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Determining the Skills Gap: A Study of the Perceptions of Entry-Level Skills of Recent Career and Technology Education Completers

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Determining the Skills Gap: A Study of the Perceptions of Entry-Level Skills of Recent
Career and Technology Education Completers

By
Lee C. Green

A Dissertation Submitted to the
Gardner-Webb School of Education
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

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Abstract

Determining the Skills Gap: A Study of the Perceptions of Entry-Level Skills of Recent Career and Technology Education Completers. Green, Lee C., 2015: Dissertation, Gardner-Webb University, Career Preparation/Soft Skills/Career and Technology Education/Dropout Prevention

This study examined the perceptions of community employers as to the skill levels of graduates from Career and Technology Education (CTE) programs. This study also examined the perceptions of former students of CTE programs. The skill level is the skills that the job market deem necessary to be successful in a particular industry. This study also determined if the skills being taught in secondary schools meet the needs of community employers.

Data were collected from several sources. Quantitative data were collected in the form of questionnaires distributed to 496 recent completers of CTE programs in Chester County School District and 247 employers in Chester County. The researcher had a goal of a 10-15% return rate. Qualitative data were collected via open-ended questions and one-on-one interviews. The qualitative and quantitative data were used to determine the needs of the local employers and to gain the perceptions of recent graduates and local employers as they pertain to the preparedness of new entrants into the workforce.

Historical data in the form of school performance data, individual student data, and Perkins Performance Indicators were utilized to examine the performance of the CTE program in Chester County School District.

Table of Contents

	Page
Chapter 1: Introduction	1
Nature of Problem.....	1
Purpose of Study	8
Background and Significance of the Problem	9
Research Questions	20
Theoretical Framework	20
Definition of Terms.....	23
Chapter 2: Literature Review	26
Introduction.....	26
The Ill-Prepared Workforce	27
Personal and Public Cost of Not Completing School	31
Understanding Graduation and Dropout Rates	33
Factors of Dropping Out of School.....	35
Dropout Factories.....	38
Methods of Dropout Prevention.....	40
CTEs Role in Dropout Prevention and Career Preparation	45
Programs that Work	52
Summary and Conclusion	59
Chapter 3: Methodology	60
Research Design.....	61
Participants.....	61
Instruments.....	63
Instrument Reliability and Validity	63
Procedures	64
Limitations	65
Delimitations.....	65
Summary	66
Chapter 4: Results	67
Research Question 1 Results.....	69
Research Question 2 Results.....	81
Research Question 3 Results.....	92
Summary of Results	102
Chapter 5: Discussion and Implications for Further Study.....	105
Conclusions.....	107
Recommendations for Improvement.....	122
Recommendations for Further Study	124
Limitations	125
Conclusions from Study.....	126
References	128
Appendices	
A Recent Graduate Survey	135
B Employer Skill Survey.....	142
C Chester County School District Comprehensive Needs Assessment	148
Tables	
1 Program Overview for Career and Technology Center	19

2	Employer Career Cluster.....	70
3	Importance to the Success of the Organization.....	73
4	Desired Level of New Hire Competence	74
5	Career Clusters of Interest	79
6	CTE Programs Completed by Survey Respondents	82
7	Importance of Each Area to Career Choice	85
8	How Well Education and Training Prepared Recent Graduate for Career Choice	86
9	Actual Level of New Hire Competence.....	87
10	Completer Program Count and Average GPA.....	94
11	Skills that Employers Rated as Vital and Very Important to the Success of the Organization	108
12	Skills that Employers Desire that were Rated as Desirable and Very Desirable	110
13	Actual Level of New Hire Competence that were Rated as 4 and 5.....	113
14	Importance of Each Area to Career Choice that Rated Vital and Very Important.....	115
15	Level of Preparedness of Skills that Rated 4 and 5	116
Figures		
1	“High Need” Areas for Training.....	7
2	Percentage of Students Attending the CTE Center from Each High School	15
3	Students Enrolled in CTE Programs Compared to Total High School Enrollment.....	15
4	Type of College Degree Possessed by Instructors	16
5	Years of Experience at Career and Technology Center.....	17
6	Years of Experience in Education.....	18
7	Average GPA by School	93
8	Count by Race and Gender	95
9	Average GPA by Race and Gender	95
10	Academic Attainment – Reading/Language Arts	96
11	Academic Attainment – Mathematics.....	97
12	Technical Skill Attainment	98
13	Secondary School Completion.....	98
14	Student Graduation Rates	99
15	Secondary Placement	100
16	Nontraditional Participation.....	100
17	Nontraditional Completion	101
18	Employer Skills Rating Comparison	111
19	Skill Comparison of Actual Level, Desired Level, and Level of Importance	114
20	Recent Graduates’ Levels of Preparedness Compared to Importance of Each Area to Career Choice.....	117

Chapter 1: Introduction

Nature of the Problem

Over the past half century, high school completion has grown in importance. The importance of a high school diploma has moved from a valued asset in the 1950s, to opening doors to a promising career in the 1970s, to being a minimum requirement in a labor market that demands highly skilled workers in the 2000s (Kaufman, Alt, & Chapman, 2004). Advances in technology have fueled the demand for a more highly skilled labor force, transforming a high school education into a minimum requirement for entry into the labor market. At a time when economic conditions require a workforce of lifelong learners who can quickly gain the knowledge and skills needed to work with new technologies in emerging careers, a high school diploma is critical for any individual who wishes to compete in the 21st century workforce. High school completion has become a requirement for accessing additional education, training, and career advancement. The skills that employers demand today are vastly different than the skills required a number of years ago. Trends in industry that have changed the landscape of the workforce are automation, globalization, and policies increasing personal responsibility (Jerald, 2009). This changing landscape has led a transformation of the skill sets necessary for individuals to be successful and productive in the workforce.

During the Industrial Age (1760-1840), individuals worked in isolation and were trained to perform a particular task. The importance of teamwork was not stressed, and production was the focus. During the height of manufacturing and agriculture, especially in the South, a high school education or less was enough to compete for employment. Many individuals lived productive lives with minimum training and education. With the introduction of high-tech jobs which require a higher level of skills, individuals were

unprepared to meet the challenges of the 21st century workforce (Kaufman et al., 2004). The introduction of professions that require computer skills and the operation of computer-driven machinery to replace human labor are examples of the professions that require a different skill set than previous generations of workers.

Not only are recent graduates competing with citizens of the United States for employment, they are competing globally. The global economy has introduced many new opportunities to the economy and to the workforce of the United States. The global economy has also created many jobs that require individuals to have a skill set that is more technology-based and more dependent on interpersonal skills. The current workforce is fueled by technology and powered by information. During the 1990s, more than 19 million new jobs were created. High technology industries accounted for 1 million of those new jobs. E-commerce generated \$300 billion in 1999, which was almost the size of the automotive industry. Real average wages in the high-tech industries increased 19% since 1990, compared with a 5% average increase for the private sector as a whole. The average high-tech job pays 78% more than the average non-high-tech job (U. S. Department of Labor, 1999).

In Wagner (2008), employers identified seven “survival” skills that prospective employees are lacking.

1. Critical Thinking and Problem Solving. Critical thinking is the ability to think clearly and rationally. It includes the ability to engage in reflective and independent thinking. Critical thinkers are able to understand the logical connections between ideas; identify, construct, and evaluate arguments; detect inconsistencies and common mistakes in reasoning; solve problems systematically; identify the relevance and importance of ideas; and reflect on the justification of one’s own beliefs and values

(Foundation of Critical Thinking, 2013, para. 6).

Karen Bruiett, Strategic Business Development Manager for Dell Computer Corporation, summed up the importance of critical thinking skills in Wagner (2008).

Corporations have changed dramatically in the last twenty years in terms of the ways that work is organized. Most companies used to have big hierarchies, and were very top-down in their management styles, and employees were very specialized in their functions. If you look at what's going on in any company today, the organization has been flattened. The way work is organized is lots of networks of cross-functional teams that work together on specific projects. Work is no longer defined by your specialty; it's defined by the task or problem you and your team are trying to solve or the end goal you want to accomplish. Teams have to figure out the best way to get there – the solution is not prescribed. And so the biggest challenge for our front-line employees is having the critical-thinking and problem-solving skills they need to be effective in their teams – because nobody is there telling them exactly what to do. They have to figure it out. (Wagner, 2008, p. 15)

2. Collaboration across Networks and Leading by Influence. Collaboration is a recursive process where two or more people work together towards an intersection of common goals by sharing knowledge, learning, and building consensus. Collaboration is also the action of working with one or more people to create something (Lomas, Burke, & Page, 2008, p. 3). With the changes in many workplaces, collaboration has become increasingly important. Many workplaces function with multiple departments that work in unison toward a common goal. Technology in the workplace allows for departments and organizations to work collaboratively on the same project in different parts of the

world. As organizations become more global, the ability to work fluidly around the world is a competitive advantage (Wagner, 2008).

Being able to work collaboratively enables organizations to accomplish tasks at a faster rate. Working collaboratively also reduces the work pressure on every team member and increases the accountability of every member of the team. Cooperating on a project is an opportunity for new workers to learn from more experienced employees. Teams often consist of members who differ from one another in terms of skills or talents. Working together is an opportunity for the employee to acquire new skills (Kelly, 2013).

Being prepared to work globally is a significant issue for today's workforce. Interactions with individuals from diverse cultures and religions are almost certain. The skillfulness of individuals working with networks of people across boundaries and from different cultures has become an essential prerequisite for a growing number of multinational corporations. The Partnership for 21st Century Skills included global awareness in its "21st Century Skills Framework." The "21st Century Skills Framework" has been promoted for several years to policymakers and educators. According to the Partnership for 21st Century Skills, global awareness refers to the ability of students to use 21st century skills to understand and address global issues; learn from and work collaboratively with individuals representing diverse cultures, religions, and lifestyles in a spirit of mutual respect and open dialogue in personal, work, and community contexts; and understand other nations and cultures, including the use of non-English languages (Wagner, 2008).

3. Agility and Adaptability. The change in industry has been characterized by several elements that have increased the complexity of the work environment. The shift from a hierarchal structure to a team-based environment has been rapid and profound.

Other changes such as complexity of problems and the enormous amount of data that we are exposed to have increased the demands on individuals and teams. Agility is the ability and willingness to learn from experience and then apply that learning to perform successfully under new situations (Critical Issues in Educational Leadership, n.d., para. 1). Adaptability is the ability to embrace change. According to Ellen Kumata of Cisco, “you have to be able to take in all sorts of new information, new situations, and be able to operate in ambiguous and unpredictable ways. You have to thrive in this environment and deliver results” (Wagner, 2008, p. 31). Being flexible and adaptable increases employment opportunities because employers know they can depend on individuals who possess this trait in turbulent times. It also demonstrates one’s ability to cope with new and changing responsibilities (Lord, 2011).

4. Initiative and Entrepreneurialism. Initiative and entrepreneurialism refers to an individual’s ability to turn ideas into action. It involves creativity, innovation, and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives. Leaders today want to see individuals take more initiative and even be entrepreneurial in terms of the ways they seek out new opportunities, ideas, and strategies for improvement (Wagner, 2008, p. 32).

5. Effective Oral and Written Communication. Effective oral and written communication is the ability to communicate one’s thoughts clearly and concisely. Communication skills are a major factor highlighted in numerous studies over the years that focus on student lack of preparation for both college and the workforce. These skills are going to become more important as teams are increasingly composed of individuals from diverse cultures. The ability to express one’s views clearly in a democracy and to communicate effectively across cultures is an important citizenship skill (Wagner, 2008,

p. 34).

6. Accessing and Analyzing Information. Assessing and analyzing information is the skill of gathering information on a certain topic and analyzing the quality of that information. Employees in the 21st century have to manage a large amount of information flowing into their work lives on a daily basis. If one is not prepared to handle the amount of information, it can hinder the organization. Not only is the quantity of information a challenge but also how rapidly and constantly the information is changing. The immediate availability of information places an even greater premium on critical-thinking skills (Wagner, 2008, p. 37).

7. Curiosity and Imagination. Curiosity is a desire to know or learn and a desire to know about people or things that do not concern one. Imagination is the formation of a mental image or something that is neither perceived as real nor present to the senses, and it is the ability to confront and deal with reality by using the creative power of the mind. Creativity and innovation are key factors not only in solving problems but also in developing new or improved products and services (Wagner, 2008, p. 38).

According to Wagner (2008), there are two achievement gaps in our educational system. The first achievement gap is between the quality of schooling available for most poor and minority children and the disparity in results. The second is the gap between what our public schools are teaching and testing versus what all students will need to succeed as learners, workers, and citizens in today's global knowledge economy. As a country, the United States has been striving to close the first achievement gap by bringing the poorest schools up to the standards of middle-class schools. The second gap has gone ignored. It is becoming more and more apparent that a new set of skills has emerged

which is vital for all students to possess to be competitive in a new global economy. The curriculum, which is being taught in the United States, was created in a different century for the needs of a different era (Wagner, 2008).

In 2009, the report *The Ill-Prepared U.S. Workforce* was released. The data for the report were obtained by surveying 217 employers to examine corporate practices on training newly hired graduates at the high school level, the 2-year college level, and the 4-year college level. Of the companies surveyed, almost half provided remedial training programs to erase deficiencies among their newly hired entrants in skills they are expected to have when hired. However, many of the companies found that these remedial programs did not succeed in fully accomplishing their purpose (Casner-Lotto, Rosenblum, & Wright, 2009). Figure 1 illustrates the percentage of employers who believe that additional training is needed in the perceived high need areas.

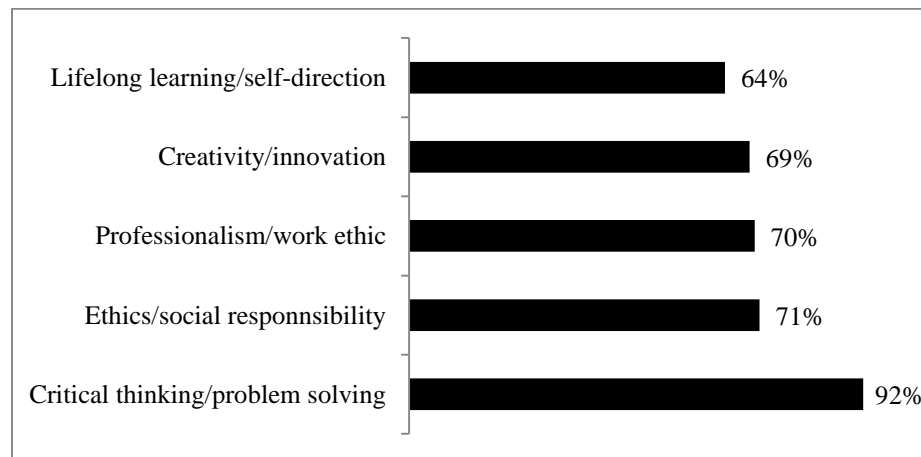


Figure 1. “High Need” Areas for Training (Casner-Lotto et al., 2009).

The problem studied was that schools are not providing the necessary entry-level skills that are desired by industry that lead to successful employment in the 21st century.

Furthermore, this study examined the perceptions of new entrants to the workforce and employers as to the skill levels needed to be successful in 21st century industry.

Purpose of Study

The purpose of this study was to determine if the skills currently being taught in Career and Technology Education (CTE) programs and traditional academic classes address the current and future needs of society and employers. This study also examined the effectiveness of the CTE program of Chester County South Carolina School District. By the end of the first decade of the 21st century, there were signs that the United States was failing to meet its obligation to prepare millions of young adults. In an era in which education had never been more important to economic success, the U.S. had fallen behind many other nations in educational attainment and achievement. Within the U.S. economy, there was also growing evidence of a “skills gap” in which many young adults lacked the skills and work ethic needed for many jobs that pay a middle-class wage. A contributing factor to the growing skills gap is the increasing number of students who do not complete school or dropout (Wagner, 2008).

This study also examined CTE’s role in keeping students in school and closing the skills gap. Research has shown that students who complete a CTE program are more likely to complete high school (Bishop & Mane, 2003). CTE has been found to be an effective method of dropout prevention and is credited with keeping a number of at-risk students in school. CTE possesses characteristics such as increased student engagement, positive relationships with instructors, and alternative delivery methods, which increase the likelihood of students staying in school.

Nearly one in every three students who start high school in the ninth grade failed to complete the twelfth grade within 4 years. Literally millions of young people are out

of school and grossly ill-equipped to compete in the 21st century workforce and economy (Greene & Winters, 2005). Depending on the source, the graduation rate for Chester County School District is between 62% and 74%. The discrepancy is due to the various definitions and calculation methods that are employed by various organizations. The discrepancies in calculating graduation rates are primarily due to data availability and data accuracy. Tallying diploma recipients is relatively easy. The hard part is accurately accounting for students who do not finish, distinguishing between those who should be counted as dropouts and those who should not. In most cases, states rely on data from districts when calculating their statewide rates. Districts, in turn, rely on data from schools. Far too often, schools do not or cannot account for students who leave. They do not know whether these students transferred or dropped out. Faced with this situation, many schools assume, at least for reporting purposes, that missing students transferred. This assumption resulted in inaccurate dropout reporting, which in turn led to inaccurate graduation rates (Hall, 2005).

Regardless of which figure is truly accurate, the graduation rate is too low. The graduation rate among students who complete a CTE program is substantially different. According to Perkins Accountability Indicators for Chester County School District, of the approximately 120 students who completed a CTE program, 96% of those students graduated during the 2009-2010 school year. The graduation rate for CTE completers the previous year was 100%.

Background and Significance of the Problem

The change in economy of the United States has brought about negative effects in the form of unemployment. Unemployment rates have skyrocketed as a result of U.S. economic conditions, exacerbated by the loss of jobs to globalization and increased use of

technology to produce goods that were previously produced manually (Rich, 2010).

Recent numbers are bleak, with the Bureau of Labor Statistics reporting that nearly twice as many workers were displaced between January 2007 and December 2009 as in the previous 2-year period, and fewer of these displaced workers have been able to secure new employment (Rich, 2010). For example, in November 2010, almost 42% of the unemployed had been out of work for 27 weeks or longer (U.S. Department of Labor, Bureau of Labor Statistics, 2010a).

With record high unemployment rates, it may seem logical to assume that there are no jobs available. On the contrary, there are still many employment opportunities in the job market for workers with the right skill set (Rich, 2010). According to *Employment Outlook: 2006-2016* which was released by the Bureau of Labor Statistics in November 2007, a majority of the occupations with the fastest rate of growth and the occupations that will add the most jobs require postsecondary training and education (Bureau of Labor Statistics, 2007). These occupations include healthcare professions, computer and network engineers, human services professionals, and mental health professionals (Jerald, 2009). The current long-term unemployment trend stems from a widespread mismatch between unemployed workers' skills and the current needs of employers. Unemployed and underemployed workers generally do not have the skills or knowledge to find competitive, full-time employment paying family-sustaining wages and offering opportunities for advancement. While some industries are downsizing, many others are actually expanding. In fact, the number of job openings nationally increased by 30% between July 2009 and July 2010 (U.S. Department of Labor, Bureau of Labor Statistics, 2010b). These employment opportunities, however, usually require knowledge and skills that unemployed workers either do not possess or have not

developed because they were not needed in their previous positions. These skills include the ability to operate complex computerized machinery, follow complex blueprints, and demonstrate a proficiency in math. This creates a mismatch between the skills of many individuals in low-wage jobs and the skills required for these new employment opportunities, making it difficult for underemployed workers to advance (Rich, 2010).

