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An Assessment of Student Performance in Career and Technical Education Programs and On Core Academic Subject Areas

Annie Jeanette Snow

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AN ASSESSMENT OF STUDENT PERFORMANCE IN CAREER AND TECHNICAL EDUCATION PROGRAMS AND ON CORE ACADEMIC SUBJECT AREAS

By

Annie Jeanette Snow

A Dissertation
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education
in Instructional Systems and Workforce Development
in the Department of Instructional Systems and Workforce Development

Mississippi State, Mississippi

May 2012
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By

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By

Annie Jeanette Snow

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Title of Study: AN ASSESSMENT OF STUDENT PERFORMANCE IN CAREER AND TECHNICAL EDUCATION PROGRAMS AND ON CORE ACADEMIC SUBJECT AREAS

Pages in Study: 89

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The purpose of this study was to examine the quality of career and technical education programs on high school students. Specifically, the study addressed the percentage of CTE completers meeting Carl Perkins’ placement indicators in the areas of post secondary education, employment in the field trained or related field, and the military. The study examined whether the percentage of dropout for CTE students was reduced between 2006 and 2010. The study examined whether significant differences existed between CTE participants and non-CTE participants (regular high school students) based on their scores in United States History, English II Writing, English II Multiple Choice, Biology I, and Algebra I. The study also addressed significant differences among the CTE participants in the MS-CPAS scores based on gender.

This study employed the ex post facto research design. The researcher used percentages and t-tests to determine the findings of the study. The population for the study was 675 participants. The researcher used the sample size calculator (http://www.surveysystem.com) to select representative sample size of the population
based on 95% confidence level. A systematic random sampling was used to select the 140 CTE completers and 245 non-CTE participants for the study.

Findings for the study indicated that from 2006 to 2010, CTE completers continued their education, entered the workforce, and enlisted in the military at percentages that met Carl Perkins’ accountability standards for placement. Results revealed that there was no progress made in the dropout rate for Noxubee County High School. Additional findings showed that there were no statistical significant differences between CTE completers and non-CTE participants based on test scores in the Mississippi academic core subjects that included United States History, English II Writing, English II Multiple Choice, Biology I, and Algebra I. The researcher also found that there were statistical significant differences in the MS-CPAS scores based on gender.
DEDICATION

This doctoral dissertation was dedicated in memory of my late parents, Walter Lee and Beatrice Snow; my late siblings, Annie Pearl Evans, Jimmy Dale Allen, Walter “Johnny” Snow, Elmo James Snow; and my sisters, Hattie Snow Riley and Julie Snow Little. Thanks Hattie and Julie for loving me and encouraging me in all my endeavors. Thanks Hattie for being my mother figure when mom went home to be with the Lord. This doctoral dissertation was also dedicated to my godmother, Edna Guy, for always supporting and believing me no matter what.
ACKNOWLEDGEMENTS

First, I give thanks and honor to God for granting me the strength to continue this journey especially when I felt like I could not go on. All praises and glory go to Him.

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I want to thank the Noxubee County School District for allowing me to use district’s data to complete my research. Thanks to my faculty and staff at the Noxubee County Career and Technical Center for their support, especially my secretary, Norma Latham for keeping my office running smoothly in my absences. Thanks go to Khristy Franklin for constantly claiming victory for me in the name of Jesus.

I want to express gratitude to my friend and fellow administrator, Dr. Patty Johnson Scott. Thanks to Dr. Scott for helping me get started on my proposal and encouraging me to keep the faith. To the ladies of Zeta Lambda Sigma Chapter of Sigma Gamma Rho Sorority, Inc. thank you for supporting me in this effort, especially, Verlinda Calvert, Dr. Tilda V. Neal, Jackie Washington, and Mary Kelly for their support. My appreciation goes to my cousin, Charlate Teague for her encouragement and
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CHAPTER I
INTRODUCTION

In the United States, living the American dream often included the following: home ownership, having children, and a career. However, many Americans do not live the American dream. One of the factors that had adversely impacted the American dream was the lack of marketable and employability skills. Many jobs were lost in the United States and were moved to other countries causing some American businesses and industries to close (Miller, 2008). Loss of jobs through out-sourcing led to unemployment, thereby making it unlikely for some people to live the American dream.

America’s workforce was facing a problem with workplace readiness (Bray, 2010; Hyslop, 2008). Workplace readiness skills included skills such as communication skills, interpersonal skills, self-management skills, technology skills, and technical skills (Kister, 2004). Lack of workplace readiness was often referred to as a skills gap. The American Society for Training and Development (ASTD) Public Policy Council (2006) stated that a skills gap was “a significant gap between an organization’s skill needs and the current capabilities of its workforce” (p. 3). There were implications when organizations experience a skills gap. Workers lacking workplace readiness skills have hampered the growth and success of businesses and industries. The National Association of Manufacturers (NAM; 2005) contended that the skills gap negatively impacted productivity and the ability of any business or industry to compete in a global economy. Over 50% of the 800 manufacturers who participated in the survey indicated that 10% of
the total positions available remained open because of the lack of qualified candidates (NAM, 2005). The areas that had the most shortage of qualified workers were machinist, operators, craft workers, distributors, and technicians (NAM, 2005). According to ASTD Public Policy Council (2006), four major factors contributed to the skills gap: demand for higher skilled workers, slow workforce growth, education not keeping pace with changes in the workforce, and lack of sound business investments.

Galagan (2009) reported the current recession, the web, and Net Generation as contributing factors to the skills gap or lack of workplace readiness. The Net Generation were those people born between January 1977 and December 1997 and have had access to computers and various technologies all of their lives. The Net Generation made up 27% of America’s population and was more advanced in digital technology, interactive media, and collaboration than previous generations (Galagan, 2009). Bringing the previous generation’s technology skills up to the Net Generation’s skills was considered vital in bridging the skills gap (Galagan, 2009). Galagan (2009) concluded that the skills gap will be even greater by 2013. According to the research, one of the best ways to bridge the skills gap and improve workplace readiness was education (ASTD Public Policy Council, 2006; Bray, 2010; Herzek, 2008; Hyslop, 2008; Martinez, 2005; NAM, 2005). Martinez (2005) indicated that educators needed to place more emphasis on science, math, technology, and career education. Career and Technical Education (CTE) was considered one of the ways in which schools could prepare students to have a successful career. CTE programs were an important part of the United States education system and were essential to the ability of the United States to compete in a global economy (Herzek, 2008; Kister, 2004). CTE components included academic, technical, and workplace readiness standards. CTE could provide high school graduates with the
foundations needed to compete in the workplace (Bronson, 2007; Hyslop, 2008).

Students enrolled in CTE programs could receive the training and knowledge needed in
the workforce or post secondary education. Students were prepared by CTE programs for
a variety of challenging fields in diverse subject areas which were always changing due
to the changing global economy (Association of Career and Technical Education
[ACTE], 2010). Mississippi’s CTE clusters included; (a) Agricultural Sciences; (b) Business: Management, Marketing, and Technology; (c) Construction and Manufacturing; (d) Science, Technology, Engineering, and Mathematics; (e) Health and Human Services; and (f) Transportation (Mississippi Department of Education [MDE], 2010). All clusters were designed to prepare students to enter the workforce at entry level positions or articulate into post secondary education in the career path of their choice.

Hyslop (2008) contended that CTE provided challenging programs for students to show that they have what businesses and industries desire in employees. Hyslop (2008) stated that CTE programs played an important role in workplace readiness by helping students apply skills, providing opportunities for preparation and assessment, and providing a link with business and industry. CTE provided a window of opportunity to address issues such as dropouts, workplace readiness, and transition from secondary to post-secondary education (Bray, 2010; Harris & Wakelin, 2007; Kister, 2004).

CTE educators were vital in preparing students for the workplace. CTE educators’ knowledge, skills, training, and perception were important in students being successful in his or her career choice. According to Whitaker (2008), “CTE educators engage in such diverse activities as working on advisory committees, referring students for job placements, having employers make presentations to students in class, having
students visit employer work sites, and discussing workplace skill requirements with representatives from business and industry” (p. 2). Career counselors worked closely with parents and students to provide information on career and education options.

Throughout the history of CTE, significant legislation has been established to support and enhance the objectives of career and technical education. The most recent legislation to support CTE was the No Child Left Behind Act of 2001 (NCLB) and The Carl Perkins Act of 2006 (MDE, 2008b). NCL, signed by President Bush, required all states to implement an accountability system for all schools and students (NCLB, 2001). The Carl Perkins Act of 2006 provided funds to schools to implement and improve CTE programs, support career development for students, research for best practices in CTE, and provided professional development for educators. The Carl Perkins Act of 2006 provided increased accountability to secondary CTE programs. The Carl Perkins Act of 2006 implemented the following indicators for CTE programs, (a) academic attainment in reading/language arts, (b) academic attainment in mathematics, (c) technical skill attainment in the career and technical state assessment, (d) secondary school completion, (e) student graduation rate, (f) secondary placement data, (g) nontraditional participation, and (h) nontraditional completion (MDE, 2011). These indicators were a determining factor in the success or failure of CTE programs.

CTE programs at Noxubee County Career and Technical Center included the following; (a) an allied health program that introduced the students to careers available in the health field, basic anatomy and physiology, and basic patient care skills, (b) the automotive service technology program prepared students for entry-level employment positions in the automotive repair and service industry or for entry into a post secondary automotive technology program, (c) the building trades program prepared individual for

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employment or continued education in the occupations of carpentry, electrical wiring, masonry, or plumbing, (d) the business computer technology program was designed to educate, train, and provide guidance for secondary vocational students who seek to develop the knowledge, skills, and behavioral characteristics necessary for successful entry-level employment in office occupations for the 21st Century, (e) metal trades was designed as a cluster program for preparation to enter the metal working trades, and (f) technology applications was designed to provide students with "hands-on" experiences related to the application of technology education and engineering concepts in the workplace. It was logical to assume that CTE could be used to address the skills gap and enhance workplace readiness. CTE students were challenged and encouraged by real-world learning opportunities. Partnerships were developed among CTE, businesses and industries to ensure that CTE students received relevant skills so that students can compete in the job market. Numerous claims have been made for CTE programs. For instance, it was claimed that through CTE programs students could secure employment more quickly than non-CTE students. According to Reese (2010), “hands-on training is an important element of the CTE classroom, and when that occurs in an actual workplace setting, it may be called internship, apprenticeship or cooperative education” (p. 17). Reese (2010) stated that internships, apprenticeships, and/or cooperative education were ways to prepare students for high-growth industries such as health care, renewable energy, food service, and technology. It was also believed that CTE programs could help reduce school dropout and increase transition from high school to post high school. Reese (2005) noted that The National Dropout Prevention Center recognized that internships, apprenticeships, cooperative education, job shadowing, school-to-career programs, and mentoring through CTE were positive initiatives to keeping students in
school. CTE provided students with an opportunity to interact with employers in businesses and industries, college representatives, and community leaders. The foundation and guidance such as employability readiness skills, technical skills, and academic skills needed by people to make wise career choices and decisions are provided through CTE. Those who obtained more marketable employability skills were able to gain employment and live the American dream.

Research indicated that in America the workforce lacked the employability skills to keep America’s businesses and industries competitive in the global economy (Bray, 2010; Miller, 2008). Many businesses and industries were experiencing a skills gap. Galagan (2009) contended that changing jobs and lagging schools in preparing students for the workforce were two causes for the skills gap in the United States. A survey of over 200 employers in the areas of manufacturing, financial services, government, and non-fit organizations indicated that newly-hired high school and college graduates were not prepared for the workforce (Galagan, 2009). Newly-hired graduates lacked workplace skills and were provided readiness training. The Secretary's Commission on Achieving Necessary Skills (SCANS; 1991) found that many American youths were unprepared for entry-level jobs. These young people left school without the skills and foundation knowledge that were necessary to be successful in the job market. Research indicated that CTE was important in students’ workplace success and increasing the strength of the economy (ACTE, 2008; Castellano, Stringfield, & Stone, 2001; Herzek, 2008). A considerable amount of research has been collected on CTE and employability skills. However, further research would be beneficial to school leaders in Noxubee County, Mississippi.
Statement of the Problem

CTE was considered to be valuable in preparing students for the workforce and keeping the United States competitive in a global economy (Hyslop, 2008). It was important to periodically ascertain whether CTE completers found employment or advanced to post-secondary education. Empirical research was needed to show the impact of CTE and to help school leaders make decisions about CTE programs as to whether they should be continued, improved, expanded, or discontinued (Graham, Kacirek, & Nafukho, 2009). Therefore, the problem of this study was that the claims made for CTE programs based on Carl Perkins’ status indicators which were that CTE completers should continue their education (post secondary education), secure employment in the field trained or related field or go into the military had not been addressed or examined through scientific data collection. Specifically, this study was used to determine the percentage of CTE completers who had employment in the field of training or related area as well as those who transitioned into post-secondary education or went into the military. The study examined whether the percentage of dropout for CTE students was reduced between 2006 and 2010. This study was also used to determine whether significant differences existed between CTE participants and non-CTE participants (regular high school students) based on their scores in United States History, English II Writing, English II Multiple Choice, Biology I, and Algebra I. The study equally examined if there were significant differences among the CTE participants in the MS-CPAS scores based on gender.

