what you have done. You need to be able to say I served on a committee for socials, leadership, or what you have.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
E					- I tell these students it's a privilege to be here not a right, three things will keep you a seat at this campus, and it is the same thing that is in the workplace: (1) attitude (2) effort (3) attendance…those three things will bring you success in the workplace and it will bring you success here. - Monthly I am going to meet with our safety managers from each program and we're going to talk about safety on this campus. Things and issues, good things and bad…that need to be addressed…same thing for our shop foreman, and our lab manager, and our …these are all students, and if we've a problem or a concern campus wide there are things going on; then I am going to meet with them and let them take it back to their folks in their program and talk to them about it…that is what it is like in the workplace. - Right now we are really getting knee-deep in the simulated workplace. I am meeting with each program…to get everybody on the same page. I am meeting with every student in this school. That's the biggest things that I hear from our business industries, is the employability skills. The skills that students learn in our programs, or the credentials they earn are great and wonderful, but they say send us someone that can (1) pass the drug test and (2) that will be here every day, who has reliable transportation. That will stay off their cell phone, those type things.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
S					- As a matter of fact, that's probably softs skills is more….industry says we can, if you can give them just a bit of training, but focus more on the soft skills…that's what they want. We use Simulated Workplace – The students are a full fledge company, this is their robotics company. They have uniforms, they have to clock in and out; they have to call if they are not going to be here. They have a work ethic grade; job rules and rotations; they developed their company handbook - Second years have to complete a career tech portfolio; include cover letter, resume, two letters of recommendations; their credentials and at the end they have to do an interview. They are going to be shift-leader, or group leader. They are going to get this position, that where they can take and bring some of the ones that don't get it as quickly along, and become a really nice helper for me.
Value	**Level 1**	**Level 2**	**Level 3**		**Level 4**	**Level 5**

L			- (State requirement for Simulated Workplace?) SKILLS USA does something like that, I haven't found where I can get that in along with all the other stuff we're doing. How I run my classroom is there is a list of things to do; it is seen as your specific job title …things you need to do every day…it's not even written down; it's related to your position say as the control manager. - SKILLS USA does require that you turn in a resume for your competition. I literally sit down with the kids for the first time they do their resume…okay tell me where do you go to school; what have you done in school? Have you gotten good grades, have you gotten honor roll; been on sports teams; extra-curricular; class president; I take on the role of jack of all trades…that probably falls into some of those soft skills as well. - With my students, and I don't know if it's just because they think I'm going to tech school so all I have to worry about is the hands-on stuff. They don't; definitely not as confident and being able to do presentations and being able to explain verbally. But so what I have done I allowed them to more group work because that is they can get some of the soft skills stuff. Some of the projects I give them, I assign them different roles (for example) I tell one student you will build the circuit, another will write up the report and another will do the presentation. - Industry indication) I have gotten a very different response on ETA and it's not that they think ETA is not industry recognized or anything but I think it's an indication of where they think those kinds of jobs are going so what I'm encouraging my students to do is look at manufacturing jobs in the sense of the ability that they can prove to employer whether it's in an interview or on the job that they can do multiple things well.		
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
C			- (Soft Skills?) Right now I leave it up to each teacher. Our guys in the classroom have gotten away from it…it used to be a part of our curriculum. But now since Dr. Cleveland has brought us Simulated Workplace, it is putting those back to the forefront. We have them clocking in each day. We are going school wide with that next year. We also have them doing applications, constructing resumes; sitting through the interviewing process; learning their role in industry. Some of them get to apply to be safety manager; human resource manager; shop manager.		

3.3 Competency-Based Curriculum

A competency-based curriculum is made up of work tasks which are expressed through a series of occupational standards. The occupational standards by themselves are not a curriculum. Students should engage in learning opportunities which all them to demonstrate competencies related to the CRI.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	CT curriculum is based on academic achievement and time served not on relevant job competencies	CT curriculum is based on academic achievement but describes some outcomes linked to job readiness	CT curriculum is based on demonstration of the knowledge, skills and attitudes required on the job	CT curriculum is based on nationally endorsed occupational standards that reflect job readiness and competencies	CT curriculum is based on nationally endorsed work standards that reflect job readiness, skills, and competencies and are subject to ongoing review
40%	8%	16%	24%	32%	40%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J					- The students can practice on the computer program, and then they can practice the same skill on the hands-on piece of equipment, and it grades it automatically. It tells them where the meter goes, and they can work safely. - The summative assessment is the actual practical hands-on, of what you learn, how to build, how to wire, how to solder, and how to do. You have two of these kits, and they are worth 50 points each, and they must work, and if they don't work then you must troubleshoot and fix it.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
E					- I teach them in order, we do safety, DC, AC, Analog, Direct and Digital. Then we teach robotics, then we have a new program that we have implemented which has Motor Controls, it's a different type it's an Arduino type controls. - I tried to keep it simple, but basically each week in our lesson plan, teachers….a lot of project based learning. WE are trying to be maximum lab, minimum seat time is our goal. There is time when we must have seat time, but we try to keep it to a minimum, and it needs to be….a means to an end…..we are not just doing seat work and book work just for the sake of doing seat work and book work. It's going to lead to something that we are going to put our hands on and that we are going to do. - We start every Monday with a safety meeting. Every program has a safety supervisor who leads the meeting. We are talking a great deal about chain-of-command.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
S					- About the curriculum, we have a couple books that does a really good job with our robotics, and robotics application. It is the same book that Central Alabama uses for their intro to robotics and robotics application class. - We do hands-on couple different ways. We start looking at just basic electronics in our book and lab book, we have multi-sim software so we can build it virtually and test it; then we have breadboard kits and rest of the components; and they can build it and troubleshoot it if it doesn't work. - Usually whole year to earn credential; now if some of my students come in and they are game busters I never slow them down; if they come to me and say I am ready….okay now I'm going to make them prove to me that they are ready. There is a practice test…cut score for ETA is 75% I want 80%; because if they are doing 80% on that practice test, then they will do 75% on the other one.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
L					What I found with the curriculum; well with the standards it tells me that the kids need to show mastery with that standard. For me, particularly because it is career tech, I want them to show that master in both book work and in the hands on stuff. I have tons of electronic components; I have breadboards; I have labs that they can follow through; labs are even specific enough that if you take out certain things with this circuit still there and it doesn't work it helps you with troubleshooting side of it.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
C			(In the DC program would you say it is 50% bookwork and 50% hands-on? 60/40? It is hard to say when you are trying to monitor the class and there are three different things going on in there. Yes, we have NIDA trainers, circuit boards. About 50% bookwork and 50% hands-on. I am trying to start basic. I have a regular textbook and I have a workbook. (ETA?) No, it is the fundamentals of electronics. I use it, and then I have an (AMA?) trainer AC/DC, and it has some hands-on, and then I have NIDA trainer, and they are computer based. Once I know what I need (I want to add more equipment)			

Qualifications Framework

4.1 Stackable Credentials

Certifications and credentials that reflect mastery of knowledge and/or skills as they relate to a specific component of a Career and Technical Education program and may lead to a Career Readiness Indicator

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence of prerequisites or a framework for pre-qualifications for this CRI	There is some evidence of prerequisites or a framework for pre-qualifications for this CRI, but the organization is sporadic	There is evidence of expectations for prerequisites or a framework for pre-qualifications for this CRI	There is evidence of an integrated qualification framework that recognizes national and international qualifications for this CRI credential	There is evidence of an integrated qualification framework that recognizes national and international qualifications for this CRI and it is continuously evaluated in order to offer the most up-to-date and current credential
30%	6%	12%	18%	24%	30%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J				- They are DC, and once they test out on that they move to AC, and then Digital with me.	
Value	**Level 1**	**Level 2**	**Level 3**		**Level 4** / **Level 5**
E			- You may have them in 9th grade through 12th grade….we want them to earn a credential some time during those years that they are in your program. To protect that project based learning time, if spending all your time trying to get all that in, in one semester or one year. Then you are going to spend all your time in the classroom, and not in the shop, and that is how you lose kids. If students are coming through your program, and we can work so they get a few of those in year three and four, because each of those that they earn counts as a stackable. So, that is kind of way that we are looking at doing it. Not trying to just cram it in all at one time. - If we have students who have OSHA 10 credential, they have tremendous advantage over other students who don't. That is a big deal to our business industry folks, but right now that is a stackable credential because it is not an industry specific credential		
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
S				- (After Basic DC credential earned, next step?) After that we start looking into the AC, from there we start by flipping the script a little bit we look at our robot that we have over here that are from industry, we are applying AC principles to that because that's what we're going to have to do ultimately to make that motor turn, because that's different from the DC. Now second year when we start applying it in the hands-on portion of it, now through our simulated workplace they are going to be shift leader or group leader (collaboration) - For our intro to robotics and for our robotics application class, and then the two new classes that we're bringing on is the Arduino class also the robotics automation class is very new as well. (The decision to add these classes was based on workforce need) (communication)	
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
L				- I teach electronics and robotics so in the electronics side of it we have AC and DC which is year first year courses. Second year is semi-conductors and digital electronics and then third year students go into robotics there is some knowledge overlap but it is more how to build them ….things you have to consider how do you program them	
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
C				- Everybody needs AC and DC, because it goes into about eight or nine different programs. This year we did DC first semester, and AC second semester. We have intro to robotics first semester, and then we had robotic application second semester. I had an intro to manufacturing and a senior project this year. But now we are going to change things up a bit. We are working on schedule for next year (two to two and half hours instead of just an hour twenty minutes) I want to do like we have been doing with NCCER classes with Level One, Two, Three and Four. (communication collaboration)	

4.2 Systematic and Seamless Pathway of Progression

The framework starts broad at the secondary level and lead to specialization through the educational process. Courses are articulated to build depth of knowledge and skills without duplication. The pathway should offer students the opportunity to transition into the workplace and/or post-secondary education.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence of a seamless pathway of progression for this CRI	There is some evidence of an informal pathway of progression, but it is not well articulated between secondary and postsecondary entities	There is evidence of a formal pathway of progression for this CRI	There is evidence of a defined systematic and seamless pathway of progression for this CRI from secondary to postsecondary	There is evidence of a well-defined systematic and seamless pathway of progression from secondary to postsecondary for this CRI and it is continuously evaluated and updated
30%	6%	12%	18%	24%	30%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J		- I try to use Alabama Power a lot. I use Move Core…basically they will pay for their room, apartment, OJT $10 per hour. It is a two year degree. I called them because I was trying to get students on with them, and I tried to build that relationship - How it works with the credentialing is post-secondary they want them to have at least DC. The benefit of that is the articulation agreement – why repeat DC when you already had DC before. (Some of the instructors questioned) Why is it that they (post-secondary) are still offering DC and AC? That should be for somebody that never done electronics before. I think we should handle that ….so when the kids get there you're not teaching DC AC and all that over again….you should be teaching them robotics and move up the ladder.			
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
E		- Other credentials like in auto tech the ASC and collision repair we have students that there is up to nine that they can earn in the auto technology in the ASC. We have a great partnership with some of our dealerships, and we have several students, who start out in tune-up and servicing, and in the pit, and then once they prove themselves, they will work them out into the shop, and of course the ones with our electronics.			
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
S		- When our students leave here, my preference for them is for them to go to community college. I think they are very well set up to go that next step when you need some more training. But, if not the partnership with Mercedes, and Chemtech, and even the place like the robotics millwright place in Cullum, it gives them somewhere that they understand that they are getting somebody that's not had any experience in this and you got to get your experience somewhere. We try to get them over to the Birmingham joint electrical. It is an apprenticeship program, where you get paid to go, it's kind of like the robotics millwright shop over here, even Chemtech and Mercedes, you get some degree of payment.			
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
L		- DC is considered your building blocks course, AC is more application that you learn in DC. It just makes more sense to my mind to do DC first then AC instead at the same time. I know that if I go to Calhoun the first class you take is DC that's an eight week course and the second eight weeks you take AC (duplication) - Lawrence County High students take robotics in their middle school program and then they move into my electronics as sophomores. All the county schools they send their kids here as sophomores, and when they become seniors they take their robotics (not systematic)			
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
C		- We have a cotton mill, and a knitting mill, we have feeder plant for Honda assembly plant, we have parts plants, an old manufacturing plant, that's about all we have. A nursing home, a hospital, but education is one of the biggest employers in the county. - We do have Gadsden State her in town. They have limited offerings, primarily nursing. You can get math and English, and I think some history classes, and a few science classes here.			

4.3 Credit Transfer Agreements

Through a qualification framework the alignment of the secondary and postsecondary levels and in an attempt to provide a non-duplicated progression of courses, agreements may be forged between institutions to over college credit for attainment of postsecondary knowledge and skills by secondary students. Establish procedures for students to transfer these cerdits to a two-year or four-year institution.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence of an agreement or process for the transfer of credits earned at the secondary level to postsecondary programs	There is some evidence of an informal agreement or process for the transfer of credits	There is evidence of a formal agreement for the transfer of credits, but the process is sporadic and not well defined	There is evidence of an articulated agreement for the transfer of credits, but this does not include all postsecondary programs	There is evidence of an articulated agreement for the transfer of credits earned at the secondary level to postsecondary programs with a well-defined process for the transfer of credits for this CRI
40%	8%	16%	24%	32%	40%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J				- If you go to post-secondary, you get an opportunity for me to write out through the articulation agreement three courses that you have taken here. (Not all students do that) - I am also in conjunction with Jeff State, I have an advance class that comes to me 5th period. They are dual enrollment. This is our first year doing dual enrollment	
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
E				- The biggest thing that we are growing….that has really just boomed this year is our dual enrollment. We went from maybe 10-15 in the technical field the year before, and this year we have 68. The partnership with Gadsden State is phenomenal. Then the career coaches at Gadsden State provide and the career coaches we have (work together)	

Value	Level 1	Level 2	Level 3	Level 4	Level 5
S		- Now Chemtech is a full fledge apprenticeship program where they do all the training in house. They also have a program that I think runs through Jeff State as well. So that to me is more comparable to what Mercedes does because they run theirs through Sheldon State.			
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
L		- I don't have any personal connection to Northwest. There is a new guy over there who was over electronics and I want to try to meet with him. I'm more aware about Calhoun – they have over there what's called the Alabama Fame program. They want kids from technical background. So I have been trying wrap all that around so that if you want to go here great this is what you need to get there. That is where I push the certification for those who have done well in my class.			