One of the major contributors to the lack of an adequate skill set of the workforce is an astounding number of students who do not graduate from high school. There are many reasons why an individual fails to complete high school in a reasonable amount of time. The reasons range from societal factors to school-based factors. For the basis of the report, *The Silent Epidemic*, Peter D. Hart Research Associates (2006) conducted four focus groups of ethnically and racially diverse 16- to 25-year olds in Philadelphia and Baltimore in August 2005. In September and October 2005, interviews were conducted with 467 ethnically and racially diverse students aged 16 through 25 who dropped out of public high schools in 25 different locations in large cities, suburbs, and small towns. When examining the reasons for individuals dropping out of school, the study yielded the following results:

- Classes were not interesting 47%
- Missed too many days and could not catch up 43%
- Spent time with people who were not interested in school 42%
- Had too much freedom and not enough rules in my life 38%
- Was failing in school 35%

Other reasons for dropping out of school were a lack of educational support, special needs, financial problems, drug and alcohol abuse, depression and physical

illness, physical abuse, and teen pregnancy (Bridgeland, DiIulio, & Morison, 2006).

Like many parts of the country, Chester County, South Carolina, is not immune to the economic downturn and its effect. Chester County is located in South Carolina between Charlotte, North Carolina, and Columbia, South Carolina, which are two metropolitan areas. The two cities are fast-growing metropolitan areas, easily accessible from Chester County by an interstate highway. According to the 2010 census, Chester County ranked 30th in size among South Carolina's 46 counties. The current census data showed Chester County with a population of 33,246. In 2000, the population was 34,068. This was a 2.50% decrease in population. In 2010, the racial makeup of Chester County was 59.81% White, 37.43% Black, .61% Native American, .24% Asian, 1.50% two or more races, and .41 other (South Carolina Department of Employment and Workforce, 2013).

In 2010, the median income for a household in Chester County was \$32,425. Males had a median income of \$30,329 versus \$21,570 for females. The per capita income for the county was \$14,709. Eleven point nine percent of families and 15.30% of the population were below the poverty line, including 21.20% of those under age 18 and 14.90% of those aged 65 or over.

According to the 2010 U.S. Census Bureau, 8.96% of the adult population of Chester County had less than a ninth-grade education; 16.95% went to ninth through twelfth grade and received no diploma; 39.88% were high school graduates; 16.13% had some college; 7.36% had an Associate's Degree; 7.77% had a Bachelor's Degree; and 2.95% had a Graduate Degree.

The residents of Chester County have access to several postsecondary and continuing education facilities. York Technical College and Winthrop University are

both located directly north of Chester County in York County. York Technical College recently opened a satellite campus in Chester County. University of South Carolina-Lancaster is also located in neighboring Lancaster County. High school students also have the opportunity to earn college credit through distance learning opportunities and dual-credit opportunities.

In 2011, the unemployment rate of Chester County was 16%, which was 35% higher than the state average and 44% higher than the national average. At their highest, unemployment rates for the county were 20%. One major contributing factor to the high unemployment rate was the decline of the manufacturing industry. One of the major employers in Chester County closed five manufacturing facilities between 1997 and 2007, affecting over 3,000 people. After the exit of this major manufacturer, several other manufacturers closed facilities in the county. In 2012, 41% of the unemployment claims for Chester County were from production occupations.

Chester County School District operates within the boundaries of Chester County. The school district has approximately 6,800 students and 765 employees. The school district is the second largest employer in the county. The district has five elementary schools, three middle schools, three high schools, one career and technology center, one alternative education school, and one adult education center. Sixty percent of the teachers have a Master's degree or higher. In addition to the basic program of studies, the school district offers a variety of programs designed to meet special needs. These include gifted and talented, academic assistance, state-of-the-art wireless technology computer program, two-way interactive distance learning studios at all high schools, honors classes, advanced placement, college preparatory, prekindergarten, full-day kindergarten, career education, and arts in education. The business community

contributes to the school district by sponsoring Communities in Schools and Junior Achievement (Chester County, 2009).

Within Chester County School District, Chester County Career Center (CCCC) is responsible for preparing the students of the county for the careers of the 21st century. The career and technology center services students from the three district high schools. Chester High School, which is the largest high school in the district, is located next door to the career and technology center; and the students who attend from that high school walk to the career and technology center. Lewisville High School, which is the second largest high school in the district, is located 11 miles from the career and technology center. Great Falls High School is located 25 miles away. The students from the two outlying high schools are bused from their home high schools. Due to the distance to the career and technology center, the number of students from the outlying high schools is far fewer than the number of students from the high school located next door to the career and technology center.

During the 2011-2012 school year, the career and technology center had an enrollment of 802 students with 671 students coming from Chester High School, 88 students from Lewisville High School, and 43 students from Great Falls High School.

Figure 2 illustrates the percentage of students from each high school.

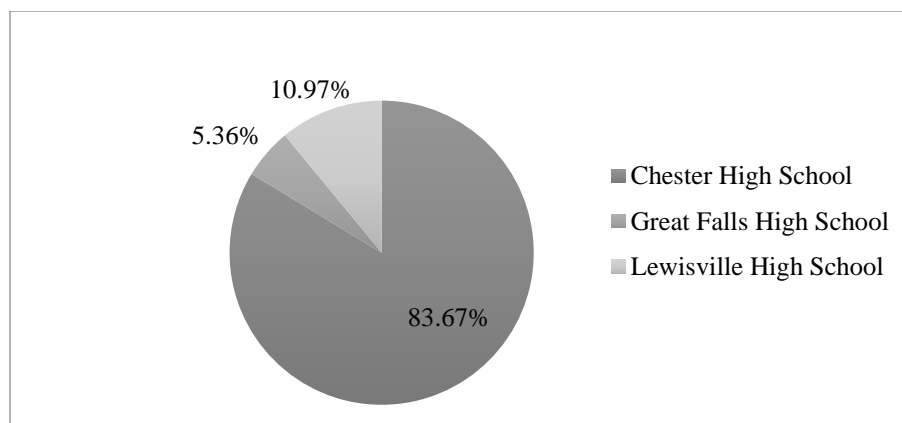


Figure 2. Percentage of Students Attending the CTE Center from Each High School.

Figure 3 compares the number of students enrolled in CTE classes from each high school to the total enrollment of that particular high school.

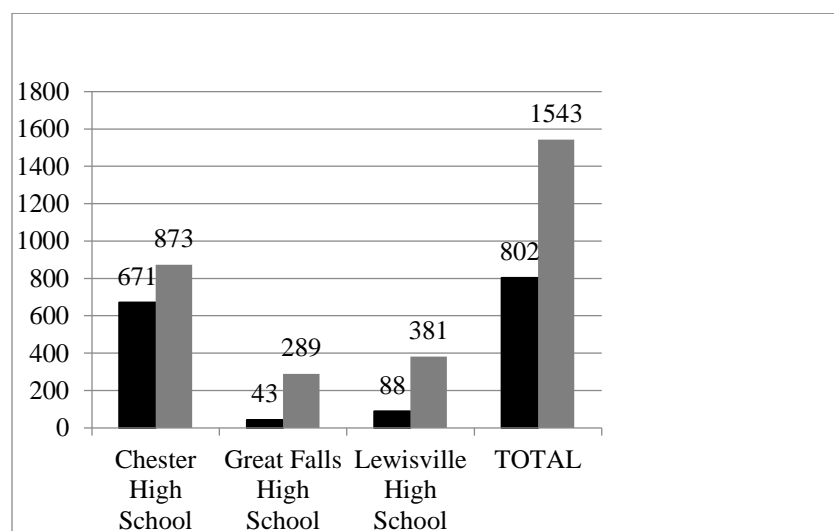


Figure 3. Students Enrolled in CTE Programs Compared to Total High School Enrollment.

The overall analysis of the faculty and staff of the career and technology center is important in describing the setting of the organization. In South Carolina, CTE instructors can get certification through an alternative or a nontraditional route. Many CTE instructors are experts in their trade area but may not have received a traditional

teacher preparation from a 4-year college or university. To certify CTE instructors, the Developing Instructional Readiness for Educators of Career and Technology (DIRECT) program was developed by the state department of education in South Carolina. DIRECT provides the professional development training intended for new CTE teachers completing the initial professional education requirements for work-based teacher certification. The program addresses the needs of a new CTE teacher and is coordinated by the state's department of education (South Carolina Department of Education, 2013). Of the 17 instructors on site, two do not possess any type of college degree, five hold Associate's degrees, five hold Bachelor's degrees, and five hold Master's degrees. There are also three instructors who are certified in administration with two of those instructors performing administrative functions in addition to their teaching duties. Figure 4 is an illustration depicting the number of instructors and the type of degrees they possess.

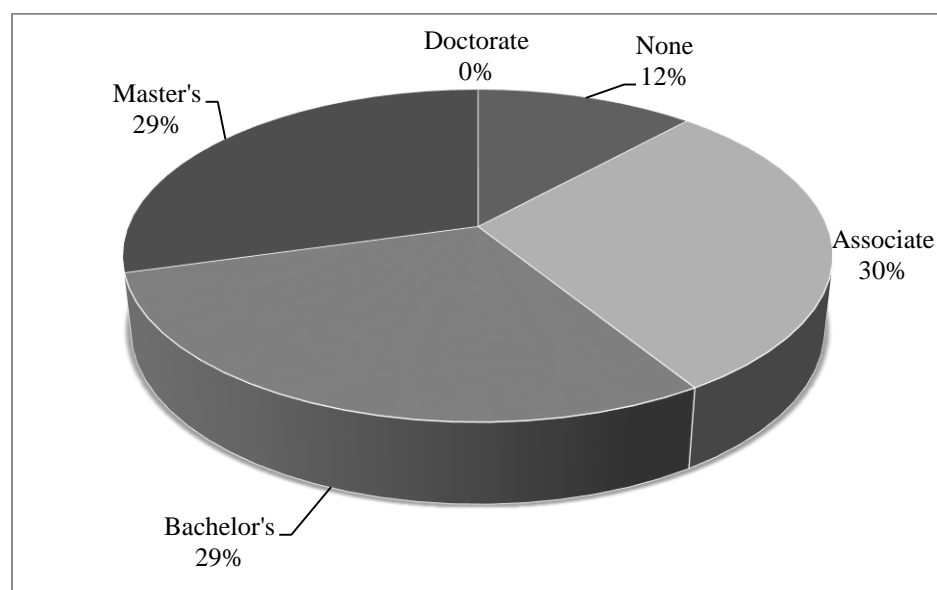


Figure 4. Type of College Degree Possessed by Instructors.

An examination of the faculty revealed that of the 17 teachers on staff, nine have

less than 10 years of experience in education, and 11 have less than 10 years of experience at the career and technology center. The instructional staff has an average of 11.7 years of experience. Four instructors are in their first year of teaching, while three instructors indicated they plan on retiring within the next 2 years. As far as years of experience are concerned, the instructors at the career and technology center are relatively inexperienced. Figure 5 illustrates the staff's years of experience in education at the career and technology center.

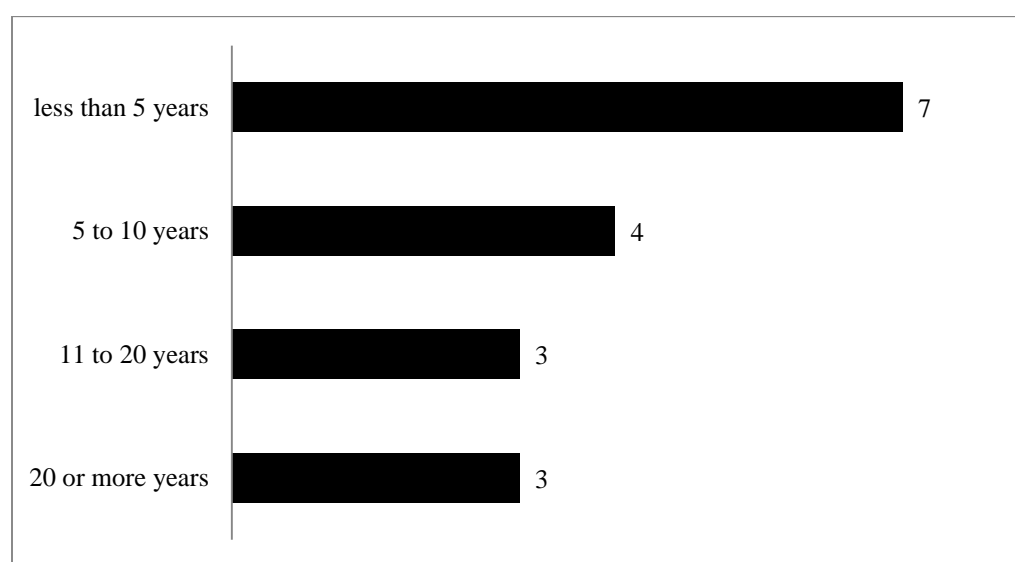


Figure 5. Years of Experience at Career and Technology Center.

Figure 6 illustrates the staff member's number of years in education.



Figure 6. Years of Experience in Education.

The students who choose to attend the career and technology center receive training in a variety of areas that are intended to prepare them for life after high school. Many of the program areas offer dual-credit opportunities with local colleges, and the students may receive industry certification by completing certain requirements within the program. One of the goals of CTE in the state is to provide a seamless transition for students between high school and college. Dual-credit courses that are articulated with technical colleges and 4-year universities provide this seamless transition. Dual-credit courses provide the student with the opportunity to earn college credit while receiving units toward high school graduation. Many students who take dual-credit classes can receive as many as 12 college credits in certain programs (O'Sullivan, 2010).

Industry certifications play an important part in CTE. Industry certifications show that students have acquired the skills needed in specific areas (Southern Regional Education Board, 2008). Table 1 is a list of courses offered at the career and technology center, industry certification offered, and if the program offers dual-credit opportunities.

Table 1

Program Overview for Career and Technology Center

Program	Industry Certification	Dual-Credit Offered
Agriculture	No	Yes
Automotive Technology	No	No
Business Education	No	No
Carpentry	National Center for Construction and Education Research	Yes
Cosmetology	South Carolina Cosmetology License	No
Culinary Arts	ServSafe	No
Drafting	No	Yes
Electricity	National Center for Construction and Education Research	No
Engineering	No	No
Graphic Communication	No	No
Health Science	First Aid; CPR; AED; National Health Science Assessment	Yes
Machine Technology	OSHA	Yes
Marketing	No	No
Mechatronics	No	No
Sports Medicine	First Aid; CPR; AED; National Health Science Assessment	No
Welding Technology	National Center for Construction and Education Research	Yes

Even though there is an abundance of research available on the field of education in general, there is not a lot of research that exists on CTE. The purpose of this study was

to determine if a skills gap exists between employer needs and the skills new entrants in the workforce possess. The study also examined CTE programs to determine if the skills that are taught in these programs are sufficient to meet the needs of 21st century employers. By examining this topic, the researcher added to the current body of knowledge of CTE and the characteristics that these programs possess.

To fully understand and explore CTE, the researcher needed to operationally and conceptually define CTE, high school dropout, graduation rate, dropout rate, cohort graduation rate, status graduation rate, CTE participant, CTE completer, CTE concentrator, adequate yearly progress (AYP), dropout factory, and soft skills. The stakeholders who will benefit from the exploration of this problem are district and state school administration, the community, the business community, and local and state lawmakers.

Research Questions

It was the intent of this study to answer the following questions, which will enhance curriculum and program development of CTE programs.

1. What are the identifiable needs of Chester County, South Carolina, graduates as they relate to job readiness?
2. Based on the perceptions of local employers and students, how well did the CTE program of Chester County School District prepare students for job and career readiness?
3. What is the overall effectiveness of the CTE experience in Chester County School District?

Theoretical Framework

The established theoretical framework that guides CTE is based primarily on the

work of David Snedden and Charles Prosser from the early 1900s. David Snedden served as the first State Commissioner of Education in Massachusetts with Charles Prosser as Deputy for Vocational Education. The two found that the public schools did not furnish the skills and industrial intelligence that students needed to participate effectively in industry and life. To deliver the skilled and intelligent workers that society needed during that time, Snedden and Prosser advocated the spread of the project method of teaching and the expansion of the common school system by establishing vocational schools for *common* people (Drost, 1967).

The unifying theory underlying CTE in the United States in the first part of the 20th century was the social efficiency doctrine. Proponents of the social efficiency held that only an efficient society could create a positive environment in which the individual could prosper and find satisfaction. Social efficiency advocates went on to contend that public schools were an arm of the social system and they had an inherent mission to further the good of society by contributing to its efficiency. Snedden and Prosser believed that CTE was the central premise of social efficiency as it prepared a well-trained and compliant workforce (Wirth, 1972).

Social efficiency is based on the following six fundamental theories.

1. Socioeconomic stratification. Sociologists held that in all societies, the development of social classes was natural and an essential phenomenon. Movement between social classes was possible, but a stable social system rightfully made vertical social mobility difficult.
2. Probable destiny. The theory of probable destiny was an intrinsic corollary of socioeconomic stratification. According to the theory of probable destiny, social classes are inherently stable, so that a person born into a working-class

family will probably live and die as a member of the working class. A young person's probable destiny could be determined by a combination of factors, including socioeconomic class at birth, aptitudes, and interests.

3. Psychometrics. Psychological measurement, an emerging science at the time, was seen as capable of determining each student's probable destiny as a simple matter of testing. Classification into the academic or vocational tracks would then be both reliable and scientifically based.
4. Social control. The theory of social control suggests that for any society to exist, its members must adhere to both the implicit and explicit norms of that society.
5. Pedagogy. Prosser and Snedden concluded that the pedagogy for CTE must be based on an organized, rigidly sequenced, hands-on approach to teaching.
6. Behaviorism. E. L. Thorndike contended that learning consists of the formation links between specific stimuli and responses through the application of awards (Wirth, 1972).

Snedden and Prosser's reasoning was that psychometrics and sociology would allow schools to guide students into their ideal educational tracks based on their probable destinies (Wirth, 1972). Behavioral science provided the mechanism and pedagogical science provided the processes by which the schools would teach students the right work and moral habits. Those habits would lead to a voluntary compliance with social norms in compliance with social control theory. That compliance, in turn, meant that members of all social classes would benefit from a healthier society and economy and eventually a more humane workplace. By providing a scientifically based mechanism for teaching and learning, the science of behaviorism is seen as the linking element of the educational

system's contribution to social efficiency (Doolittle & Camp, 1999).

In recent years, several educational theorists have called for a new look at the theoretical framework for CTE. With the development in occupational, educational, and computer technologies, the old instructional model of transmitting to students a discrete and well-established set of skills and knowledge must be called into question. One theory to consider is constructivism. Constructivism is a theory of learning that has roots in both philosophy and psychology. The essential core of constructivism is that learners actively construct their own knowledge and meaning from their experiences (Fosnot, 1996).

Definition of Terms

To properly discuss and research the topic of this study, several key terms need to be defined. The operational definitions of the key terms are as follows:

1. CTE prepares both youth and adults for a wide range of careers. These careers require varying levels of education – from high school and postsecondary certificates, to apprenticeships, or two- and four-year college degrees. Students add value to their overall education by completing CTE programs of study that provide opportunities to earn industry-recognized credentials and college credit while still in high school (Career and Technical Education Foundation, 2007, p. 1).
2. A high school dropout is a person who leaves school for any reason, except death, before completion of a high school diploma or its equivalent, and who does not transfer to another public or private school or enroll in an approved home study program. A student is not a dropout if he/she transfers to an educational program recognized by the district, completes a G.E.D. or

registers in a program leading to a G.E.D., is committed to an institution that maintains educational programs, or is so ill that he/she is unable to participate in a homebound or special therapy program (South Carolina Education Oversight Committee, 2012, p. A-12).