Research Questions

The following research questions guided the study:
1. What was the percentage of CTE completers from Noxubee County School District who met the Carl Perkins placement status indicators of post-secondary education, employment in field trained or related field, or the military?

2. What was the rate of dropout for both CTE participants and non-CTE participants (regular high school students) from 2006-2010?

3. Did statistically significant differences exist between CTE participants and non-CTE participants (regular high school students) based on their scores in United States History, English II Writing, English II Multiple Choice, Biology I, and Algebra I?

4. Did statistically significant differences exist among the CTE participants in the Mississippi Career Planning Assessment System (MS-CPAS) scores based on gender?

Significance of the Study

The primary purpose of this study was to determine whether CTE could assist in improving students’ employability readiness skills, reducing the dropout rate, and increasing the rate of transition to post secondary institutions. Employers were seeking workers who possessed technical skills, communication skills, employability skills, and high reading and writing skills. Over 73% of employers reported rigid conditions when seeking qualified employees (NAM, 2005). There was a skills gap in American businesses and industries (Galagan, 2009; Hyslop, 2005; NAM, 2005). The skills gap was caused by poor training of workers and watered down educational curriculums. The lack of qualified workers has caused a negative impact on the local, state, and national economy. The federal government, state agencies, and local school district have invested
funds into CTE programs to improve student achievement and prepare them for a successful future.

The purpose of the study was to assess the quality of the CTE programs at Noxubee County Career and Technical Center to determine relevance of the programs in terms of providing students with workplace readiness skills, reducing the dropout rate, and transitioning students into post secondary education. Therefore, this study was used to contribute to the current literature to determine whether CTE positively impacts employability readiness skills, dropout rates, and post secondary educational transitions. The findings would provide the local school district’s superintendent and school board members with information on CTE programs’ accountability, program improvement, teacher accountability, and professional development needs for CTE educators. This study would be of value to the MDE Office of Career and Technical Education and Workforce Development in assessing CTE program standards and making sure that money invested in CTE programs was well spent.

**Limitations**

The study examined only one public high school in the northeast Mississippi area of the state. This study was limited to African-American graduates from a rural, high-poverty school district that involved CTE students and non-CTE students from 2006 through 2010.

**Definition of Terms**

For the purpose of this study, the researcher has provided definitions for the following terms used in the study.
Accountability: A process whereby data based measures was used to provide information on institutional performance. (MDE, 2008)

Articulation: The bringing together of the various parts (level) of the educational system to facilitate the smooth transition of students through the system. (MDE, 2008)

Career Pathway: A coherent and articulated sequence of rigorous academic and career technical courses commencing in the ninth grade and leading to an associate degree and/or baccalaureate degree or industry certification (Whitaker, 2008).

CTE: The Carl Perkins Act (2006) defined career and technical education as “an organized educational activities that offer a sequenced of courses that provides individual with coherent and rigorous content which is aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in current or emerging professions” (The Carl Perkins Act of 2006, p. 1).

CTE Secondary Completer: CTE students who have completed a two-year CTE program (MDE, 2008).

Carl Perkins Placement Indicator: The placement indicator used to measure the effectiveness of CTE programs on the number of CTE completers placed in the categories of employment, military, and advanced education (MDE, 2011).

Employed persons: Persons 16 years and over in the civilian non-institutional population who, during the reference week, (a) did any work at all (at least 1 hour) as paid employees, worked in their own business, profession, or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family, and (b) all those who were not working but who had jobs or businesses from which they were temporarily absent because of vacation, illness, bad weather, childcare problems, maternity or paternity leave, labor-management dispute, job training, or other
family or personal reasons, whether or not they were paid for the time off or were seeking other jobs (Mississippi Department of Employment Service [MDES], 2010).

*Employer*: Persons and businesses that employ one or more people for wages or salary; the legal entity responsible for payment of quarterly unemployment insurance taxes or for reimbursing the state fund for unemployment insurance benefits costs in lieu of paying the quarterly taxes (MDES, 2010).

*Mississippi Career Planning and Assessment System (MS-CPAS)*: The state’s career and technical testing program. The purpose of MS-CPAS Occupational-Specific Test was to assess the performance of local CTE programs, as required by the Carl Perkins Vocational and Technical Act of 1998, in producing students with essential occupation specific knowledge by assessing students with both critical thinking and knowledge level questions (MDE, 2008).

*Skills Gap*: The ASTD Public Policy Council (2006) stated that a skills gap was “a significant gap between an organization’s skill needs and the current capabilities of its workforce” (ASTD Public Policy Council, 2006, p. 1).

*Mississippi Subject Area Test Program (MS-SATP)*: The Mississippi Subject Area Tests consist of end-of-course, criterion-referenced tests in algebra I, biology I, English II, and United States history from 1877. The MS-SATP provided a meaningful assessment of secondary academic content tied to the state’s content standards and promoted instructional strategies integrating both content and problem solving. The MS-SATP was a high school graduation requirement for Mississippi’s public high schools (MDE, 2005).

*Unemployed Persons*: Persons 16 years and over who had no employment during the reference week, were available for work, except for temporary illness, and had made
specific efforts to find employment sometime during the 4-week period ending with the reference week. Persons who were waiting to be recalled to a job from which they had been laid off need not have been looking for work to be classified as unemployed (MDES, 2010).

*Unemployment Rate:* The unemployment rate represented the number unemployed as a percent of the labor force (MDES, 2010).

*Workplace Readiness Skills:* Skills such as communication skills, interpersonal skills, self-management skills, technology skills, and technical skills (Kister, 2004).
CHAPTER II
REVIEW OF RELATED LITERATURE

This study addressed the quality of career and technical education programs on high school students. This chapter began with the historical foundation and legislation of career and technical education. The chapter also discussed workplace readiness, post secondary education transition, and the issue of high school dropout rates. The chapter concluded with information on local CTE programs and information related to CTE educators.

**Historical Foundation of Career and Technical Education**

For over 200 years, the American workforce education strived to produce workers that were well prepared to meet workplace standards. Vocational education (now career and technical education) in the United States could be traced to colonial days. During colonial times, there was no free formal education system. Poor people usually sent their children to masters to obtain a craft by way of indenture servitude. Children of wealthy people were usually sent to private religious schools. Boys and girls of poor families were both indentured. Boys were indentured for seven years and girls were indentured for four years. Boys and girls entered indentured servitude about the age of 14 (Stout, 2007). These indentured servants learned various trades taught by their masters. In colonial times, indenture servants also helped their masters with chores such as gardening and taking care of farm animals. Formal education was provided at the discretion of the master (Stout, 2007). Indentured services had two purposes; (1) help the poor, and (2)
punishment for idleness (Stout, 2007). According to Stout (2007), “A positive aspect of this system was that it served as a state form of supervised training in various trades while providing a basic liberal education of morals and ethics” (p. 3). The work of the masters and young indentured servants was considered early apprenticeships (Jacoby, 2010; Stout, 2007).

The first education law passed was the Old Deluder Satan Act of Massachusetts Bay Colony. The Old Deluder Satan Act mandated masters of various crafts to teach apprentices academic and vocational skills (Castro, n.d.). One of the earliest forms of vocational education in the United States was in the form of apprenticeship programs (Gordon, 2003). An apprenticeship program was an employment system by which persons acquire skills taught by an experienced practitioner or craft worker (Stout, 2007). According to Wonacott (2003), early apprenticeship programs provided young apprentices with five elements: (a) food, clothing, and shelter; (b) religious instruction; (c) general education; (d) instruction in trade or occupation; and (e) understanding of the trade areas. These crafts or trades could have been farming, blacksmithing, or carpentry just to name a few. Today’s apprenticeship programs train apprentices at the job site and in the classroom, pay wages, work regular hours, and apprentices live in their own homes. Apprentices earned a certificate of completion that served as proof of their skills or craft. According to the Bureau of Labor Statistics in the United States Department of Labor (2010), government, labor unions, and employers were working together to promote the standards of the American apprenticeship system. Apprenticeships were considered to be a major form of work-based learning. Apprenticeship programs started to decline by the 1880s (Stout, 2007). As apprenticeships declined, other ways of transmitting knowledge and skills emerged.
The ways of early apprenticeships started to decline in wake of the American Industrial Revolution (1789-1880). The American Industrial Revolution started with Sam Slater who sailed to the United States in 1789 from Britain. Sam Slater received apprenticeship training in Britain and applied his skills and knowledge in America (http://www.answers.com/topic/samuel-slater). Sam Slater worked with other craft workers to improve and invent machines. The work of Sam Slater in the textile industry was the foundation for other factories and industries (http://www.answers.com/topic/samuel-slater).

According to Stout (2007), the arrival of the American Industrial Revolution affected the apprenticeship system by depriving apprentices the full attention of their masters, and master saw more machine invented that would lessen the need for their trade. However, the American Industrial Revolution did have a positive impact on the American economy and education. Pierce (2008) stated that “The positive effects in the way of education were big ones, children were beginning to have laws that stated that school was required for a certain amount of time and the ability to become a skilled worker went up for many individual and children of the time” (p. 1). The American economy was improved by the American Industrial Revolution by the expansion of transportation, electricity, and the speed of the industry production (Kelly, n.d.). Other results of the American Industrial Revolution included increased inventions of equipment and machines, increased in factory jobs especially for women, and the invention of the stock market.

In 1862, the United States government passed the Morrill Act. The Morrill Act ensured public land to each state as a permanent endowment for a college that would place importance on agriculture and mechanical art for all students. The schools were
known as A&M colleges. After the Morrill Act, vocational education subjects began to be taught at the high school level. This move was initiated by Professor Calvin Woodward. Calvin Woodward was a professor at Saint Louis’s Washington University. He found that his students lacked skills in the use of simple tools. He ultimately persuaded secondary schools to integrate training in carpentry, drafting, bricklaying, home economics, printing, and machine work into the curriculum. Calvin Woodward’s goal was to bridge the gap between theories and practice (Heil, n.d.). The Manual Training School for boys was opened in St. Louis in 1879 by Calvin Woodward. According to Westerink (n.d.), another one of Woodward’s goals was to bring a connection between knowledge and doing. Woodward was an advocate for bringing education and labor demands of modern society. As more school instituted the Manual Training School Curriculum, the support continued to grow for Woodward’s ideas. By the early 1900s, over 100 cities included the Manual Training School’s curriculum. After the closing of the Manual Training School in later years, the impact of its curriculum was still great. The training became centered on specific subjects in schools, and this was a major contribution to vocational education in secondary education in the United States (Westerink, 2010).

In 1890, Congress enacted a second Morrill Act that would ensure equity of educational for all races. Therefore, higher education institutions were developed for African-Americans (Stout, 2007). One of the earliest formal vocational technical training institutions for African-Americans was the Hampton Normal and Agricultural Institute. Brigadier General Samuel Armstrong opened the school April 1, 1868. The sole purpose of the Hampton Normal School was to train African-American young people to work for the industrial system, become skilled workers, and be self-supportive (Hampton
Students gained trade skills and industrial skills. These skills were used to obtain work to pay for their schooling at Hampton Normal School. In the early 1870s, the school was growing and attracting people from across the United States (Hampton University, n.d.). It was around the 1870s that Booker T. Washington became a student at Hampton Normal School. He paid for his expenses by working at the school. At the young age of 25, Booker T. Washington was recruited by Samuel Armstrong to head the Tuskegee Institute in 1881 in Alabama. By 1930, Hampton Normal School was Hampton Institute – a college. After much success through the earlier years, the college experience problems brought on by the Great Depression. Budget cuts, low enrollment, and dismissal of teachers became the norm for Hampton Institute. However, after World War II the finances of the school were greatly improved. Hampton Institute became a war training facility.