Value	Level 1	Level 2	Level 3	Level 4	Level 5
C			- Now Gadsden State, which is a 27 mile drive from here and the campus in Anniston – my machine shop is dual enrollment. Now we do still have dual enrollment opportunities with them our students can do some online courses with them.		

Program Quality

5.1 Learner Engagement

Students have opportunities to delve deeply into material and create solutions and projects that reflect their gained skills and knowledge. Teachers use problem-solving and project-based instruction and take on the role of facilitator allowing students to work in teams and guide the learning process.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	The student has a passive role in the learning process	There is some evidence of student engagement, but it is sporadic and informal	There is evidence of student engagement, and a formal process is in place to guide instruction	There is evidence of students engagement and a formal process is in place to guide instruction, but there is no monitoring for improvement	There is evidence that the student is fully engaged and guides learning, and the process is monitored in order to update and make improvements
30%	6%	12%	18%	24%	30%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J					- I give a hands-on final….I do formative assessment are in that NIDA software, the summative assessment is the actual practical hands-on of what you learn, how to build, how to wire, how to solder, and how to do. You have two of these kits, and they are worth 50points each, and they must work, and if they don't work then you must troubleshoot, and fix it. - The students can practice on the computer program, and then they can practice the same skill on the hands-on piece of equipment, and it grades it automatically. They can work safely, and I can kind of walk around and monitor it more closely. And it is recording it as they do it in real time. So I can go back and see what they are doing as they do it in real time. (He provided probing questions guiding the students to discover the correct answers for themselves.) - I do give the students job tickets. You just can't go out here and fix people's equipment, and then all of a sudden you misspell some words in the job ticket, or you didn't calculate the math the right way and give them back the wrong change. Job tickets, service tickets, how to write up what was wrong, what you did to repair, how much the parts cost, things of that nature.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
E				- Here they are up and moving and hands-on, and engaged. - Basically each week in our lesson plan, teachers….a lot of project based learning. We are trying to be maximum lab, minimum seat time is our goal. There is time when we must have seat time, but we try to keep it to a minimum, and it needs to be…it needs to have an end. A means to an end…we are not just doing seat work and book work just for the sake of doing seat work and book work. It's going to lead to something that we are going to put our hands on and that we are going to do. - (Teachers) They are going to show me each week where they are working on a credentialing activity, and their student organization CTSO activity, and their employability skill…activity. - Every program has a safety supervisor (a student) who is going to lead that meeting. We are talking a great deal about chain of command. Our kids don't understand chain of command. - We are talking about our company handbook that we have worked on. That is what they are going to work on for their employability skills. Each program is going to have a student representative that's going sit down and we are going to look through it with them so they can have a voice…so they will have the right to make….modify addendums to make it program specific	

Value	Level 1	Level 2	Level 3	Level 4	Level 5
S					- f a student is really moving along in DC we can move right into the AC and then that way when we start the second year when we start applying it in the hands-on portion of it they got it and now through our simulated workplace and they are going to be shift leader or group leader. They are going to get this position that where they can take and kind of bring some of the ones that don't get it quickly along and become really nice helpers for me. - We have the bread-boarding kits and rest of the components that we can set out and go through each individual component, and build each component for circuits, we also have multi-sim software so we can also build it virtually and then test it.

					- I will have then save the lab as a snip-it put it inside a document to do in google classroom and then take that and go build it on the bread-board and do all the measurements with meters let's make sure we are getting everything both ways. If they don't get it right they kind of go back then and start looking at what did I do wrong? I am a big Harry Potter fan, and I tell them this is like Hogwarts, helps available if you ask for it. I take and let them figure out the answer for themselves. I ask them some questions to point to where they need to focus.
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
L					- For me, particularly because it is career tech, I want them to show that mastery in both the book work and in the hands-on stuff. I have bread-boards, labs they can follow through, some labs are even specific enough that if you take out certain things with this circuit still there and it doesn't work it helps you with the troubleshooting side of it. - Some of my students are more inclined or have shown more success with the hands-on mastery verses the book work, if they are identifying components and they have a hard time writing out what the words are, well I show them the components and they can tell me well that's a resistor, that a transistor, and they can tell me what it does. Then to me you're showing the mastery you're just not able to do it on a test verses actually showing it to me. - Generally once you get out of DC and AC it becomes much more project based ……learning through trial and error.

Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
C		- We are looking at trying our hand at some project based learning for the coming year. Once you get going with project based learning I think that is hopefully open that need for people to collaborate more. - Well, we have some simulators in there, some robotics they can work on, but you still have teaching you have to do, and trying to break that up, and rotate three groups around in a small area is challenging. So, if I can get the bookwork down to where we are doing one set of bookwork for a semester, I think it would make it easier on all of us.			

5.2 **Work-based Learning**

Work-based learning provides students with educational opportunities that typically cannot be replicated in the classroom.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence that learning is connected to the workplace	There is some evidence of work-based learning, but it is limited to videos, or classroom observations	There is evidence of work-based learning, which includes career day, job fairs, guest speakers	There is evidence of work-based learning which includes field trips and industry visits	There is evidence of well-developed work-based learning which includes job-shadowing, internship, on the job experiences
30%	6%	12%	18%	24%	30%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J				- We discussed and brainstormed some ideas, and the students were like Mr. ( ) you worked in TV and you always taught us that around Christmas you have a lot of fires because people using space heaters, and you always see it on Fox News where you used to work, and so why don't we just check some peoples fire alarms and see if we can install them and they did. Me and my students we ground and pounded the streets found some people who were in need by testing their fire alarm systems to see if they were right and working. We found a couple that didn't and Lowes donated them to us, and we installed them to OSHA standards. - Yes, we take plenty of field trips to places like that, and Alabama Power we go to Alabama Power a lot.	

Value	Level 1	Level 2	Level 3	Level 4	Level 5
E					- We started some job shadowing programs.. We are doing some internships and apprenticeships programs out and about.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
S				- We took a field trip earlier in the year before Christmas over to the Millwright shop in Pelham, they have robotics program over there	

Value	Level 1	Level 2	Level 3	Level 4	Level 5
L				- This year we, in the fall, went to NASA. We did the whole space and rocket center. They did a lab on rocketry. It was more just to get them excited, but also what I've noticed with the exception of one or two that I have had in the last two years, their brains or minds of where they want to go doesn't go beyond Lawrence County. - I would like to do, eventually (have) some sort of a work-based learning, where they can job shadow once or twice per week, (even if it is just) to go see the maintenance guys at the school.	

Value	Level 1	Level 2	Level 3	Level 4	Level 5
C				- The only problem is that Cherokee County is small when it comes to industry. We are residential, farming community, with a few mills. We have a two man welding shop in town, but we now electronics we give them a lot of work here at the school - We can do field trips outside of the county, but within the county not as much. Last year they traveled to Wallace State, we have them go over to the robotics technology park.	

5.3 Interdisciplinary Teaching

Students receive academic and technical instruction in integrated ways. Coursework is created through collaboration of academic and technical education teachers. Interdisciplinary teaching is supported by administrative staff and teachers are provided common planning time to achieve this level of collaboration.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence of collaboration between academic and CT teachers	There is some evidence of collaboration between some academic and CT teachers, but it is sporadic and inconsistent	There is some evidence of collaboration between academic and CT teachers consistently	There is evidence that academic and CT teachers collaborate consistently, but do not team teach	There is evidence that all academic and CT teachers collaborate and team teach on a regular basis consistently
20%	4%	8%	12%	16%	20%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J	In 20 years I have never had to use the academic teachers more than maybe once, and it was me reaching out to them.				
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
E		- We actually have three math teachers on this campus. So, a lot of the students who come here about 80% of the students who come here, take their math here. (So is the math taught in the career tech class?) No, we have a separate math class. But we do take some time, we find some time to work some specific technical math as part of …as it applies to the career tech course. Yes we can partner, but we do (not do that now) - There are multiple courses on mathematics which should be taught all the way through Calculus, but I am not certified to teach Calculus, they can go up to Trig or Algebra (with me) No, it is not possible to get the Calculus teacher into the CT classroom they are busy teaching their own tight schedules.			
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
S	- I think it could be possible, and the one of the things that concerns me with doing something like that….we have buses that bring the kids over (from seven schools) there is only a little window of time, when everybody is here. - (Have you had any conversations with the high school teachers coming over here and getting involved with what you are doing at the center?) Not really, it is a time issue….yeah, the logistics of it.				
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
L		(Relationship with other academic subjects?) I have not, my wife is an English teacher, and so I have just kind of across the curriculum done that where she looked over resumes for me.			
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
C	(Partnerships with the high school academic teachers?) We do not….there is some discussion ….I have been discussing with the math teachers that you all need to come watch the electronics class. Because we will show you applied mathematics. Ohm's Law, watching them work Ohm's Law problems to calculate current, and voltage with resistors that is applied application based learning				

5.4 Data Collection and Analysis

Data capture and analysis is essential for monitoring performance and fosters a culture of continuous improvement. Data are regularly used and evaluated for planning, development, implementation, and improvement purposes. It should be shared with faculty and analyzed for program and classroom improvement.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence that student data is collected and used to monitor progress	There is evidence that data is collected, but not disseminated	There is evidence that data is collected, disseminated, but the process is sporadic	There is evidence that data is collected, disseminated, but no formal use for guiding student progress	There is evidence that data is collected, disseminated, and used to monitor and guide student progress
20%	4%	8%	12%	16%	20%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J					The students can practice on the computer program and then they can practice the same skill on the hands-on piece of equipment, and it grades it automatically. So I can go back and see what they are doing as they do it in real time. So, I can go back and look to see what they are doing wrong or right, if they are rushing through it

Value	Level 1	Level 2	Level 3	Level 4	Level 5
E				- The biggest thing that we are growing…that has really just boomed this year is our dual enrollment. We went from….maybe 10-15 in the technical field the year before, and this year we have 68. - (Who looks at the credentials earned?) Yes, because it has changed the way we do things…it took about two good years to get everybody going in the right direction of getting a good solid CRI credential program. We had to find the right fit, I guess for what we do. - On average next year about 150 9th grade students will come here. And it is getting competitive. We started looking at how many seats we will have available in each program of underclassmen. A couple of years ago we got to the point with our enrollment we were turning people away from about five or six of our programs. We had students coming here who didn't see it as a privilege. So I got with their instructors and I said we are turning some really good folks away potentially if you have students who are here just hang out I called it the Do Not Return List and we fired 93 students. They were underclassmen, and that opened up some slots, but I told these students that it's a privilege to come here not a right, three things will keep you a seat at this campus, and it is the same thing that is in the workplace: (1) Attitude (2) Effort (3) Attendance	

Value	Level 1	Level 2	Level 3	Level 4	Level 5
S			We have 18 that are in the program. That …we want to be better than that; of the 18 we have 16 are first year students. We didn't have a lot of students coming back last year. We had a very small electronics class last year and it was very senior laden. To some degree we have gone to the high school to market what we are doing here at the center. Our best marketing tool we have is what we have sitting up here at the table (students)		

Value	Level 1	Level 2	Level 3	Level 4	Level 5
L					My success rate is not very good, because of my background I am kind of learning everything on the fly. Last year I had about 10-12 take it, one passed. I told you to study, I gave time to study, I gave you assignments to work on to study, and you just didn't study, and the students said "yeah" we didn't study. So what I learned from that, get a smaller number of kids, and I will have five test this year. That was kind of my mistake last year, I had three of them go for really high level ETA certification, and it probably would have been better for them to go right after DC or AC and I think they would have passed those.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
C			- Gave 30 and only 9 passes last year on the DC test - I am working with our new schedule for next year. We are looking at going to three two hour sessions or a morning session and an afternoon session. (What do you have now?) An hour twenty minutes and hour fifteen. I am running four blocks a day here and it is really killing us. I am working with the electronics instructor; we want to make sure that we are teaching the right classes. We want to continue to do that, but we are also teaching three different grade levels in one class. 10-12, I am thinking about changing back to 11th and 12th graders primarily. - We are trying to concentrate more; it is hard to teach three different grade levels at the same time.		