3. The dropout rate is calculated by taking the number of students who leave the school or district for any reason, other than death, prior to graduation or completion of a course of studies without transferring to another school, district, or institution, divided by the total number of students enrolled at the school (South Carolina Education Oversight Committee, 2012, p. A-12).
4. Cohort rates measure what happens to a cohort of students over a period of time. These rates provide repeated measures of a group of students starting at a specific grade level over time. These measures provide longitudinal data on a specific group of students, including background and contextual data (Snyder & Hoffman, 2000, p. 1).
5. Status dropout rates provide cumulative data on dropouts among young adults within a specified age range (usually 15 to 24 years of age, 16 to 24 years of age, or 18 to 24 years of age). They measure the percentage of individuals who are not in school and have not earned a high school diploma or equivalency, irrespective of when they dropped out (Snyder & Hoffman, 2000, p. 1).
6. A concentrator is a secondary student with an assigned Classification of Instructional Programs (CIP) Code who has earned three Carnegie units of credit in a state-recognized CTE program (South Carolina Education Oversight Committee, 2012, p. 7).

7. A participant is a secondary student enrolled in a state-approved CTE course (South Carolina Education Oversight Committee, 2012, p. 7).
8. A completer is a CTE concentrator who has earned all of the required units in a CTE program. A minimum of four Carnegie units must be completed and all course standards must be completed (South Carolina Education Oversight Committee, 2012, p. 7).
9. Adequate yearly progress is commonly referred to as AYP. AYP was derived from the United States NCLB. It is a measure of how every public school district and state in the country performs academically on standardized tests (Meador, 2013, p. 1).
10. A dropout factory is defined as a high school that graduates 60% or less of their incoming freshmen class. Dropout factories account for approximately 2,000 or 12% of high schools (Ames, 2009).
11. Soft skills are the character traits and interpersonal skills that characterize a person's relationships with other people. In the workplace, soft skills are considered a complement to hard skills, which refer to a person's knowledge and occupational skills (Serby, 2003, p. 1).

Chapter 2: Literature Review

Introduction

A major concern of many Americans is the state of the educational system in the United States. Compared to students from China, Korea, and Finland, U. S. students appear to be chronic underachievers. The average student in the U. S. does less than 1 hour of homework on average at all grade levels (Kenny, 2012). According to Pearson (2012), the United States places 17th in the developed world for education. Finland and South Korea top the list of 40 developed countries with the best educational systems. Hong Kong, Japan, and Singapore follow. The rankings were calculated based on various measures, including international test scores, graduation rates between 2006 and 2010, and the prevalence of higher education seekers (Huffington Post, 2013). The direction of that concern varies depending on the opinions reviewed from any government official, public entity, community leader, or educational leader. Some major points of concern are educational standards as compared to other industrialized nations, lack of basic skills, teacher training, discipline and safety issues, family stability and parental involvement, and high dropout rates. All of these points surround students being able to learn in the appropriate environment with appropriate support systems, having a solid education, and eventually becoming a contributing member of society. Reports and studies from various fields have shown that more and more young adults are ill-prepared for entering the world of work (Casner-Lotto et al., 2009).

Employers list the need for workers with good attitudes, the ability to communicate well, think critically, and solve problems. All of these skills can be taught to young people while they are still in school. Skill development is expected not only in simple reading and mathematical literacy but also in technical literacy. Further training

in skills for employment is often needed beyond high school. Students can often improve those skills at the postsecondary level but in some cases are not afforded the opportunity to do so. The number of students not being prepared properly in high school and not pursuing a postsecondary education has caused a shortage of qualified workers in the labor force, which is having an adverse effect on the economy (Casner-Lotto et al., 2009).

A large percentage of American students are not completing school or they are ill-prepared to enter into the workforce when they leave (Casner-Lotto et al., 2009). This chapter includes an examination of issues and statistics surrounding high school dropouts and an overview of CTE programs and how they may impact the retention and preparation of students.

The Ill-Prepared Work Force

There are many variables that affect society as a result of students not completing high school. One of the factors that have had a major impact on the economy is a workforce that is not prepared to meet the needs of today's global economy. One of the most fundamental obligations of any society is to prepare its young people to lead productive and prosperous lives as adults. This means preparing all young people with a solid foundation of literacy, numeracy, and thinking skills for responsible citizenship, career development, and lifelong learning. For over a century, the United States led the world in equipping its young people with the education they need to succeed (Association for Career and Technical Education, 2007).

By 1940, the typical 18-year old had a high school diploma, up from just 9% who had obtained a high school diploma in 1910. After World War II, the GI Bill helped usher in a huge expansion in higher education. As a result, members of the U.S. Baby Boom generation far surpassed their counterparts in other countries in educational

attainment. This surge in educational attainment laid the foundation for the staggering increase in American wealth and power. By 2000, per capita income, adjusted for inflation was five to six times as large as it had been in 1900 (Association for Career and Technical Education, 2007).

The landscape of the U.S. economy and workforce has definitely changed over the years. In 1973, nearly a third of the nation's 91 million workers were high-school dropouts, while another 40% had not progressed beyond a high school degree. Thus, people with a high school education or less made up 72% of the nation's workforce. In an economy in which manufacturing was still dominant, it was possible for those with less education but a strong work ethic to earn a middle-class wage, as 60% of high school graduates did. By 2007, this picture had changed beyond recognition. While the workforce had exploded nearly 70% or 154 million workers, those with a high school education or less had shrunk to just 41% of the workforce. Thus, over the past third of a century, all of the net job growth in America had been generated by positions that required at least some postsecondary education. Workers with at least some college ballooned to 59% of the workforce, from just 28% in 1973. Over the same period, many high school dropouts and those with no more than a high school degree had fallen out of the middle class. On the other hand, those who attended college, and especially those with bachelors' and advanced degrees, moved up (Pathways to Prosperity Project, 2011).

Unemployment rates have skyrocketed as a result of U.S. economic conditions, enhanced by the loss of jobs to globalization and increased use of technology to produce goods that were previously produced manually. In addition to unemployed workers, there are many workers who are employed in positions paying low wages with no opportunity for advancement because they possess limited or outdated skills. With

record high unemployment rates, it may seem logical to assume that there are no jobs available. There are still many employment opportunities in the job market for workers with the right skill set. The current long-term unemployment trend stems from a widespread mismatch between unemployed workers' skills and the current needs of employers. Unemployed and underemployed workers generally do not have the skills or knowledge to find competitive, full-time employment paying family-sustaining wages and offering opportunities for advancement (Association for Career and Technical Education, 2007).

While some industries are downsizing, many others are actually expanding. The number of job openings nationally increased by 30% between July 2009 and July 2010 (U.S. Department of Labor, Bureau of Labor Statistics, 2010b). These employment opportunities usually require knowledge and skills that unemployed workers either do not possess or have not developed because they were not needed in their previous positions. There is also a mismatch between the skills of many individuals in low-wage jobs and the skills required for these new employment opportunities, making it difficult for underemployed workers to advance.

Many of the jobs that are now available require some type of education or training beyond high school. This is a trend that is expected to continue, as it is projected that by 2018, 63% of all jobs will require some form of postsecondary education (Carnevale, Smith, & Strohl, 2010). The skills gap is well documented in Wagner's (2008) book. Wagner identified seven skills that are essential for success in the workforce. Wagner obtained this information through interviewing and surveying CEOs and representatives of major companies in the United States. Through his research, Wagner found that a large number of new entrants in the workforce lack the necessary soft skills. Soft skills

are the character traits and interpersonal skills that characterize a person's relationships with other people. In the workplace, soft skills are considered a complement to hard skills, which refer to a person's knowledge and occupational skills (Serby, 2003).

The first essential skill identified by Wagner (2008) is critical thinking and problem solving. The nature of today's workforce requires entrants to take information and process it in order to solve a problem. In many organizations, the hierarchy has been flattened. Work is no longer defined by one's specialty area. It is defined by the task or problem you and your team are trying to solve or the end goal you want to accomplish. To accomplish the task at hand requires one to think openly and deeply.

The second essential skill is collaboration across networks and leading by influence. With the globalization of the economy in the United States, it is essential for individuals to work with networks of people from different cultures. All new entrants in the workforce need to understand and appreciate diverse cultures in the 21st century.

The third essential skill is agility and adaptability. People need to be able to adapt to the changing work environment. The intensifying rate of change in the world, the overwhelming amount of data, and the increasing complexity of problems that individuals and teams face every day present new challenges for everyone in the organization.

The fourth essential skill is initiative and entrepreneurialism. Leaders today want to see individuals take more initiative and even be entrepreneurial in terms of the ways they seek out new opportunities, ideas, and strategies for improvement. During the numerous interviews that Wagner (2008) conducted, the importance of individuals and teams being able to take the initiative to solve a problem or come up with a better solution was frequently mentioned.

The fifth essential skill is effective oral and written communication. The ability to express one's views clearly in a democracy and to communicate effectively across cultures is an important citizenship skill as well. Employers are seeking individuals who can communicate concisely and effectively.

The sixth essential skill is accessing and analyzing information. Employees in the 21st century have to manage an astronomical amount of information flowing into their work lives on a daily basis. If individuals are not prepared to manage the flow of information, they will not know how to properly analyze the information in order to come up with sound decisions.

The seventh and final essential skill is curiosity and imagination. Creativity and innovation are key factors not only in solving problems but also in developing new or improved products and services. The nature of today's workforce requires employees to "think outside of the box" (Wagner, 2008, p. 38).

Personal and Public Cost of Not Completing School

When students drop out of school, the course of their lives may be totally reset. Dropouts typically earn less than their peers with more education, and they are more likely than high school graduates to end up in prison. According to the U.S. Census Bureau's American Community Survey, the percentage of 18- through 23-year olds not enrolled in school and without a high school diploma or GED credential was 16.4% in 2009 (Hall, 2005).

The economic value attached to completion of education is well documented. Census data indicate that in 2009 adults ages 25 and older who had dropped out of school or had not acquired a GED earned up to 41% less than those who had completed high school or had GEDs. The gap widened when comparing the incomes of high school

dropouts with people with Bachelor's degrees. In 2009, male and female college graduates earned \$57,714 and \$39,263, respectively, while male and female high school dropouts earned \$21,629 and 13,943, respectively. The value of a high school education cannot be measured in dollars alone. Among 16- to 24-year olds who were incarcerated during 2006-2007, only one in 1,000 had a Bachelor's degree, while 6.3% were high school dropouts who did not have a GED (McLaughlin, Palma, & Sum, 2009).

The unemployment rate for high school dropouts is more than 30% higher than that of graduates. When employed, dropouts earn 30% less than high school graduates (Hall, 2005). Over a lifetime, a high school dropout pays about \$60,000 less in taxes. Those who graduate from high school live more than 9 years longer than high school dropouts due to factors that include improvement in cognitive ability and decision making, income, occupational safety, and access to health insurance (Rumberger & Lim, 2008).

Overall, the dropout rate has declined since the 1980s, falling from about 14% in 1980 to 8% in 2008. Great variances among racial and ethnic groups remain. For example, the dropout rate for White students in 2008 was 4.8%, compared to 9.9% among African-American students, and 18.3% for Hispanic students (U.S. Department of Education, 2008).

High school graduates are more likely to raise healthier, better-educated children, and are less likely to be teen parents (Haveman, Wolfe, & Spaulding, 2001). Society reaps the rewards of increased graduation rates as high school graduates are also less likely to commit crimes and more likely to engage in civic activity, including voting and volunteering (Levin & Kilpatrick, 2005). Increasing the male graduation rate by only 5% would result in \$4.9 billion in crime-related cost savings annually (Alliance for Excellent

Education, 2006).

When young people drop out of the educational system, the likely result is that they drop in to other systems such as the criminal justice and welfare systems. Research shows that dropouts are more likely to be “unemployed, living in poverty, receiving public assistance, in prison, unhealthy, divorced, and ultimately single parents with children who drop out from high school themselves” (Bridgeland et al., 2006, p. 2).

Understanding Graduation and Dropout Rates

To accurately understand and combat high dropout rates and low graduation rates, one must understand the various factors that go into the calculation for each. For many years, there has been no common measure for collecting high school graduation rate data throughout the country. Furthermore, much of the data that were provided on the subject was misleading. According to the National Center for Education Statistics, the status dropout rate for the United States was 10.7%. The status dropout rate is defined as the percentage of individuals, ages 16-24, who are not enrolled in high school and who lack a high school credential or diploma in the United States; however, numerous studies, such as those conducted by the Manhattan Institute and the Educational Testing Service, estimate that the national high school completion rate is far lower, averaging around 70%. High school graduation rates are key components of the public reporting and accountability provisions of the No Child Left Behind Act (NCLB). Under the law, the graduation rates of all groups of students must be made available in public report cards for all high schools, districts, and states. Graduation rates also are used to determine whether schools are making AYP under the law (Hall, 2005). To combat the problem of discrepancies in how graduation rates are calculated, the 50 governors agreed in 2005 to voluntarily implement a common formula for calculating their state’s high school

graduation rates. Prior to signing the National Governors Association Graduation Counts Compact, states' individual formulas for determining their graduation rates were all over the board. In 2008, 3 years after the Compact was signed, the United States Department of Education made it a requirement for states to implement a uniform graduation rate and to make the data available to the public. States not complying would be ineligible to receive Title I funds (National Association of Secondary School Principals, 2011). The Department of Education anticipates that the more rigorous method will result in lower reported graduation rates, yet it will reflect a more accurate calculation of how many U.S. students complete high school. Secretary of Education Arne Duncan stated, "Through this uniform method, states are raising the bar on data standards, and simply being more honest" (National Association of Secondary School Principals, 2011, p. 2).

The best way to truly understand high school graduation rates is to calculate a cohort graduation rate. The cohort graduation rate tracks the progress of a defined group of students from the first day they enter high school to the day they receive a regular high school diploma. In an accurate cohort calculation, students who leave the educational system entirely are counted as nongraduates, lowering a high school's graduation rate. On the other hand, students who transfer to another degree-granting high school, die, or go to prison are not counted as dropouts. Unless there is documentation of transfer, missing students should be counted as dropouts.

The primary challenges to calculating cohort graduation rates are data availability and data accuracy. Tallying diploma recipients is relatively easy. The hard part is accurately accounting for students who do not finish, distinguishing between those who should be counted as dropouts and those who should not. In most cases, states rely on data from districts when calculating their statewide rates. Districts, in turn, rely on data

from schools. Far too often, schools do not or cannot account for students who leave. They do not know whether these students transferred or dropped out. Faced with this situation, many schools assume, at least for reporting purposes, that missing students transferred. This assumption resulted in inaccurate dropout reporting, which in turn led to inaccurate graduation rates (Hall, 2005).

The inaccuracies and inconsistencies of reporting graduation rates mainly fall on the United States Department of Education. In December 2003, the Education Trust released a report titled *Telling the Whole Truth (or Not) About High School Graduation Rates*. This report examined the first round of state graduation rate data reported to the U.S. Department of Education for the 2001-2002 school year. This analysis found that in many states graduation rate data were inaccurate and incomplete. Most states significantly understated the problems that students were facing in finishing high school. Some states used questionable graduation rate definitions, while others provided no information at all about the graduation rates of the students who are facing the biggest challenges in high schools. Those students included low-income students, students of color, students with disabilities, and students with limited English proficiency. Not only did the Department of Education allow states to report inaccurate and incomplete data with no consequences, it actually made the problem worse by communicating the NCLB graduation rate requirements differently in different places (Hall, 2005).

Factors of Dropping Out of School

Studies have shown there are two sets of factors that are predictors of whether students will drop out or graduate from high school. The first set is individual factors. Individual factors fall into four areas: (1) educational performance, (2) behaviors, (3) attitudes, and (4) backgrounds. Several aspects of educational performance have been

widely identified in the research literature as strong predictors of dropping out or graduating. They are test scores and grades in high school; academic achievement in both middle and elementary school; nonpromotional school changes during middle and high school; and retention in elementary, middle, and high school.

Another individual factor to consider is student behaviors. A wide range of behaviors both in and out of school have been shown to predict dropout and graduation. One of the most important is student engagement. The term student engagement has been used to depict a student's willingness to participate in routine school activities such as attending classes, submitting required work, and following teachers' directions in class (Natriello, 1984). Other individual factors that contribute to higher dropout rates and lower graduation rates include high absenteeism, misbehavior in school, delinquent behavior outside of school, criminal associations, and working more than 20 hours per week.

Another area that influences graduation and dropout rates is a student's background. A number of student background characteristics are linked to whether students drop out or graduate. Dropout rates are generally higher for males than for females, and are higher for Blacks, Hispanics, and Native Americans than for Asians and Whites; yet these differences may be related to other characteristics of students as well as characteristics of their families, schools, and communities (Rumberger & Lim, 2008).

The other set of factors that influence high school graduation and dropout rates are institutional predictors. Studies on students who drop out of school have identified a number of factors within students' families, schools, and communities that predict dropping out and graduating. There are three aspects of families that predict whether students drop out or graduate. They are family structure, family resources, and family

practices. Students living with both parents have lower dropout rates and higher graduation rates compared to students in other living arrangements. More importantly, changes in family structure along with other potentially stressful events increase the odds of dropping out. Students in homes with more family resources are less likely to drop out of school. A number of parenting practices have been shown to reduce the odds of dropping out, including having high educational aspirations for their children, monitoring their children's school progress, communicating with the school, and knowing the parents of their children's friends. Students also are more likely to drop out of school if they had a sibling who did (Rumberger & Lim, 2008).

Characteristics of schools, including resources, structural features, composition of the student body, and policies and practices, also play a role in whether students drop out. Living in high-poverty neighborhoods is not necessarily detrimental to completing high school, but living in affluent neighborhoods can be beneficial to school success (Rumberger & Lim, 2008). *Education Week's* (2011) edition of "Diplomas Count" found that 25 districts across the country – led by public school districts in New York, Los Angeles, Las Vegas, Miami, and Chicago – accounted for one in every five nongraduates for the class of 2011. In addition, students stated the most often given reasons for dropping out included their classes were not interesting, they were not motivated or inspired to work hard, they were failing in school and could not keep up with school work, they had missed too many days and could not catch up on their work, they had repeated a grade, they had to work, they became a parent, they had to care for a family member, and they were doubtful they could meet their school's graduation requirements even if they had put in the necessary effort (Bridgeland et al., 2006, p. 3).

Research has found that grade retention is highly correlated with dropping out.

Studies have examined the effect of retention in elementary school or the combined effects of retention in elementary and middle school. Thirty-seven of 50 students analyzed found retention in elementary and/or middle school increased the odds of dropping out of high school (Rumberger & Lim, 2008).

Dropout Factories

Researchers at Johns Hopkins University coined the term dropout factories. The research from Johns Hopkins University revealed that over half of the nation's dropouts attended one of approximately 2,000 (12%) high schools that graduate 60% or less of their incoming freshmen (Ames, 2009). This description fits more than one in 10 high schools across America. These dropout factories serve large numbers of minority and low-income students and have fewer resources and less-qualified teachers than schools in more affluent neighborhoods with larger numbers of White students. In fact, 38% of African-American students and 33% of Latino students attend dropout factories. The nearly 2,000 dropout factories turn out 51% of the nation's dropouts. They produce 81% of all Native-American dropouts, 73% of all African-American dropouts, and 66% of all Hispanic dropouts (Associated Press, 2007).

There are a number of reasons why a school becomes a dropout factory. In some cases, students transfer rather than dropping out, but it can be difficult to track students through multiple schools and districts. These students are often included in the dropout statistics. In other cases, students really do drop out, or they fail to make the necessary grades to graduate, and decide not to pursue remedial instruction. Schools are at an increased risk of becoming dropout factories when they have limited funding, which makes it difficult to maintain academic programs and retain high-quality teachers. Schools with students from families with limited education levels may also become

dropout factories because the parents may not value education or push their students to finish their high school education. Students may also have to cope with problems such as parents with substance addictions, gang wars, the need to care for younger siblings, or the need to work to support families (Associated Press, 2007).

Schools that are identified as dropout factories are often penalized for failing to educate their students. Rather than recognizing that a dropout factory needs support and assistance, the government may withdraw funding or other forms of assistance as a penalty. In low-income neighborhoods, students sometimes have multiple schools to choose from; however, all of these schools may have comparably low performance, because they all suffer from the same funding difficulties and social problems. This can be frustrating for students who have problems at a dropout factory and attempt to transfer to another school to improve their chances at getting an education. When they encounter the same issues at the new school, they may simply give up, rather than transferring out of the district (Smith, 2003).