In 1917, the Smith-Hughes act was enacted to provide federal funding for vocational education. According to Wonacott (2003), the Smith-Hughes Act of 1917 provided more funds for vocational education in the area of agriculture, trades and industry, home economics, and teacher training for each area. The Smith-Hughes Act of 1917 established a separate state board for vocational education than regular education. Other separations included separate funding, teacher preparation, certification, students, and curriculum. Through the Smith-Hughes Act (1917), a federal board for vocational education was developed. Charles Prosser was the first federal commissioner for vocational education (Wonacott, 2003). Charles Prosser was considered the father of vocational education in the United States. He became the secretary for the National Society for the Promotion of Industrial Education (Wonacott, 2003). He believed that everyone could benefit from vocational education and it should be taught in all high
schools. As secretary, Prosser helped passed legislation for vocational education. He led the Dunwoody Industrial Institute from 1915-1945. He was the institution’s first director.

The Dunwoody Industrial Institute founded by William Hood Dunwoody was an educational institution that any student could attend and develop a trade or craft. Charles Prosser was well known for his sixteen theorems for vocational education. Processors theorems were used to build the foundation of vocational education and CTE as we know it today. Table 2.1 listed Prosser’s Sixteen Theorems of Vocational Education (Georgia Agriculture Education Curriculum Office, 2002, pp. 3-18).

Table 2.1 Prosser’s Sixteen Theorems of Vocational Education

<table>
<thead>
<tr>
<th>Theorem 1: Work Environment</th>
<th>Vocational education will be efficient in proportion as the environment in which the learner is trained is a replica of the environment in which he must subsequently work.</th>
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<tbody>
<tr>
<td>Theorem 2: Industry Standards</td>
<td>Effective vocational training can only be given where the training jobs are carried on in the same way, with the same operations, the same tools, and the same machines as in the occupation itself.</td>
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<tr>
<td>Theorem 3: Work Habits</td>
<td>Vocational education will be effective in proportion as it trains the individual directly and specifically in the thinking habits and the manipulative habits required in the occupation itself.</td>
</tr>
<tr>
<td>Theorem 4: Individual Needs</td>
<td>Vocational education will be effective in proportion as it enables each individual to capitalize on his interests, aptitudes, and intrinsic intelligence to the highest degree.</td>
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<tr>
<td>Theorem 5: Elective</td>
<td>Effective vocational education for any profession, trade, occupation, or job can only be given to the selected group of individuals who need it, want it, and are able to profit by it.</td>
</tr>
<tr>
<td>Theorem 6: Gainful Employment</td>
<td>Vocational training will be effective in proportion as the specific training experiences for forming right habits of doing and thinking are repeated to the point that these habits become fixed to the degree necessary for gainful employment.</td>
</tr>
<tr>
<td>Theorem 7: Craftsperson Teacher</td>
<td>Vocational education will be effective in proportion as the instructor has had successful experiences in the application of skills and knowledge to the operations and processes he undertakes to teach.</td>
</tr>
<tr>
<td>Theorem 8: Performance Standards</td>
<td>For every occupation there is a minimum of productive ability which an individual must possess in order to secure or retain employment in that occupation.</td>
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<td>Theorem 9: Industry Needs</td>
<td>Vocational education must recognize conditions as they are and must train individuals to meet the demands of the “market” even though it may be true that more efficient ways for conducting the occupation may be known and better working conditions are highly desirable.</td>
</tr>
<tr>
<td>Theorem 10: Actual Jobs</td>
<td>The effective establishment of process habits in any learner will be secured in proportion as the training is given on actual jobs and not on exercises or pseudo jobs.</td>
</tr>
<tr>
<td>Theorem 11: Content from Occupation</td>
<td>The only reliable source of content for specific training in an occupation is in the experiences of masters of that occupation.</td>
</tr>
<tr>
<td>Theorem 12: Specific Job Training</td>
<td>For every occupation there is a body of content which is peculiar to that occupation and which practically has no functioning value in any other occupation.</td>
</tr>
<tr>
<td>Theorem 13: Group Needs</td>
<td>Vocational education will render efficient social services in proportion as it meets the specific training needs of any group at the time that they need it and in such a way that they can most effectively profit by the instruction.</td>
</tr>
<tr>
<td>Theorem 14: Group Characteristics</td>
<td>Vocational education will be socially efficient in proportion as in its methods of instruction and its personal relations with learners it takes into consideration the particular characteristics of any particular group which it serves.</td>
</tr>
<tr>
<td>Theorem 15: Dual Administration</td>
<td>The administration of vocational education will be efficient in proportion as it is elastic and fluid rather than rigid and standardized.</td>
</tr>
<tr>
<td>Theorem 16: Program Standards</td>
<td>While every reasonable effort should be made to reduce per capita cost, there is a minimum level below which effective vocational education cannot be given, and if the course does not permit this minimum of per capita cost, vocational education should not be attempted.</td>
</tr>
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</table>

Vocational education was not only affected by the Morrill Act and Smith-Hughes Act. There were other important laws that brought about changes in the area of funding and support for vocational education. Those laws included the George Reed Act of 1929,
George Elzy Act of 1934, and the George Deen Act of 1936 (Oklahoma Department of Career and Technical Education, 2005). George Reed Act of 1929 included (a) additional financial support for vocational education; (b) money was equally divided between agriculture and home economics; (c) agriculture money based on farm population; (d) home economics money based on rural population; (e) funds were used to hire subject matter specialists in agriculture at the federal level. George-Elzy Act of 1934 included (a) additional funding for vocational education; (b) money was evenly divided between agriculture, home economics, trade and industrial education (amount determined by non-farm population). George-Deen Act of 1936 included (a) additional funding for vocational education; (b) recognition of distributive education as a part of vocational education; (c) federal funds could be used to support travel of vocational teachers. George-Barden Act of 1946 included (a) increased funding for vocational education; (b) federal funds could be used to support travel associated with the Future Farmers of America and the New Farmers of America; (c) money could be used on vocational guidance.

In 1944, the federal government passed The Servicemen’s Readjustment Act of 1944. The Servicemen’s Readjustment Act of 1944 was known as the GI Bill of Rights. The GI Bill was signed into law on June 22, 1944 by President Franklin D. Roosevelt. The United States Department of Veterans Affairs (n.d.) contended that “It has been herald as one of the most significant pieces of legislation ever produced by the federal government – one that impacted the United States socially, economically, and politically” (p. 1). The legislation gave millions of World War II veterans an opportunity to make a living and live the American dream of home ownership. The GI Bill of Rights provided for education, vocational training, loans for homes, loans for farms and/or businesses, and
unemployment pay (United States Department of Veterans Affairs, n.d.). In a little over three years, nearly 50% of college attendants were veterans because of the GI Bill.

In 1958, Congress enacted more legislation that made an impact on regular and vocational education. The National Defense Education Act (NDEA) was passed in 1958. This legislation was established in response to the launching of Sputnik by the Soviet Union. Sputnik was in response to an effort to create and launch an artificial satellite by Russia and America (Raffa, 2007). The purpose of the artificial satellite was to study the Earth. “The launching of Sputnik on October 4, 1957 simultaneously spurred the Cold War into a Space Race and the twentieth century into a Space Age” (Raffa, 2007, p.1). The United States response to the launching of Sputnik was one of shock (Guillemette, n.d.). In response to the 1957 launching of Sputnik, the United States passed the NDEA of 1958 to provide major funding to train individuals in scientific and technical fields to improve those areas in the United States. The NDEA of 1958 supported college student loans, curriculum improvement for math, science, foreign language in schools, vocational-technical training and college graduate fellowships. In July of 1958, the National Aeronautics and Space Administration (NASA) was created (Raffa, 2007). President Eisenhower issued this creation because of the negative response from the launching of Sputnik. NASA’s goals were to develop and implement space projects such as an American satellite.

The Workforce Development Movement started in the 1960s and 1970s. The Workforce Development Movement came about as a result of the high unemployment rate, recession, and poverty in the early 1960s. According the Appalachian Regional Commission’s (ARC; n.d.), the Workforce Development Movement was in response to poverty and unemployment. The goal of this movement was to combat poverty and
unemployment. By providing such assistance, the government’s goal was to allow welfare recipients to find gainful employment. In 1962, President John F. Kennedy signed the Manpower Development Training Act (MDTA). MDTA provided short, job-related training for persons that were unsuccessful in a regular education setting, unemployed, and impoverish. MDTA was President Kennedy’s way of starting the Workforce Development Movement. MDTA merged into the Comprehensive Employment and Training Act (CETA) of 1973. CETA continued to focus on job-related training for persons of poverty and unemployment. In 1963, a major federal legislation was established. It was the Vocational Education Act of 1963. The Vocational Education Act of 1963 replaced the Smith-Hughes Act. The Vocational Education Act of 1963 eliminated categorical funding for specific vocational disciplines such as agricultural education, provided funding to states based on the age of their population, empowered states to manage their funding, expanded the scope of agricultural education to include all areas of agriculture, not just farming, and expanded the scope of home economics education to include all areas of home economics, not just homemaking (Oklahoma Department of Career and Technical Education, 2005). MDTA and CETA merged to become the Job Training Partnership Act (JTPA) of 1981. JTPA’s focus was to prepare young people and unskilled adults for the workforce. JTPA provided services such as free job training, adult literacy classes, secondary dropout prevention programs, and school-to-work opportunities (Oklahoma Department of Career and Technical Education, 2005). JTPA was a federal funded program that collaborated with state agencies such as vocational schools and other educational institutions to provide their participants with the skills needed for the workforce.
One of the major legislation that impacted vocational education in the 1980s was the Carl Perkins Act of 1984. The Carl Perkins Act of 1984 mandated that 57% of state funds were allocated to special populations - vocational education was to be accessible to everyone, handicapped (10%), disadvantaged (10%), adult retraining (12%), single parents and homemakers (8.5%), sex bias and stereotyping (3.5%), incarcerated (1%), and 43% of state funds were allocated for program improvement. The Carl Perkins Act of 1990 was a continuation of Carl Perkins Act of 1984. However, more focused was placed on integration of academic and vocational proficiencies. Carl Perkins Act of 1998 identified academic standards and accountability for the following areas for CTE: (a) academic attainment; (b) technical skills attainment; (c) placement in employment and post secondary education; (e) percentage of students enrolled in and completing CTE programs in non-traditional careers. The Carl Perkins Act of 2006 continued to mandate that state and local school organizations develop challenging academic and technical standards and to assist students in meeting such standards, including preparation for high skill, high wage, or high demand occupations in current or emerging professions. Through the Perkins Act of 2006, “vocational education” officially changed to “career and technical education” because of the focus of academic and career development. CTE initiatives do not solely focus on jobs today. The Carl Perkins Act of 2006 promoted the development of services and activities that integrated rigorous and challenging academic and career and technical instruction, and linked secondary education and post secondary education for participating career and technical education students and increased state and local flexibility in providing services and activities designed to develop, implement, and improve career and technical education, including tech prep education. Other provisions of the Carl Perkins Act of 2006 included (a) conducting and disseminating
national research and information on best practices to improved career and technical education programs, services, and activities; (b) providing technical assistance that promoted leadership, initial preparation, and professional development at the state and local levels; and improved the quality of career and technical education teachers, faculty, administrators, and counselors; (c) supporting partnerships among secondary schools, post-secondary institutions, baccalaureate degree granting institutions, area career and technical education schools, local workforce investment boards, business and industry, and intermediaries; and (d) providing individuals with opportunities throughout their lifetimes to develop, in conjunction with other education and training programs, the knowledge and skills needed to keep the United States competitive.

John Dewey influenced early education. John Dewey was considered the most important philosopher in America. Dewey was an educational reformer who emphasized problem-based learning (Neill, 2005). Dewey believed that education was important in social reform. According to Neill (2005), Dewey believed that education was a way to” help people become more effective members of a democratic society” (p. 1). A democratic society in Dewey’s opinion was one where people not only had voting rights, but positive communication among all citizens in our society. Dewey also believed that school was to help students reach their best potential. John Dewey’s philosophy was grounded in progressivism. Progressivism focused on real-world learning activities and problem-based learning. Progressive educators believed that students should be equipped with knowledge that would aid them in a competitive society. In the progressive classroom, experiential learning took place. These classrooms were labs, workshops, art rooms, and/or kitchens. Cooperative group education was an important factor in a progressive classroom (Progressivism, n.d.).
The Laboratory School of the University of Chicago opened in 1896. This school was known as the “Dewey School.” The school was known as the “Dewey School” because the practices of Dewey’s psychology and democratic ethics. The curriculum of the Laboratory School centered on occupations. Occupation was considered a form of activity done by the child that equal to work in a society (Westbrook, 1993). According to Westbrook (1993), he found that students’ reading skills were developed when they were solving problems related to their occupational projects. Dewey believed that children should (1) take part in their learning; (2) be problem-solvers; (3) relate past experiences to present experiences; (4) be hands-on in their learning; and (5) use education to aid social reform (Neill, 2005). Dewey believed that teachers should be (1) facilitators of learning; (2) exercise the mind of children by using problem-based learning; (3) account for the differences among learners.