Delivery and Assessment

6.1 Teachers and/or Trainers

The quality of career and technical education teachers is recognized as a major contributor to levels of education and skills attained by students. The classroom teacher has the greatest influence on student success and the delivery of content. Teachers should have access to professional development which provide academic and career and technical education teachers the opportunity to create genuinely integrated coursework. Career and technical education teachers must have current industry experience or qualifications.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
6.1	There is no evidence that T/T have formal teaching qualifications or relevant industry experience/qualifications	There is evidence that T/T have formal teaching qualifications, but no relevant industry experience/qualifications	There is evidence that T/T have minimum teaching qualifications, and some industry experience/qualifications	There is evidence that the T/T have certified teaching qualifications and relevant industry experience/qualifications	There is evidence that the T/T is a certified teacher and has current industry experience/qualification and engage in professional development for both
40%	8%	16%	24%	32%	40%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J				- (Electronics Instructor) I accepted the job with ETA to serve on their board of directors at the national level. - I meet with the instructor from Etowah County. I mentor the instructor from Shelby County. - We try to stay on these guys because if you don't the electronics can disappear. Me and the Etowah instructor we call each other about at least once per month, and discuss some of our growing pains, some of our issues, and some things that need to be done, while some of the other instructors are not doing that. - I went to school and got that two year degree, and then I began to work in the field as an electronic technician. I ended up in education (and) have been doing this for 21 years at secondary and post-secondary - Attend Summer Conference	
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
E				- (CT Director) I was a history teacher; taught history, social science; became an assistant principal; became the buildings principal; then became CT director. - (Electronics Instructor) Alabama Teaching Certificate and Secondary Vocational Instruction degree; Alabama Vocational Career Technical Day Trades Certificate Type III; Adjunct professor Gadsden State Telecommunication; International Society of Certified Electronic Technician; ETA Certified Proctor and Test Administrator/Site - Attend Summer Conference	
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
S				- (CT Director) This is my first year as the principal; I was at the board as career tech resource teacher; career tech specialist - (Electronics Instructor) I served in industry as an electronics technician and maintenance; and as an engineer. In engineering I was responsible for the plant automation equipment. Second year as an instructor and I have ETA certification for electronic technician. - This summer I am going to go and do the robotics center in Tanner, and go up there for three weeks; the training I am going to do up there is all the latest and greatest things we can do with robots. - Attend Summer Conference	
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
L			- (CT Director) Ag Science teacher - (Electronics Instructor) I actually have a degree in Social Studies or History. I have successfully passed a DC Electronics course at Calhoun Community College. I plan on taking the ETA DC certification test sometime this summer. - Attend Summer Conference		
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**

C				My background is in electronics from the U.S. Air Force. I worked for AT&T for the last 16 years dealing with a wide range of electrical and electronic systems. I hold ETA credentialing in Electronics as well as 2 Electrical/Electronic related Associate Degree, a Master's and a Bachelor Degree.	

6.2 Student Support Services

The provision of student support services enhances the student experience. Student support services are services offered to the student outside of the teaching and learning areas and my include counseling, support for students with disabilities, academic support and career coaching and guidance.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence of the availability of student support services	There is evidence of student support services which is available on an irregular basis	There is evidence of essential student support services available on an ongoing basis	There is evidence of a range of student support services including career advice available on an ongoing basis	There is evidence of extensive range of student support services including career advice and career placement options/support
20%	4%	8%	12%	16%	20%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J			(Career counselor or Career Coach?) No, it's just a counselor; everybody does things different. The way this works is if you are on campus for academics, then we are all together you are going to have just a regular counselor that does the career tech plus the (academic)		
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
E			- We have two meetings a year on this campus where all of our programs here they bring their advisory folks in all our business and industry partners in; we showcase some students; I tell our students here that you are our ambassadors here. They had rather talk and interact and hear from you. I get feedback from just students walking around and showing them around and talking with them. The business and industry folks love it. - Yes, we started with our career coaches last couple years. The career coach at Gadsden State provide (information/collaboration) with the high school career coach. (The career coach is on the CT campus?) Yes, she is right next door.		

Value	Level 1	Level 2	Level 3	Level 4	Level 5
S		Our second years have to complete a career tech portfolio (Have you had any conversations with the high school teachers coming over and getting involved with what you are doing at the center?) Not really, it is a time issue; the logistics of it; we have had the career coach come over and career tech resource specialist who come out and help us with some of those things			
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
L			I think we have funds for a career coach, and we do have a career coach here and at the four schools at least one day a week. Their role is a bunch of different roles they are kind of a liaison between the schools and business and industry and help counselors in the schools promote the programs. Close with chamber of commerce		

Value	Level 1	Level 2	Level 3	Level 4	Level 5
C	(Does the center have a Career Coach or Counselor?)				

6.3 Assessment Guidelines

Assessment guidelines are an important component of teaching and learning. Guidelines should refer to all processes employed by teaching staff to make judgements about the achievement of students, and to the extent that is practicable, be aligned with international benchmarks so students are prepared to succeed in a global economy.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	Assessment practices are determined on an individual or school basis	There is evidence of guidelines for assessment at a system level	There is evidence of guidelines for assessment at the system and regional level	There is evidence of guidelines for assessment at the system, regional and state level	There is evidence that assessment guidelines are based on national standards
20%	4%	8%	12%	16%	20%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J					- Yes, this is the NIDA system and it matches with the ETA testing. The students can practice on the computer program, and then they can practice the same skill on the hands-on piece of equipment, and it grades it automatically. It is recording it as they do it in real time, I can go back and see what they are doing as they do it in real time, see what they are doing wrong or right, if are rushing through it, etc. - I give a hands-on final; I do a formative assessments are in that NIDA software; the summative assessment is the actual practical hands-on
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
E					- The basic Electronics Credentials for the State of Alabama incorporate the NIDA basic core classes and assessments and upon completion of each class, the student can take the credentialing exam. All are specified in the state approved Credential list and ETA is so designed to coincide with NIDA coursework training.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
S				- I would say this program is one in which you better have a good foundation some core curriculum classes, because if you don't you are going to struggle. We try not to take just anybody. We hope they have a good math and science background. - We will start out with chapter one that starts with the basics which is direct current. We will cover it, there are some self-paced things that we can go through to get some practice; when they get to the end of that there is a test that they take and they show that they have the 80% on the test then we move to the labs (go through same process) - (For the credential test) There is a practice test that they can take that is very much like the test that they are going to have to pass. Now I'm going to make them prove to me that they are ready. The cut score on ETA is 75%, but now when they come to the practice test telling me they are ready I want 80%	

Value	Level 1	Level 2	Level 3	Level 4	Level 5
L			- I do have study guides, it's a bit sparse on the hands-on stuff, I know what they are looking for so I try to use other things. I've installed on all these computers is to help review is there is a company that comes up with different challenges it's just review…I guess you could look at it as test prep. It meet the standards for the state of Alabama and it covers what I've seen in the testing for ETA - For me particularly because it is career tech I want them to show that mastery in both the book work and in the hands on stuff.		
Value	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
C			About 50% book work and 50% hands-on. I have tried to pull out the chapters in the electronic book that I have. I came in mid-year; I really don't know what they already know about DC. I am trying to start basic. I have the NIDA trainer, and they are computer based.		

6.4 Validation and Moderation Processes

Validation and moderation processes ensure that the assessment of students' work is reliable and fair. IT refers to an assessment quality review process that is coordinated ideally by an external body, which has the authority to review and moderate the assessment process for the earned credential.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
	There is no evidence of learning and assessment strategies being validated or moderated	There is evidence of assessment being moderated at the school level	There is evidence of processes in place for assessment moderation between schools and systems	There is evidence of processes in place for assessment moderation between systems and the state	There is evidence of assessment moderation between the state and national validation organizations
20%	4%	8%	12%	16%	20%

Value	Level 1	Level 2	Level 3	Level 4	Level 5
J				(ETA Certified Tester?) Yes; I (administer the test) or a proctor at our school	

Value	Level 1	Level 2	Level 3	Level 4	Level 5
E					(ETA?) Yes, they would test here, and instructors are certified, and our counselor serves as the test coordinator.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
S					We are a certified testing center. I am a certified tester. Now I will not test the kids that are in my class. We have plenty of people who can come in here and administer that test. We have a small testing center over here. We have a really good relationship with another ETA program that is not terribly far away…..he's a certified tester, and I wouldn't be afraid to ask him to come down here and administer the test.

Value	Level 1	Level 2	Level 3	Level 4	Level 5
L				I proctor the exam for ETA at LCCT so that my students do not have to drive elsewhere to take the exam. I am an approved proctor for ETA.	

Value	Level 1	Level 2	Level 3	Level 4	Level 5
C			About 50% book work and 50% hands-on. I have tried to pull out the chapters in the electronic book that I have. I came in mid-year; I really don't know what they already know about DC. I am trying to start basic. I have the NIDA trainer, and they are computer based.		

Appendix K

Career Readiness Indicator Evaluation Results (March 2017)

Career Readiness Indicator Evaluation Results (March 2017)	**Career Readiness Indicator:** ETA Basic Direct Current **Career Cluster:** Manufacturing **Pathway Name:** Electronics **Systems:** Jefferson County	
Development Level Total	**Feature**	**Sub-Categories Development Level**
Level 3.6	**(1) Industry Engagement**	
	* Determining Skills Priority	**4**
	* Workforce Training	**3**
	* Support of Industry Partnerships	**3**
	* Curriculum Development	**4**
Level 5	**(2) Governance**	
	* Defined Roles and Responsibilities	**5**
	* Defined Policies for Technical Skill Attainment	**5**
	* Defined Policies for Funding of the Career Readiness Indicator	**5**
	* Policies for Access and Equity	**5**
Level 5	**(3) Occupational Standards**	
	* Incorporate Industry-Recognized Technical Standards	**5**
	* Incorporate Essential Knowledge and Skills	**5**
	* Competency Based Curriculum	**5**
Level 3.4	**(4) Qualification Framework**	
	* Stackable Credentials	**4**
	* Systematic and Seamless Pathway of Progression	**2**
	* Credit Transfer Agreement	**4**
Level 3.9	**(5) Program Quality**	
	* Learner Engagement	**5**
	* Work-based Learning	**4**
	* Interdisciplinary Teaching	**1**
	* Data Collection and Analysis	**5**
Level 4	**(6) Delivery and Assessment**	
	* Teachers and/or Trainers	**4**
	* Student Support Services	**3**
	* Assessment Guidelines	**5**
	* Validation and Moderation Processes	**4**

System: **Jefferson County**
Career Readiness Indicator: Electronic Basic Direct Current CRI
Date of Evaluation: March 2017

(1) INDUSTRY ENGAGEMENT

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
1.1 Determining Skills Priority Level 4	There is no evidence of industry engagement with the state in determining skills priorities	There is evidence of sporadic or informal industry engagement with the state in determining skills priorities	There is evidence of some formal industry engagement with the state in determining skills priorities	There is evidence of formal contribution of industry with the state in determining skills priorities	There is evidence of ongoing consultation between industry and state CT agencies to determine and review state skill priorities, policies and CRI
Value 40%	8%	16%	24%	32%	40%
1.2 Workforce Training Level 3	There is no evidence of training delivered to CT students in the workplace or schools	There is evidence of informal workplace training delivered to CT students	There is evidence of some formal workplace training in cooperation with CT students & industry	There is evidence of formal arrangements with all relevant industry sectors and CT students	There is evidence of strong partnerships between industry, state agencies, and schools in development and delivery of workplace training for CT students
Value 20%	4%	8%	12%	16%	20%
1.3 Support of Industry Partnership Level 3	There is no evidence of provisions of financial or other support between the state and industry partners	There is evidence of limited provision of financial or other support between the state and industry partners	There is evidence of broad provision of financial or other support between the state and industry partners	There is evidence of extensive provisions of financial or other support between the state and industry partners	There is evidence of systemic provisions of financial or other support between the state and industry partners
Value 20%	4%	8%	12%	16%	20%
1.4 Curriculum Development Level 4	There is no evidence of industry contribution to the development of curriculum	There is evidence of limited industry contribution to the development of curriculum	There is evidence of a formal role for industry in the development of curriculum	There is evidence of a formal role for industry in development and validation of curriculum	There is evidence of industry's ongoing and extensive input in development, validation, and evaluation of curriculum
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**72%**				
Divide that number by 20 to determine the level of	**3.6**				
Industry Engagement Development Level = 3.6					

(2) Governance

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
2.1 Roles and Responsibilities Level 5	There is no evidence of defined roles and responsibilities for CT stakeholders related to this CRI	There is evidence of defined roles and responsibilities for CT at the state level related to this CRI	There is evidence of defined roles and responsibilities for CT at a regional level, but with weak structures and functions; little interaction between key stakeholders	There is evidence of well-defined roles and responsibilities for CT at a system/school level with established mechanisms for stakeholder involvement	There is evidence of a 'whole of government' approach to CT with defined roles and responsibilities for all stakeholders at local, system, regional and state level related to this CRI
Value 30%	6%	12%	18%	24%	30%
2.2 Technical Skills Attainment Level 5	There is no evidence of defined development of policies/strategies for technical skills attainment for this CRI	There is evidence of policies/strategies for technical skills attainment at the state level for this CRI	There is evidence of implementation of state policies/strategies at the regional level of technical skills attainment for this CRI	There is evidence of implementation of technical skills attainment extended to the system/school level for this CRI	There is evidence of well-developed policies/strategies for technical skills attainment at all levels (local, system, region, & state) for this CRI
Value 30%	6%	12%	18%	24%	30%
2.3 Funding Support Level 5	There is no evidence of a defined policy to support funding for this CRI	There is evidence of a defined policy to support funding at a state level for this CRI	There is evidence of a defined policy at the state and regional to support funding for this CRI	There is evidence of a defined policy at the state, regional, and system/local level for funding this CRI	There is evidence of a well-defined policy at all levels to support the initial funding and continued support for this CRI
Value 20%	4%	8%	12%	16%	20%
2.4 Access and Equity Level 5	There is no evidence of policies to guarantee access and equity within CT for this CRI	There is evidence of defined policies for access and equity at the state level within CT for this CRI	There is evidence of defined policies at the state and regional level for access/equity within CT for this CRI	There is evidence of defined policies at the state, region, and system/local level within CT for this CRI	There is evidence of well-defined policies at all levels to guarantee access and equity for all stakeholders within CT for this CRI
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**100%**				
Divide that number by 20 to determine the level	**5**				
Governance Development Level = 5					