The dropout factory problem can be addressed in a number of ways. Increasing funding and governmental support for schools is important, as is promoting education in disadvantaged communities. Outreach programs for at-risk youth can also contribute to an increased completion rate for education, by showing students their potential and encouraging them to pursue professional careers (Smith, 2003).

Because dropout factories produce over half of the nation's dropouts and are relatively few in number, dropout factories have grabbed the attention of policymakers. By concentrating reform efforts on these high schools and their feeder middle schools, the goal is to rapidly and significantly reduce the number of students who drop out of school. Congress has introduced several bills that are designed to combat the problem of

dropout factories (Ames, 2009). The Graduation Promise Act (GPA), first introduced in 2009, authorized \$2.5 billion in new funding to turn around low-performing high schools. The GPA provided money to districts and states in order to implement effective, research-based reforms tailored to low-performing schools' specific needs. Title I of the GPA authorized a \$2.4 billion High School Improvement and Dropout Reduction Fund to support the development of statewide systems of differentiated high school improvement in every state. Title II authorized \$60 million in competitive grants for the development, implementation, and replication of effective secondary school models for struggling students and dropouts.

Another bill that was designed to combat the problem of dropout factories was the Success in the Middle Act. The Success in the Middle Act provided grants to states to ensure that all students in the middle grades are taught an academically rigorous curriculum with effective supports so that students complete the middle grades prepared for success in secondary school and postsecondary endeavors. The grants also serve to improve state and district policies and programs relating to the academic achievement of students in the middle grades and to develop and implement effective middle grades models for struggling students. Both bills were reintroduced in 2011 but are yet to be enacted (Ames, 2009).

Methods of Dropout Prevention

Transition supports. Research has shown that the transition years (when a student moves from the elementary to middle grades and then from the middle grades to high school) can be particularly difficult for students (Balfanz, Herzog, & MacIver, 2007). Without sufficient support, students can become disengaged from school and start on the path toward dropping out. Best practices also suggest that caring, knowledgeable

and committed adults who set high standards and assist students in meeting these standards, coupled with supportive school conditions and climates, are critical to helping students make successful transitions.

Many schools have programs that incorporate such attributes in varying degrees, often due to adults' personal commitments to student success, as well as district, state, or federal policies and funding requirements. A study by the U.S. Department of Education's National Center for Education Statistics (2012), *Dropout Prevention Services and Programs in Public Schools and Districts, 2010 to 2011*, gave a first glimpse at support for students across the country. Its Fast Response Survey sampled representative city, suburban, town, and rural districts of many sizes, poverty levels, and grade bands. The survey found there are differences in what is available in regions, rural and city districts, large and small districts, and grade bands. Overall, the data clearly indicated that only a subset of schools provided transition supports. At the high school level, districts reported that in at least one school all students participated in an advisory class to help them make the transition from middle to high school (40% of reporting districts), had an assigned adult mentor (26%), or had an assigned student mentor (20%). Students moving to middle school often received only half as much help as students entering high school: The districts reported that in at least one middle school in the district, all students participated in an advisory class (24%) or had an assigned student mentor (10%). Adult mentors in the middle grades were found in 17% of the cases (U.S. Department of Education's National Center for Education Statistics, 2012).

The survey also found that one-on-one interventions are offered less frequently. Seventy-seven percent of districts reported that school counselors, teachers, or administrators formally mentor students at risk of dropping out in at least one high

school. In contrast, only 12% of the districts reported having adult mentors who were hired to perform this role as their only job in at least one high school.

Finally, the survey revealed it is much more difficult for small and rural districts to support students with alternative educational opportunities. At least one high school in 71% of larger districts offered flexible school days, but only 32% of small districts did so. Summer bridge programs, usually for incoming ninth-graders, are offered in 63% of the larger districts but only 16% of small districts (U.S. Department of Education's National Center for Education Statistics, 2012).

Transform and replace dropout factories. The number of dropout factory high schools and the number of students enrolled in them continued to decline during 2009-2010. Federal school improvement grants continue to target high schools with graduation rates below 60% and their feeder middle schools. To further develop and spread understanding of what it takes to successfully turn around low-performing schools, particularly dropout factory high schools, the U.S. Department of Education formally established a School Turnaround office that among other efforts set up a web-based community of practice. Equally significant was the U.S. Department of Education requiring states to submit ambitious plans for improving the lowest-performing schools, including dropout factory schools.

Cities where dropout factories exist have shown substantial gains in reducing the dropout rate. In New York City, efforts to replace its lowest-performing high schools with new small schools showed that the strategy resulted in substantial gains in the graduation rate of all students, including low-income, minority students. In Detroit, a partnership with the United Way made substantial progress toward its goal of organizing a metropolitan-wide effort to replace or transform all 30 of the area's dropout factory

high schools. To help address the final cohort of dropout factory high schools that had not undergone reform in Detroit, the national American Federation of Teachers (AFT) Detroit announced an ambitious partnership with Diplomas Now and the school district of Detroit to bring the Invest in Innovation turnaround model to a number of Detroit high schools and ultimately their feeder middle schools. The goal was to create a system of public schools and neighborhood pathways that propel students in high-poverty neighborhoods from sixth grade to postsecondary success by combining evidence-based school reform with enhanced student supports and increased teacher participation in shaping and guiding reform (Balfanz, Bridgeland, Bruce, & Hornig Fox, 2012).

Raising the compulsory school attendance age. Compulsory school age laws are out of date and do not reflect the fact that most jobs require a high school diploma and some college. Many of the compulsory school age laws which “refer to the minimum and maximum age required by each state in which a student must be enrolled in and attending public school or some equivalent education program defined by the law” were written before or around the turn of the century (Balfanz et al., 2012, p. 61). This was a time when many young people needed to leave school to begin working in factories, in family businesses, on farms, or in other jobs not requiring a high school diploma.

The case for raising the legal dropout age begins with states’ expectations and how the laws reflect the states’ values. States are sending a signal that dropping out is an acceptable option when they permit students to drop out at the age of 16. Data and research support raising the compulsory school age. Sixty-three percent of the states with a graduation rate above the national average have a compulsory school age law of 17 or 18. Research from MIT and Harvard provided two compelling findings. Because of compulsory schooling laws, roughly 25% of potential dropouts remain in high school and

will increase their earnings by more than 7% with an additional year of schooling (Agostino & Reese, 2010). Another report, *The Case for Reform: Raising the Compulsory School Attendance Age*, highlights the research and provides information from state legislators and governors on how these laws can and should be updated (Balfanz et al., 2012).

Provide all students with clear pathways from high school to college and career training. Just three in ten 25- to 29-year olds in the United States have attained a Bachelor's degree. Just as one-size K-12 education does not fit all, postsecondary pathways need to be numerous with many access points. Research supports multiple pathways to high school graduation and beyond. Early college high schools, access to advanced placement classes, dual enrollment in high school and community college, and more schools with high standards and expectations are improving college-readiness rates and preparing more students for technical education opportunities. High school teachers and guidance counselors need to be aware of opportunities after graduation and discuss options, particularly for students who lack focus and have little support from home, on educational opportunities. Some sort of postsecondary training is becoming increasingly essential for success in today's economy (Balfanz et al., 2012).

Support comprehensive dropout recovery programs. There are millions of youth ages 16 to 24 who are out of school and out of work, many of whom are high school dropouts. An estimated one in six, or 6.7 million of the 38.9 million youth 16-24 years old, are not in school or work or college graduates (Bridgeland & Milano, 2012). More than half have been chronically disconnected from school and work since they were 16, highlighting the magnitude of the high school dropout epidemic. The other half are underattached in that they may have graduated from high school and even attended

college, but they have not progressed through college or obtained a job. These youth cost taxpayers \$93 billion in 2011 alone as a result of lost tax payments and increased government spending on crime, health care, welfare, and more. Over their lifetimes, they will cost taxpayers \$1.6 trillion and society \$4.7 trillion (Belfield, Levin, & Rosen, 2012).

Comprehensive recovery programs are required to reengage dropouts. These students require a comprehensive approach that integrates academic education, on-the-job training experience, holistic personal supports, opportunities for community service, and leadership development that culminates with a real opportunity of going on to college or into a meaningful job. National or regional networks of community-based school systems and state charter schools give dropouts a second chance to complete their secondary education, such as YouthBuild, Transfer Schools in New York City, and Youth Connection Charter Schools in Chicago (Balfanz et al., 2012).

CTE's Role in Dropout Prevention and Career Preparation

Historical perspective of CTE. The first formalized vocational education system in America can be traced to apprenticeship agreements of colonial times. The first education law passed in America, the Old Deluder Satan Act of the Massachusetts Bay Colony of 1647, set specific requirements for masters to teach apprentices academic as well as vocational skills. During the colonial period, the colonies frequently cared for orphans, poor children, and delinquents by indenturing them to serve apprenticeships. As apprenticeships declined, other institutions were created to care for these youngsters. By the mid-1880s, vocational education in the form of industrial education was synonymous with institutional programs for these youth. The children of defeated Native-American leaders were sent to the Carlisle Pennsylvania Indian School, and the curriculum was job training.

After the Civil War, Samuel Chapman Armstrong, the founder of Hampton Institute and the ideological father of Africa-American vocational education, tried to address the racial aspects of the social and economic relations between the former slaves and the White South. His vocational education programs emphasized the need for African Americans to be good, subservient laborers. The prominent educator Booker T. Washington, Armstrong's prize student, took the same values and philosophical views as his former mentor. Washington held firmly to his beliefs that vocational education was the ideal route for most African Americans. W. E. B. DuBois, also an influential African-American educator strongly objected to Washington's educational program. He accused Washington of teaching lessons of work and money, which potentially encouraged African Americans to forget about the highest aims of life (Johnson, 1996).

The Morrill Act was enacted by the U.S. Congress in 1862. The Morrill Act is also referred to as the Land Grant College Act. The Act served as an incentive to higher education in America by providing vocational training regardless of class or social economic standing. The Act also established educational guidelines in each state that was responsible for educating students in the fields of agriculture, home economics, mechanical arts, and other professions that were germane at the time (Gordon, 2008).

The Smith-Hughes Act of 1917 made \$1.7 million available for secondary-level educational programs (Gordon, 2008). The Smith-Hughes Act of 1917 shed significant light on the need for legislation to take a proactive stance on vocational and technical education. The Smith-Hughes Act of 1917 contained specific elements that contributed to the isolation of vocational education from other parts of the comprehensive high school program. In order to receive federal funds under Smith-Hughes, each state was required to establish a state board for vocational education. The primary objective was to

offer youth an alternative to the general curriculum that existed at that particular period of time (Gordon, 2008).

By the 1960s, the vocational education system had been firmly established, and Congress recognized the need for a new focus. As a result, the 1963 Vocational Education Act, while still supporting the separate system approach by funding the construction of area vocational schools, broadened the definition of vocation education to include occupational programs in comprehensive high schools such as business and commerce. The Act also included the improvement of vocational education programs and the provision of programs and services for disadvantage and disabled students (Gordon, 2008).

The Carl D. Perkins Vocational Education Act of 1984 continued the belief of Congress that effective vocational education programs are essential to the nation's future as a free and democratic society. The Act had two interrelated goals, one economic and one social. The economic goal was to improve the skills of the labor force and prepare adults for job opportunities. This was a long-standing goal that is traceable to the Smith-Hughes Act. The social goal was to provide equal opportunities for adults in vocational education. In late summer of 1990, Congress passed the Carl D. Perkins Vocational and Applied Technology Education Act, which amended and extended the Carl D. Perkins Vocational Act of 1984 (Hyslop, 2000).

CTE increases student engagement. Students drop out of high school for a number of reasons, such as family problems, to find a job, substance abuse, or because they have fallen behind in their course taking or have received failing grades. However, another reason for dropping out is gaining attention. Many students lose interest and motivation in education because the curriculum does not seem to have a real-world

application. Academics are often presented in isolation, instead of in a way that shines a spotlight on how the subject is applicable in the context of the real world.

Focus groups of dropouts ages 16-24 conducted for the report *The Silent Epidemic*, found that 47% of those surveyed said that they dropped out of high school because classes were not interesting. Furthermore, 69% of those surveyed indicated that they did not feel motivated. Within both of these findings, the report stated that respondents consistently noted how they felt that school did not seem relevant. For example, one student stated, “they make you take classes in school that you’re never going to use in life” (Bridgeland et al., 2006, p. 3). A 2006 poll of at-risk California ninth and tenth graders found that six in 10 respondents were not motivated to succeed in school. Of those students, more than 90% said they would be more engaged in their education if classes helped them acquire skills and knowledge relevant to future careers (Peter D. Hart Research Associates, Inc., 2006). In North Carolina, a March 2007 poll of likely voters showed that 91% favored expanding CTE programs specifically to make school more attractive to students thinking of dropping out (Association for Career and Technical Education, 2007).

The research that is available suggests that CTE offers students relevant learning experiences that answer the question “Why do I have to learn this,” while at the same time enhancing students’ academic achievement and meeting industry needs. In 2003, a report released by the Advisory Committee for the National Assessment of Vocational Education stated that

CTE empowers students by providing a range of learning opportunities that serve different learning styles. For many students, applying academic and technical skills to real-world activities and being able to see how their learning is related to

the world of work make CTE classes more interesting and motivating, and more educationally powerful than standard academic classes. (Association for Career and Technical Education, 2007, p. 5).

CTE builds positive relationships. The Bill and Melinda Gates Foundation coined the “rigor, relevance, and relationships” phrase as the answer to improving the country’s schools. While rigor often receives the most attention, relevance and relationships are critical as well. The Gates Foundation stated, “all students need adult mentors who know them, look out for them, and push them to achieve” (Association for Career and Technical Education, 2007, p. 5). Students need to be known as individuals within the school community and be connected to their peers and to positive adult relationships. In the 2006 High School Survey of Student Engagement, 24% of students who considered dropping out of high school cited the reason “No adults in the school cared about me.” The High School Survey of Student Engagement was administered by the Center for Evaluation and Education Policy at Indiana University in Bloomington. In the spring of 2007, 68,644 students participated in the survey nationwide (Yazzie-Mintz, 2007).

One of the leading efforts in building positive adult-student relationships is the growth of smaller learning communities. Smaller learning communities with a focus on CTE, often known as career academies, have been found to increase the attendance rate and the likelihood of staying in school for students who entered the programs at a high risk of dropping out. In 2004, a study conducted by MDRC (formerly known as Manpower Demonstration Research Corporation), a nonprofit, nonpartisan social policy research organization, found that career academies significantly cut dropout rates and increased attendance rates, increased credits earned toward graduation, and improved

preparation for postsecondary education (Kemple, 2001).

Another core component of CTE is the long-standing existence of Career and Technical Student Organizations (CTSOs). CTSOs engage students in co-curricular activities that are closely related to CTE classroom programs. Young people involved in these CTSOs number close to 2 million, and each work regularly with an adult adviser to prepare for local, regional, and national competitions. Students also take on leadership roles in the organizations and develop a range of project management, public speaking, and leadership skills. A recent study found that CTSO activities positively affect students' academic engagement and the stronger the student's involvement, the better the results (Stone, 2006).

Mentoring and providing positive relationships with adults in the broader community are also hallmarks of quality CTE programs. Whether through a formal mentoring program, or by placing students in job shadowing or internship opportunities, CTE links students to the community in ways that many other high school programs cannot. The National Mentoring Partnership (MENTOR), an organization focused on the expansion of mentoring activities nationwide, concluded that given their benefits, such as positive association with students' grade point average, attendance rates, self-esteem, and the feeling that school was relevant to work, work-based mentoring efforts are important strategies for helping high school students make a smooth transition to adulthood (MENTOR, 2007).

CTE provides alternative delivery methods. CTE has been at the center of numerous alternative delivery methods that attempt to address the dropout issue such as magnet schools, smaller learning communities, middle college high schools, and accelerated programs. These programs often seek to provide the more relevant

curriculum that leads to increased student engagement and the positive adult-student relationships that can motivate student success.

However, with approximately 3.8 million young adults ages 18-24 already out of the education pipeline without a high school diploma and without employment, dropout prevention efforts alone are not enough to address the growing educational crisis in America (Association for Career and Technical Education, 2007). Efforts must be made to reconnect out-of-school youth and help them to attain the credentials necessary to create economic and career success.

For many students who have not received a high school diploma, GED programs provided through adult education are the only option; however, research has shown that individuals who have a GED as their highest credential earn less than those who have a regular high school diploma. In 2001, average monthly earnings of GED recipients working full-time were \$2,387, while average monthly earnings of high school diploma recipients were \$2,560, a 7% increase. While attaining a GED grants entry into most community and technical colleges and puts many students on a path to further education and more successful careers, more students who earn a regular high school diploma go on to postsecondary education than those who earn a GED, further widening the future earnings gap (Ryan, 2005).

Returning to school to gain a high school diploma is no easy task for disconnected youth. Not only are many of these individuals unsuccessful academically in their original high school environment, but they also face a large number of other social and economic barriers such as lack of transportation, single parenthood, or health problems.

The educational system must provide a continuum of flexible interest-based learning opportunities that utilize effective teaching methodologies and respond to

students' varied needs and life circumstances. The American Youth Policy Forum identified eight characteristics of successful dropout recovery programs in its publication, *Whatever It Takes*. These characteristics included open-entry/open exit; flexible scheduling and year-round learning; teachers as coaches, facilitators, and crew leaders; real-world, career-oriented curricula; opportunities for employment; clear codes of conduct with consistent enforcement; extensive support services; and a portfolio of options for a varied group (Martin & Halperin, 2006).

CTE has become a leader in ensuring these flexible, relevant opportunities to reengage students and provide real-world, career-oriented curricula. While there are often challenges and disincentives to dropout reentry programs, all young people should be provided the opportunity for a quality high school education.

One alternative pathway that is gaining popularity is virtual learning. Students cited a variety of reasons why they cannot attend school regularly and remain on course for graduation. Some students are typically at risk. Many are victims of temporary circumstances. Still others want to move ahead at a faster pace. With the increasing availability of technological tools, the educational needs of some high school students are being met through virtual learning rather than traditional classroom instruction. Schools are helping these students succeed through technology that provides the high-quality content the students are missing. Available 24 hours a day, 7 days a week, online learning enables students to study when they can at school, home, the library, or any other location with Internet access to accelerate learning or make up credits (Southern Regional Education Board, 2011).

Programs that Work

Small learning communities or career academies. One approach showing great

potential for boosting the success rate of students is to organize the high school into small learning communities or career academies that blend academic and CTE studies (Southern Regional Education Board, 2011). Career academies were developed more than 30 years ago as a dropout prevention strategy and targeted youth considered most at risk of dropping out of high school. Career academies have broadened the kinds of students they serve, consistent with efforts to integrate rigorous academic curricula with career themes and to attract students who are preparing for postsecondary education. Career academies operate within a larger high school and are guided by a career theme such as health care, finance, technology, communications, and public service. Career academies also partner with local employers who provide internship opportunities and mentoring to students, contribute resources, participate in special events, and serve on academy advisory boards.

Akins High School in Austin, Texas is a large urban school that has created a small-school environment for its 2,700 students by organizing into six career academies and maintaining a robust advisory program. Seventy percent of Akins students are Hispanic, and 62% are economically disadvantaged. Students choose an academy based on their interests and goals and are assigned alphabetically to an advisory group of 15 students led by a teacher who remains with the students throughout their 4 years of high school. This arrangement gives students several common points of interest. As members of the same academy, students tend to have career goals in related fields and are taking similar courses to complete an academy-related major. All core academic classes in English/language arts, mathematics, science, and social studies are taught by teachers assigned to specific academies, so students in advisory groups are likely to take many of their classes together or at least with the same teachers. In 2003, only 18% of Texas

Assessment of Knowledge and Skills exams at Akins resulted in a Proficient score. That percentage has risen every year since, climbing to 57% in 2009. This improvement of 39 percentage points exceeded the statewide gain of 27 percentage points during the same the same period. Newsweek magazine ranked Akins High School among the top 6% of high schools in the nation in 2009-2010 (Southern Regional Education Board, 2011).