Table 2.2 compared Dewey’s approach to vocational education, traditional approach to vocational education, and multiple career pathways (Kahne, Middaugh, & Rogers, 2007, p. 6).
<table>
<thead>
<tr>
<th></th>
<th>Traditional Approach to Vocational Education</th>
<th>Multiple Pathways Approach</th>
<th>Deweyan Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocational Education and Academic Curriculum</td>
<td>Dual Curriculum: One track for students on pathways to college; one track for students on direct path to work.</td>
<td>Integrated Curriculum: Students study college prep curricula and participate in internships.</td>
<td>Unitary Curriculum: Students study the workplace and the broader political economy. Students develop academic, vocational, and civic skills.</td>
</tr>
<tr>
<td>School-Based Activities</td>
<td>Routinized skill training in vocational track; humanistic studies in academic track.</td>
<td>Academic lessons applied within context of career themes and work-site internships.</td>
<td>Project-based learning that promotes inquiry in and about the workplace.</td>
</tr>
<tr>
<td>Purpose of Education</td>
<td>Schools should prepare some for manual work and some for decision making and professional work.</td>
<td>Schools should prepare all for college and careers in the knowledge-based economy.</td>
<td>Schools should prepare all to be active citizens and change agents in workplace society.</td>
</tr>
</tbody>
</table>

David Snedden was another early influence on CTE. Snedden became the first State Commissioner of Education in Massachusetts in 1909 (http://www.answers.com/topic/david-snedden?print-true). He served until 1916. During his time, in Massachusetts, Snedden established vocational schools for those students who needed to be prepared for work. David Snedden wrote over 90 articles about vocational education. He also wrote books about vocational education. David Snedden believed that vocational education was a mean to improve individuals’ life and the economic progress of the community.

Booker T. Washington was also an early influence on vocational education. Booker T. Washington first instrument of learning was a Webster’s spelling book (Reeser, 2002).
proving himself as an excellent worker and that was his way to pay for his education. According to Reeser (2002), Washington’s ideas for industrial education were developed while attending the Hampton Institute. In 1881, he was commissioned by the founder of the Hampton Institute to lead another industrial education institution in Alabama. With only $2,500 for teachers’ salaries, no land, and no buildings for school, Booker T. Washington started his leadership at Tuskegee Institute in Tuskegee, Alabama (Reeser, 2002).

From the beginning, the Tuskegee Institute was supported by money and food from various supporters. In 1896, Washington opened an agriculture school at Tuskegee Institute with George Washington Carver as the leader. The growth of the Tuskegee Institute was supported by such people as Andrew Carnegie, Henry Rogers, Julius Rosenwald, and Anna T. Jeanes. Carnegie supported the Tuskegee Institute lead by Washington. Carnegie was instrumental in helping Washington develop the National Negro Business League (NNBL). The NNBL included Negro business owners, craftsman, doctors, farmers, and other professionals. The goal of the NNBL was to increase the economic growth of African-Americans. Anna T. Jeanes was an American philanthropist who provided one millions of dollars to aid Booker T. Washington in building schools in the South for poor Blacks. Julius Rosenwald was also a supporter of Booker T. Washington and the Tuskegee Institute. These model schools were successful. The Rosenwald Fund was established to construct schools around the United States. The Rosenwald Fund spent over four million dollars to build nearly 5,000 schools, over 2,000 teacher homes, and nearly 150 shops in 15 states.

Washington believed that African-Americans should focus on becoming economically self-reliant through vocational training. Reeser (2002) stated that “His
founding of Tuskegee Institute as a leading college for African-Americans further solidified the role of vocational training or vocational education for the underclass” (p. 3). One of Washington’s primary goals for Tuskegee Institute was to develop craft and occupational skills so that people could be able to obtain jobs and take care of self and family.

**Workplace Readiness**

Since the beginning of the history of CTE, the primary goal has been to prepare youths and adults for employment. As of today, that goal has not change. Conneely and Hyslop (2009) indicated “Today, CTE programs play a major part of the solution to myriad national economic and workforce problems, such as high school dropout rates, a weakened economy, global competitiveness and massive layoffs” (p. 1). Since the mid 1980s and 1990s, a demand for more accountability and evaluation of vocational education programs were mandated by various legislations. In 1983, *A Nation At Risk* was published. The National Commission on Excellence in Education established for by former United States Secretary of Education, T.H. Bell released the report, *A Nation At Risk*. *A Nation At Risk* (1983) provided data for teacher improvement, school improvement, and made a major impact on school accountability. Findings and recommendations of *A Nation At Risk* (1983) led the way to major school reforms. Some findings included (a) weak secondary education curriculum with more students on general track than students on vocational or college tracks; (b) lack of rigorous assessments for high school students graduating; (c) funding for textbooks and resource materials for schools had declined; (d) American students spent less time in school than students in other industrialized countries; (e) many American students lacked strong and consistence study skills; (f) many teachers lacked
the skills to be effective in the classroom; and (g) college preparation programs spent
more time on education courses and less time on subject matter courses (National
Commission on Excellence in Education, 1983). Some recommendations from A Nation
At Risk (1983) included (a) high school graduation requirements be increased to four
years of English, three years of math, science, and social studies, a semester of computer
science, and two years of foreign language for college-bound students; (b) high schools,
colleges, and universities should implement more rigorous standards and requirements
for such things as admissions, assessments, and graduation requirements; (c) the length of
the school year increase to allow for more time teaching and learning; (d) teachers’
preparation be improved in seven areas – preparation program, salary, contracts, career
ladders, teacher shortage, teacher recruitment, teacher mentoring; (e) politicians, parents,
and educators lead education reform and local, state, and federal provide appropriate
funding and governance (National Commission on Excellence in Education, 1983).
Despite the findings that have impacted schools in the United States, the commission
believed that America could overcome these problems. America has had a successful
history of meeting challenges according to the National Commission on Excellence in
Education. “From the late 1800s through mid-20th century, American schools provided
the educated workforce needed to seal the success of the Industrial Revolution and to
provide the margin of victory in two world wars” (National Commission on Excellence in

In 1990, SCANS Report made a significant impact on the American education
system and the American workforce. The SCANS Report informed educators, policy
makers, and the workforce of the skills needed for our businesses and industries to be
successful. American schools were not producing the quality of workers to fill high-
wage, high-skilled, and high-demand jobs. The SCANS Report identified five competencies and foundation skills that effective workers possess. Those competencies included; (a) resources—allocating time, money, materials, space, and staff; (b) interpersonal skills—working on teams, teaching others, serving customers, leading, negotiating, and working well with people from culturally diverse backgrounds; (c) information—acquiring and evaluating data, organizing and maintaining files, interpreting and communicating, and using computers to process information; (d) systems—understanding social, organizational, and technological systems; monitoring and correcting performance; and designing or improving systems; (e) technology—selecting equipment and tools, applying technology to specific tasks, and maintaining and troubleshooting technologies. The foundation included; (a) basic skills—reading, writing, arithmetic and mathematics, speaking, and listening; (b) thinking skills—thinking creatively, making decisions, solving problems, seeing things in the mind's eye, knowing how to learn, and reasoning; (c) personal qualities—individual responsibility, self-esteem, sociability, self-management, and integrity. The SCANS competencies and foundation still have relevance today.

Because of the current economic crisis and unemployment rate, the need has greatly increased for workplace readiness skills. The growing skills gap negatively impacted the American economy (NAM, 2006). Saylov (2008) indicated that students who were career-ready upon graduation from secondary and post secondary would help bridge the skills gap. According to research, CTE programs have provided high school graduates with the foundations needed to compete in the workplace (Bronson, 2007; Hyslop, 2008). CTE was considered a way to bridge the gap between high school and the workforce and high school and post secondary education. According to Brand (2003),
“every high school student must meet higher academic standards in secondary and post secondary education and be prepared for the challenges of work continued learning, and citizenship” (p. ii).

One of the key ways to make sure that CTE bridge the gap between workforce and academic was to improve the curriculum of CTE programs. CTE programs of study should be a comprehensive plan of study that started in junior high school through post secondary education (Brand, 2003). CTE programs should be rigorous and aligned with academic standards (Brand, 2003). Brand (2003) stated that the “The key reason for federal involvement in CTE is economic” (p. 3). There was a need for a highly-skilled and employable workforce American economy. According to Brand (2003), “Individuals with greater skills and education have higher standards of living, and CTE helps students develop occupational and technical skills that lead to success in the labor markets” (p. 3). Funds from the federal government provided opportunities for states to develop frameworks, provide professional development for staff, improve career guidance, improve best practices, improve accountability systems, and enhance relationships with business and industries. Brand (2003) contended that CTE programs of study should be measured by reducing the dropout rate, increased post secondary education, increased technical and workplace competencies.

Workplace readiness skills include academic skills, technical skills, and employability skills (ACTE, 2010). Students who have completed two years of CTE programs in Mississippi are equipped with workplace readiness skills. Mississippi’s career and technical programs are designed to meet the workplace skills for the 21st century (MDE, 2004). There were eight workplace skills that were ingrained in each
curriculum’s competencies and objectives. Table 2.3 below described the eight workplace skills embedded in the CTE program curriculum (MDE, 2004).

### Table 2.3 Career and Technical Education Workplace Skills

<table>
<thead>
<tr>
<th>WP</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP1</td>
<td>Students allocated resources (time, money, materials and facilities, and human resources).</td>
</tr>
<tr>
<td>WP2</td>
<td>Students acquired evaluated, organized and maintained, and interpreted information.</td>
</tr>
<tr>
<td>WP3</td>
<td>Students practiced interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.</td>
</tr>
<tr>
<td>WP4</td>
<td>Students applied systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems.</td>
</tr>
<tr>
<td>WP5</td>
<td>Students selected, applied, and maintained technology</td>
</tr>
<tr>
<td>WP6</td>
<td>Students employed thinking skills including creative thinking, decision making, problem-solving, reasoning, and knowing how to learn.</td>
</tr>
<tr>
<td>WP7</td>
<td>Basic skills: Students employed basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.</td>
</tr>
<tr>
<td>WP8</td>
<td>Personal qualities: Students practiced work ethics related to individual responsibility, integrity, honesty, and personal management.</td>
</tr>
</tbody>
</table>

Technology skills were essential to the workplace (Drage, 2009). American schools have not kept pace with advanced technologies that have impacted the American workforce (Drage, 2009). Drage (2009) contended that “Modern CTE programs expose students to future career opportunities and also technical skills at a time when it critical to get students interested in science, technology, engineering and math (STEM)-related occupations early in their educational careers” (p. 3). One of the 16 career clusters that were created to prepare students for their future in post secondary education and/or their
chosen career was STEM. STEM as well as all 16 clusters was an initiative by states along with schools, industries, employers, and educators to align the American education system with current and relevant technologies that drive the American workforce and economy (Drage, 2009). Curriculums, assessments, academic standards, technical standards, and professional development were revised to meet the new career clusters standards. STEM programs were middle school and early high school programs that prepared students for careers ingrained with modern technologies. Through CTE, students are able to acquire the necessary technology skills that were essential for the workplace. Students who completed two years of CTE programs in Mississippi were equipped with the National Educational Technology Standards for Students (NETS'S). The NETS'S was established by the International Society for Technology in Education (ISTE) in 2007. The ISTE created the NETS'S to prepare students for the changing workplace and live in a global society (ISTE, 2007). NETS'S standards were included in every CTE program. Those NETS'S included:

- Basic operations and concepts - Students demonstrated a sound understanding of the nature and operation of technology systems and students were proficient in the use of technology.

- Social, ethical, and human issues - Students understood the ethical, cultural, and societal issues related to technology, practiced responsible use of technology systems, information, and software, and develop positive attitudes toward technology used that support lifelong learning, collaboration, personal pursuits, and productivity.

- Technology productivity tools - Students used technology tools to enhance learning, increase productivity, and promote creativity, and use
productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.

- Technology communications tools - Students used telecommunications to collaborate, publish, and interact with peers, experts, and other audiences and used a variety of media and formats to communicate information and ideas effectively to multiple audiences.

- Technology research tools - Students used technology to locate, evaluate, and collect information from a variety of sources, used technology tools to process data and report results, and evaluated and select new information resources and technological innovations based on the appropriateness for specific tasks.

- Technology problem-solving and decision-making tools – Students used technology resources for solving problems and making informed decisions and employed technology in the development of strategies for solving problems in the real world (ISTE, 2007).