(3) Occupational Standards

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
3.1 Incorporate industry-recognized technical standards Level 5	There is no evidence for alignment to industry-recognized technical standards	There is evidence of limited alignment to industry-recognized technical standards	There is evidence of alignment to industry-recognized technical standards, but limited or sporadic implementation	There is evidence of alignment with current industry-recognized technical standards, but no formal process for obtaining an industry recognized credential/certificate	There is evidence of alignment with current industry-recognized technical standards leading to an industry recognized credential/certificate
Value 40%	8%	16%	24%	32%	40%
3.2 Incorporate essential knowledge and skills Level 5	There is no evidence of structure or process to incorporate essential knowledge and skills	There is evidence of limited structure or process to incorporate essential knowledge and skills	There is evidence of structure or process to incorporate essential knowledge and skills but limited implementation	There is evidence of a coordinated approach, structure and process which incorporate essential knowledge and skills and is being accessed by CT students	There is evidence of a coordinated approach, structure and process which incorporate essential knowledge and skills, CT students engage in application of skills; the process is subject to continuous improvement
Value 20%	4%	8%	12%	16%	20%
3.3 Competency based curriculum Level 5	CT curriculum is based on academic achievement and time served not on relevant job competencies	CT curriculum is based on academic achievement but describes some outcomes linked to job readiness	CT curriculum is based on demonstration of the knowledge, skills and attitudes required on the job	CT curriculum is based on nationally endorsed occupational standards that reflect job readiness and competencies	CT curriculum is based on nationally endorsed work standards that reflect job readiness, skills, and competencies and are subject to ongoing review
Value 40%	8%	16%	24%	32%	40%
Add the % to find the score	**100%**				
Divide that number by 20 to determine the level	**5**				
Occupational Standards Development Level = 5					

(4) Qualifications Framework

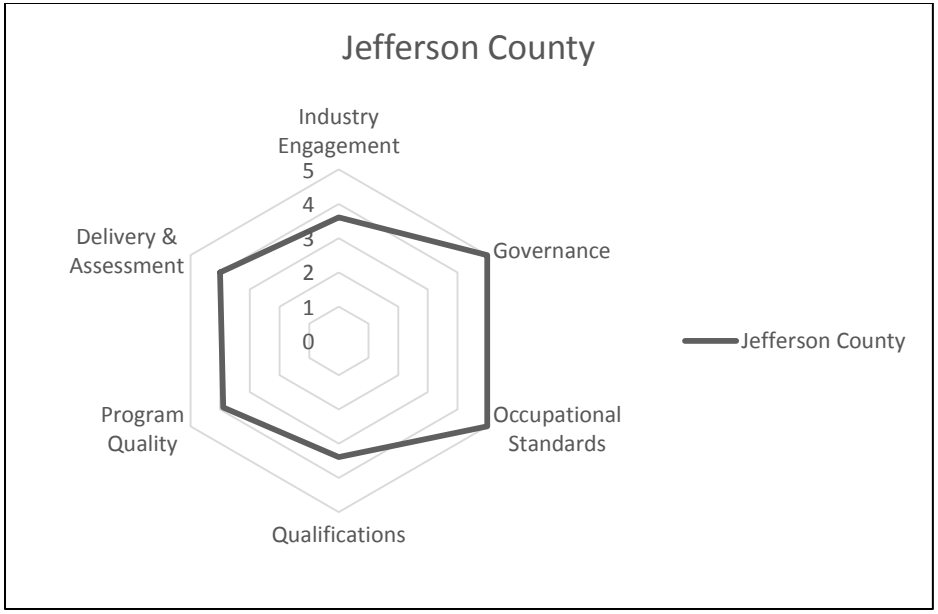
Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
4.1 Stackable Credential Level 4	There is no evidence of prerequisites or a framework for pre-qualifications for this CRI	There is some evidence of prerequisites or a framework for pre-qualifications for this CRI, but the organization is sporadic	There is evidence of expectations for prerequisites or a framework for pre-qualifications for this CRI	There is evidence of an integrated qualification framework that recognizes national and international qualifications for this CRI credential	There is evidence of an integrated qualification framework that recognizes national and international qualifications for this CRI and it is continuously evaluated in order to offer the most up-to-date and current credential
Value 30%	6%	12%	18%	24%	30%
4.2 Systematic and Seamless Pathway of Progression Level 2	There is no evidence of a seamless pathway of progression for this CRI	There is some evidence of an informal pathway of progression, but it is not well articulated between secondary and postsecondary entities	There is evidence of a formal pathway of progression for this CRI	There is evidence of a defined systematic and seamless pathway of progression for this CRI from secondary to postsecondary	There is evidence of a well-defined systematic and seamless pathway of progression from secondary to postsecondary for this CRI and it is continuously evaluated and updated
Value 30%	6%	12%	18%	24%	30%
4.3 Credit Transfer Agreements Level 4	There is no evidence of an agreement or process for the transfer of credits earned at the secondary level to postsecondary programs	There is some evidence of an informal agreement or process for the transfer of credits	There is evidence of a formal agreement for the transfer of credits, but the process is sporadic and not well defined	There is evidence of an articulated agreement for the transfer of credits, but this does not include all postsecondary programs	There is evidence of an articulated agreement for the transfer of credits earned at the secondary level to postsecondary programs with a well-defined process for the transfer of credits for this CRI
Value 40%	8%	16%	24%	32%	40%
Add the % to find the score	**68%**				
Divide that number by 20 to determine the level	**3.4**				
Qualifications Framework Development Level = 3.4					

(5) Program Quality

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
5.1 Learner Engagement Level 5	The student has a passive role in the learning process	There is some evidence of student engagement, but it is sporadic and informal	There is evidence of student engagement, and a formal process is in place to guide instruction	There is evidence of students engagement and a formal process is in place to guide instruction, but there is no monitoring for improvement	There is evidence that the student is fully engaged and guides learning, and the process is monitored in order to update and make improvements
Value 30%	6%	12%	18%	24%	30%
5.2 Work-based Learning Level 4	There is no evidence that learning is connected to the workplace	There is some evidence of work-based learning, but it is limited to videos, or classroom observations	There is evidence of work-based learning, which includes career day, job fairs, guest speakers	There is evidence of work-based learning which includes field trips and industry visits	There is evidence of well-developed work-based learning which includes job-shadowing, internship, on the job experiences
Value 30%	6%	12%	18%	24%	30%
5.3 Inter Teaching Level 1	There is no evidence of collaboration between academic and CT teachers	There is some evidence of collaboration between some academic and CT teachers, but it is sporadic and inconsistent	There is some evidence of collaboration between academic and CT teachers consistently	There is evidence that academic and CT teachers collaborate consistently, but do not team teach	There is evidence that all academic and CT teachers collaborate and team teach on a regular basis consistently
Value 20%	4%	8%	12%	16%	20%
5.4 Data Collect/Anal Level 5	There is no evidence that student data is collected and used to monitor progress	There is evidence that data is collected, but not disseminated	There is evidence that data is collected, disseminated, but the process is sporadic	There is evidence that data is collected, disseminated, but no formal use for guiding student progress	There is evidence that data is collected, disseminated, and used to monitor and guide student progress
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**78%**				
Divide that number by 20 to determine the level	**3.9**				
Program Quality Performance Level = 3.9					

(6) Delivery and Assessment

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
6.1 Teachers/Trainers Level 4	There is no evidence that T/T have formal teaching qualifications or relevant industry experience/qualifications	There is evidence that T/T have formal teaching qualifications, but no relevant industry experience/qualifications	There is evidence that T/T have minimum teaching qualifications, and some industry experience/qualifications	There is evidence that the T/T have certified teaching qualifications and relevant industry experience/qualifications	There is evidence that the T/T is a certified teacher and has current industry experience/qualification and engage in professional development for both
Value 40%	8%	16%	24%	32%	40%
6.2 Stud Support Serv Level 3	There is no evidence of the availability of student support services	There is evidence of student support services which is available on an irregular basis	There is evidence of essential student support services available on an ongoing basis	There is evidence of a range of student support services including career advice available on an ongoing basis	There is evidence of extensive range of student support services including career advice and career placement options/support
Value 20%	4%	8%	12%	16%	20%
6.3 Assessment/Guide Level 5	Assessment practices are determined on an individual or school basis	There is evidence of guidelines for assessment at a system level	There is evidence of guidelines for assessment at the system and regional level	There is evidence of guidelines for assessment at the system, regional and state level	There is evidence that assessment guidelines are based on national standards
Value 20%	4%	8%	12%	16%	20%
6.4 Valid & Moderation Level 4	There is no evidence of learning and assessment strategies being validated or moderated	There is evidence of assessment being moderated at the school level	There is evidence of processes in place for assessment moderation between schools and systems	There is evidence of processes in place for assessment moderation between systems and the state	There is evidence of assessment moderation between the state and national validation organizations
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**80%**				
Divide that number by 20 to determine the level	**4**				
Delivery and Assessment Performance Level = 4					


Jefferson County
Industry Engagement
5
4
3
2
1
0
Governance
Occupational Standards
Qualifications
Program Quality
Delivery & Assessment
Jefferson County

Career Readiness Indicator Evaluation Results (March 2017)

Career Readiness Indicator: ETA Basic Direct Current
Career Cluster: Manufacturing
Pathway Name: Electronics
Systems: Etowah County

Development Level Total	Feature	Sub-Categories Development Level
	(1) Industry Engagement	
	* Determining Skills Priority	**5**
Level 3.8	* Workforce Training	**3**
	* Support of Industry Partnerships	**4**
	* Curriculum Development	**2**
Level 5	**(2) Governance**	
	* Defined Roles and Responsibilities	**5**
	* Defined Policies for Technical Skill Attainment	**5**
	* Defined Policies for Funding of the Career Readiness Indicator	**5**
	* Policies for Access and Equity	**5**
Level 5	**(3) Occupational Standards**	
	* Incorporate Industry-Recognized Technical Standards	**5**
	* Incorporate Essential Knowledge and Skills	**5**
	* Competency Based Curriculum	**5**
Level 3.1	**(4) Qualification Framework**	
	* Stackable Credentials	**3**
	* Systematic and Seamless Pathway of Progression	**2**
	* Credit Transfer Agreement	**4**
Level 3.9	**(5) Program Quality**	
	* Learner Engagement	**4**
	* Work-based Learning	**5**
	* Interdisciplinary Teaching	**2**
	* Data Collection and Analysis	**4**
Level 4.2	**(6) Delivery and Assessment**	
	* Teachers and/or Trainers	**4**
	* Student Support Services	**3**
	* Assessment Guidelines	**5**
	* Validation and Moderation Processes	**5**

System: **Etowah County**
Career Readiness Indicator: **Electronic Basic Direct Current CRI March 2017**
Date of Evaluation:

(1) Industry Engagement

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
1.1 Determining Skills Priority Level 5	There is no evidence of industry engagement with the state in determining skills priorities	There is evidence of sporadic or informal industry engagement with the state in determining skills priorities	There is evidence of some formal industry engagement with the state in determining skills priorities	There is evidence of formal contribution of industry with the state in determining skills priorities	There is evidence of ongoing consultation between industry and state CT agencies to determine and review state skill priorities, policies and CRI
Value 40%	8%	16%	24%	32%	40%
1.2 Workforce Training Level 3	There is no evidence of training delivered to CT students in the workplace or schools	There is evidence of informal workplace training delivered to CT students	There is evidence of some formal workplace training in cooperation with CT students & industry	There is evidence of formal arrangements with all relevant industry sectors and CT students	There is evidence of strong partnerships between industry, state agencies, and schools in development and delivery of workplace training for CT students
Value 20%	4%	8%	12%	16%	20%
1.3 Support of Industry Partnership Level 4	There is no evidence of provisions of financial or other support between the state and industry partners	There is evidence of limited provision of financial or other support between the state and industry partners	There is evidence of broad provision of financial or other support between the state and industry partners	There is evidence of extensive provisions of financial or other support between the state and industry partners	There is evidence of systemic provisions of financial or other support between the state and industry partners
Value 20%	4%	8%	12%	16%	20%
1.4 Curriculum Development Level 2	There is no evidence of industry contribution to the development of curriculum	There is evidence of limited industry contribution to the development of curriculum	There is evidence of a formal role for industry in the development of curriculum	There is evidence of a formal role for industry in development and validation of curriculum	There is evidence of industry's ongoing and extensive input in development, validation, and evaluation of curriculum
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**76%**				
Divide that number by 20 to determine the level of	**3.8**				
Industry Engagement Development Level = 3.8					

(2) Governance

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
2.1 Roles and Responsibilities Level 5	There is no evidence of defined roles and responsibilities for CT stakeholders related to this CRI	There is evidence of defined roles and responsibilities for CT at the state level related to this CRI	There is evidence of defined roles and responsibilities for CT at a regional level, but with weak structures and functions; little interaction between key stakeholders	There is evidence of well-defined roles and responsibilities for CT at a system/school level with established mechanisms for stakeholder involvement	There is evidence of a 'whole of government' approach to CT with defined roles and responsibilities for all stakeholders at local, system, regional and state level related to this CRI
Value 30%	6%	12%	18%	24%	30%
2.2 Technical Skills Attainment Level 5	There is no evidence of defined development of policies/strategies for technical skills attainment for this CRI	There is evidence of policies/strategies for technical skills attainment at the state level for this CRI	There is evidence of implementation of state policies/strategies at the regional level of technical skills attainment for this CRI	There is evidence of implementation of technical skills attainment extended to the system/school level for this CRI	There is evidence of well-developed policies/strategies for technical skills attainment at all levels (local, system, region, & state) for this CRI
Value 30%	6%	12%	18%	24%	30%
2.3 Funding Support Level 5	There is no evidence of a defined policy to support funding for this CRI	There is evidence of a defined policy to support funding at a state level for this CRI	There is evidence of a defined policy at the state and regional to support funding for this CRI	There is evidence of a defined policy at the state, regional, and system/local level for funding this CRI	There is evidence of a well-defined policy at all levels to support the initial funding and continued support for this CRI
Value 20%	4%	8%	12%	16%	20%
2.4 Access and Equity Level 5	There is no evidence of policies to guarantee access and equity within CT for this CRI	There is evidence of defined policies for access and equity at the state level within CT for this CRI	There is evidence of defined policies at the state and regional level for access/equity within CT for this CRI	There is evidence of defined policies at the state, region, and system/local level within CT for this CRI	There is evidence of well-defined policies at all levels to guarantee access and equity for all stakeholders within CT for this CRI
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**100%**				
Divide that number by 20 to determine the level	**5**				
Governance Development Level = 5					