Relevance. Requiring all students to have an academic, a career/technical, or a combined focus in high school gives many students a reason for coming to school. School leaders at high-achieving high schools have made it a priority that every student will choose a subject area for in-depth study. Granite High School in Oklahoma uses career/technical concentrations to focus students on learning and hold potential dropouts in school. School leaders believe the career/technical requirement helped increase the school's college-going rate to 64%, compared with 57% statewide. Also, students who graduate from Granite High School have a better completion rate at Oklahoma colleges than students who graduate from other high schools in the state (Bottoms, Presson, & Han, 2005).

Jefferson County Public Schools in Louisville, Kentucky, succeeded in getting the district and the community to focus on preparing students to be both career-ready and college-ready. In 2008, the Jefferson school system convened a community task force to examine the needs of the district and to make recommendations. The group decided that the system was obsolete. To address the problem, leaders combined the vision and mission of the district with the economic goals of local business and industry and the global economy. Fifteen of the 21 high schools in the district were selected to be redesigned around a career theme matching the economic goals of business and industry. These schools were transformed from schools teaching an out-of-date model that

prepared some students for mostly manufacturing and factory jobs to schools that expect every student to study a career major along with a rigorous academic core that will prepare them for college and careers. In making the change, the task force declared that there is no distinction between work-ready and college-ready. The critical thing is for students to be engaged in meaningful learning that connects to their lives (Southern Regional Education Board, 2011).

Eastern Technical High School, part of Baltimore County, Maryland, Public Schools, is a CTE high school where students gain the knowledge and skills they need to pursue a career in one of 10 career pathways while also taking challenging academic courses at the gifted and talented, honors, and AP levels. Students are fully prepared for both higher education and the workforce. The school is a model for practices that achieve excellent results. In 1992, Eastern Technical High School underwent a major transformation. Programs that were not attuned to the current and future labor market were phased out while programs were introduced that met the needs of the marketplace. The career majors included highly academic programs such as engineering, information technology, allied health, teaching, law-related careers, and interactive media production. High school students in Maryland must fulfill the requirements of a complete program to receive a diploma. The driving forces behind the success of Eastern Technical High School are the relationships that teachers have established with the students and the relevance in what the students learn. The success of Eastern Technical High School is evident. Participation in AP courses increased by 400% in the last 7 years, and 84% of the AP students in 2010 earned a passing score. Since the 2004-2005 school year, the AP participation rate has jumped from 11% to 28%, and the number of tests taken increased from 264 to 678 during the same period. Of the total school population of 1,350 students,

85% were enrolled in rigorous courses, and 81% of the school's minority population was also enrolled in these rigorous courses (Evans & Cook, 2011).

Work-based learning (WBL). Seventy-five percent of students at high-achieving rural high schools, compared with 67% at low-achieving schools with similar demographics, receive quality work-site learning experiences. At the high achieving schools, 75% of students participating in WBL had work-site mentors to teach them how to do the work. This compares with 65% of students who had work-site mentors at low-achieving schools. Furthermore, 42% of students engaged in WBL at high-achieving schools said their employers encouraged them weekly to develop good work habits. This was the case with only 31% of WBL students at low-achieving schools.

Americus High School in Americus, Georgia, uses a state law passed more than a decade ago to provide a youth apprenticeship program designed to prepare students for the world of work and further learning. To qualify for the program, students must have a career concentration, a 2.5 grade point average, good attendance, and a clean disciplinary record. Forty-seven of the 50 students in the school's health and medical career academy participated in the youth apprenticeship program in 2003-2004. School leaders tell middle grades students about the program so they will be motivated to make good grades and meet other program requirements 3 years later (Bottoms et al., 2005).

One aspect of WBL that can be used as a tool for dropout prevention is service learning. Service learning connects community service with the academic curriculum. Effective service learning programs challenge students to reflect on their service experiences through activities such as group discussions and journaling. Typical service learning projects include writing children's books about historical events and then reading them to younger students or painting a mural for the school depicting themes

connected to student learning in science class. Such activities not only promote academic learning but also can help develop student leadership skills, teach them how to be involved citizens, and give them practice in working with others. Bridgeland et al. (2006) discussed the potential of service learning as a dropout prevention measure. The researchers concluded that students saw the benefits of service learning in promoting high school graduation. Sixty-four percent said that service learning could have a big effect on keeping students from dropping out. When asked whether their own feelings about school would be more positive if they had more classes that incorporated service learning, 82% of respondents said yes (Perkins-Gough, 2009).

Relationships. High-achieving rural high schools take advantage of their small size to build relationships with students, parents, and the community. More students at these schools said they participated in activities designed to help them set goals for career and further learning after graduation and to help them make plans to meet the goals. A greater percentage of students at high-achieving schools than at low-achieving schools experienced intensive guidance assistance and support (Bottoms et al., 2005).

A significantly higher percentage of teachers at high-achieving schools serve as advisers and “coaches” than of low achieving schools to help students connect high school experiences to post-high school goals. These teacher advisers are very involved in giving students the right information and advice and include parents in the process.

At El Dorado High School in El Dorado, Arkansas, 48% of the students receive an intensive emphasis on guidance. Teachers do their part by working with small groups of students and parents all 4 years of high school. Eighth graders are required to take a special course to learn about careers and postsecondary requirements, to plan a challenging program of study, and to acquire the study skills needed for high school

success. The students learn about graduation requirements, study the high school catalog of courses, and take a practice run at developing a program of high school study.

Students at every grade level have teachers who serve as adult mentors in helping them review their programs of study with their parents and register for the coming year. In the spring of 2004, the school had 93% parent participation in meetings to examine students' plans. Through the help of community foundations, the school provided transportation for parents who had no other way to get to the school (Bottoms et al., 2005).

Early-college and dual-credit. Students' odds of success are high if they are enrolled in an early-college or dual-enrollment program. Early colleges are small schools where students can earn a high school diploma with the potential to earn an Associate's Degree or 2 years of college credit towards a Bachelor's Degree in 5 years or less. This is accomplished by offering students a challenging high school curriculum along with college courses through the partnering college or university. Early college is an intervention strategy for students who may not be well served by traditional high schools. Early colleges provide a seamless secondary-postsecondary transition and innovative curricula and create a small nurturing environment. The initiative also seeks to change the face of higher education by targeting those students traditionally underrepresented on college campuses.

Guilford County, North Carolina, schools have seen substantial success using the early college model. Four of the schools, which allow students to earn college credits while still in high school, boasted 100% graduation rates for 2011. The other three schools had rates higher than 90%. Guilford County has the largest concentration of early-college programs in North Carolina. Guilford County has increased high school completion rates overall, from 74% in 2006 to 84.5% in 2011. The graduation rate for all

high schools in North Carolina was 77.9% and 91.2% for early-college models (Adams, 2012).

One of the characteristics that make early college appealing to students, especially those who have the potential to drop out, is the small class size. The ideal class size in the early-college model is 20 students to one teacher. Students receive the individual attention they desire and build a positive relationship with the teachers and support staff. The financial aspect is also appealing to a number of students. Students can receive college credit for free or a minimal cost.

Summary and Conclusion

There is added value that CTE can give to a student's education. Courses that have relevance cause students to rise to the challenge of succeeding at what interests them in life. Academic preparation in any form assists an individual to make decisions about what he or she wants to achieve as an occupation. The relevance of CTE programs allows students to see the importance of what they are learning and the purpose of their education. Also, the relationships that are developed by teachers and students provide the guidance necessary for students to make sound decisions about their educational and occupational future. The research that is available about CTE indicates that participation in CTE programs has a positive effect on student retention and student preparation for careers.

Chapter 3: Methodology

The purpose of this study was to examine Chester County, South Carolina, employers' perceptions of the skill levels that new entrants into the workforce should and do possess and the perceptions of recent graduates as they pertain to graduates being career and college ready. This study also solicited the feedback of employers and recent graduates about the effectiveness of the Career and Technology program in Chester County School District.

Research of the literature has documented that a skills gap exists between new entrants into the workforce and the qualifications that are required of existing positions. In 2013, the Organization for Economic Cooperation and Development published OECD Skills Outlook 2013: First Results from the Survey of Adult Skills. The report suggested that the skill level of the workforce in the United States has fallen dangerously behind other nations. The report was based on assessments of literacy, math skills, problem solving, and using information technology. The assessments were given to about 160,000 people aged 16 to 65 in the 22 advanced nations of the Organization for Economic Cooperation and Development. Fewer than 12% of the 5,000 assessed Americans scored in the top two levels of the literacy test. The United States was about average in terms of problem solving with computers. The United States' biggest deficits were in math (Porter, 2013). The selection process of the participants involved in this study was not disclosed, which could have a positive or negative effect on the results of the study.

By the end of the first decade of the 21st century, there were signs that the U.S. was failing to meet its obligation to prepare millions of young adults. In an era in which education had never been more important to economic success, the U.S. had fallen behind

many other nations in educational attainment and achievement. Within the U.S. economy, there was also growing evidence of a skills gap in which many young adults lacked the skills and work ethic needed for many jobs that pay a middle-class wage. A contributing factor to the growing skills gap is the increasing number of students who do not complete school and dropout (Casner-Lotto et al., 2009).

Research Design

Based on the literature review, the researcher determined that the best way to answer the research questions was to utilize a convergent mixed-methods research design. The purpose of a convergent mixed-methods design is to simultaneously collect both quantitative and qualitative data, merge the data, and use the results to understand the research problem (Creswell, 2012). Qualitative and quantitative data were collected by administering surveys, conducting one-on-one interviews, and collecting historical data. The research questions were

1. What are the identifiable needs of Chester County, South Carolina, graduates as they relate to job readiness?
2. Based on the perceptions of local employers and students, how well did the CTE program of Chester County School District prepare students for job and career readiness?
3. What is the overall effectiveness of the CTE experience in Chester County School District?

Participants

To identify the needs of local employers and to gain the perceptions of employers and students, the researcher collected data from two different research populations. The first research population consisted of 496 former Chester County School District students

who completed at least four Carnegie units of related CTE courses during the last 5 academic years. A completer in CTE is a student who has completed at least four Carnegie units in a CTE cluster. Each year between 100 and 120 students graduate from Chester County School District having completed a CTE program. Qualitative and quantitative data were collected by distributing a survey to the 496 recent graduates of Chester County School District. Qualitative data were also collected in the form of one-on-one interviews. Ten recent graduates were randomly selected to participate in the one-on-one interviews.

Local employers made up the second research population. The local employers were members of the Chester County Chamber of Commerce. Qualitative and quantitative data were collected by distributing a survey to the 247 members of the Chester County Chamber of Commerce.

To successfully analyze the data, the researcher had a goal of a 25% rate of return. The researcher desired a high response rate from participants so the researcher could have confidence in generalizing the results to the population under study. To ensure a high response rate, the researcher resent the survey to those who had not responded 2 weeks after the initial distribution. A reminder was sent 2 weeks after the second distribution to those who had not completed the questionnaire. The total collection of survey results took 6 weeks.

The purpose of this study was disclosed to all participants, and each participant granted permission to the researcher to include his/her results in this study. By taking the survey, the participants gave their consent to participate in this research study. Questionnaires were administered via SurveyMonkey or hard copy. SurveyMonkey is an online surveying service. Subject confidentiality, risk, benefits, voluntary participation,

contact information, and an affirmation statement were included in the debriefing statement. A debriefing statement was included with the survey. Anonymity was ensured by the researcher. SurveyMonkey allows authors to disable the storage of email addresses and disable IP address collection for all collection methods so that anonymous survey responses can be collected. Identifying information of individual subjects such as name, address, and email addresses were not collected. The surveying tool was not able to capture or store identifying information.

Instruments

To properly capture the data that were most appropriate for this study, the researcher used several types of instruments to collect data. The researcher created two surveys that were distributed to the research populations. Qualitative and quantitative data were collected from the recent graduate population. The questions contained in the Recent Graduate Survey (Appendix A) centered on the students' preparation in high school for their chosen career field. Qualitative and quantitative data were collected from the local employer population by administering the Employer Skill Survey (Appendix B), which examined the employers' feelings of how well new hires were prepared to enter the workforce.

Instrument Reliability and Validity

The reliability of the instruments was determined by a test-retest reliability procedure. The test-retest reliability procedure examined the extent to which scores from one sample are stable over time from one test administration to another (Creswell & Plano Clark, 2011). Each instrument was administered to 20 individuals. The same instrument was then administered to the same individuals several weeks later. The arrangement of the questions changed during the second administration. The scores from

Time 1 and Time 2 were used to compute the Pearson correlation coefficient as a measure of the test-retest reliability of the instruments. The Pearson correlation coefficient is represented as $\Gamma_{\text{Time1-Time2}}=.90$.

Content validity was established by seeking the input and expertise of stakeholders in the education field with experience in creating surveying instruments. To establish content validity, the instrument needed to ask for the information that answers the questions that the researcher was asking.

Procedures

To answer Research Question 1, data were extracted from the surveys administered to the employers and recent CTE graduates. The qualitative and quantitative data collected were used to identify the needs of graduates as they relate to job readiness and to determine how well the CTE program of Chester County School District prepared students for job and career readiness. Data were also used from the Career and Technology Needs Assessment for CCCC and Chester County School District (Appendix C) to assist in answering Research Question 1. The researcher conducted the needs assessment during the 2012-2013 school year.

Research Question 2 was answered by utilizing data collected by administering surveys to recent CTE graduates and local employers. One-on-one interviews were also utilized to gain additional information about job and career preparation. The questions that were asked during the interview process were as follows:

1. What CTE program did you complete at CCCC?
2. After graduation, did you go directly to work, attend college, attend technical/trade college, enlisted in the military, or unemployed?
3. Do you feel your education and training prepared you for your career choice?

Why?

4. What areas could you have received additional preparation?

Research Question 3 was answered using historical and performance data on the CTE program, district high schools, and the district as a whole. These data were examined to ascertain if the skills being taught in CTE classes meet the needs of the employers.

Limitations

One of the limitations of this study was the time period in which this study was conducted. The findings of the surveys could have been affected by the economic conditions in Chester County and the surrounding area. Also, the needs of the employers could have been affected by the employers' hiring needs at the time the study was conducted. The perceptions of the respondents, especially the employers, could have changed based on the talent pool of potential employees who were available at a given time. Another limitation was the reliability of the recent graduate respondents. The maturity level of the individuals could have determined if the respondents gave honest answers. Another limitation that could have affected the study was the number of respondents completing the surveys. If an insufficient number of participants responded, the results could have been determined unreliable.

Delimitations

All of the participants in this study were limited to Chester County. The recent students who were chosen to participate in this study graduated high school within the past 5 years. The community employers operated within Chester County. Due to time constraints and the scope of this study, the researcher determined that these boundaries needed to be in place.

Summary

One purpose of this study was to identify the needs of recent graduates of Chester County School District as they relate to job readiness. Utilizing data collected from surveys distributed to recent graduates and local employers identified the needs. Data were also utilized from a needs assessment that was conducted by the researcher.

Another purpose of this study was to examine the perceptions of local employers and students of how well Chester County School District prepared students for life after high school. Data were collected from surveys that were administered to recent graduates and local employers. Each group provided information on the importance of soft skills and their overall impression of student preparedness.

The overall effectiveness of the CTE program was also examined during this study. Historical data were collected on former CTE students and high schools in order to examine the demographic makeup of the CTE program compared to the makeup of the district high schools. Performance data in the form of Perkins Indicators were also examined.

To effectively carry out the purpose of this study, it was determined that the most effective research model would be a mixed-methods research model. The mixed-methods research model utilizes principles of both qualitative and quantitative research design models. The mixed-methods research model allowed the researcher to further investigate aspects of the research questions during and after quantitative data were collected. The qualitative data allowed for more in-depth investigation.

Chapter 4: Results

The purpose of this study was to examine Chester County, South Carolina, employers' perceptions of the skill levels that new entrants into the workforce should possess and the perceptions of recent graduates as it pertains to them being career and college ready. This study also solicited the feedback of employers and recent graduates about the effectiveness of the CTE program in Chester County School District. The current study also examined the importance of soft skills in the preparation of students. Through recent research, employers believe that soft skills were as important as or more important than technical skills in securing entry-level employment. According to a study conducted by Seattle Jobs Initiative in 2013, 75% of the businesses surveyed stated that soft skills were as important as or more important than technical skills in securing entry-level employment. Seventy-one percent of businesses stated that soft skills are equally or more important than technical skills in carrying out company goals. Fifty employers participated in the study (Pritchard, 2013).

Through the findings of this study, it is the intention of the researcher to provide feedback about the CTE program in Chester County. It is intended that the data compiled in this study will provide guidance for future program and curriculum development.

The following three research questions guided this study:

1. What are the identifiable needs of Chester County, South Carolina, graduates as they relate to job readiness?
2. Based on the perceptions of local employers and students, how well did the CTE program of Chester County School District prepare students for job and career readiness?
3. What is the overall effectiveness of the CTE experience in Chester County

School District?

This chapter presents the results from surveys administered to recent graduates who completed a CTE program at Chester County School District between 2010 and 2014 and employers who are members of the Chester County Chamber of Commerce. To give a more in-depth perspective about CTE, 10 former students were randomly selected to participate in one-on-one interviews. Historical data pertaining to the CTE program were utilized to examine the overall effectiveness of the CTE program in Chester County School District.

The purpose of the Recent Graduate Survey was to examine the profiles of students completing CTE programs, obtain information about the influences that aided students in choosing a career field, and to obtain information about the importance of various CTE activities. The Recent Graduate Survey also explored the perceptions of students as they pertained to the importance of various skills in the workplace. The Employer Skill Survey sought information about the makeup of the organization, the type of industry in which the organization operated, and the size of the organization. Employers were also asked to rate the importance of various skills as they related to the success of the organization, the desired level of new hire competence, and the actual level of new hire competence.

A comprehensive needs assessment of the CTE program of Chester County School District was utilized to provide answers to the research questions. The researcher conducted the comprehensive needs assessment during the 2012-2013 school year. The results of the needs assessment were used to make programmatic and facility recommendations as they relate to the CTE program of Chester County School District. The data for the needs assessment were collected from several sources. Surveys were

administered to and completed by 770 students who were enrolled in Grades 8-12, 71 parents, 92 secondary educators, and 33 local employers. Historical data such as high school enrollment, report card data, Perkins Accountability Indicators data, and CTE program data were also used to make recommendations in the needs assessment. A committee of 21 individuals representing a cross-section of the Chester County business and education communities served on the needs assessment committee. The individuals selected to serve on the committee had an overall knowledge of current job trends and work skills necessary for successful employment. The committee met six times during the school year. During the meetings, the committee analyzed the various data that were collected and made recommendations based on their findings.

Research Question 1 Results

What are the identifiable needs of Chester County, South Carolina, graduates as they relate to job readiness? To answer Research Question 1, data were collected using the Employer Skill Survey and a previously conducted needs assessment. The Employer Skill Survey was administered to the members of the Chester County Chamber of Commerce. The researcher conducted the CTE Needs Assessment for CCCC and Chester County School District during the 2012-2013 school year.

Employer Skill Survey results. The Employer Skill Survey was sent to the 247 members of the Chester County Chamber of Commerce, and 40 members participated in the survey (16.19% rate of return). Most of the employers participating in this study operated in the Manufacturing cluster. The career clusters that were represented by the respondents are depicted in Table 2.