Post Secondary Education Transition

CTE programs provided workplace readiness skills, technology skills, and work-based learning opportunities. School reforms and legislative mandates have produced various transitional programs for students enrolled in CTE programs. The School-to-Work Opportunity Act of 1994 provided grants to CTE programs that established partnerships with business and industry to collaborate in school and work-based learning activities (Heil, n.d.). Since the establishment of this act, over 30 states, more than 1,500 schools, over 130,000 employers, and about 500,000 students have been participants in
transitional programs (Heil, n.d.). All entities have a stake in the school-to-work programs. The stakeholders shared responsibilities. The Southern Regional Education Board (SREB; 2009) indicated six proven ideas to prepare students for post secondary education and 21st Century careers.

All students should be provided a rigorous academic curriculum. The SREB (2009) contended that every student should have a minimum of four English courses that include algebra and geometry, at least three sciences, and three social studies.

1. All students should be provided higher-quality CTE courses with appropriate academics and technical content. CTE programs must integrate quality academic contents to its curriculum that are mandated by Carl Perkins legislation. CTE courses must be ingrained with college and career-readiness standards. “These courses must be authentic and intellectually challenging learning experiences that motivate students to master academic and technical knowledge and skills” (SREB, 2009, p. ii).

2. All students should be provided 21st Century skills though CTE programs. Graduates must be able to use their minds and hands (SREB, 2009). Employers have a desire for problem-solving skills, critical thinking skills, analytical skills, and communication skills.

3. Schools should express high expectations from students and CTE courses. According to SREB (2009), “Employers in every field want workers with a high degree of professionalism, a strong work ethic, and a commitment to doing quality work in a timely fashion” (p. iii). Therefore, educators should have high expectations of all students and holding them accountable for high-quality work.
4. All students must be provided with support to meet readiness standards for college and career. “Students benefit from adults who behave in and respect them, who can give them credible reasons for mastering high-level content and who are willing to provide needed support” (SREB, 2009, p. iii). Those students without proper support often drop out of school.

All students should have an advisor or mentor for support and guidance. With a good advisor or mentor, students could plan for endeavors after high school. Those plans should include preparation for the workforce and/or college and the military. According to SREB (2009), “competent and caring adult advisors help students discover what gives them the most satisfaction and aid them in setting education and career goals in anticipation of a rewarding career” (p. iii).

The SREB (2009) indicated that the six proven methods for comprehensive, school-wide student success worked. The six proven principles were the underlining core principles for a program called High Schools That Work (HSTW). According to the SREB (2009), “Since 1987, HSTW’s single-minded focus has been to help high school upgrade school and classroom practices to produce college-and-career ready students” (p. iii). HSTW has traditionally worked to develop programs that focus on careers. These programs of study bring career technical courses and academic together to prepare students to move beyond high school. HSTW promoted more project-based learning and problem-based learning. HSTW focused on core academics such as reading, math, science, and social studies. HSTW required educators to think outside the box and incorporate assignments that are relevant and engaging. SRED (2009) indicated that “Assignments frequently should engage students in giving written and oral reports and using technical knowledge not only solve career-related problems, but also to better
understand the role of technology in modern careers” (p. 21). Schools must be able to revise classroom practice to target all students. Schools must know the students and capitalize on their strengths, talents, and interest. By applying the six principles, schools could increase students’ achievement and success (SREB, 2009).

There were several transitional models used in Mississippi’s schools. Cooperative education, youth apprenticeships, job shadowing, and tech prep were several programs that were discussed in this section. Cooperative education programs were one of the most common forms of transitional programs. Cooperative education was defined as:

A method of education for individuals who, through written cooperative arrangements between a school and employers, receive instruction, including required rigorous and challenging academic courses and related career and technical education instruction, by alternation of study in school with a job in any occupational field, which alternation— (A) shall be planned and supervised by the school and employer so that each contributes to the education and employability of the individual; and (B) may include an arrangement in which work periods and school attendance may be on alternate half days, full days, weeks, or other (McKeon, 2006, p. 5).

Cooperative education provided students with knowledge of real-world experiences. Cooperative education helped students make more definite career choices. Cooperative education developed positive employability skills and behaviors that help students acquire and maintain a career. Cooperative education was considered to be one of the most important work-based experiences for secondary students (Castellano et al., 2001).
Job shadowing was another form of career development. According to Brown (2003), job shadowing has taken place when an observer follows a worker around his/her job to observe the worker’s tasks and duties for a certain amount of time. The difference between job shadowing and other school-to-work models was that students only got to observe the tasks or duties and not perform tasks or duties. Students who job shadowed learned about certain occupations and the process of completing assignments. By observing, students were able to learn about interpersonal skills, communication skills, and employability skills (Huhman, 2009).

Youth apprenticeships were one of the latest forms of school-to-work models. Youth apprenticeship programs were the most ambitious, coordinated, and sustained models of transitional services. Youth apprenticeship programs have catered to high school students and freshmen-college students. Youth apprenticeship programs allowed students to apply classroom knowledge to the workplace (Brown, 2003). Students involved in this transitional model will be able to earn a high school diploma, an associate degree with an opportunity to continue on to a four-year college. Apprentices could also go directly into the workforce after completing high school or continue into an adult apprenticeship program. Other positive aspects of youth apprenticeships included employability skills, wages, assessment files, and portfolios that could be used as credentials for a career or college. The Mississippi Construction Education Foundation (MCEF) offered apprenticeship opportunities to youth enrolled in trade and construction programs offered in Mississippi’s high schools and/or career and technical centers (MDE, 2008a). MCEF also provided training, textbooks, and equipment for CTE teachers to improve students’ learning. Carpentry, electrical, plumbing, welding, and sheet metal were areas of apprenticeships offered by MCEF.
Lewis (2008) and Wonacott (2001) contended that tech-prep was a major school transitional program. The tech-prep program combined rigorous academic courses with high level technical training. This training led to a certificate, associate degree, or baccalaureate degree. Tech-Prep was a collective effort across disciplines and institutions to provide career planning for all students. According to the Carl Perkins Act of 2006, the components of tech-prep include (a) articulation; (b) program of study; (c) development of tech-prep programs for secondary and post secondary; (d) provide in-service professional development for teachers and administrators; (e) equal access to all programs for special populations; (f) preparatory services; and (g) coordinates with activities under Title I. Tech-prep provided students with a bridge that closes the gap between school and work and academic and CTE.

Transitional programs were important in CTE. These programs have provided CTE students with opportunities to gain real-life work experiences earn a high school diploma with an opportunity for a two-year or four-year college degree. Students who participated in job shadowing, cooperative education, youth apprenticeships, and tech-prep also acquired skills in problem-solving, critical thinking skills, interpersonal skills, and communication skills (Brown, 2003; Lewis, 2008; Wonacott, 2001). And most importantly, participants would have a solid foundation for starting a career.

Reducing the Dropout Rate

According to ACTE (2007), about one-third of high school freshmen students do not graduate from secondary education in the United States. The United States graduation rate of high school students were in tenth place in the world (ACTE, 2007). According to a report by Castellano et al. (2007), the dropout rate for minority groups
were almost 50%. High school dropouts were less likely to enter the workforce. Those dropouts who do enter the workforce earned less income than high school graduates.

ACTE (2007) stated “The average annual income for a high school dropout in 2004 was $16,485, and the average annual income for a high school graduate was $26,156, an increase of $9,671 (p. 2).” The top five reasons that students identified as the reason for dropping out of school: (a) 47% indicated boring classes; (b) 43% indicated excessive absentees; (c) 42% indicated hanging out with friends that were not interested in school; d) 38% indicated lack of rules and too much freedom; (e) 35% indicated they were unsuccessful in school. Castellano et al. (2007) also reported that the absent of a close interpersonal relationship with adults was another reason for the increasing dropout rate. CTE has been considered to be one of the solutions to reducing the dropout rate (ACTE, 2007; Brown, 2003; Harris & Wakelyn, 2007; King, 2010; Stone & Alfeld, 2004).

Stone and Alfeld (2004) stated “Career and Technical Education, because of its ability to engage students hand-on, has long been thought to have a role in reducing dropout rates among high school students” (p. 1). According to Harris & Wakelyn (2007), “A review of the more recent research suggests that taking three CTE courses for every four academic courses will have the greatest impact, cutting the dropout rate for students taking these courses by up to four times more than for those students taking only academic courses” (p. 4). According to Schargel and Smink (2001), CTE have five positive impacts on potential dropouts; (a) promotes student motivation and academic achievement; (b) increase personal and social competence relevant to work; (c) increase the understanding of a career or industry; (d) career planning; and (e) increased workplace skills and work competencies. According to Conneely and Hyslop (2009), “in a recent report for the Gates Foundation, the majority of respondents (81%) reported that
more learning opportunities which make the classroom relevant to the real world would have helped them to finish high school” (Conneely & Hyslop, 2009, pp. 1-2). Career Technical Student Organizations (CTSOs) have had a positive impact on at-risk students. CTSOs served over a million students enrolled in the areas of health, business, technology, agriculture, and skilled trades. Leadership development, competitive events, professional development, and community service were elements of CTSOs (Castellano et al, 2007). Positions of local, regional, and national offices for students have provided students with an opportunity to develop leadership skills. Competitive events are used to test students’ academic and technical skills. Castellano et al. (2007) stated that “Preparation for the competitive events provides hands-on experience in different trade, technical, and leadership fields; develops job-related technical skills and competencies; offers recognition to participants; and serves to ensure business and industry involvement in career and technical education programs” (p. 4). Businesses and industries representatives often judge CTSOs’ competitions. Students who joined CTSOs were often provided professional development in the form of guest speakers, leadership conferences, and workshops. Students could be provided with community service activities through CTSOs. Castellano et al. (2007) contended that “By doing community service projects, CTSO participants may be able to build community partnerships, learn the value of lifelong involvement, serve the need of others, and practice leadership skills” (p. 8). Students participating in CTSOs were prepared for various competitions with CTE advisors and leaders. CTE advisors could provide students with educational experience in leadership, teamwork, citizenship, and character. High ethical standards, superior work skills, and life-long education could be promoted by CTSOs. According to ACTE (2007), “A recent study found that CTSO activities positively affect students’
academic engagement and the stronger the student’s involvement, the better the results” (p. 2).

In conclusion, CTE has been discussed as one resolution to reducing the dropout rate in the United States. According to researchers, CTE programs could be used to increase self-esteem, provide career relevance, define career goals and prepare students for leadership roles in school and the community. CTE programs would engage students and keep them interested in school. CTE programs would allow students to participate in career fairs, industry tours, college tours, apprenticeship programs, job shadowing, and work-based learning programs. CTE programs were used to provide structured training to all students. According to Brown (2003), “student motivation and engagement thrives when students are meeting their own goals and formal structures are in place to support their efforts” (p. 2).

Local Career and Technical Programs

CTE has been an essential part of the total educational system in Mississippi. CTE has provided students with training to enter the workforce, enlist in the military, or enter post secondary education. CTE programs were designed to a) introduce students to career options; b) develop career goals; c) provide technical skills; d) provide academic skills; and e) prepare students for post secondary education. Mississippi has over 40,000 students enrolled in secondary CTE and over 20,000 enrolled in post secondary CTE (Mississippi CTE State Profile, 2009). CTE programs and courses were offered in over 500 Mississippi schools and career centers (Mississippi CTE State Profile, 2009). Mississippi CTE schools and career centers received federal, state, and local funding to carry out curriculum objectives, upgrade equipment, and pay salaries. “The Mississippi
Department of Education (MDE) is the sole state agency responsible for administering and expending funds for federal and state CTE programs in secondary schools, junior/community colleges, and regional CTE facilities” (Mississippi CTE State Profile, 2009, p.1).

The local school district has one career center, Noxubee County Career and Technical Center that serves students in grades 10 through 12. The Noxubee County Career and Technical Center has six CTE programs. CTE programs included allied health, automotive service technology, building trades, business and computer technology, metal trades, and technology applications. The Noxubee County Career and Technical Center has provided career counseling services and special population services to students. All program curriculums were correlated with related competencies in the Mississippi core academic subject areas: Algebra I, Biology I, English II, and United States History, published by the MDE.

The allied health program introduced the student to careers available in the health field, basic anatomy and physiology, and basic patient care skills. Upon completion of the first year introductory course, the student would be trained to be an entry-level general basic health care assistant and trained in CPR and first aid. Students who completed allied health I may count one of the credits earned in this course as one science credit toward graduation requirements. Upon completion of the second year advanced course, the student would be trained to work as an entry-level assistant in various health occupations and will be certified in CPR at the health care provider level. This program has a requirement of a minimum of 100 hours of clinical-type experience over the two year period. This clinical-type experience included tours of health care facilities, guest
speakers, laboratory practice/demonstration in the classroom, and observation experiences in medical facilities.