(3) Occupational Standards

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
3.1 Incorporate industry-recognized technical standards Level 5	There is no evidence for alignment to industry-recognized technical standards	There is evidence of limited alignment to industry-recognized technical standards	There is evidence of alignment to industry-recognized technical standards, but limited or sporadic implementation	There is evidence of alignment with current industry-recognized technical standards, but no formal process for obtaining an industry recognized credential/certificate	There is evidence of alignment with current industry-recognized technical standards leading to an industry recognized credential/certificate
Value 40%	8%	16%	24%	32%	40%
3.2 Incorporate essential knowledge and skills Level 5	There is no evidence of structure or process to incorporate essential knowledge and skills	There is evidence of limited structure or process to incorporate essential knowledge and skills	There is evidence of structure or process to incorporate essential knowledge and skills but limited implementation	There is evidence of a coordinated approach, structure and process which incorporate essential knowledge and skills and is being accessed by CT students	There is evidence of a coordinated approach, structure and process which incorporate essential knowledge and skills, CT students engage in application of skills; the process is subject to continuous improvement
Value 20%	4%	8%	12%	16%	20%
3.3 Competency based curriculum Level 5	CT curriculum is based on academic achievement and time served not on relevant job competencies	CT curriculum is based on academic achievement but describes some outcomes linked to job readiness	CT curriculum is based on demonstration of the knowledge, skills and attitudes required on the job	CT curriculum is based on nationally endorsed occupational standards that reflect job readiness and competencies	CT curriculum is based on nationally endorsed work standards that reflect job readiness, skills, and competencies and are subject to ongoing review
Value 40%	8%	16%	24%	32%	40%
Add the % to find the score	**100%**				
Divide that number by 20 to determine the level	**5**				
Occupational Standards Development Level = 5					

(4) Qualifications Framework

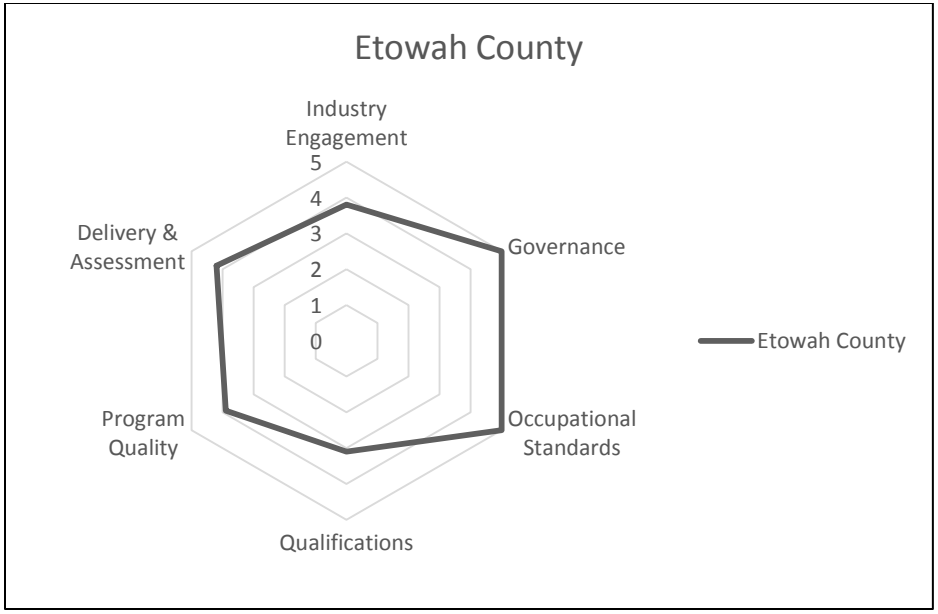
Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
4.1 Stackable Credential **Level 3**	There is no evidence of prerequisites or a framework for pre-qualifications for this CRI	There is some evidence of prerequisites or a framework for pre-qualifications for this CRI, but the organization is sporadic	There is evidence of expectations for prerequisites or a framework for pre-qualifications for this CRI	There is evidence of an integrated qualification framework that recognizes national and international qualifications for this CRI credential	There is evidence of an integrated qualification framework that recognizes national and international qualifications for this CRI and it is continuously evaluated in order to offer the most up-to-date and current credential
Value 30%	6%	12%	18%	24%	30%
4.2 Systematic and Seamless Pathway of Progression Level 2	There is no evidence of a seamless pathway of progression for this CRI	There is some evidence of an informal pathway of progression, but it is not well articulated between secondary and postsecondary entities	There is evidence of a formal pathway of progression for this CRI	There is evidence of a defined systematic and seamless pathway of progression for this CRI from secondary to postsecondary	There is evidence of a well-defined systematic and seamless pathway of progression from secondary to postsecondary for this CRI and it is continuously evaluated and updated
Value 30%	6%	12%	18%	24%	30%
4.3 Credit Transfer Agreements **Level 4**	There is no evidence of an agreement or process for the transfer of credits earned at the secondary level to postsecondary programs	There is some evidence of an informal agreement or process for the transfer of credits	There is evidence of a formal agreement for the transfer of credits, but the process is sporadic and not well defined	There is evidence of an articulated agreement for the transfer of credits, but this does not include all postsecondary programs	There is evidence of an articulated agreement for the transfer of credits earned at the secondary level to postsecondary programs with a well-defined process for the transfer of credits for this CRI
Value 40%	8%	16%	24%	32%	40%
Add the % to find the score	**62%**				
Divide that number by 20 to determine the level	**3.1**				
Qualifications Framework Development Level = 3.1					

(5) Program Quality

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
5.1 Learner Engagement Level 4	The student has a passive role in the learning process	There is some evidence of student engagement, but it is sporadic and informal	There is evidence of student engagement, and a formal process is in place to guide instruction	There is evidence of students engagement and a formal process is in place to guide instruction, but there is no monitoring for improvement	There is evidence that the student is fully engaged and guides learning, and the process is monitored in order to update and make improvements
Value 30%	6%	12%	18%	24%	30%
5.2 Work-based Learning Level 5	There is no evidence that learning is connected to the workplace	There is some evidence of work-based learning, but it is limited to videos, or classroom observations	There is evidence of work-based learning, which includes career day, job fairs, guest speakers	There is evidence of work-based learning which includes field trips and industry visits	There is evidence of well-developed work-based learning which includes job-shadowing, internship, on the job experiences
Value 30%	6%	12%	18%	24%	30%
5.3 Inter Teaching Level 2	There is no evidence of collaboration between academic and CT teachers	There is some evidence of collaboration between some academic and CT teachers, but it is sporadic and inconsistent	There is some evidence of collaboration between academic and CT teachers consistently	There is evidence that academic and CT teachers collaborate consistently, but do not team teach	There is evidence that all academic and CT teachers collaborate and team teach on a regular basis consistently
Value 20%	4%	8%	12%	16%	20%
5.4 Data Collect/Anal Level 4	There is no evidence that student data is collected and used to monitor progress	There is evidence that data is collected, but not disseminated	There is evidence that data is collected, disseminated, but the process is sporadic	There is evidence that data is collected, disseminated, but no formal use for guiding student progress	There is evidence that data is collected, disseminated, and used to monitor and guide student progress
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**78%**				
Divide that number by 20 to determine the level	**3.9**				
Program Quality Performance Level = 3.9					

(6) Delivery and Assessment

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
6.1 Teachers/Trainers Level 4	There is no evidence that T/T have formal teaching qualifications or relevant industry experience/qualifications	There is evidence that T/T have formal teaching qualifications, but no relevant industry experience/qualifications	There is evidence that T/T have minimum teaching qualifications, and some industry experience/qualifications	There is evidence that the T/T have certified teaching qualifications and relevant industry experience/qualifications	There is evidence that the T/T is a certified teacher and has current industry experience/qualification and engage in professional development for both
Value 40%	8%	16%	24%	32%	40%
6.2 Stud Support Serv Level 3	There is no evidence of the availability of student support services	There is evidence of student support services which is available on an irregular basis	There is evidence of essential student support services available on an ongoing basis	There is evidence of a range of student support services including career advice available on an ongoing basis	There is evidence of extensive range of student support services including career advice and career placement options/support
Value 20%	4%	8%	12%	16%	20%
6.3 Assessment/Guide Level 5	Assessment practices are determined on an individual or school basis	There is evidence of guidelines for assessment at a system level	There is evidence of guidelines for assessment at the system and regional level	There is evidence of guidelines for assessment at the system, regional and state level	There is evidence that assessment guidelines are based on national standards
Value 20%	4%	8%	12%	16%	20%
6.4 Valid & Moderation Level 5	There is no evidence of learning and assessment strategies being validated or moderated	There is evidence of assessment being moderated at the school level	There is evidence of processes in place for assessment moderation between schools and systems	There is evidence of processes in place for assessment moderation between systems and the state	There is evidence of assessment moderation between the state and national validation organizations
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**84%**				
Divide that number by 20 to determine the level	**4.2**				
Delivery and Assessment Performance Level = 4.2					


Etowah County
Industry Engagement
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Governance
Occupational Standards
Qualifications
Program Quality
Delivery & Assessment
Etowah County

Career Readiness Indicator Evaluation Results
March 2017

Career Readiness Indicator: ETA Basic Direct Current
Career Cluster: Manufacturing
Pathway Name: Electronics
Systems: Shelby County

Development Level Total	Feature	Sub-Categories Development Level
Level 3.8	**(1) Industry Engagement** • Determining Skills Priority • Workforce Training • Support of Industry Partnerships • Curriculum Development	 **5** **3** **4** **2**
Level 4.8	**(2) Governance** • Defined Roles and Responsibilities • Defined Policies for Technical Skills Attainment • Defined Policies for Funding of the Career Readiness Indicator • Policies for Access and Equity	 **5** **5** **4** **5**
Level 5	**(3) Occupational Standards** • Incorporate Industry-Recognized Technical Standards • Incorporate Essential Knowledge and Skills • Competency Based Curriculum	 **5** **5** **5**
Level 2.6	**(4) Qualification Framework** • Stackable Credentials • Systematic and Seamless Pathway of Progression • Credit Transfer Agreements	 **4** **2** **2**
Level 3.5	**(5) Program Quality** • Learner Engagement • Work-based Learning • Interdisciplinary Teaching • Data Collection and Analysis	 **5** **4** **1** **3**
Level 3.8	**(6) Delivery and Assessment** • Teachers and or Trainers • Student Support Services • Assessment Guidelines • Validation and Moderation Processes	 **4** **2** **4** **5**

System: Shelby County
Career Readiness Indicator: Electronic Basic Direct Current CRI
Date of Evaluation: March 2017

(1) Industry Engagement

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
1.1 Determining Skills Priority Level 5	There is no evidence of industry engagement with the state in determining skills priorities	There is evidence of sporadic or informal industry engagement with the state in determining skills priorities	There is evidence of some formal industry engagement with the state in determining skills priorities	There is evidence of formal contribution of industry with the state in determining skills priorities	There is evidence of ongoing consultation between industry and state CT agencies to determine and review state skill priorities, policies and CRI
Value 40%	8%	16%	24%	32%	40%
1.2 Workforce Training Level 3	There is no evidence of training delivered to CT students in the workplace or schools	There is evidence of informal workplace training delivered to CT students	There is evidence of some formal workplace training in cooperation with CT students & industry	There is evidence of formal arrangements with all relevant industry sectors and CT students	There is evidence of strong partnerships between industry, state agencies, and schools in development and delivery of workplace training for CT students
Value 20%	4%	8%	12%	16%	20%
1.3 Support of Industry Partnership Level 4	There is no evidence of provisions of financial or other support between the state and industry partners	There is evidence of limited provision of financial or other support between the state and industry partners	There is evidence of broad provision of financial or other support between the state and industry partners	There is evidence of extensive provisions of financial or other support between the state and industry partners	There is evidence of systemic provisions of financial or other support between the state and industry partners
Value 20%	4%	8%	12%	16%	20%
1.4 Curriculum Development Level 2	There is no evidence of industry contribution to the development of curriculum	There is evidence of limited industry contribution to the development of curriculum	There is evidence of a formal role for industry in the development of curriculum	There is evidence of a formal role for industry in development and validation of curriculum	There is evidence of industry's ongoing and extensive input in development, validation, and evaluation of curriculum
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**76%**				
Divide that number by 20 to determine the level of	**3.8**				
Industry Engagement Development Level = 3.8					

(2) Governance

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
2.1 Roles and Responsibilities Level 5	There is no evidence of defined roles and responsibilities for CT stakeholders related to this CRI	There is evidence of defined roles and responsibilities for CT at the state level related to this CRI	There is evidence of defined roles and responsibilities for CT at a regional level, but with weak structures and functions; little interaction between key stakeholders	There is evidence of well-defined roles and responsibilities for CT at a system/school level with established mechanisms for stakeholder involvement	There is evidence of a 'whole of government' approach to CT with defined roles and responsibilities for all stakeholders at local, system, regional and state level related to this CRI
Value 30%	6%	12%	18%	24%	30%
2.2 Technical Skills Attainment Level 5	There is no evidence of defined development of policies/strategies for technical skills attainment for this CRI	There is evidence of policies/strategies for technical skills attainment at the state level for this CRI	There is evidence of implementation of state policies/strategies at the regional level of technical skills attainment for this CRI	There is evidence of implementation of technical skills attainment extended to the system/school level for this CRI	There is evidence of well-developed policies/strategies for technical skills attainment at all levels (local, system, region, & state) for this CRI
Value 30%	6%	12%	18%	24%	30%
2.3 Funding Support Level 4	There is no evidence of a defined policy to support funding for this CRI	There is evidence of a defined policy to support funding at a state level for this CRI	There is evidence of a defined policy at the state and regional to support funding for this CRI	There is evidence of a defined policy at the state, regional, and system/local level for funding this CRI	There is evidence of a well-defined policy at all levels to support the initial funding and continued support for this CRI
Value 20%	4%	8%	12%	16%	20%
2.4 Access and Equity Level 5	There is no evidence of policies to guarantee access and equity within CT for this CRI	There is evidence of defined policies for access and equity at the state level within CT for this CRI	There is evidence of defined policies at the state and regional level for access/equity within CT for this CRI	There is evidence of defined policies at the state, region, and system/local level within CT for this CRI	There is evidence of well-defined policies at all levels to guarantee access and equity for all stakeholders within CT for this CRI
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**96%**				
Divide that number by 20 to determine the level	**4.8**				
Governance Development Level = 4.8					