Table 2

Employer Career Cluster

Career Cluster	Response Count
Agriculture, Foods, and Natural Resources	3
Architecture and Construction	0
Arts, Audiovisual Technology and Communications	1
Business Management and Administration	1
Education and Training	4
Finance	5
Government and Public Administration	3
Health Science	2
Hospitality and Tourism	1
Human Services	1
Information Technology	1
Law, Public Safety, and Security	1
Manufacturing	6
Marketing, Sales, and Service	0
Science, Technology, Engineering, and Math	3
Transportation, Distribution, and Logistics	1
Other	7

When asked about the number of full-time employees who were employed by the organization, 22 employers employed less than 25 employees, four employers employed 26-50 employees, one employer employed 51-100 employees, three employers employed 101-200 employees, seven employers employed 201-500 employees, and three employers employed 500+ employees. Six employers reported that the average yearly wage per employee was less than \$25,000; 21 employers reported that the average yearly wage was \$25,000-\$40,000; and 10 employers reported that the average yearly wage was \$40,000-\$70,000.

When asked if they had hired anyone who attended Chester County Schools in the past 2 years, 21 employers replied yes and eight employers replied no. Of the employers

who hired individuals who attended Chester County Schools, nine employers indicated that less than 25% of their workforce are Chester County School District graduates, five employers indicated that 25-50% of their workforce are Chester County School District graduates, three employers indicated that 50-75% of their workforce are Chester County School District graduates, and four employers indicated that 75-100% of their workforce are Chester County School District graduates.

The employers were also asked to rate the level of importance of each employee skill area to their organization. The employers were asked to complete a Likert scale with the following ratings: 1 = Not Important, 2 = Somewhat Important, 3 = Important, 4 = Very Important, and 5 = Vital.

The employee skills that the employers were asked to rate were based on Wagner (2008). Wagner believed that a skills gap exists between the skills that new entrants in workforce possess and the skills that employers desire. This skills gap is well documented in Wagner's book. Wagner book identifies seven skills that are essential for success in the workforce. Wagner obtained this information through interviewing and surveying CEOs and representatives of major companies in the United States. Through his research, Wagner found that a large number of new entrants in the workforce lack the necessary soft skills. Soft skills are the character traits and interpersonal skills that characterize a person's relationships with other people. In the workplace, soft skills are considered a complement to hard skills, which refer to a person's knowledge and occupational skills (Serby, 2003). The essential skills that Wagner identified were critical thinking and problem solving, collaboration across networks and leading by influence, agility and adaptability, initiative and entrepreneurialism, effective oral and written communication, accessing and analyzing information, and curiosity and

imagination.

Table 3 illustrates the importance of each skill to the overall success of the organization. These are the skills that employers feel are important to achieving their organizational goals. A study by Adecco Staffing US in 2013 found that nearly 45% of senior executives in the United States believe soft skills are where employees are most lacking. That is compared with just 22% who feel that a lack of technical skills is the main factor contributing to the nation's skills gap. The study was based on surveys of 500 senior executives from a variety of industries in the United States (Brooks, 2013). Of the Chester County employers surveyed, none rated any of listed skills as not important. A majority of the respondents rated all seven skills very important and vital. Critical thinking and problem solving and adaptability and agility rated the highest among the seven skills with 17 respondents rating these skills vital. All 25 of the respondents rated effective oral and written communications as vital and very important.

Table 3

Importance to the Success of the Organization

	1 Not Important	2 Somewhat Important	3 Important	4 Very Important	5 Vital
Critical Thinking and Problem Solving	0	0	1	7	17
Collaboration Across Networks and Leading by Influence	0	1	1	13	10
Agility and Adaptability	0	0	1	7	17
Initiative and Entrepreneurialism	0	1	7	8	9
Effective Oral and Written Communication	0	0	0	11	14
Accessing and Analyzing Information	0	1	2	10	11
Curiosity and Imagination	0	4	7	7	7

Table 4 illustrates the desired level of new hire competence. The desired level of new hire competence is the amount of skill level employers desire new entrants to possess when they come to work. This is the skill level that new hires would have acquired during their formal education. The following rating scale was used: 1 = Very Undesirable, 2 = Undesirable, 3 = Neutral, 4 = Desirable, and 5 = Very Desirable.

Employers viewed critical-thinking and problem-solving skills the highest with 22 respondents believing that it is desirable and very desirable. Employers also desire that new hires possess effective oral and written communication skills with 20 respondents rating this skill desirable and very desirable. Curiosity and imagination and initiative and

entrepreneurialism rated the lowest with 13 respondents rating these skills as desirable and very desirable. None of the employers viewed any of the seven skills as very undesirable.

Table 4

Desired Level of New Hire Competence

	1 Very Undesirable	2 Undesirable	3 Neutral	4 Desirable	5 Very Desirable
Critical Thinking and Problem Solving	0	0	2	11	11
Collaboration Across Networks and Leading by Influence	0	0	5	11	8
Agility and Adaptability	0	0	5	10	9
Initiative and Entrepreneurialism	0	4	7	9	4
Effective Oral and Written Communication	0	0	4	14	6
Accessing and Analyzing Information	0	2	6	11	5
Curiosity and Imagination	0	5	6	9	4

The employers were asked if they believed employees entering the workplace immediately after high school were prepared. The needs of employers have changed over time along with the landscape of the U.S. economy. In 1973, nearly a third of the nation's 91 million workers were high school dropouts, while another 40% had not progressed beyond a high school degree; thus, people with a high-school education or less made up 72% of the nation's workforce. In an economy in which manufacturing was

still dominant, it was possible for those with less education but a strong work ethic to earn a middle-class wage, as 60% of high school graduates did (Pathways to Prosperity Project, 2011). As the economy evolved, the skill set of employees changed. The skill set that employees possess must allow them to compete on the global level. Of the 26 employers responding to this question, 12 said yes and 14 said no. The employers who answered no were asked what skills students should have when they leave high school to be a successful entry-level employee. Some of the responses to this open-ended question were technical training, communicating in a professional manner, being a team player, following directions and finishing assignments, exposure to real-world issues, maturity, trustworthiness, self-starter, and customer service skills.

Needs assessment findings. The purpose of the needs assessment conducted by the researcher for Chester County School District was to identify the programmatic and facility needs in the area of CTE. The demographic data used to compile the CTE Needs Assessment for CCCC and Chester County School District were obtained from the Comprehensive Economic Development Strategy for the Catawba Region report. The Catawba Regional Council of Governments developed the report in 2012. The Catawba Region consists of Chester, York, Lancaster, and Union Counties in South Carolina. The Catawba Region experienced dynamic growth between 2000 and 2010. The region's population increased from 289,914 in 2000 to 368,460 in 2010. This represented a 27.10% increase for that time period. The United States as a whole grew by 9.70% during the same time period. Although the Catawba Region experienced significant population growth between 2000 and 2011, the distribution of growth has been uneven within the region. York and Lancaster counties grew at an accelerated rate of nearly four and two times the national rate, while Chester and Union Counties experienced small

population declines. The rate of growth for the region as a whole is due to the close proximity to the greater Charlotte, North Carolina, metropolitan area.

Just as population trends varied county-by-county within the region, employment sectors varied as well. This is primarily due to the same factors that impacted population trends within the region coupled with the more rural nature of Union and Chester Counties. Approximately 7.30% of the region's nonfarm workforce is in Chester County. The county's largest employment sector is manufacturing employing 2,170 employees followed by the trade, transportation, and utilities sector with 1,630 employees. It is important to note that there has been a transition within the region away from manual labor-intensive manufacturing of the textile era to a more technical and skilled manufacturing process requiring a more technically proficient workforce.

Following job losses and stagnation from 2008 to 2010, the Catawba Region experienced job growth in excess of the U.S. rate. This recovery resulted in a net job creation of 2,200 jobs in 2011; however, it did not offset the 4,400 jobs lost in the Catawba Region in 2009. Between 2001 and 2011, York County was the only county in the region to experience positive net new employment. While Chester, Lancaster, and Union Counties saw jobs created during this period, the net increase was not enough to offset the number of jobs lost during the recession in the latter part of the decade. The net job loss for Chester County during this time period was 4,460. The leading sectors creating new jobs within the last decade were health services, financial activities, and trade, transportation, and utilities. Most of the job loss within the region occurred in the manufacturing sector, which can be greatly attributed to the continued decline of the textile industry. The Catawba Region's entire manufacturing sector experienced a net loss of 9,841 jobs region-wide between 2001 and 2011.

While the region experienced substantial job losses in the manufacturing sector, manufacturing accounted for the greatest number of new jobs created region-wide between 2010 and 2011. All four counties within the region experienced positive net new job creation in the manufacturing sector with Chester County being responsible of 7% of the region growth.

Recent industrial developments in Chester County have spurred the creation of jobs. These developments include the opening of the Institute for Business and Home Safety (IBHS) Research Center in October 2010, which drew nationwide coverage for Chester County and the region. Other industries announced included Jones-Hamilton Chemicals and Rolled Alloys. In addition, several industries in Chester have expanded capabilities or announced expansions within the last year including Ring Container Technologies, Boral Stone Products, Chester Wood Products, and Guardian Industries. These expansions and new industries underscore the growth that is taking place in current technical manufacturing. Most recently, Giti Tire announced the construction of a manufacturing facility, which is expected to employ over 1,700 employees.

In conducting this needs assessment, 770 secondary students were surveyed and submitted responses. Of the students surveyed, 58 were eighth graders, 172 were ninth graders, 199 were tenth graders, 170 were eleventh graders, and 154 were twelfth graders. When asked who had the most influence over their career decisions, 584 of the students answered that their parents or family members had the largest influence. Only 222 answered that school personnel had the most influence. The students were allowed to pick more than one influence.

When the students were asked about their plans after high school and their preparation for those plans, the students gave a variety of answers. When asked what

they plan on doing after high school, 464 want to attend a 4-year college, 175 want to attend a technical college or a 2-year college, 173 want to work part-time, 106 want to enter the military, 69 want to work full-time, and 74 were undecided. A key factor in engaging students in the classroom is showing the relevancy of what the students are learning. When the students were asked if their teachers assisted them in connecting their schoolwork with their career interest, 357 students responded sometimes. Only 81 students responded that their teachers always assist them in connecting their schoolwork with their career interest. One hundred and eight students responded never. When asked if they participated in career activities (career fairs, career guest speakers, WBL, or company tours), 445 of the students responded that they have not participated in career activities. Career activities such as WBL show students the relevancy of what they do in the classroom. When asked which of the following areas do they need help in planning their future career and educational training, 435 responded college planning and 306 responded exploring career interest in the form of internships and shadowing. The students were allowed to choose more than one answer.

The students were asked to identify the top two career clusters that interest them. The top vote getter was health science with 187 responses. Other career clusters of interest were arts, audiovisual technology and technology with 144 responses; business management and administration with 142 responses; law, public safety, and security with 147 responses; and science, technology, engineering, and math with 153 responses. Table 5 lists the students' career clusters of interest.

Table 5

Career Clusters of Interest

Career Cluster	Response Count
Agriculture, Foods, and Natural Resources	78
Architecture and Construction	80
Arts, Audiovisual Technology and Communications	144
Business Management and Administration	142
Education and Training	86
Finance	21
Government and Public Administration	24
Health Science	187
Hospitality and Tourism	34
Human Services	125
Information Technology	28
Law, Public, Safety, and Security	147
Manufacturing	51
Marketing, Sales, and Service	60
Science, Technology, Engineering, and Math	153
Transportation, Distribution, and Logistics	25

During the needs assessment process, 33 employers from Chester County responded to a questionnaire. When asked if high school graduate job seekers were prepared, 17 responded no and seven responded yes. When asked to provide responses to what CCCC and Chester County School District can do better prepare students, employers provided the following responses:

- Students need to have better people skills and better interaction with the public.
- Educate the business community on what is available through CCCC and CTE.
- Students need to improve their math skills.
- Students need to improve skills in science.

- Students need to improve interviewing skills and prepare application materials in a professional manner.
- Emphasis needs to be placed on time management and reporting to work on time.

As a result of the needs assessment, several programs and changes were implemented to improve the CTE program of Chester County School District. An extensive marketing campaign was implemented in order to change the image of CTE within the district and to get more students involved. Part of the campaign focused on educating the community on the importance of CTE and the importance of having a prepared workforce. WBL was expanded to include more students. WBL is an extremely valuable way for students to experience first-hand knowledge about workplace expectations and job skills. All students are encouraged to participate in WBL as a part of their educational experience. Efforts were also implemented to increase the number of students participating in dual-credit programs. Dual credit provides students with college credit while they are still in high school. Dual credit also creates a seamless transition between high school and college. In response to the changing needs of employers in the Catawba Region and the demand from the community, several programs at CCCC were altered or added. In response to the changing environment of manufacturing, the Drafting program was eliminated and Mechatronics and Engineering were added. Also, an Advanced Manufacturing program was added. Mechatronics, Engineering, and Advanced Manufacturing focus on current manufacturing needs and the technology involved in manufacturing. The Health Science program was expanded to include Sports Medicine to meet the increasing need of healthcare professionals. Other programs that

were added to CCCC include Fire and Emergency Management and Information Technology.

Research Question 2 Results

Based on the perceptions of local employers and students, how well did the CTE program of Chester County School District prepare students for job and career readiness? To answer Research Question 2, survey results from the Recent Graduate Survey, survey results from the Employer Needs Survey, and one-on-one interviews with recent CTE graduates were utilized.

Recent Graduate Survey results. The Recent Graduate Survey was administered to 496 recent graduates, and 51 were returned (10.28% rate of return). Of the returned surveys, 27 were from Chester High School graduates, 19 were from Great Falls High School graduates, and five were from Lewisville High School Graduates. Of the 51 surveys returned, eight graduated in 2010, 12 graduated in 2011, three graduated in 2012, 12 graduated in 2013, and 16 graduated in 2014. When asked to indicate their gender, 19 chose female and 31 chose male. When asked about their race, 31 chose White and 20 chose Black. No other races were indicated.

Table 6 contains the complete programs offered by Chester County School District and the number and percentage of survey respondents who completed these programs.

Table 6

CTE Programs Completed by Survey Respondents

Program	Response Count
Agriculture (Horticulture)	7
Automotive Technology	3
Business Information Management	9
Carpentry	0
Cosmetology	1
Culinary Arts	3
Drafting	4
Electricity	9
General Management	0
Graphic Communications	6
Health Science	4
Interactive Media	0
Machine Technology	7
Marketing Management	2
Masonry	0
Mechatronics/Engineering	2
Sports Medicine	0
Welding Technology	5

When asked about their GPA upon graduation, six graduated with a 4.1 or above, eight graduated with 3.6-4.0, 24 graduated with 3.1-3.5, 11 graduated with 2.6-3.0, one graduated with 2.1-2.5, and one did not know their GPA.

Most of the recent students (30) indicated that their parents and family members had the most influence over their career decisions. Other influences included school counselors, teachers, and administrators (23); media (10); friends (10); and other influences (8).

Twenty-five of the respondents indicated that they attended a 2-year technical college or a 2-year college after graduation. Seventeen indicated that they worked part-time, 16 indicated that they attended a 4-year college, and six indicated that they were

unemployed. These results yield a positive placement rate of 88.23% among recent graduate respondents. The survey respondents who attended a 2-year or 4-year college attended the University of South Carolina, Coastal Carolina University, Spartanburg Methodist College, York Technical College, University of South Carolina-Lancaster, Greenville Technical College, Florence/Darlington Technical College, Art Institute of Charlotte, Claflin University, and Virginia State University. Students who indicated they were employed worked in agriculture, foods, and natural resources; business, management, and administration; health science; human services; manufacturing; marketing, sales, and service; science, technology, engineering, and mathematics; and transportation, distribution, and logistics.

Students were asked to rate on a Likert scale how often their teachers and school personnel assisted them with connecting their schoolwork with their career interest. Of the respondents, 17 responded sometimes, 11 responded often, 11 responded most of the time, and 12 responded always. Zero students responded never.

Each recent graduate was asked to rate on a Likert scale the importance of each skill area as it pertains to his/her career choice. The skill areas that the recent graduates were asked to rate were based on the seven essential skills Wagner (2008) indicated in his research. The recent graduates were asked to rate each skill on the following scale: 1 = Not Important, 2 = Somewhat Important, 3 = Important, 4 = Very Important, and 5 = Vital.

Of the recent graduates who responded, 48 respondents reported that critical thinking and problem solving were important, very important, and vital. None of the respondents rated critical thinking and problem solving as not important or somewhat important. For teamwork, only four respondents responded that this area was not

important or somewhat important. The remainder rated teamwork as important, very important, or vital. Three respondents rated adapting to different situations as not important while the remainder of the respondents rated this area as important, very important, and vital. For ability to turn ideas into action, one respondent rated not important, three respondents rated somewhat important, six respondents rated important, 19 rated very important, and 19 rated vital. When rating effective oral and written communication, 22 rated this skill vital, six rated it very important, 17 rated it important, and three rated it somewhat important. Twenty-nine respondents rated locating and analyzing information vital, and 10 rated this skill very important. Nine respondents rated locating and analyzing information somewhat important and important. For curiosity and imagination, 34 respondents rated very important and vital, while 11 respondents rated important and three respondents rated somewhat important. The results to this question are depicted in Table 7.

Table 7

Importance of Each Area to Career Choice

	1 Not Important	2 Somewhat Important	3 Important	4 Very Important	5 Vital
Critical Thinking and Problem Solving	0	0	12	8	28
Teamwork	0	4	14	9	21
Adapting to Different Situations	3	0	16	4	24
Ability to Turn Ideas Into Action	1	3	6	19	19
Effective Oral and Written Communication	0	3	17	6	22
Locating and Analyzing Information	0	3	6	10	29
Curiosity and Imagination	0	3	11	7	27

Table 8 illustrates the recent graduates' responses to the question how well their education and training prepared them for their career choice as they pertain to the skill areas. The scale in which the recent graduates rated the skills was converted to a 1 to 5 scale with 1 being the lowest level and 5 being the highest. When it comes to critical thinking and problem solving, six respondents rated 1 and 2. Nine students rated teamwork 1 and 2. Seven respondents rated adapting to different situations 1 and 2. Eleven students rated ability to turn ideas into action a 2. Seven of the respondents rated effective oral and written communication 1 and 2. A majority of the respondents rated all

categories 4 and 5.

Table 8

How Well Education and Training Prepared Recent Graduate for Career Choice

	1	2	3	4	5
Critical Thinking and Problem Solving	0	6	13	9	20
Teamwork	1	8	11	12	16
Adapting to Different Situations	6	1	9	20	12
Ability to Turn Ideas Into Action	0	11	6	11	20
Effective Oral and Written Communication	4	3	10	8	23
Locating and Analyzing Information	0	3	11	14	20
Curiosity and Imagination	1	3	11	17	16

Employer Skill Survey results. To gain the local employers' perspectives on the preparedness of recent graduates, employers were asked to rate the actual level of competence of new hires. Table 9 illustrates the actual level of new hire competence. Employers were asked to rate what they observed to be the actual level of the skills that newly or recently hired employees possess. The scale in which the employers rated the employees was converted to a 1 to 5 scale with 1 being the lowest level and 5 being the highest. Critical thinking and problem solving, collaboration across networks and

leading by influence, effective oral and written communication, and curiosity and imagination were rated a 5 by one respondent. Initiative and entrepreneurialism and accessing and analyzing information were not rated a 5 by any of the respondents.

Among the respondents to this question, the employers indicated that new hires come to them without mastering any of the seven skills. A large majority of the new hires fall in the 2-4 rating range.

Table 9

Actual Level of New Hire Competence

	1	2	3	4	5
Critical Thinking and Problem Solving	0	2	11	8	1
Collaboration Across Networks and Leading by Influence	0	3	8	10	1
Agility and Adaptability	0	2	10	8	2
Initiative and Entrepreneurialism	0	8	10	4	0
Effective Oral and Written Communication	1	4	11	5	1
Accessing and Analyzing Information	0	5	13	4	0
Curiosity and Imagination	0	7	9	5	1

One-on-one interviews. To gain a better understanding of the preparedness of recent graduates, the researcher interviewed 10 students. The students were asked the following questions:

1. What CTE program did you complete at CCCC?
2. After graduation, did you go directly to work, attend college, attend technical/trade college, enlisted in the military, or unemployed?
3. Do you feel your education and training prepared you for your career choice? Why?
4. What areas could you have received additional preparation?