Automotive service technology prepared students for entry-level employment positions in the automotive repair and service industry or for entry into post secondary automotive technology programs. The program consisted of two courses, each nine months in length. Each course must be taught in a minimum two-class period block. The first course in the program included instruction in the foundation skills related to safety, tools, and equipment usage, measurement, basic automotive service, brakes and electrical system service. The second course in the program provided students with foundation skills related to engine performance and steering and suspension systems.

The building trades program prepared individuals for employment or continued education in the occupations of carpentry, electrical wiring, masonry, or plumbing. Building trades I taught students fundamentals of safety, tools, math, and basic carpentry, electrical, masonry, and plumbing skills. Building trades II provided advanced instruction and practical applications in tools, math, and basic carpentry, electrical, masonry, and plumbing skills. This curriculum has been aligned to modules in the Contren Learning Series as endorsed by the National Center for Construction Education and Research (NCCER).

Business and computer technology was designed to educate, train, and provide guidance for secondary vocational students who seek to develop the knowledge, skills, and behavioral characteristics necessary for successful entry level employment in office occupations for the 21st Century. The program consisted of two courses, each nine months in length. Each course must be taught in a minimum two-class period block. The first course in the program included instruction in work environment, office systems,
telecommunications, business finance, and employability skills. The secondary phase of
the program included instruction in web page design, effective communications and
management skills, desktop publishing, business careers and career exploration.

The metal trades program was designed as a cluster program for preparation to
enter the metal working trades. Metal trades I included an introduction to the basic metal
working processes. Metal trades II required that students choose one of two options
(Advanced Welding Option or Advanced Machine Shop Option). The purpose of the
course was to prepare students to continue to study in a post secondary metal trades
program (Welding, Machine Tool Operation, or Sheet Metal) or to work at entry level in
metal trades. This curriculum has been aligned to modules in the Contren Learning
Series as endorsed by the NCCER.

Technology applications introduced students to "pre-engineering" in high school.
The purpose of the program was to provide students with expanded knowledge of the use
of technological skills and to enable them to solve problems by applying knowledge in a
technological context. The program was designed to provide students with "hands-on"
experiences related to the application of technology education and engineering concepts
in the workplace. Students would develop academic and technical skills, 21st century
skills, and human relations competencies which accompany technical skills for job
success and life-long learning. Students who completed the program would be better
prepared to enter and succeed in engineering programs offered by Mississippi’s
community and junior colleges and institutions of higher education.

CTE counseling was provided to students enrolled in CTE programs and courses.
All CTE students had access to services of the CTE counselor. Career information,
personal counseling, college financial aid information, and referral services were all
available through the CTE counselor. Workshops on resume writing, employability skills, interviewing techniques and dressing for the interview and workplace were all covered by the Noxubee County Career and Technical Center’s counselor.

The student service program was formerly known as special populations was a supplemental program at the Noxubee County Career and Technical Center. The Carl Perkins Act of 1998 identified six categories of students that qualify as special populations: (a) individuals with disabilities; (b) individuals from economically disadvantaged families, including foster children; (c) individuals preparing for nontraditional fields; (d) single parents, including single pregnant women; (e) displaced homemakers; and (f) individuals with limited English proficiency (MDE, n.d.). The student service coordinators assist the CTE directors, counselors, and teachers with student recruitment, student enrollment, student placement, student retention, and nontraditional career choices. Student service coordinators’ primary goal was to ensure that special population students be successful in completing CTE programs and continuing into the workforce and/or post secondary education. The student service coordinators used various assessments to determine students’ reading, math, and language skills and assist them in reaching their potential by using remediation, individualize instruction, and various computer programs that focus on improving student learning.

One of the most essential components to successful students and CTE programs were CTE teachers. CTE teachers have many roles. CTE teachers’ duties included:

- Preparing student instruction: teachers developed detailed lesson plans with objectives, resources, assessments, and integration of appropriate academic, technical, and technology skills.
• Facilitating instruction: teachers used appropriate introduction to lessons, various teaching strategies, used appropriate lesson closure strategies, and provided appropriate materials and accommodations for special needs students. Teacher used technology to maintain and access students’ assignments and grades.

• Maintaining classroom management: teachers maintained classroom discipline, classroom and lab safety, clean and orderly classroom, established and maintained classroom and career center’s rules, guidelines, and procedures.

• Developing relationships with businesses and industries: teachers established craft committee boards, established partnerships with businesses and industries, and developed and maintained articulation agreements with post-secondary institutions.

• Promoting CTE Program: teachers promoted their programs by providing brochures, pamphlets, and power point presentations during open house, career day, and student recruitment day. Teachers participated in various community events to showcase the center’s programs.

• Advising career technical student organizations: teachers advised and supervised student organizations and organizational activities such as fundraising. Teachers encouraged all CTE students to participate in organization and compete in local, state, and national competitions.
• Managing lab and materials: teachers inventoried all tools, equipment, and materials in an appropriate and organize order (United States Bureau of Labor Statistics, 2010).

CTE teachers received early evaluations on the progress on their program success.

In response to NCLB Act of 2001 on school accountability and teacher effectiveness, Mississippi developed the Mississippi Exemplary Teaching Program (ETP). The origin of the ETP was based on standards established by the National Dissemination Center for Career and Technical Education (NDCCTE) at The Ohio State University (Johnson, n.d.). According to Johnson (n.d.), “The program will provide a systematic way of evaluating CTE teachers in regard to the following: program quality, educational significance, evidence of effectiveness and success, and replicable best practices” (p. 5). The CTE director managed the daily operation of the career center. The CTE director was the primary instructional leader. The director evaluated and maintained students’ educational progress. The director established educational goals established and maintained policies and procedures, supervised and evaluated faculty and staff, and examined and prepared budgets. A positive relationship with the community, businesses and industries, and colleges are often maintained by the CTE director.

**Summary**

CTE was designed to prepare youth and adults for jobs. Today, CTE programs continue to strive to prepare youth for a successful career by reducing the dropout rate, preparing them for the workforce, and transitioning students to post secondary education. In the last decade, the quality of workers has diminished. Many workers lacked marketable skills such as technical, academic, employability, and technology skills (Bray,
2010; Hyslop, 2008; Kister, 2004). CTE was been recommended as one of the ways to help solve the workforce issue that was facing the United States (ACTE, 2010; Bronson, 2007; Reese, 2010; Stone, 2010). Research demonstrated that CTE programs were preparing students for a competitive workforce and for post secondary education. In 2002, Rojewski reported that CTE students took more and higher level math than regular academic students. Silverberg, Warner, Fong, and Goodwin (2004) reported that over 50% of CTE students completed the new basic curriculum that consisted on four years English, three years of math, science, and social studies. This was about a 30% increase from 2000. Silverberg et al. (2004) contended that CTE students graduating from high school earnings increased around two percent for every CTE program they completed. Some of the fastest growing occupations in the United States would require a CTE certification (United States Bureau of Labor Statistics, 2006). In 2008, workforce positions requiring a CTE associate degree increased about 30% which doubled from the previous 14% (Silverberg et al, 2004). “Academic are playing a more important role in career and technical curricula, and programs are being made relevant to the local job market” (United States Bureau of Labor and Statistics, 2010, p. 2).

“Many high schools now offer technical preparatory ("tech-prep") programs, which are developed jointly by high schools and community colleges to provide a continuous course of study leading to an associate degree or other postsecondary credential” (United States Bureau of Labor and Statistics, 2010, p. 2). School transitional programs through CTE such as job shadowing, cooperative education, tech-prep, and youth apprenticeships should be preparing today’s students to enter a high-wage, high-skilled, and high-demand workforce (Brown, 2003; Castellano et al., 2001; Lewis, 2008; Wonacott, 2001). Research indicated that CTE could also reduce the percentage of
student not graduating from secondary education. Plank, DeLuca, and Estacion (2005) indicated that students taking one CTE class for every two academic classes reduced their risk of dropping out of school. ACTE (2007) stated that “By providing relevance and strong relationships between students and the education environment, CTE can be an effective means of ensuring that students complete high school” (p. 7).

CTE educators were important in helping students succeed in the world of work and/or college. To achieve this success, teachers planned and used effective practices, learning styles, teaching strategies, and textbooks and resources. CTE teachers developed business and industry partnerships, provided guidance and support, and sponsored career technical student organizations. CTE programs have been a key factor in students’ total education and career success.
CHAPTER III
METHODOLOGY

The focus of the study was to address the quality of the CTE programs at Noxubee County Career and Technical Center to determine relevance of the programs in terms of providing students with workplace readiness skills, reducing the dropout rate, and transitioning students into post secondary education. This chapter described the research design, population, instrumentation, procedures, and methods of data analysis.

Research Design

This study employed the ex post facto research design. The ex post facto research design was used to examine the effects of the treatment after it had occurred (Gay, Mills, & Airasian, 2012). The researcher used existing data to determine the percentages of CTE completers who met the Carl Perkins’ status indicators. The researcher retrieved MS-CPAS test scores from the following programs: automotive service technology, building trades, business computer technology, metal trades, and technology applications. The researcher obtained data on students’ MS-SATP scores, placement records, and dropout rate from Noxubee County School District’s records.

Population

The Noxubee County School District is located in northeast Mississippi. Noxubee County, Mississippi has a population of 11,814 (U.S. Census Bureau, 2007). During the 2009-2010 school year, there were 1,923 students enrolled in the school district (MDE,
The school district has two elementary schools, one middle school, one high school, one career and technical center, and one alternative school. Students in the school district were 99% African Americans.

The Noxubee County Career and Technical Center has six programs. Those programs include: (1) allied health, (2) automotive service technology (3) business computer technology, (4) building trades, (5) metal trades, and (6) technology applications. The career and technical center served an average of 150 students in grades 11 through 12 each school year between 2006 and 2010. The high school graduated 675 students from 2006 to 2010. The population of the study was 675 students and this included both CTE students and non-CTE students (regular high school students). Out of the total of 675 students who participated in the study; 236 students were CTE and 439 were non-CTE participants. The average number of students who completed CTE programs per year was 50. A systematic sample was used. Fraenkal and Wallen (2005) stated that “In a systematic sample, every nth individual in the population list is selected for inclusion in the sample” (p. 98). In this study, every 3rd student was selected. The sample size calculator for this study was used to determine the number of participants for the sample (http://www.surveysystem.com). A 95% confidence level and 5% margin of error was used to determine the sample size. The samples for this study included 140 CTE completers and 245 non-CTE participants. Each student was assigned a number code for confidentiality purposes.

**Description of State Assessments**

The researcher used two test instruments for this study, the district’s dropout report for Noxubee County High School, and the Carl Perkins’s placement data for CTE
completers. The test instruments that were used included the scores from the MS-CPAS and the scores from the MS-SATP that included United States History, English II Writing, English II Multiple Choice, Biology I, and Algebra I. The Mississippi Student Information System Placement Report was used to access Carl Perkins Indicator data for post secondary transition, military enlistment, employment positions.

**Mississippi Career Planning Assessment System (MS-CPAS)**

The MS-CPAS scores were used to assess the performance of local CTE programs. The MS-CPAS scores were used to provide a meaningful assessment of secondary CTE content tied to the state’s content standards and promote instructional strategies integrating both academic content and career and technical content. The validity of the MS-CPAS included curriculum and assessment aligned with national and industry standards (MDE, 2007). To be sure the MS-CPAS measured technical skill attainment, research-based assessment strategies were implemented to include item bank development, blueprint development, sample items, reliability and validity studies, report development, professional training for teachers and administrators, training for teacher involved in writing test items (MDE, 2007).

**Mississippi Subject Area Testing Program (MS-SATP)**

The MS-SATP scores were used as a graduation requirement for high school students. The MS-SATP scores consisted of assessments in the subject areas of English II, United States history, Algebra I, and Biology I. The validity of the MS-SATP included curriculum frameworks, test development, test blueprints, item and form tryouts, and live forms development (MDE, 2005). A MS-SATP teacher committee was used as part of the process of developing the MS-SATP (MDE, 2005).
Mississippi Student Information System Placement Report (MSIS Placement Reports)

The MSIS placement reports were used that provide data on secondary completers in CTE. These reports identified the placement of each CTE completer in one of the following categories (1) continuing education into post secondary, (2) employed in field trained or related field, (3) military, or (4) employed in unrelated field. The MSIS placement reports were one of the core indicators from the Carl Perkins Act of 2006. The core indicators from the Carl Perkins Act of 2006 were used to assess secondary and post secondary CTE programs (The Carl Perkins Act, 2006).