(3) Occupational Standards

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
3.1 Incorporate industry-recognized technical standards Level 5	There is no evidence for alignment to industry-recognized technical standards	There is evidence of limited alignment to industry-recognized technical standards	There is evidence of alignment to industry-recognized technical standards, but limited or sporadic implementation	There is evidence of alignment with current industry-recognized technical standards, but no formal process for obtaining an industry recognized credential/certificate	There is evidence of alignment with current industry-recognized technical standards leading to an industry recognized credential/certificate
Value 40%	8%	16%	24%	32%	40%
3.2 Incorporate essential knowledge and skills Level 5	There is no evidence of structure or process to incorporate essential knowledge and skills	There is evidence of limited structure or process to incorporate essential knowledge and skills	There is evidence of structure or process to incorporate essential knowledge and skills but limited implementation	There is evidence of a coordinated approach, structure and process which incorporate essential knowledge and skills and is being accessed by CT students	There is evidence of a coordinated approach, structure and process which incorporate essential knowledge and skills, CT students engage in application of skills; the process is subject to continuous improvement
Value 20%	4%	8%	12%	16%	20%
3.3 Competency based curriculum Level 5	CT curriculum is based on academic achievement and time served not on relevant job competencies	CT curriculum is based on academic achievement but describes some outcomes linked to job readiness	CT curriculum is based on demonstration of the knowledge, skills and attitudes required on the job	CT curriculum is based on nationally endorsed occupational standards that reflect job readiness and competencies	CT curriculum is based on nationally endorsed work standards that reflect job readiness, skills, and competencies and are subject to ongoing review
Value 40%	8%	16%	24%	32%	40%
Add the % to find the score	**100%**				
Divide that number by 20 to determine the level	**5**				
Occupational Standards Development Level = 5					

(4) Qualifications Framework

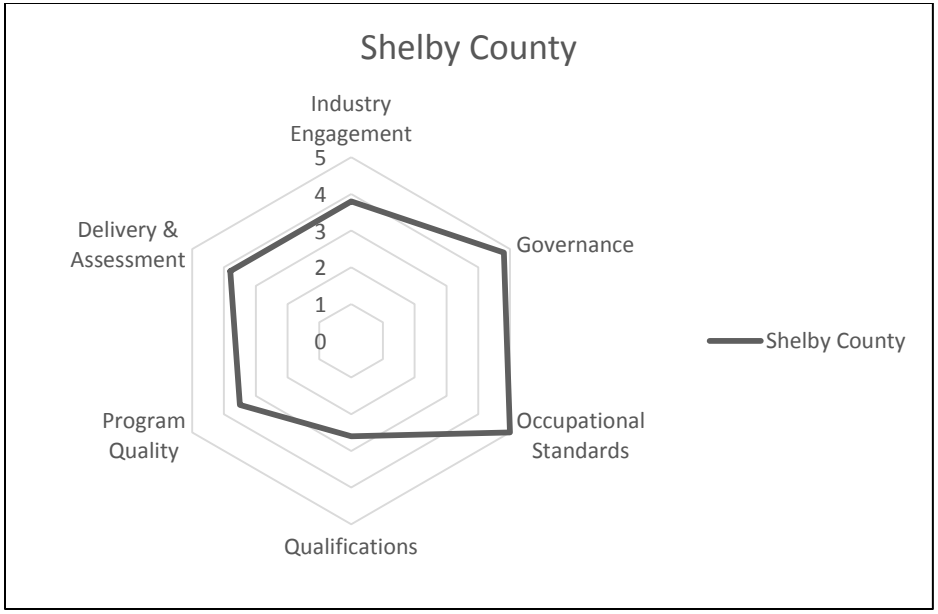
Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
4.1 Stackable Credential **Level 4**	There is no evidence of prerequisites or a framework for pre-qualifications for this CRI	There is some evidence of prerequisites or a framework for pre-qualifications for this CRI, but the organization is sporadic	There is evidence of expectations for prerequisites or a framework for pre-qualifications for this CRI	There is evidence of an integrated qualification framework that recognizes national and international qualifications for this CRI credential	There is evidence of an integrated qualification framework that recognizes national and international qualifications for this CRI and it is continuously evaluated in order to offer the most up-to-date and current credential
Value 30%	6%	12%	18%	24%	30%
4.2 Systematic and Seamless Pathway of Progression Level 2	There is no evidence of a seamless pathway of progression for this CRI	There is some evidence of an informal pathway of progression, but it is not well articulated between secondary and postsecondary entities	There is evidence of a formal pathway of progression for this CRI	There is evidence of a defined systematic and seamless pathway of progression for this CRI from secondary to postsecondary	There is evidence of a well-defined systematic and seamless pathway of progression from secondary to postsecondary for this CRI and it is continuously evaluated and updated
Value 30%	6%	12%	18%	24%	30%
4.3 Credit Transfer Agreements **Level 2**	There is no evidence of an agreement or process for the transfer of credits earned at the secondary level to postsecondary programs	There is some evidence of an informal agreement or process for the transfer of credits	There is evidence of a formal agreement for the transfer of credits, but the process is sporadic and not well defined	There is evidence of an articulated agreement for the transfer of credits, but this does not include all postsecondary programs	There is evidence of an articulated agreement for the transfer of credits earned at the secondary level to postsecondary programs with a well-defined process for the transfer of credits for this CRI
Value 40%	8%	16%	24%	32%	40%
Add the % to find the score	**52%**				
Divide that number by 20 to determine the level	**2.6**				
Qualifications Framework Development Level = 2.6					

(5) Program Quality

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
5.1 Learner Engagement Level 5	The student has a passive role in the learning process	There is some evidence of student engagement, but it is sporadic and informal	There is evidence of student engagement, and a formal process is in place to guide instruction	There is evidence of students engagement and a formal process is in place to guide instruction, but there is no monitoring for improvement	There is evidence that the student is fully engaged and guides learning, and the process is monitored in order to update and make improvements
Value 30%	6%	12%	18%	24%	30%
5.2 Work-based Learning Level 4	There is no evidence that learning is connected to the workplace	There is some evidence of work-based learning, but it is limited to videos, or classroom observations	There is evidence of work-based learning, which includes career day, job fairs, guest speakers	There is evidence of work-based learning which includes field trips and industry visits	There is evidence of well-developed work-based learning which includes job-shadowing, internship, on the job experiences
Value 30%	6%	12%	18%	24%	30%
5.3 Inter Teaching Level 1	There is no evidence of collaboration between academic and CT teachers	There is some evidence of collaboration between some academic and CT teachers, but it is sporadic and inconsistent	There is some evidence of collaboration between academic and CT teachers consistently	There is evidence that academic and CT teachers collaborate consistently, but do not team teach	There is evidence that all academic and CT teachers collaborate and team teach on a regular basis consistently
Value 20%	4%	8%	12%	16%	20%
5.4 Data Collect/Anal Level 3	There is no evidence that student data is collected and used to monitor progress	There is evidence that data is collected, but not disseminated	There is evidence that data is collected, disseminated, but the process is sporadic	There is evidence that data is collected, disseminated, but no formal use for guiding student progress	There is evidence that data is collected, disseminated, and used to monitor and guide student progress
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**70%**				
Divide that number by 20 to determine the level	**3.5**				
Program Quality Performance Level = 3.5					

(6) Delivery and Assessment

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
6.1 Teachers/Trainers Level 4	There is no evidence that T/T have formal teaching qualifications or relevant industry experience/qualifications	There is evidence that T/T have formal teaching qualifications, but no relevant industry experience/qualifications	There is evidence that T/T have minimum teaching qualifications, and some industry experience/qualifications	There is evidence that the T/T have certified teaching qualifications and relevant industry experience/qualifications	There is evidence that the T/T is a certified teacher and has current industry experience/qualification and engage in professional development for both
Value 40%	8%	16%	24%	32%	40%
6.2 Stud Support Serv Level 2	There is no evidence of the availability of student support services	There is evidence of student support services which is available on an irregular basis	There is evidence of essential student support services available on an ongoing basis	There is evidence of a range of student support services including career advice available on an ongoing basis	There is evidence of extensive range of student support services including career advice and career placement options/support
Value 20%	4%	8%	12%	16%	20%
6.3 Assessment/Guide Level 4	Assessment practices are determined on an individual or school basis	There is evidence of guidelines for assessment at a system level	There is evidence of guidelines for assessment at the system and regional level	There is evidence of guidelines for assessment at the system, regional and state level	There is evidence that assessment guidelines are based on national standards
Value 20%	4%	8%	12%	16%	20%
6.4 Valid & Moderation Level 5	There is no evidence of learning and assessment strategies being validated or moderated	There is evidence of assessment being moderated at the school level	There is evidence of processes in place for assessment moderation between schools and systems	There is evidence of processes in place for assessment moderation between systems and the state	There is evidence of assessment moderation between the state and national validation organizations
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**76%**				
Divide that number by 20 to determine the level	**3.8**				
Delivery and Assessment Performance Level = 3.8					


Shelby County
Industry Engagement
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Governance
Occupational Standards
Qualifications
Program Quality
Delivery & Assessment
Shelby County

Career Readiness Indicator Evaluation Results
March 2017

Career Readiness Indicator: ETA Basic Direct Current
Career Cluster: Manufacturing
Pathway Name: Electronics
Systems: Lawrence County

Development Level Total	Feature	Sub-Categories Development Level
Level 3.8	**(1) Industry Engagement** • Determining Skills Priority • Workforce Training • Support of Industry Partnerships • Curriculum Development	 **5** **2** **4** **3**
Level 4.8	**(2) Governance** • Defined Roles and Responsibilities • Defined Policies for Technical Skills Attainment • Defined Policies for Funding of the Career Readiness Indicator • Policies for Access and Equity	 **5** **5** **4** **5**
Level 4.8	**(3) Occupational Standards** • Incorporate Industry-Recognized Technical Standards • Incorporate Essential Knowledge and Skills • Competency Based Curriculum	 **5** **4** **5**
Level 3	**(4) Qualification Framework** • Stackable Credentials • Systematic and Seamless Pathway of Progression • Credit Transfer Agreements	 **4** **2** **2**
Level 4.1	**(5) Program Quality** • Learner Engagement • Work-based Learning • Interdisciplinary Teaching • Data Collection and Analysis	 **5** **4** **2** **5**
Level 3.2	**(6) Delivery and Assessment** • Teachers and or Trainers • Student Support Services • Assessment Guidelines • Validation and Moderation Processes	 **3** **3** **3** **4**

System: Lawrence County
Career Readiness Indicator: Electronic Basic Direct Current CRI
Date of Evaluation: March 2017

(1) Industry Engagement

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
1.1 Determining Skills Priority Level 5	There is no evidence of industry engagement with the state in determining skills priorities	There is evidence of sporadic or informal industry engagement with the state in determining skills priorities	There is evidence of some formal industry engagement with the state in determining skills priorities	There is evidence of formal contribution of industry with the state in determining skills priorities	There is evidence of ongoing consultation between industry and state CT agencies to determine and review state skill priorities, policies and CRI
Value 40%	8%	16%	24%	32%	40%
1.2 Workforce Training Level 2	There is no evidence of training delivered to CT students in the workplace or schools	There is evidence of informal workplace training delivered to CT students	There is evidence of some formal workplace training in cooperation with CT students & industry	There is evidence of formal arrangements with all relevant industry sectors and CT students	There is evidence of strong partnerships between industry, state agencies, and schools in development and delivery of workplace training for CT students
Value 20%	4%	8%	12%	16%	20%
1.3 Support of Industry Partnership Level 4	There is no evidence of provisions of financial or other support between the state and industry partners	There is evidence of limited provision of financial or other support between the state and industry partners	There is evidence of broad provision of financial or other support between the state and industry partners	There is evidence of extensive provisions of financial or other support between the state and industry partners	There is evidence of systemic provisions of financial or other support between the state and industry partners
Value 20%	4%	8%	12%	16%	20%
1.4 Curriculum Development Level 3	There is no evidence of industry contribution to the development of curriculum	There is evidence of limited industry contribution to the development of curriculum	There is evidence of a formal role for industry in the development of curriculum	There is evidence of a formal role for industry in development and validation of curriculum	There is evidence of industry's ongoing and extensive input in development, validation, and evaluation of curriculum
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**76%**				
Divide that number by 20 to determine the level of	**3.8**				
Industry Engagement Development Level = 3.8					

(2) GOVERNANCE

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
2.1 Roles and Responsibilities Level 5	There is no evidence of defined roles and responsibilities for CT stakeholders related to this CRI	There is evidence of defined roles and responsibilities for CT at the state level related to this CRI	There is evidence of defined roles and responsibilities for CT at a regional level, but with weak structures and functions; little interaction between key stakeholders	There is evidence of well-defined roles and responsibilities for CT at a system/school level with established mechanisms for stakeholder involvement	There is evidence of a 'whole of government' approach to CT with defined roles and responsibilities for all stakeholders at local, system, regional and state level related to this CRI
Value 30%	6%	12%	18%	24%	30%
2.2 Technical Skills Attainment Level 5	There is no evidence of defined development of policies/strategies for technical skills attainment for this CRI	There is evidence of policies/strategies for technical skills attainment at the state level for this CRI	There is evidence of implementation of state policies/strategies at the regional level of technical skills attainment for this CRI	There is evidence of implementation of technical skills attainment extended to the system/school level for this CRI	There is evidence of well-developed policies/strategies for technical skills attainment at all levels (local, system, region, & state) for this CRI
Value 30%	6%	12%	18%	24%	30%
2.3 Funding Support Level 4	There is no evidence of a defined policy to support funding for this CRI	There is evidence of a defined policy to support funding at a state level for this CRI	There is evidence of a defined policy at the state and regional to support funding for this CRI	There is evidence of a defined policy at the state, regional, and system/local level for funding this CRI	There is evidence of a well-defined policy at all levels to support the initial funding and continued support for this CRI
Value 20%	4%	8%	12%	16%	20%
2.4 Access and Equity Level 5	There is no evidence of policies to guarantee access and equity within CT for this CRI	There is evidence of defined policies for access and equity at the state level within CT for this CRI	There is evidence of defined policies at the state and regional level for access/equity within CT for this CRI	There is evidence of defined policies at the state, region, and system/local level within CT for this CRI	There is evidence of well-defined policies at all levels to guarantee access and equity for all stakeholders within CT for this CRI
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**96%**				
Divide that number by 20 to determine the level	**4.8**				
Governance Development Level = 4.8					