Subject 1 was a Black male who graduated from Chester High School in 2012.

The subject completed the Mechatronics program at CCCC. After graduation, the subject attended Greenville Technical College. Overall, the subject felt that Chester County School District did not prepare him for life after high school. When asked why he felt this way, the subject responded,

Mechatronics is a nice program but it does not prepare you for college or the real world. The equipment used in the class needs to be like they use in industry and there is too much work on the computer modules. More emphasis needs to be placed on PLCs (Programmable Logic Controls).

When discussing the seven skills that employers desire, the subject felt that critical thinking was the most important skill, but his school experience did not provide enough exposure to critical thinking applications.

Subject 2 was a 2013 graduate of Chester High School. This subject was a White male. After graduation, Subject 2 attended Florence/Darlington Technical College. The subject completed Agriculture at CCCC. The subject stated, “Mr. Beam (Agriculture teacher) was the biggest influence in my life.” Overall, “Chester County Career Center prepared me for school. My agriculture classes were vital.” The subject also stated “please remind counselors that it is not a waste of a good brain to take classes at the

career center and go to a 2-year technical college.”

Subject 3 was a White female who graduated in 2011 from Great Falls High School. After graduation, the subject attended University of South Carolina-Lancaster. The subject completed the Health Science Program at CCCC. When asked if she felt she was prepared when she entered college, she stated, “the classes I took at the career center more than prepared me for the nursing classes I took at USC-L.” The subject also stated “a CNA (Certified Nursing Assistant) certification needs to be added to the Health Science program. That will give the students a better opportunity to find employment.” When discussing the importance of the seven soft skill areas, the subject believed all of the areas are extremely important to her career area and that Great Falls High School and CCCC did a great job of preparing her in those areas.

Subject 4 was a White male who graduated from Chester High School in 2012. The subject completed the Automotive Technology and Mechatronics programs and is now attending Clemson University. Overall, the subject felt that CCCC and Chester County School District prepared him for life after high school. The subject stated

Keep up the good work! The career center program is the best part about Chester County School District. Continue to encourage students to do their best and prepare them for the world ahead. I learned more at CCCC than anything the high school could ever come close to. Hands on experience and making the connection from the classroom to the real world are key in the road to success. The CCCC staff are some of the most friendly and helpful people in the world and genuinely care about your future. Keep the positive attitude and continue to make learning fun!

Subject 5 was a Black female who graduated from Chester High School in 2010.

The subject completed the Business Information Management program at CCCC.

Subject 5 is now a student at Claflin College. The subject believed teamwork and the ability to turn ideas into action are two of the most important skills that students need to have when they leave high school; yet, she felt that she was least prepared in those areas. Subject 5 stated, “Students need to work on more group projects. Working in teams is vital so children can adapt to other people and their attitudes and their cultures.” The subject also stated, “students should be required to do internships as a part of graduation.”

Subject 6 was a 2013 graduate of Great Falls High School and completed the Automotive Technology program at CCCC. The subject was a White male who was working part-time. When the subject was asked about the importance of the seven soft skills, he responded that all the skills were important, especially the ability to work in team setting. Even though the skills are important, the subject felt that his formal schooling did not adequately prepare him in the soft skill area. Overall, the subject felt that he was not prepared for life after high school. When asked what the school system could do better, he responded, “The school should assist students with job placement.” The subject did not participate in any WBL opportunities while in high school.

Subject 7 is a White male who graduated from Great Falls High School in 2014. He completed the Machine Technology program and is unemployed. Subject 7 stated, “I cannot find a job because the market for machinist in Chester County is slim.” The subject felt critical thinking and problem solving is the most important skill students coming out of high school should have and that he was adequately prepared in that area while in high school. When asked to discuss the areas where he needed additional preparation, the subject responded, “I needed more experience with talking to employers and making connections to employers.”

Subject 8 was a 2010 graduate of Chester High School. The subject was a White female who completed the Culinary Arts program. After high school, the subject attended Spartanburg Methodist College. She felt that critical thinking and problem solving, teamwork, effective oral and written communication, and locating and analyzing information are the most important soft skills students need upon graduation. The subject felt that she was adequately prepared in these areas. The subject stated, “my education in Chester prepared me for college even though I majored in something different than what I took at the career center. More business classes need to be offered.”

Subject 9 was a 2013 graduate of Chester High School. Subject 9 was a Black female who completed the Business Information Management program at CCCC. When discussing the soft skill areas, she felt that all of the areas are important and that she was adequately prepared in these areas while in high school. She stated, “overall, my experience at CCCC was positive and it prepared me for college.” The subject also stated, “please make sure that all students at the career center take on all of the opportunities that are there and get involved in as many organizations as possible. It will help them in the long run.”

Subject 10 was a White male who graduated from Chester High School in 2010. The subject completed the Welding Technology program and attended York Technical College after high school. He felt like his overall experience in high school prepared him for life after high school. When asked what can the school system do to enhance his experience, he stated, “more tours of business and industry is needed. Tours allow students to see what businesses are looking for.”

Overall, the recent graduates felt that their experience at their high schools and at CCCC adequately prepared them for life after high school. Most of the subjects felt that

most of the soft skill areas were an important part of their preparation and the school system did a good job of preparing them. The subjects also suggested that more opportunities in WBL are needed. WBL opportunities allow students to have more contact with employers and the students can see firsthand what employers expect from them. The interview responses support the findings of the surveys that were administered to the recent graduates.

Research Question 3 Results

What is the overall effectiveness of the CTE experience in Chester County School District? To answer Research Question 3, historical data were collected from several sources. Historical data were collected and examined on all of the CTE completers over a 5-year period. Data were also examined from the Perkins Indicators, which is a measure of the effectiveness of CTE programs.

Recent graduate research population. The recent graduate research population consisted of 496 former students who completed a CTE program from 2010 to 2014. Of the 496 students, 377 were from Chester High School, 56 were from Great Falls High School, and 63 were from Lewisville High School.

The mean GPA for the 496 students was 2.89 with a minimum GPA of 1.35 and a maximum GPA of 4.66. The average GPA for the students from the three feeder high schools is depicted in Figure 7. Students from Great Falls High School had the highest GPA with a 3.108. Students from Chester High School had a 2.896, and students from Lewisville High School had a 2.716.

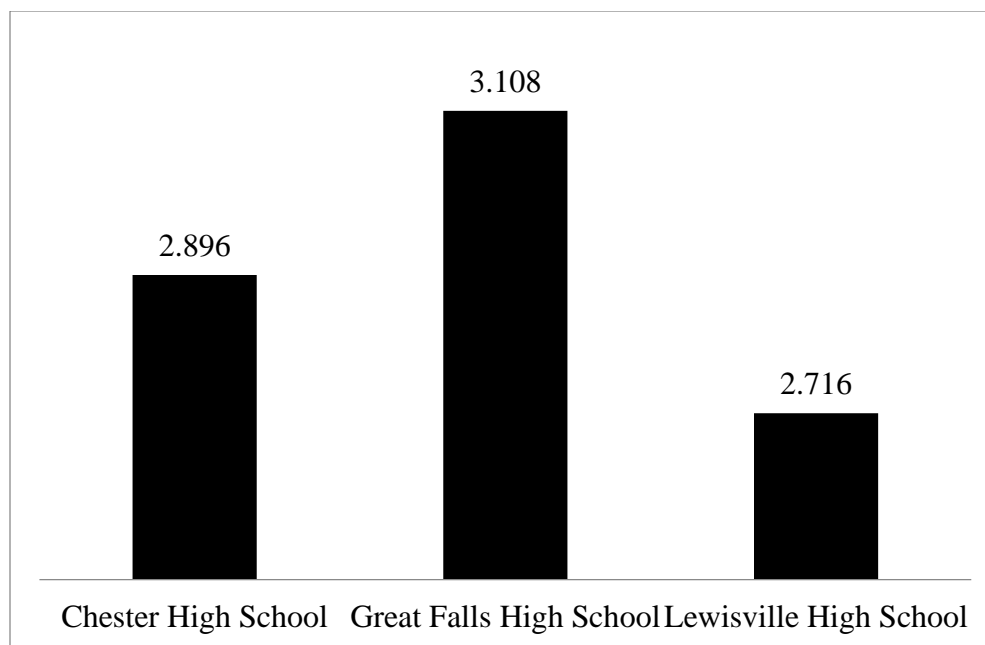


Figure 7. Average GPA by School.

When looking at the overall performance of the three high schools that feed into the CTE program of Chester County School District, the High School Assessment Program (HSAP) test and graduation rates have to be taken into account. The HSAP is used in the calculation of Absolute Ratings, Growth Ratings, and Federal Accountability status for high schools. The HSAP passage rate for Chester High School was 87.20%, and the graduation rate was 66.90%. The HSAP passage rate for Great Falls High School was 93.00%, and the graduation rate was 77.20%. The HSAP passage rate for Lewisville High School was 97.60%, and the graduation rate was 86.10%. The HSAP passage rates and graduation rates were for 2013. Based on the two criteria, Lewisville High School was the top performing high school in the district, followed by Great Falls High School.

Student completers completed 19 programs over a 5-year period. The program with the highest number of completers was Health Science with 79 completers. The program with the lowest number of completers was Administrative Services with one

completer. Architecture/Mechanical Design, Administrative Services, and Masonry were discontinued during the 5-year period due to low enrollment. Mechatronics Integrated Technologies was added during the same time period. Table 10 is a listing of the programs that the students completed, the number of completers, and the average GPA for each completer program.

Table 10

Completer Program Count and Average GPA

Program	Count	Average GPA
Administrative Service	1	4.146
Architecture/Mechanical Design	3	3.074
Automotive Technology	41	2.740
Business Information Management	25	3.098
Carpentry	31	2.584
Cosmetology	50	2.758
Culinary Arts	15	2.643
Electricity	42	2.640
General Management	5	3.254
Graphic Communications	49	2.964
Health Science	79	3.142
Horticulture	30	3.265
Machine Technology	16	2.793
Marketing Management	31	2.840
Masonry	5	2.104
Mechatronics	8	3.558
Merchandising	2	3.418
Web and Digital Communications	10	3.726
Welding Technology	52	2.659

Figure 8 is a graphical breakdown of the race and gender of the students who completed a CTE program in Chester County School District. White males made up 33.67% of the CTE completers, Black females made up 24.59%, White females made up

20.96%, Black males made up 19.75%, Hispanic females made up .40%, and Hispanic males and Native American females made up .20% each.

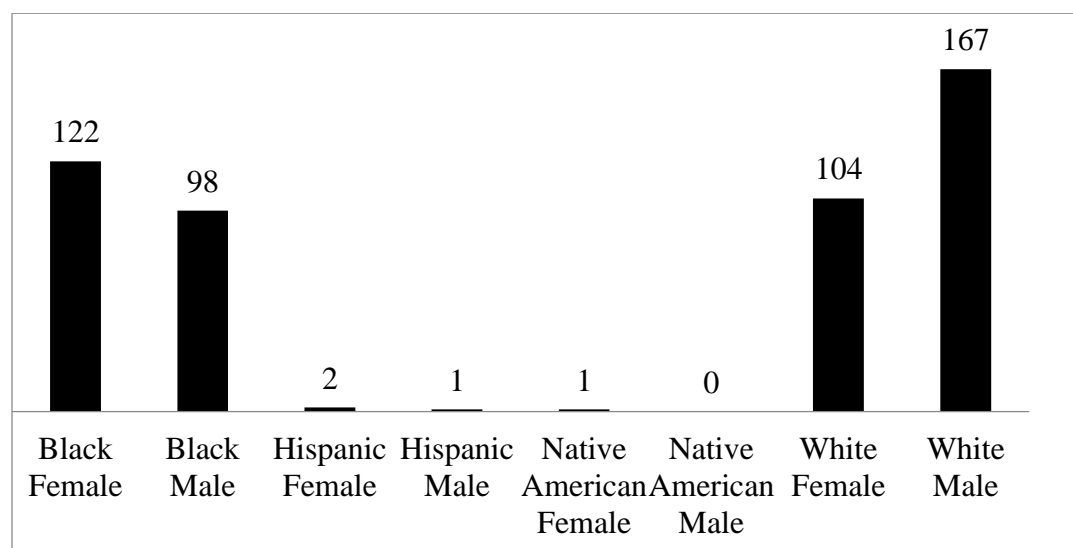


Figure 8. Count by Race and Gender.

Figure 9 is the average GPA by race and gender.

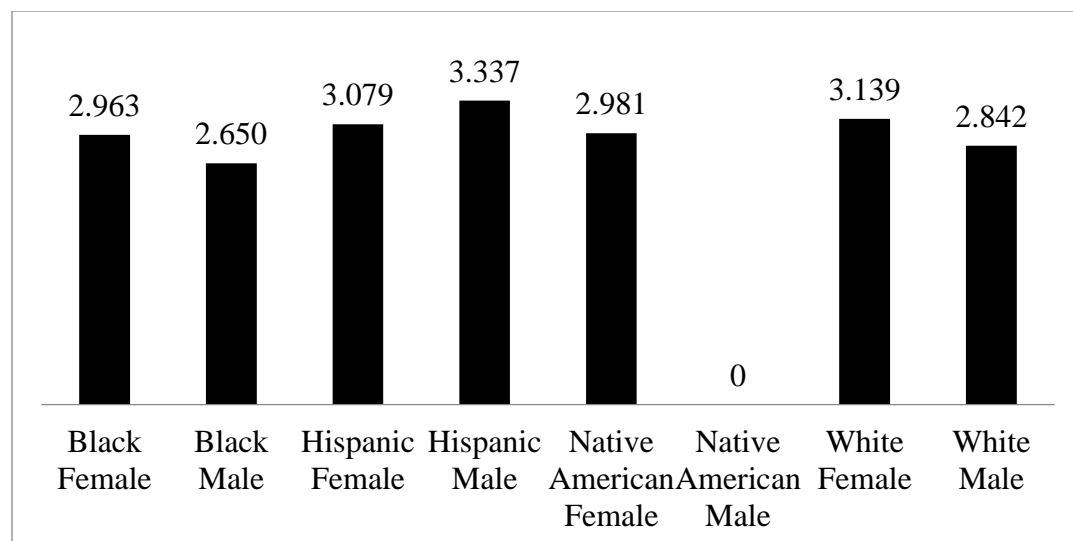


Figure 9. Average GPA by Race and Gender.

Perkins IV accountability indicators for CTE. The reauthorization of the Carl D. Perkins Career and Technical Education Act in 2006 required a state performance accountability system to promote continuous CTE program improvement. Federal funding is dependent upon the state meeting performance goals that address the core indicators for student achievement outlined by the federal law. The Perkins Indicators were developed to assess the CTE program of a district. The Perkins Indicators for Chester County School District and South Carolina are as follows:

1. Academic Attainment – Reading/Language Arts: Academic Attainment in the area of Reading/Language Arts is the percentage of twelfth-grade concentrators who scored proficient or advanced on the ELA HSAP administered 2 years prior to the reporting year as required by NCLB. In Figure 10, Chester County School District has performed below the state performance goal and the actual state performance level.

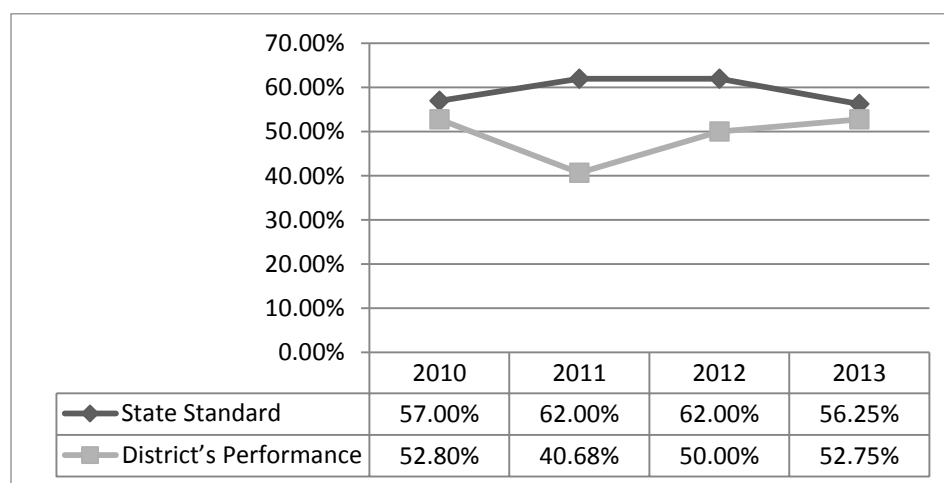


Figure 10. Academic Attainment – Reading/Language Arts.

2. Academic Attainment – Mathematics: Academic Attainment in the area of Mathematics is the percentage of twelfth-grade concentrators who scored

proficient or advanced on the Math HSAP administered 2 years prior to the reporting year as required by NCLB. In Figure 11, Chester County School District did not meet the state standard for 2012 and 2013.

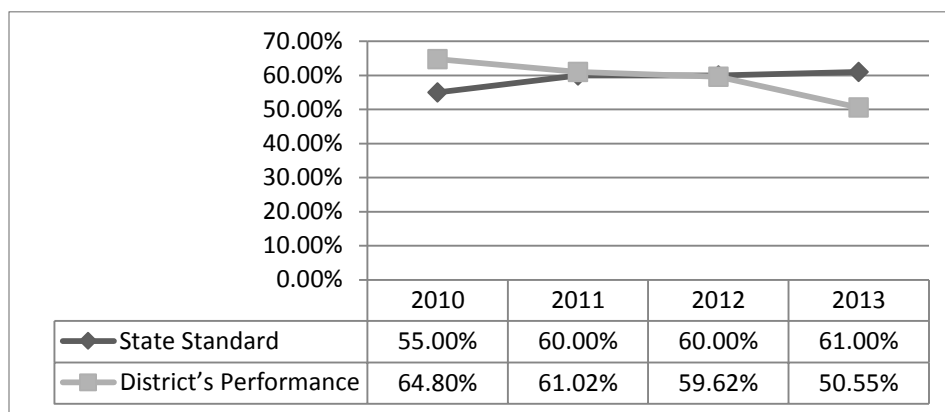


Figure 11. Academic Attainment – Mathematics.

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3. Technical Skill Attainment: Technical Skill Attainment is the percentage of concentrators who completed a CTE program and passed a technical skill assessment that was aligned with industry-recognized standards, if available and appropriate, during the reporting year plus concentrators who achieved a final GPA of at least 2.0 averaged over the year for all the CTE courses taken during the year for those program area that do not have other valid and reliable assessments. In Figure 12, Chester County School District performed above the state standard in 2013; however, in 2012, Chester County School District failed to meet this standard by almost six percentage points.

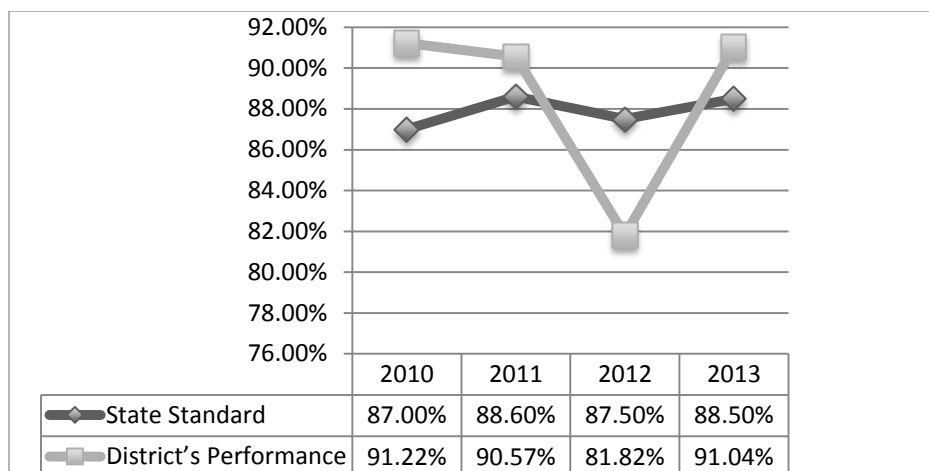


Figure 12. Technical Skill Attainment.