Procedures

For this study, the researcher submitted a letter explaining the nature of the study to the superintendent of education at Noxubee County School District and to the Noxubee County School Board Members. After receiving approval from Noxubee County School District, the researcher completed a Mississippi State University Institutional Review Board form for permission to conduct the study. A copy of the IRB approval letter was included as part of the appendices. A copy of the approval letter from Noxubee County School District was also included in the appendices.
Methods of Data Analysis

The research questions that drove this study included the following questions:

1. What was the percentage of CTE completers from Noxubee County School District who met the Carl Perkins placement status indicators of post-secondary education, employment in field trained or related field, or the military?

2. What was the rate of dropout for both CTE participants and non-CTE participants (regular high school students) from 2006-2010?

3. Did statistically significant differences exist between CTE participants and non-CTE participants (regular high school students) based on their scores in United States History, English II Writing, English II Multiple Choice, Biology I, and Algebra I?

4. Did statistically significant differences exist among the CTE participants in the Mississippi Career Planning Assessment System (MS-CPAS) scores based on gender?

The MS-CPAS scores and the MS-SATP scores were analyzed by using t-tests. Percentages were used to determine the dropout rate and Carl Perkins’ placement data which included transition to post secondary educational institutions, employment, and the military.
CHAPTER IV

RESULTS

The purpose of this chapter was to provide the results from the analysis of data collected to examine the quality of career and technical education programs on high school students at Noxubee County School District. The problem of this study was that students were not equipped with employability readiness skills in order to secure employment after graduating from high school. This chapter included demographic of information of the participants and concluded with the findings of this study.

Demographics

This study identified the demographics of career and technical education completers and non-CTE students at Noxubee County High School who were involved in this study. The population for the study included 675 students from the Noxubee County High School. The sample for the study included 228 female participants and 157 male participants for the study. There were 140 CTE completers and 245 non-CTE students. All of the participants were African-Americans. Figure 4.1 showed the number of participants in the study.
Research Question 1: What was the Percentage of CTE Completers from Noxubee County School District who Met the Carl Perkins Placement Status Indicators of Post Secondary Education, Employment in Field Trained or Related Field, or the Military?

The researcher used percentages to determine how many CTE completers met the Carl Perkins placement status indicators of post-secondary education, employment in field trained or related field, or the military. Table 4.1 provided a summary of the Carl Perkins’ placement indicators. The findings revealed that CTE completers continued their education at 77% in 2006, 74% in 2007, 88% in 2008, 91% in 2009, and 76% in 2010. The findings indicated that CTE completers met the Carl Perkins’ indicator employed in field trained or related field at 20% or more for the years of 2006, 2007, and 2010. The results revealed that the CTE completers met the Carl Perkins’ indicator employed in field trained or related field at 12% in 2008 and 7% in 2009. The remaining
Carl Perkins’ indicators (military, employment not related to program, and not employed) were 3% or less.

Table 4.1  Noxubee County Career and Technical Center: Carl Perkins’ Placement Data

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of CTU Completers</th>
<th>Placement Indicators</th>
<th>Placement Indicator Numbers</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>60</td>
<td>1. Continuing Education</td>
<td>46</td>
<td>77%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Employment in Field Trained or Related</td>
<td>12</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Employment Not Related</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Military</td>
<td>2</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Not Employed</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>2007</td>
<td>57</td>
<td>1. Continuing Education</td>
<td>42</td>
<td>74%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Employment in Field Trained or Related</td>
<td>12</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Employment Not Related</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Military</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Not Employed</td>
<td>2</td>
<td>3%</td>
</tr>
<tr>
<td>2008</td>
<td>34</td>
<td>1. Continuing Education</td>
<td>30</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Employment in Field Trained or Related</td>
<td>4</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Employment Not Related</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Military</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Not Employed</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>2009</td>
<td>43</td>
<td>1. Continuing Education</td>
<td>39</td>
<td>91%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Employment in Field Trained or Related</td>
<td>3</td>
<td>07%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Employment Not Related</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Military</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Not Employed</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>2010</td>
<td>42</td>
<td>1. Continuing Education</td>
<td>32</td>
<td>76%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Employment in Field Trained or Related</td>
<td>8</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Employment Not Related</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Military</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Not Employed</td>
<td>1</td>
<td>2%</td>
</tr>
</tbody>
</table>
Research Question 2: What was Rate of Dropout for Both CTE Participants and Non-CTE Participants (Regular High School Students) from 2006-2010?

The researcher used percentages to present the dropout rate data for Noxubee County High School. The dropout rates for Noxubee County High School have fluctuated from 2006 to 2010. The findings indicated that dropout rates for Noxubee County High School were 3% for 2007 and 2010 and 4% for 2006 and 2008. The results revealed that the largest dropout rate for the district’s high school was in 2009 when the dropout rate was 5%. The data indicated that there was no progress made in the dropout rate for Noxubee County High School from 2006-2010. Figure 4.2 displayed the data on the dropout rates for the Noxubee County High School.

Figure 4.2 Dropout Rate for Noxubee County High School for 2006-2010

Research Question 3: Did Statistically Significant Differences Exist Between CTE Participants and Non-CTE Participants (Regular High School Students) Based on Their Scores in United States History, English II Writing, English II Multiple Choice, Biology I, and Algebra I?

A t-test was used to calculate MS-SATP scores for CTE completers and non-CTE students for a total of five years (2006-2010). The findings indicated that there were no
statistical significant differences between CTE completers and non-CTE students in United States History for the years of 2006 through 2010. The results revealed that CTE completers’ mean score (347.66) was slightly higher than non-CTE students’ mean score (342.84). Table 4.2 revealed the findings from the t-test.

Table 4.2  T-Test for U.S. History Scores for CTE Completers and Non-CTE Participants for the Years of 2006-2010

<table>
<thead>
<tr>
<th></th>
<th>U.S. History (CTE)</th>
<th>U.S. History (Non-CTE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>347.66</td>
<td>342.84</td>
</tr>
<tr>
<td>Variance</td>
<td>1523.66</td>
<td>1089.59</td>
</tr>
<tr>
<td>t Stat</td>
<td>1.29</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) two-tail</td>
<td>0.20</td>
<td></td>
</tr>
<tr>
<td>t Critical two-tail</td>
<td>1.97</td>
<td></td>
</tr>
</tbody>
</table>

A t-test was used to calculate the English II writing scores for CTE completers and non-CTE participants for a total of five years (2006-2010). Table 4.3 displayed the data analysis. There were no statistically significant differences between CTE completers and non-CTE students in the English II writing scores.

Table 4.3  T-Test for English II Writing Scores for CTE Completers and Non-CTE Participants for the Years of 2006-2010

<table>
<thead>
<tr>
<th></th>
<th>English II Writing (CTE)</th>
<th>English II Writing (Non-CTE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.02</td>
<td>2.00</td>
</tr>
<tr>
<td>Variance</td>
<td>0.08</td>
<td>0.09</td>
</tr>
<tr>
<td>t Stat</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) two-tail</td>
<td>0.40</td>
<td></td>
</tr>
<tr>
<td>t Critical two-tail</td>
<td>1.97</td>
<td></td>
</tr>
</tbody>
</table>
A t-test was used to calculate English II multiple choice scores for a total of five years (2006-2010). Table 4.4 showed the findings. The results indicated that the mean score (398.84) for CTE completers was higher than the mean score (377.58) for non-CTE participants. There were no statistically significant differences in the English II multiple choice scores for CTE completers and non-CTE participants.

Table 4.4  T-Test for English II Multiple Choice Scores for CTE Completers and Non-CTE Participants for the Years of 2006-2010

<table>
<thead>
<tr>
<th></th>
<th>English II MC (CTE)</th>
<th>English II MC (CTE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>398.84</td>
<td>377.58</td>
</tr>
<tr>
<td>Variance</td>
<td>20198.51</td>
<td>17346.37</td>
</tr>
<tr>
<td>t Stat</td>
<td>1.48</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) two-tail</td>
<td>0.14</td>
<td></td>
</tr>
<tr>
<td>t Critical two-tail</td>
<td>1.97</td>
<td></td>
</tr>
</tbody>
</table>

The findings indicated that there were no statistically significant differences in biology I scores for CTE completers and non-CTE students for a total of five years (2006-2010). Table 4.5 displayed the results of the t-test for biology I scores for CTE completer and non-CTE participants.

Table 4.5  T-Test for Biology I Scores for CTE Completers and Non-CTE Participants for the Years of 2006-2010

<table>
<thead>
<tr>
<th></th>
<th>Biology I (CTE)</th>
<th>Biology I (Non-CTE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>329.86</td>
<td>326.38</td>
</tr>
<tr>
<td>Variance</td>
<td>902.25</td>
<td>1105.46</td>
</tr>
<tr>
<td>t Stat</td>
<td>1.02</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) two-tail</td>
<td>0.15</td>
<td></td>
</tr>
<tr>
<td>t Critical two-tail</td>
<td>1.97</td>
<td></td>
</tr>
</tbody>
</table>
The researcher used a t-test to analyze the data for Algebra I scores for CTE completers and non-CTE students for a total of five years (2006-2010). There was no statistically significant differences in Algebra I scores for CTE completers and non-CTE completers. As shown in Table 4.6, results indicated that the mean score (392.95) was higher for CTE completers than the mean score (368.89) for non-CTE students.

Table 4.6  T-Test for Algebra I Scores for CTE Completers and Non-CTE Participants for the Years of 2006-2010

<table>
<thead>
<tr>
<th></th>
<th>Algebra I (CTE)</th>
<th>Algebra I (Non-CTE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>392.85</td>
<td>368.89</td>
</tr>
<tr>
<td>Variance</td>
<td>18184.35</td>
<td>13214.14</td>
</tr>
<tr>
<td>t Stat</td>
<td>1.85</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) two-tail</td>
<td>0.06</td>
<td></td>
</tr>
<tr>
<td>t Critical two-tail</td>
<td>1.97</td>
<td></td>
</tr>
</tbody>
</table>

**Research Question 4: Did Statistically Significant Differences Exist Among the CTE Participants in the Mississippi Career Planning Assessment System (MS-CPAS) Scores Based on Gender?**

A t-test was used to calculate the MS-CPAS scores for CTE completers based on gender for a total of five years (2006-2010). Table 4.7 displayed the results of the findings. The findings revealed that there were statistically significant differences in the MS-CPAS score based on gender. The results revealed that the mean score (42.74) for CTE female completers was significantly higher than the mean score (39.31) for CTE male completers.
Discussion of Findings

This study used the ex post facto research design. Data were collected from Noxubee County School District from 2006 to 2010. Data collected included MS-CPAS test scores, MS-SATP scores, dropout data from Noxubee County School District, and Carl Perkins’ Placement Data. The results of this study showed that CTE had a positive impact on CTE completers based on the percentages of CTE completers entering the workforce, advanced education, and the military. The Carl Perkins Act of 2006 required that all CTE programs be measured by a set of indicators that determined the success of CTE programs in preparing students for the workforce, military, and post secondary education. Those indicators for Mississippi included (a) academic attainment in reading/language arts, (b) academic attainment in mathematics, (c) technical skill attainment in the career and technical state assessment, (d) secondary school completion, (e) student graduation rate, (f) secondary placement data, (g) nontraditional participation, and (h) nontraditional completion. Findings for research question one indicated that from 2006 to 2010 CTE completers continued their education. The results indicated that the highest percentages of transition to post secondary education were in 2008 at 88% and in 2009 at 91%. Seven percent (7%) to 21% of CTE completers entered the workforce in entry level positions in the areas of transportation, businesses and technology,
construction, health, and manufacturing. Three percent of CTE completers enlisted in the military. However, there were a small number of completers that were unemployed and did not enroll in college.

The findings for research question two indicated that the dropout rate from 2006 to 2010 fluctuated between 3% and 5%. The dropout rate increased in 2009 to 5%. The findings revealed that the dropout rate for Noxubee County High School did not show progress from 2006 to 2010. One of the factors that could have contributed to the findings of research question two could be the lack of data that were available on students who were enrolled in CTE programs that could have dropped out of high school. The dropout data used for this study consisted of all students enrolled at Noxubee County High School.

Algebra I and English II were two of the academic indicators of the Carl Perkins Act of 2006 that were used to evaluate CTE programs. CTE students must meet the state mandated cut scores for English II and Algebra I in order for CTE programs to be measured successful on the Carl Perkins’ academic indicators. The findings for research question three revealed that there were no statistical significant differences between CTE completers and non-CTE participants in United States History, English II Writing, English II Multiple Choice, Biology I, and Algebra I. However, the study revealed that CTE completers’ English II Multiple Choice mean score, Algebra I mean score, and United States History mean score were higher than non-CTE participants’ scores in those areas. The fact that CTE completers were just as successful as non-CTE students in academics indicated that CTE programs are preparing students with the academic and technical skills needed to transition into post secondary or the workforce. Another factor
that contributed to the academic success was the implementation of a rigorous curriculum by CTE educators.