(3) Occupational Standards

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
3.1 Incorporate industry-recognized technical standards Level 5	There is no evidence for alignment to industry-recognized technical standards	There is evidence of limited alignment to industry-recognized technical standards	There is evidence of alignment to industry-recognized technical standards, but limited or sporadic implementation	There is evidence of alignment with current industry-recognized technical standards, but no formal process for obtaining an industry recognized credential/certificate	There is evidence of alignment with current industry-recognized technical standards leading to an industry recognized credential/certificate
Value 40%	8%	16%	24%	32%	40%
3.2 Incorporate essential knowledge and skills Level 4	There is no evidence of structure or process to incorporate essential knowledge and skills	There is evidence of limited structure or process to incorporate essential knowledge and skills	There is evidence of structure or process to incorporate essential knowledge and skills but limited implementation	There is evidence of a coordinated approach, structure and process which incorporate essential knowledge and skills and is being accessed by CT students	There is evidence of a coordinated approach, structure and process which incorporate essential knowledge and skills, CT students engage in application of skills; the process is subject to continuous improvement
Value 20%	4%	8%	12%	16%	20%
3.3 Competency based curriculum Level 5	CT curriculum is based on academic achievement and time served not on relevant job competencies	CT curriculum is based on academic achievement but describes some outcomes linked to job readiness	CT curriculum is based on demonstration of the knowledge, skills and attitudes required on the job	CT curriculum is based on nationally endorsed occupational standards that reflect job readiness and competencies	CT curriculum is based on nationally endorsed work standards that reflect job readiness, skills, and competencies and are subject to ongoing review
Value 40%	8%	16%	24%	32%	40%
Add the % to find the score	**96%**				
Divide that number by 20 to determine the level	**4.8**				
Occupational Standards Development Level = 4.8					

(4) Qualifications Framework

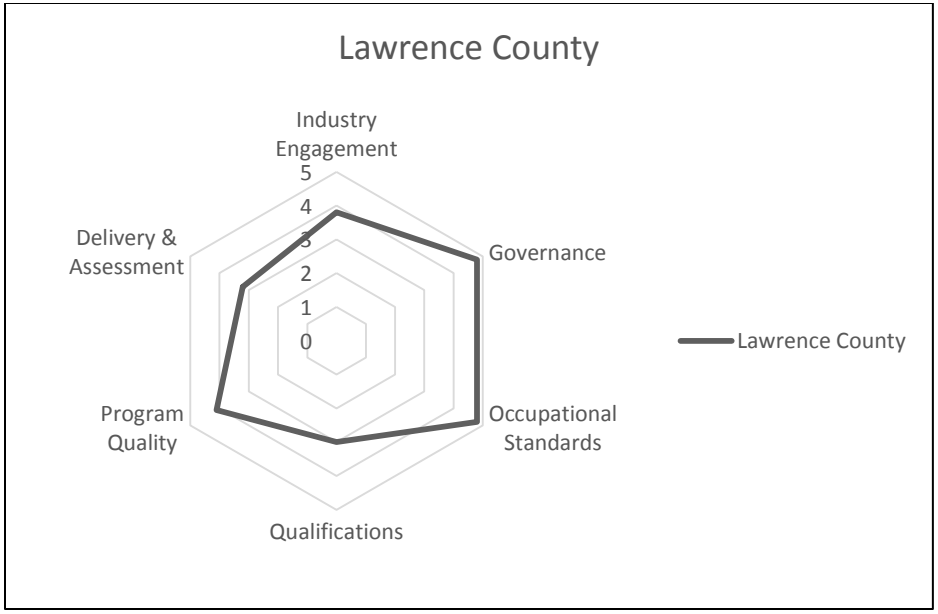
Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
4.1 Stackable Credential **Level 4**	There is no evidence of prerequisites or a framework for pre-qualifications for this CRI	There is some evidence of prerequisites or a framework for pre-qualifications for this CRI, but the organization is sporadic	There is evidence of expectations for prerequisites or a framework for pre-qualifications for this CRI	There is evidence of an integrated qualification framework that recognizes national and international qualifications for this CRI credential	There is evidence of an integrated qualification framework that recognizes national and international qualifications for this CRI and it is continuously evaluated in order to offer the most up-to-date and current credential
Value 30%	6%	12%	18%	24%	30%
4.2 Systematic and Seamless Pathway of Progression Level 2	There is no evidence of a seamless pathway of progression for this CRI	There is some evidence of an informal pathway of progression, but it is not well articulated between secondary and postsecondary entities	There is evidence of a formal pathway of progression for this CRI	There is evidence of a defined systematic and seamless pathway of progression for this CRI from secondary to postsecondary	There is evidence of a well-defined systematic and seamless pathway of progression from secondary to postsecondary for this CRI and it is continuously evaluated and updated
Value 30%	6%	12%	18%	24%	30%
4.3 Credit Transfer Agreements **Level 2**	There is no evidence of an agreement or process for the transfer of credits earned at the secondary level to postsecondary programs	There is some evidence of an informal agreement or process for the transfer of credits	There is evidence of a formal agreement for the transfer of credits, but the process is sporadic and not well defined	There is evidence of an articulated agreement for the transfer of credits, but this does not include all postsecondary programs	There is evidence of an articulated agreement for the transfer of credits earned at the secondary level to postsecondary programs with a well-defined process for the transfer of credits for this CRI
Value 40%	8%	16%	24%	32%	40%
Add the % to find the score	**52%**				
Divide that number by 20 to determine the level	**2.6**				
Qualifications Framework Development Level = 2.6					

(5) Program Quality

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
5.1 Learner Engagement Level 5	The student has a passive role in the learning process	There is some evidence of student engagement, but it is sporadic and informal	There is evidence of student engagement, and a formal process is in place to guide instruction	There is evidence of students engagement and a formal process is in place to guide instruction, but there is no monitoring for improvement	There is evidence that the student is fully engaged and guides learning, and the process is monitored in order to update and make improvements
Value 30%	6%	12%	18%	24%	30%
5.2 Work-based Learning Level 4	There is no evidence that learning is connected to the workplace	There is some evidence of work-based learning, but it is limited to videos, or classroom observations	There is evidence of work-based learning, which includes career day, job fairs, guest speakers	There is evidence of work-based learning which includes field trips and industry visits	There is evidence of well-developed work-based learning which includes job-shadowing, internship, on the job experiences
Value 30%	6%	12%	18%	24%	30%
5.3 Inter Teaching Level 2	There is no evidence of collaboration between academic and CT teachers	There is some evidence of collaboration between some academic and CT teachers, but it is sporadic and inconsistent	There is some evidence of collaboration between academic and CT teachers consistently	There is evidence that academic and CT teachers collaborate consistently, but do not team teach	There is evidence that all academic and CT teachers collaborate and team teach on a regular basis consistently
Value 20%	4%	8%	12%	16%	20%
5.4 Data Collect/Anal Level 5	There is no evidence that student data is collected and used to monitor progress	There is evidence that data is collected, but not disseminated	There is evidence that data is collected, disseminated, but the process is sporadic	There is evidence that data is collected, disseminated, but no formal use for guiding student progress	There is evidence that data is collected, disseminated, and used to monitor and guide student progress
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**82%**				
Divide that number by 20 to determine the level	**4.1**				
Program Quality Performance Level = 4.1					

(6) Delivery and Assessment

Level 2	Level 1	Level 2	Level 3	Level 4	Level 5
6.1 Teachers/Trainers Level 3	There is no evidence that T/T have formal teaching qualifications or relevant industry experience/qualifications	There is evidence that T/T have formal teaching qualifications, but no relevant industry experience/qualifications	There is evidence that T/T have minimum teaching qualifications, and some industry experience/qualifications	There is evidence that the T/T have certified teaching qualifications and relevant industry experience/qualifications	There is evidence that the T/T is a certified teacher and has current industry experience/qualification and engage in professional development for both
Value 40%	8%	16%	24%	32%	40%
6.2 Stud Support Serv Level 3	There is no evidence of the availability of student support services	There is evidence of student support services which is available on an irregular basis	There is evidence of essential student support services available on an ongoing basis	There is evidence of a range of student support services including career advice available on an ongoing basis	There is evidence of extensive range of student support services including career advice and career placement options/support
Value 20%	4%	8%	12%	16%	20%
6.3 Assessment/Guide Level 3	Assessment practices are determined on an individual or school basis	There is evidence of guidelines for assessment at a system level	There is evidence of guidelines for assessment at the system and regional level	There is evidence of guidelines for assessment at the system, regional and state level	There is evidence that assessment guidelines are based on national standards
Value 20%	4%	8%	12%	16%	20%
6.4 Valid & Moderation Level 4	There is no evidence of learning and assessment strategies being validated or moderated	There is evidence of assessment being moderated at the school level	There is evidence of processes in place for assessment moderation between schools and systems	There is evidence of processes in place for assessment moderation between systems and the state	There is evidence of assessment moderation between the state and national validation organizations
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**64%**				
Divide that number by 20 to determine the level	**3.2**				
Delivery and Assessment Performance Level = 3.2					


Lawrence County
Industry Engagement
5
4
3
2
1
0
Governance
Occupational Standards
Qualifications
Program Quality
Delivery & Assessment
Lawrence County

Career Readiness Indicator Evaluation Results
March 2017

Career Readiness Indicator: ETA Basic Direct Current
Career Cluster: Manufacturing
Pathway Name: Electronics
Systems: Cherokee County

Development Level Total	Feature	Sub-Categories Development Level
Level 3	**(1) Industry Engagement** • Determining Skills Priority • Workforce Training • Support of Industry Partnerships • Curriculum Development	 **4** **3** **3** **1**
Level 5	**(2) Governance** • Defined Roles and Responsibilities • Defined Policies for Technical Skills Attainment • Defined Policies for Funding of the Career Readiness Indicator • Policies for Access and Equity	 **5** **5** **5** **5**
Level 4	**(3) Occupational Standards** • Incorporate Industry-Recognized Technical Standards • Incorporate Essential Knowledge and Skills • Competency Based Curriculum	 **5** **4** **3**
Level 2.6	**(4) Qualification Framework** • Stackable Credentials • Systematic and Seamless Pathway of Progression • Credit Transfer Agreements	 **4** **2** **3**
Level 2.6	**(5) Program Quality** • Learner Engagement • Work-based Learning • Interdisciplinary Teaching • Data Collection and Analysis	 **2** **4** **1** **3**
Level 3	**(6) Delivery and Assessment** • Teachers and or Trainers • Student Support Services • Assessment Guidelines • Validation and Moderation Processes	 **4** **1** **3** **3**

System: Lawrence County
Career Readiness Indicator: Electronic Basic Direct Current CRI
Date of Evaluation: March 2017

(1) Industry Engagement

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
1.1 Determining Skills Priority Level 4	There is no evidence of industry engagement with the state in determining skills priorities	There is evidence of sporadic or informal industry engagement with the state in determining skills priorities	There is evidence of some formal industry engagement with the state in determining skills priorities	There is evidence of formal contribution of industry with the state in determining skills priorities	There is evidence of ongoing consultation between industry and state CT agencies to determine and review state skill priorities, policies and CRI
Value 40%	8%	16%	24%	32%	40%
1.2 Workforce Training Level 3	There is no evidence of training delivered to CT students in the workplace or schools	There is evidence of informal workplace training delivered to CT students	There is evidence of some formal workplace training in cooperation with CT students & industry	There is evidence of formal arrangements with all relevant industry sectors and CT students	There is evidence of strong partnerships between industry, state agencies, and schools in development and delivery of workplace training for CT students
Value 20%	4%	8%	12%	16%	20%
1.3 Support of Industry Partnership Level 3	There is no evidence of provisions of financial or other support between the state and industry partners	There is evidence of limited provision of financial or other support between the state and industry partners	There is evidence of broad provision of financial or other support between the state and industry partners	There is evidence of extensive provisions of financial or other support between the state and industry partners	There is evidence of systemic provisions of financial or other support between the state and industry partners
Value 20%	4%	8%	12%	16%	20%
1.4 Curriculum Development Level 1	There is no evidence of industry contribution to the development of curriculum	There is evidence of limited industry contribution to the development of curriculum	There is evidence of a formal role for industry in the development of curriculum	There is evidence of a formal role for industry in development and validation of curriculum	There is evidence of industry's ongoing and extensive input in development, validation, and evaluation of curriculum
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**60%**				
Industry Engagement Development Level = 3					

(2) Governance

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
2.1 Roles and Responsibilities Level 5	There is no evidence of defined roles and responsibilities for CT stakeholders related to this CRI	There is evidence of defined roles and responsibilities for CT at the state level related to this CRI	There is evidence of defined roles and responsibilities for CT at a regional level, but with weak structures and functions; little interaction between key stakeholders	There is evidence of well-defined roles and responsibilities for CT at a system/school level with established mechanisms for stakeholder involvement	There is evidence of a 'whole of government' approach to CT with defined roles and responsibilities for all stakeholders at local, system, regional and state level related to this CRI
Value 30%	6%	12%	18%	24%	30%
2.2 Technical Skills Attainment Level 5	There is no evidence of defined development of policies/strategies for technical skills attainment for this CRI	There is evidence of policies/strategies for technical skills attainment at the state level for this CRI	There is evidence of implementation of state policies/strategies at the regional level of technical skills attainment for this CRI	There is evidence of implementation of technical skills attainment extended to the system/school level for this CRI	There is evidence of well-developed policies/strategies for technical skills attainment at all levels (local, system, region, & state) for this CRI
Value 30%	6%	12%	18%	24%	30%
2.3 Funding Support Level 5	There is no evidence of a defined policy to support funding for this CRI	There is evidence of a defined policy to support funding at a state level for this CRI	There is evidence of a defined policy at the state and regional to support funding for this CRI	There is evidence of a defined policy at the state, regional, and system/local level for funding this CRI	There is evidence of a well-defined policy at all levels to support the initial funding and continued support for this CRI
Value 20%	4%	8%	12%	16%	20%
2.4 Access and Equity Level 5	There is no evidence of policies to guarantee access and equity within CT for this CRI	There is evidence of defined policies for access and equity at the state level within CT for this CRI	There is evidence of defined policies at the state and regional level for access/equity within CT for this CRI	There is evidence of defined policies at the state, region, and system/local level within CT for this CRI	There is evidence of well-defined policies at all levels to guarantee access and equity for all stakeholders within CT for this CRI
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**100%**				
Divide that number by 20 to determine the level	**5**				
Governance Development Level = 5					

(2) Governance

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
3.1 Incorporate industry-recognized technical standards Level 5	There is no evidence for alignment to industry-recognized technical standards	There is evidence of limited alignment to industry-recognized technical standards	There is evidence of alignment to industry-recognized technical standards, but limited or sporadic implementation	There is evidence of alignment with current industry-recognized technical standards, but no formal process for obtaining an industry recognized credential/certificate	There is evidence of alignment with current industry-recognized technical standards leading to an industry recognized credential/certificate
Value 40%	8%	16%	24%	32%	40%
3.2 Incorporate essential knowledge and skills Level 4	There is no evidence of structure or process to incorporate essential knowledge and skills	There is evidence of limited structure or process to incorporate essential knowledge and skills	There is evidence of structure or process to incorporate essential knowledge and skills but limited implementation	There is evidence of a coordinated approach, structure and process which incorporate essential knowledge and skills and is being accessed by CT students	There is evidence of a coordinated approach, structure and process which incorporate essential knowledge and skills, CT students engage in application of skills; the process is subject to continuous improvement
Value 20%	4%	8%	12%	16%	20%
3.3 Competency based curriculum Level 3	CT curriculum is based on academic achievement and time served not on relevant job competencies	CT curriculum is based on academic achievement but describes some outcomes linked to job readiness	CT curriculum is based on demonstration of the knowledge, skills and attitudes required on the job	CT curriculum is based on nationally endorsed occupational standards that reflect job readiness and competencies	CT curriculum is based on nationally endorsed work standards that reflect job readiness, skills, and competencies and are subject to ongoing review
Value 40%	8%	16%	24%	32%	40%
Add the % to find the score	**80%**				
Divide that number by 20 to determine the level	**4**				
Occupational Standards Development Level = 4					

(4) Qualifications Framework

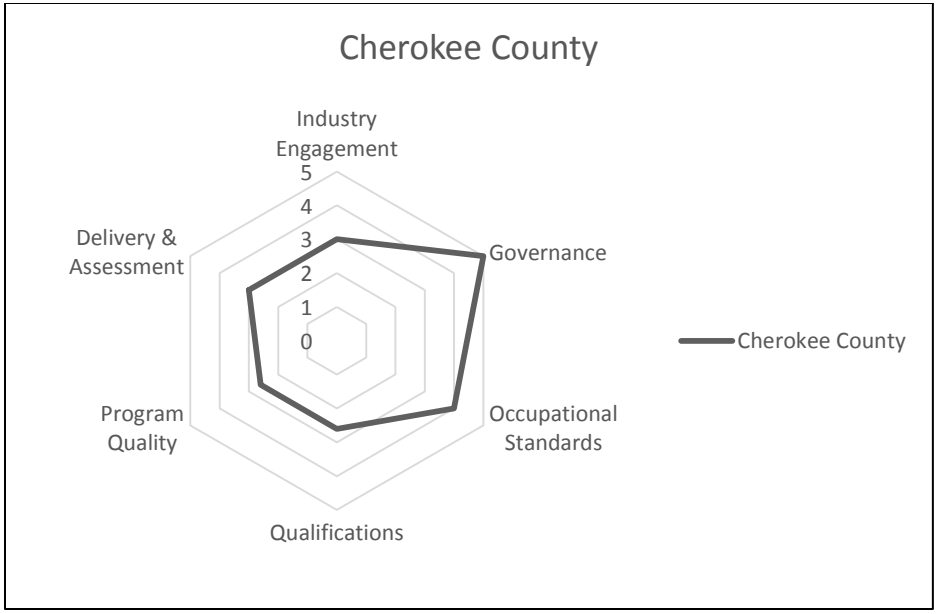
Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
4.1 Stackable Credential **Level 4**	There is no evidence of prerequisites or a framework for pre-qualifications for this CRI	There is some evidence of prerequisites or a framework for pre-qualifications for this CRI, but the organization is sporadic	There is evidence of expectations for prerequisites or a framework for pre-qualifications for this CRI	There is evidence of an integrated qualification framework that recognizes national and international qualifications for this CRI credential	There is evidence of an integrated qualification framework that recognizes national and international qualifications for this CRI and it is continuously evaluated in order to offer the most up-to-date and current credential
Value 30%	6%	12%	18%	24%	30%
4.2 Systematic and Seamless Pathway of Progression Level 2	There is no evidence of a seamless pathway of progression for this CRI	There is some evidence of an informal pathway of progression, but it is not well articulated between secondary and postsecondary entities	There is evidence of a formal pathway of progression for this CRI	There is evidence of a defined systematic and seamless pathway of progression for this CRI from secondary to postsecondary	There is evidence of a well-defined systematic and seamless pathway of progression from secondary to postsecondary for this CRI and it is continuously evaluated and updated
Value 30%	6%	12%	18%	24%	30%
4.3 Credit Transfer Agreements **Level 3**	There is no evidence of an agreement or process for the transfer of credits earned at the secondary level to postsecondary programs	There is some evidence of an informal agreement or process for the transfer of credits	There is evidence of a formal agreement for the transfer of credits, but the process is sporadic and not well defined	There is evidence of an articulated agreement for the transfer of credits, but this does not include all postsecondary programs	There is evidence of an articulated agreement for the transfer of credits earned at the secondary level to postsecondary programs with a well-defined process for the transfer of credits for this CRI
Value 40%	8%	16%	24%	32%	40%
Add the % to find the score	**60%**				
Divide that number by 20 to determine the level	**3**				
Qualifications Framework Development Level = 3					

(5) Program Quality

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
5.1 Learner Engagement **Level 2**	The student has a passive role in the learning process	There is some evidence of student engagement, but it is sporadic and informal	There is evidence of student engagement, and a formal process is in place to guide instruction	There is evidence of students engagement and a formal process is in place to guide instruction, but there is no monitoring for improvement	There is evidence that the student is fully engaged and guides learning, and the process is monitored in order to update and make improvements
Value 30%	6%	12%	18%	24%	30%
5.2 Work-based Learning Level 4	There is no evidence that learning is connected to the workplace	There is some evidence of work-based learning, but it is limited to videos, or classroom observations	There is evidence of work-based learning, which includes career day, job fairs, guest speakers	There is evidence of work-based learning which includes field trips and industry visits	There is evidence of well-developed work-based learning which includes job-shadowing, internship, on the job experiences
Value 30%	6%	12%	18%	24%	30%
5.3 Inter Teaching Level 1	There is no evidence of collaboration between academic and CT teachers	There is some evidence of collaboration between some academic and CT teachers, but it is sporadic and inconsistent	There is some evidence of collaboration between academic and CT teachers consistently	There is evidence that academic and CT teachers collaborate consistently, but do not team teach	There is evidence that all academic and CT teachers collaborate and team teach on a regular basis consistently
Value 20%	4%	8%	12%	16%	20%
5.4 Data Collect/Anal Level 3	There is no evidence that student data is collected and used to monitor progress	There is evidence that data is collected, but not disseminated	There is evidence that data is collected, disseminated, but the process is sporadic	There is evidence that data is collected, disseminated, but no formal use for guiding student progress	There is evidence that data is collected, disseminated, and used to monitor and guide student progress
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**52%**				
Divide that number by 20 to determine the level	**2.6**				
Program Quality Performance Level = 2.6					

(6) Delivery and Assessment

Sub points	Level 1	Level 2	Level 3	Level 4	Level 5
6.1 Teachers/Trainers Level 4	There is no evidence that T/T have formal teaching qualifications or relevant industry experience/qualifications	There is evidence that T/T have formal teaching qualifications, but no relevant industry experience/qualifications	There is evidence that T/T have minimum teaching qualifications, and some industry experience/qualifications	There is evidence that the T/T have certified teaching qualifications and relevant industry experience/qualifications	There is evidence that the T/T is a certified teacher and has current industry experience/qualification and engage in professional development for both
Value 40%	8%	16%	24%	32%	40%
6.2 Stud Support Serv Level 1	There is no evidence of the availability of student support services	There is evidence of student support services which is available on an irregular basis	There is evidence of essential student support services available on an ongoing basis	There is evidence of a range of student support services including career advice available on an ongoing basis	There is evidence of extensive range of student support services including career advice and career placement options/support
Value 20%	4%	8%	12%	16%	20%
6.3 Assessment/Guide Level 3	Assessment practices are determined on an individual or school basis	There is evidence of guidelines for assessment at a system level	There is evidence of guidelines for assessment at the system and regional level	There is evidence of guidelines for assessment at the system, regional and state level	There is evidence that assessment guidelines are based on national standards
Value 20%	4%	8%	12%	16%	20%
6.4 Valid & Moderation Level 3	There is no evidence of learning and assessment strategies being validated or moderated	There is evidence of assessment being moderated at the school level	There is evidence of processes in place for assessment moderation between schools and systems	There is evidence of processes in place for assessment moderation between systems and the state	There is evidence of assessment moderation between the state and national validation organizations
Value 20%	4%	8%	12%	16%	20%
Add the % to find the score	**60%**				
Divide that number by 20 to determine the level	**3**				
Delivery and Assessment Performance Level = 3					


Cherokee County
Industry Engagement
5
4
3
2
1
0
Governance
Occupational Standards
Qualifications
Program Quality
Delivery & Assessment
Cherokee County

Appendix L

Comparison of Inter-Rater Agreement

Development Level Rating

Jefferson County		Etowah County		Shelby County		Lawrence County		Cherokee County		Inter-Rater Reliability Comparison
Rater 1	**Rater 2**	**Rater 1**	**Rater 2**	**Rater 1**	**Rater 2**	**Rater 1**	**Rater 2**	**Rater 1**	**Rater 2**	
3.6	**2.8**	**3.8**	**2.8**	**3.8**	**2.2**	**3.8**	**2**	**3**	**1.4**	**1 Industry Engagement**
4	3	5	2	5	2	5	2	4	1	1.1 Skills Priority
3	4	3	4	3	3	2	2	3	2	1.2 Workforce Training
3	3	4	4	4	2	4	2	3	2	1.3 Support for Industry Partnerships
4	1	2	2	2	2	3	2	1	1	1.4 Curriculum Development
5	**2.8**	**5**	**3.4**	**4.8**	**2.3**	**4.8**	**2**	**5**	**3.2**	**2 Governance**
5	3	5	4	5	2	5	2	5	3	2.1 Defined Roles and Responsibilities
5	3	5	4	5	3	5	2	5	5	2.2 Defined Policies Tech Skills Attain
5	4	5	4	4	3	4	3	5	3	2.3 Defined Policies Funding of CRI
5	1	5	1	5	1	5	1	5	1	2.4 Policies Access and Equity
5	**2.6**	**5**	**2.6**	**5**	**3.6**	**4.8**	**3**	**4**	**3.2**	**3 Occupation Standards**
5	3	5	2	5	5	5	4	5	4	3.1 Incorporate Industry Rec Standards
5	3	5	3	5	4	4	3	4	4	3.2 Incorporate Essential Know/Skills
5	2	5	3	5	2	5	2	3	2	3.3 Competency Based Curriculum
3.4	**2.7**	**3.1**	**2.8**	**2.6**	**3**	**3**	**1.6**	**2.6**	**2**	**4 Qualification Framework**
4	3	3	1	4	4	4	3	4	3	4.1 Stackable Credentials
2	2	2	3	2	2	2	1	2	1	4.2 Systematic/Seamless Path Progress
4	3	4	4	2	3	2	1	3	2	4.3 Credit Transfer Agreement
3.9	**2.9**	**3.9**	**3.9**	**3.5**	**3**	**4.1**	**2.9**	**2.6**	**3**	**5 Program Quality**
5	3	4	4	5	4	5	3	2	2	5.1 Learner Engagement
4	4	5	5	4	4	4	4	4	4	5.2 Work-based Learning
1	2	2	2	1	1	2	2	1	2	5.3 Interdisciplinary Teaching
5	2	4	4	3	2	5	2	3	4	5.4 Data Collection and Analysis
4	**3.2**	**4.2**	**3.6**	**3.8**	**3.6**	**3.2**	**2.4**	**3**	**2.6**	**6 Delivery and Assessment**
4	4	4	4	4	5	3	2	4	4	6.1 Teachers/Trainers
3	3	3	3	2	2	3	2	1	1	6.2 Student Support Services
5	3	5	4	4	2	3	4	3	2	6.3 Assessment Guidelines
4	2	5	3	5	4	4	2	3	2	6.4 Validation/Moderation Process