The findings for question four revealed that there were statistical significant differences in the MS-CPAS scores based on gender. CTE female completers’ mean scores were higher than the mean scores of CTE male completers on the MS-CPAS. The findings provided positive information in two areas for female CTE completers. First, the MS-CPAS scores are Mississippi’s state assessment for CTE completers. The MS-CPAS scores are also the technical skill attainment indicator for the Carl Perkins Act of 2006. The findings indicated a positive impact for females in CTE in both the meeting the state’s CTE requirements and meeting the technical skill attainment indicator of the Carl Perkins Act of 2006. The nontraditional CTE completer’s indicator of the Carl Perkins Act of 2006 measured CTE programs by the number of nontraditional students completing the program. Females enrolled in traditional male dominated programs such as transportation, construction, manufacturing, and engineering are considered nontraditional CTE students (MDE, 2008). The findings provided the Noxubee County School District with information that females are making progress in the local CTE programs. The findings would be a positive indicator for the Mississippi Department of Education Office of Career of Technical Education and Workforce Development.
CHAPTER V

CONCLUSION, IMPLICATIONS, RECOMMENDATIONS

This chapter provided of a conclusion, implications, and recommendations of this study. The purpose of the study was to determine the quality of career and technical education programs on high school students. The study examined the success of CTE programs in preparing students for employment, reducing the dropout rate, and increasing post secondary education transition.

Conclusion

Based on the findings of this study, it was concluded that CTE programs were successful in preparing students for post secondary education, the workforce, and the military. In reviewing the results, it was concluded that local programs at Noxubee County Career and Technical Center were making a positive impact on CTE students. This finding supported the findings of other researchers who found that CTE provided an opportunity for students to graduate from high school, gain workplace readiness skills, and transition into post secondary education (Bray, 2010; Hyslop, 2008; Reese, 2010). The findings supported the ACTE’s (2008) findings which indicated that CTE was vital in students’ workplace success which led to increased strength in the economy. The findings suggested that students enrolled in Mississippi’s CTE program would mostly likely be ready to enter the 21st century workplace.

Based on the findings, the dropout rate at Noxubee County High School oscillated between 3% and 5% from 2006 to 2010. The researcher concluded that CTE did not
impact the percentage of dropout rate at Noxubee County School District. According to King (2010), CTE have been considered to be one of the solutions to reducing the dropout rate but the current results did not support the work of King (2010). However, in 2005, Plank et al. concluded that students taking one CTE class for every two academic classes reduced their risk of dropping out of school. Nevertheless, the work of Wonacott (2002) indicated that CTE reduced the dropout rate when academic and CTE’s knowledge skills were integrated.

The findings of the study indicated that there were no statistical significant differences between CTE completers and non-CTE participants based on test scores in the Mississippi academic core subjects that included United States History, English II Writing, English II Multiple Choice, Biology I, and Algebra I. Based on the findings of the study that CTE completers continued their education, the researcher concluded that CTE completers were equipped with academic skills that would help them to excel in post high school challenges. According the findings of the study, there were no academic differences in test scores in core subject areas (United States History, English II Writing, English II Multiple Choice, Biology I, Algebra I) between CTE completers and non-CTE students. The findings matched the findings of other studies. For example, a study by Rojewski (2002) revealed that CTE students take more and higher level math than regular academic students. Silverberg et al. (2004) indicated in a study that over 50% of CTE students who completed a new CTE curriculum that included four years of English, three years of math, science, and social studies were able to increase his or her earnings by 2% for each CTE course taken. The findings suggested that CTE curriculums were meeting the academic accountability standards of NCLB.
The findings of the study revealed that there were statistical significant differences in the technical skills attainment (MS-CPAS) of CTE students at Noxubee County Career and Technical Center based on gender. The mean scores for females CTE completers were higher than mean scores for male CTE completers. Based on the results, it was concluded that females were progressing at a higher rate than males in CTE. Today’s CTE programs have placed more emphasis on gender. The Carl Perkins’ indicator on nontraditional completion evaluated CTE programs on the number of females completing traditional male-dominated fields such as agriculture and welding and evaluated CTE programs for males completing program normally that have been female-dominated such as health care and business technology. The findings supported the work of Bray (2010) and ACTE (2010) that concluded that CTE was for all students and prepared them for a variety of high-waged and high-skilled careers. According to Brand (2003), “every high school student must meet higher academic standards in secondary and post secondary education and be prepared for the challenges of work, continued learning, and citizenship” (p. ii).

The final conclusions determined from the findings of this study included the items below:

1. Based on the findings of this study, CTE completers entered the workforce in field trained or related at 7% to 21% CTE students in the Noxubee County School District moved forward to be competitive in the 21st century workforce.
2. Based on the findings of this study that there were no statistical significant differences in core academic skills of CTE completers and non-CTE students, CTE students should bridge the gap from secondary education to post secondary
education. CTE curriculums were integrated with core academic objectives that prepared students with academic and technical skills.

3. Based on the findings of this study, CTE programs have prepared CTE students with the credentials to enlist in the military. Curriculum components such as academic preparation, ACT preparation, technical skills, and technology skills have been essential in the preparation of students completing the Armed Services Vocational Aptitude Battery (ASVAB) and enlisting in the military.

4. Based on the findings of this study, CTE programs have met the Carl Perkins’ indicators that evaluated programs on academic skills attainment, technical skills attainment, placement, and nontraditional completers. CTE students progressed at a rate of 74% to 91% into post secondary education, entered the workforce at 7% to 22%, and the military at a rate of 3% has been positive indicators for Carl Perkins’ indicators.

The findings of the study revealed that CTE programs provided a positive impact on CTE completers for the Noxubee County School District.

**Implications**

Based on the findings of the study, the researcher and educators should take a closer look at the dropout data of the district to improve the progress of student dropout. The researcher and educators should investigate types of mentoring programs that may be a solution to decreasing the dropout rate at Noxubee County High School. Castellano et al. (2007) reported that the absent of a close interpersonal relationship with adults was another reason for the increasing dropout rate. Therefore, it would be beneficial for all
stakeholders to consider an implementation of a mentoring program for at-risk students in the district.

Based on the results of the study, an awareness or focus on technical skills (MS-CPAS) on CTE male completers would be vital to the continued success of the impact of CTE programs. The findings indicated that female CTE completers scored higher on the MS-CPAS than their male counterparts which indicated that male scores should be closely monitored for continued success. Educators were encouraged to provide challenging and rigorous instruction to all students. SREB (2009) contended that “These courses must be authentic and intellectually challenging learning experiences that motivate students to master academic and technical knowledge and skills” (p. ii). Based on the findings from this study, other implications included using the results to provide professional development for instructors, administrators, and counselors in CTE and to implement program improvement.

**Recommendations**

Based on the results of this study, the researcher made recommendations for future research.

1. Since this study was limited to only one high school in the northeast Mississippi area, a research study should be conducted in other geographic areas of Mississippi to determine if the results would be consistent with those that were derived from using Noxubee County School District as the population.

2. The findings revealed that there were no statistically significant differences in the academic core subject areas of CTE completers and non-CTE participants enrolled in Noxubee County School District, a research study should be
conducted to compare the academic core subject areas of all students in the state of Mississippi to determine whether or not there would be statewide differences in the academic grades of CTE students and non-CTE students.

3. The findings indicated that CTE completers transitioned to post secondary education, a longitudinal research study should be conducted to track the success of CTE completers at the post secondary level.

4. The findings revealed that there were statistically significant differences in the MS-CPAS scores based on gender. Because female CTE completers scored higher than CTE male completers, a research study should be conducted to assess the impact of CTE programs on all females enrolled in CTE programs in Mississippi. Traditionally, CTE has been male-dominated however, it would be interesting to see how females are progressing in today’s CTE programs.
REFERENCES


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APPENDIX A

LETTER TO SUPERINTENDENT
Dear Dr. Jones:

I am a doctoral student at Mississippi State University. Dr. Mabel Okojie is my major professor. I am currently conducting research for my dissertation on the Impact of Career and Technical Education (CTE) on High School Students Enrolled at Noxubee County High School. The need for this study is to determine whether CTE will help the students graduating from Noxubee County High School to be prepared for the demanding workforce in the North Mississippi area and neighboring states. The current literature suggests that CTE will bridge the gap between academic and career and technical education and prepare students for the workforce and/or post-secondary education.

I am writing to request your assistance by allowing me to access MSCPAS data and SATP data from 2002 until 2009 school years. This information will be coded with numbers so that student identification will be kept confidential. Once the study has been completed, I will gladly share the findings and recommendations with the school district.

If you have any questions, you may contact me by the information below. Thank you in advance for your assistance.

Sincerely,

Annie J. Snow

Contact Information:
Home: 662-418-6833
Work: 662-726-4225
APPENDIX B

APPROVAL LETTER FROM SUPERINTENDENT
2417 Douglas McArthur Drive
Starkville, MS 36759

May 28, 2010

Dr. Kevin Jones, Superintendent
Neshoba County School District
P.O. Box 387
Macon, MS 39341

Dear Dr. Jones:

I am a doctoral student at Mississippi State University. Dr. Mabel Okojie is my major professor. I am currently conducting research for my dissertation on the Impact of Career and Technical Education (CTE) on High School Students Enrolled at Neshoba County High School. The need for this study is to determine whether CTE will help the students graduating from Neshoba County High School to be prepared for the demanding workforce in the North Mississippi area and neighboring states. The current literature suggests that CTE will bridge the gap between academic and career and technical education and prepare students for the workforce and/or post-secondary education.

I am writing to request your assistance by allowing me to access MSCPAS data and SATP data from 2006 until 2010 school years. This information will be coded with numbers so that student identification will be kept confidential. Once the study has been completed, I will gladly share the findings and recommendations with the school district.

If you have any questions, you may contact me by the information below. Thank you in advance for your assistance.

Sincerely,

Anne J. Snow

Contact Information:
Home: 662-418-6833
Work: 662-726-4225

[Signature]
5-28-10
APPENDIX C

INSTITUTIONAL REVIEW BOARD APPROVAL
July 26, 2011

Annie Snow
417 Douglas McArthur Drive
Starkville, MS 39759

RE: IRB Study #11-194: An Assessment of the Impact of Career and Technical Education Programs on High School Students

Dear Ms. Snow:

This email serves as official documentation that the above referenced project was reviewed and approved via administrative review on 7/26/2011 in accordance with 45 CFR 46.101(b)(1)&(b)(4). Continuing review is not necessary for this project. However, any modification to the project must be reviewed and approved by the IRB prior to implementation. Any failure to adhere to the approved protocol could result in suspension or termination of your project. The IRB reserves the right, at anytime during the project period, to observe you and the additional researchers on this project.

Please note that the MSU IRB is in the process of seeking accreditation for our human subjects protection program. As a result of these efforts, you will likely notice many changes in the IRB's policies and procedures in the coming months. These changes will be posted online at http://www.orc.msstate.edu/human/aahrpp.php.

Please refer to your IRB number (#11-194) when contacting our office regarding this application.

Thank you for your cooperation and good luck to you in conducting this research project. If you have questions or concerns, please contact me at cwilliams@research.msstate.edu or call 662-325-5220.

Sincerely,

Christine Williams, CIP
IRB Compliance Administrator

cc: Mabel Okojie (advisor)
APPENDIX D

LETTER TO PRINCIPAL
October 19, 2010

Dr. Hattie Thomas, Principal
Noxubee County High School
Macon, MS 39759

Dear Dr. Thomas:

I am pursuing my doctoral degree at Mississippi State University. I am at the stage of collecting information for my research project. I am requesting student data from Noxubee County High School from 2005-2006 school year through the 2009-2010 school year. Dr. Jones, Superintendent of Education and the Noxubee School Board have granted by permission to use student data for my research project.

The data that I am requesting include the following:

1. List of all NCHS graduates from 2005-2006 to 2009-2010
2. List of all NCHS graduates’ MS-SATP Scores from 2005-2010
3. List of dropouts from 2005-2006 to 2009-2010

I will need this information on or before November 1, 2010. If you have any questions, you may contact me at 662-726-4225. You can also email me at asnow@noxcnty.k12.ms.us. Thank you in advance for your cooperation.

Sincerely,

Annie Snow

cc Dr. Kevin Jones, Superintendent of Education
   Ms. Angelia Williams, NCHS Counselor