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4. Secondary School Completion: Secondary School Completion is the percentage of twelfth-grade concentrators who completed a CTE program and who attained a South Carolina high school diploma, a state certificate, or a GED. In Figure 13, the district exceeded the state standard for the past 4 years. For the 2010, 2011, and 2012 reporting years, the district had a 100.00% school completion rate among CTE completers.

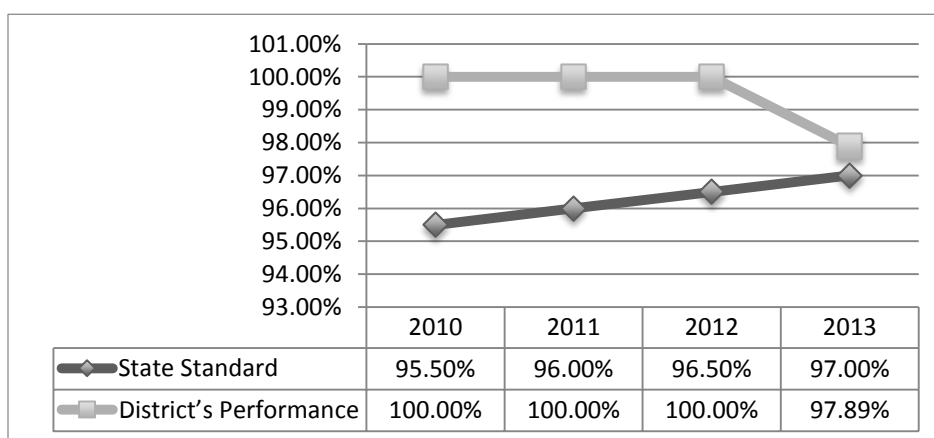


Figure 13. Secondary School Completion.

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5. Student Graduation Rates: Student Graduation Rates are the percentage of

CTE concentrators who, in the reporting year, were included as graduated in the State's computation of its graduation rate as defined in SC's Consolidated Accountability Plan. In Figure 14, Chester County School District far exceeded the state standard for 2010, 2011, 2012, and 2013.

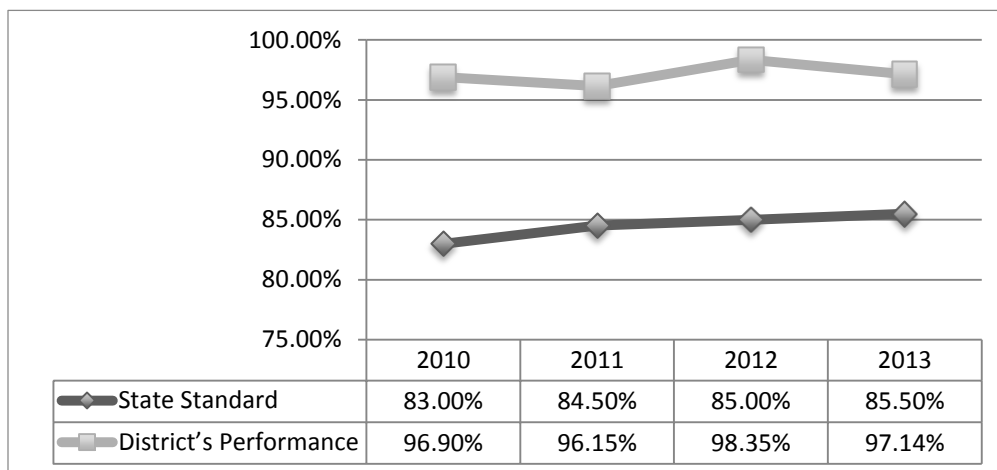


Figure 14. Student Graduation Rates.

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6. Secondary Placement: Secondary Placement is the percentage of concentrators who completed a CTE program and who are placed in postsecondary education, military service, or employment. This percentage is calculated over a 3-year period of time. As indicated in Figure 15, the district failed to meet the state standard in properly placing its completers for 2011, 2012, and 2013.

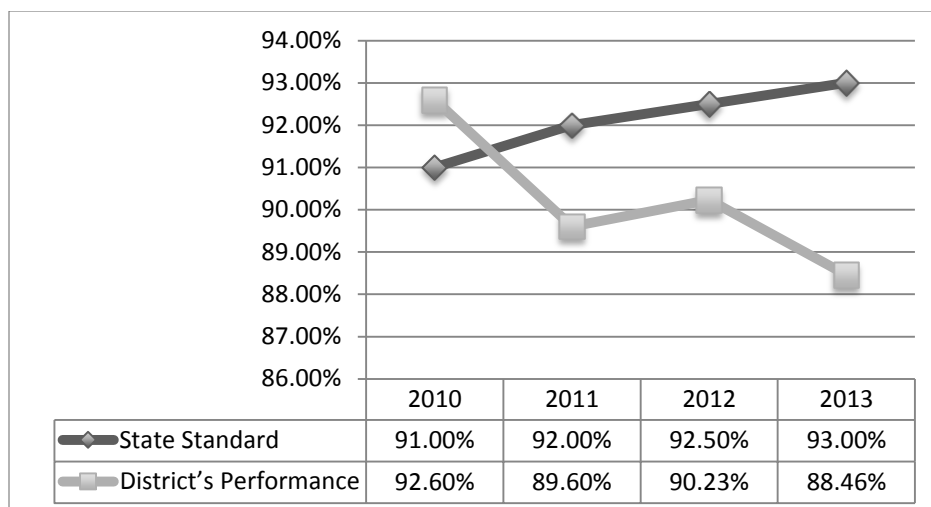


Figure 15. Secondary Placement.

7. Nontraditional Participation: Nontraditional Participation is the percentage of concentrators of the underrepresented gender enrolled in CATE programs identified as leading to nontraditional training and employment. In Figure 16, the nontraditional participation rate did not meet the state standard for 2010, 2011, 2012, and 2013.

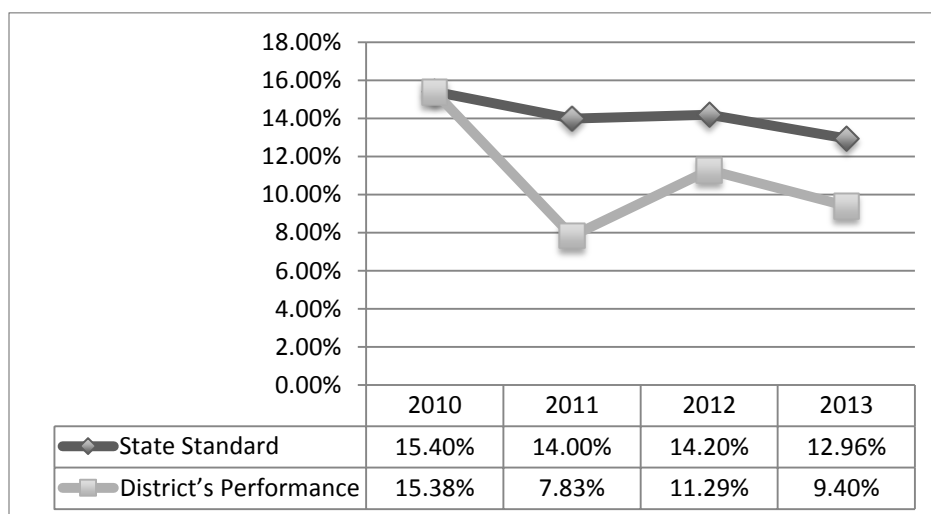


Figure 16. Nontraditional Participation.

8. **Nontraditional Completion:** Nontraditional Completion is the percentage of concentrators of the underrepresented gender who have completed CATE programs identified as leading to nontraditional training and employment. As indicated in Figure 17, the district did meet and exceed the state standard for 2011, 2012, and 2013.

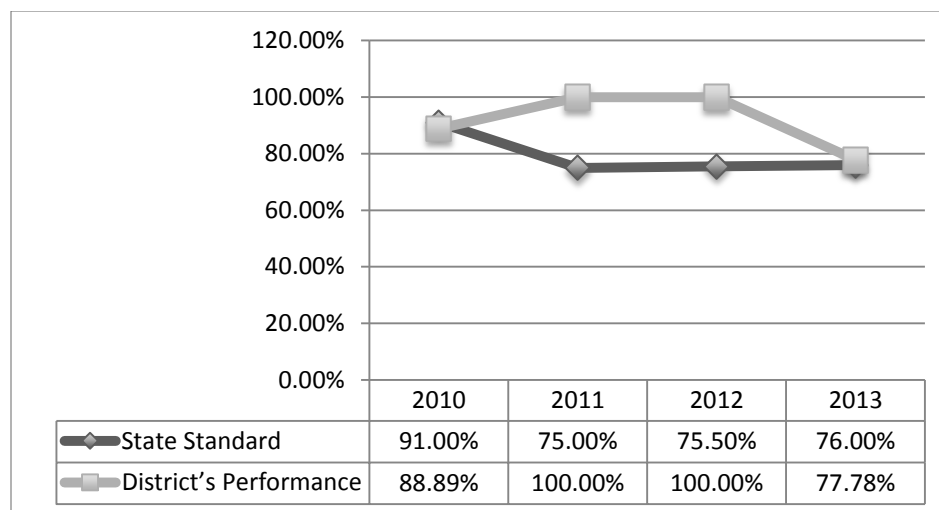


Figure 17. Nontraditional Completion.

As indicated by the Perkins Indicators for Chester County School District, the district is trending upward or exceeding the state standard in most categories. In the Reading/Language Arts area of Academic Attainment, the district is trending upward even though the district did not meet the state standard for 3 consecutive years. The district is trending downward in the Mathematics area of Academic Attainment. The standard in Mathematics was not met for 2 consecutive years. Technical Skill Attainment had a significant increase from 2012 to 2013. The district showed almost a 10 percentage point increase from 1 year to the next. In the areas of Student Graduation Rates and Student School Completion, the district has consistently exceeded the state standards.

For the previous 3 years, Chester County School District has not met the state standard for Secondary Placement. The lack of performance in Secondary Placement can be attributed to decrease of employment opportunities for new graduates. Traditionally, Chester County School District has underperformed in the area of Nontraditional Participation. The district has not met this standard for 4 consecutive years; however, nontraditional students tend to complete a program once they become concentrators. This is evident by the district meeting the Nontraditional Completion indicator for 3 consecutive years.

Summary of Results

The purpose of this chapter was to collect data that provided answers to the following research questions:

1. What are the identifiable needs of Chester County, South Carolina, graduates as they relate to job readiness?
2. Based on the perceptions of local employers and students, how well did the CTE program of Chester County School District prepare students for job and career readiness?
3. What is the overall effectiveness of the CTE experience in Chester County School District?

Research Question 1 sought the identifiable needs of Chester County graduates as they relate to job readiness. Wagner (2008) identified seven soft skills that employers identified that employees need to be successful. Business and industry leaders in Chester County agree with Wager's findings. Most of the Chester County employers agree that critical thinking and problem solving, collaboration across networks and leading by influence, agility and adaptability, initiative and entrepreneurialism, effective oral and

written communication, accessing and analyzing information, and curiosity and imagination are skills that employees must possess for their organizations to be successful. Employers also offered other traits such as technical training, maturity, and trustworthiness as skills needed by employees. The CTE Needs Assessment for CCCC and Chester County School District also provided valuable information about the needs of Chester County employers. Based on recent and future market trends of Chester County and the Catawba Region, emphasis needs to be placed on preparation in manufacturing, health science, and financial services. Efforts in WBL should be increased so that more students can gain a perspective of what employers expect from new hires and so students can see the real-world relevancy in their schoolwork.

Research Question 2 asked how well did Chester County School District prepare students based on employer and student perceptions. According to the Recent Graduate Survey respondents, a large percentage believed that all seven soft skills are vital and very important; however, many recent graduates felt that their training in the soft skill areas was subpar. During the one-on-one interviews with the recent graduates, a majority of the interviewees felt that they were adequately prepared in the areas of soft and technical skills. Students also identified the need for additional WBL opportunities.

Research Question 3 sought to find the overall effectiveness of the CTE program of Chester County School District. The number of completers for each program and the average GPA is an indicator of the ability level of the students who are enrolled in the program. Recruitment of higher academic achieving students will increase the performance rating on the state report card and on the Perkins Indicators. The Perkins Indicators indicated students who complete a CTE program generally underperform in the Mathematics and Reading/Language Arts areas of Academic Attainment. The

Secondary Placement rate of CTE completers is also of concern. The Secondary Placement rate indicated that students fall below the state standard when it comes to working, going to college, or entering the military after they graduate high school. The Nontraditional Participation indicator indicated that underrepresented genders are not enrolling in CTE programs at a high enough rates. For example, girls are not enrolling in Automotive Technology, and boys are not enrolling in Cosmetology.

Not only was it the intention of the researcher to answer the previously mentioned research questions, recommendations for the continuous improvement of the CTE program of Chester County School District were sought. The conclusions, implications of findings, limitations, and recommendations are discussed in Chapter 5.

Chapter 5: Discussion and Implications for Further Study

This chapter provides an analysis and discussion of the study's findings and conclusions. Implications of the findings and recommendations for further research are also included. The study adds to the body of research pertaining to the perceptions of CTE in the area of skill preparation.

In Wagner (2008), employers identified seven skills that employers feel perspective employees are lacking. They are critical thinking and problem solving, collaboration across networks and leading by influence, agility and adaptability, initiative and entrepreneurialism, effective oral and written communication, accessing and analyzing information, and curiosity and imagination. These seven skills were determined through interviews with human resource professionals and management.

To further support the position that new entrants into the workforce lack the necessary skills to be successful, *Are They Really Ready to Work? Employers' Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century U.S. Workforce* was released (Barrington & Casner-Lotto, 2006). The Conference Board, Corporate Voices for Working Families, the Partnership for 21st Century Skills, and the Society for Human Resource Management conducted this in-depth study of the corporate perspective on the readiness of new entrants into the U.S. workforce by level of educational attainment. The four participating organizations jointly surveyed over 400 employers across the United States. The employers identified the most important skills needed to succeed in the workplace as professionalism, oral and written communications, teamwork and collaboration, and critical thinking and problem solving. The findings of this report indicate that soft skills trump basic knowledge. According to the employers surveyed, high school graduates are deficient in basic

knowledge, written communications, critical thinking and problem solving, and professionalism and work ethic (Barrington & Casner-Lotto, 2006).

The problem studied during the current research project was that schools are not providing the necessary entry-level skills that are desired by industry. This study also examined the perceptions of new entrants to the workforce and the perceptions of employers as they pertain to the skills that are needed to be successful in the 21st century. The purpose of the current study was to determine if the skills currently being taught in the CTE program of Chester County (South Carolina) School District address the current and future needs of society and employers.

By the end of the first decade of the 21st century, there were signs that the United States was failing to meet its obligation to prepare millions of young adults. In an era in which education had never been more important to economic success, the United States had fallen behind many other nations in educational attainment and achievement. Within the United States economy, there was also growing evidence of a skills gap in which many young adults lacked the skills and work ethic needed for many jobs that pay a middle-class wage. A contributing factor to the growing skills gap is the increasing number of students who do not complete school or dropout (Wagner, 2008).

The current research study utilized two surveying instruments to examine the perceptions of community employers and recent CTE graduates of Chester County (South Carolina) School District to determine if the training that the recent graduates received while in high school met the needs of the employers. Recent graduates also participated in one-on-one interviews to further analyze their perceptions of the preparation they received while in high school. Additional data were gathered through historical student records and school performance measures. Results from a

comprehensive needs assessment conducted by the researcher were utilized to aid in obtaining the results in this study.

The following research questions guided the current study.

1. What are the identifiable needs of Chester County, South Carolina, graduates as they relate to job readiness?
2. Based on the perceptions of local employers and students, how well did the CTE program of Chester County School District prepare students for job and career readiness?
3. What is the overall effectiveness of the CTE experience in Chester County School District?

Conclusions

Perceptions of employers. The employers were asked to rate the importance of the seven skills derived from Wagner (2008) to the success of the organization. Critical thinking and problem solving, effective oral and written communication, agility and adaptability, and collaboration across networks and leading by influence were rated the highest by all of the employers. Critical thinking and problem solving rated the highest with 24 respondents rating this skill vital and very important. Agility and adaptability also rated highly with 24 respondents rating the skill vital and very important. None of the employers rated any of the seven skills as not important to the success of the organization; however, curiosity and imagination and initiative and entrepreneurialism rated somewhat important and important with 11 and eight respondents, respectively, which were the lowest rated categories. All of the responding employers agreed that all of the seven soft skill areas are important to the success of the organization to varying degrees. The Table 11 shows the number of respondents rating the skills as vital and

very important compared to the number of total respondents.

Table 11

Skills That Employers Rated as Vital and Very Important to the Success of the Organization

	Vital and Very Important	Total Number of Respondents
Critical Thinking and Problem Solving	24	25
Collaboration Across Networks and Leading by Influence	23	25
Agility and Adaptability	24	25
Initiative and Entrepreneurialism	17	25
Effective Oral and Written Communication	25	25
Accessing and Analyzing Information	21	24
Curiosity and Imagination	14	25

The type of career cluster in which the organization operates could have affected the importance of various soft skills. Recent research found that there is indeed a difference in soft skills by sector. National research on more than 1,000 executives conducted by Deloitte and the Manufacturing Institute found that two of the three top employee skill deficiencies reported by manufacturers was soft skill related. These include problem-solving ability, reliability, verbal communication, listening, and teamwork. A similar research study conducted by the Assessment Technologies Institute for the healthcare sector found that communication, customer service, and positive attitude were the soft skills most desired by employees (Pritchard, 2013).

On the local level, the number of respondents was not enough to make a definite assumption but served as an indicator of the skills that Chester County employers value the most. The manufacturing sector rated critical thinking, collaboration, agility and adaptability, and effective oral and written communication the highest. The health science sector rated collaboration, agility and adaptability, and effective oral and written communication the highest. The science, technology, engineering, and math sector rated critical thinking, agility and adaptability, and curiosity and imagination the highest. On average, the lowest rated skill areas were curiosity and imagination, assessing and analyzing information, and initiative and entrepreneurialism.

The ratings for the desired level of new hire competence have a positive relationship to the importance to the success of the organization ratings but at a lower rate. Critical thinking and problem solving rated the highest with 22 respondents responding very desirable and desirable. Effective oral and written communication was rated very desirable and desirable by 20 respondents. Collaboration across networks and leading by influence was rated as very desirable and desirable by 19 respondents. Agility and adaptability was also rated very desirable and desirable by 19 respondents. Fewer employers found initiative and entrepreneurialism and curiosity and imagination as very desirable and desirable with a rating of 13. Table 12 shows the number of respondents rating the desired level of new hire competence as desirable and very desirable.

Table 12

Skills that Employers Desire that were Rated as Desirable and Very Desirable

	Desirable and Very Desirable	Total Number of Respondents
Critical Thinking and Problem Solving	22	24
Collaboration Across Networks and Leading by Influence	19	24
Agility and Adaptability	19	24
Initiative and Entrepreneurialism	13	24
Effective Oral and Written Communication	20	24
Accessing and Analyzing Information	16	24
Curiosity and Imagination	13	24

A comparison of the two Likert scales indicates that the skills that employers view as important to the success of their organizations are consistent to what they actually desire. Figure 18 is a comparison of the two categories that the employers were asked to rate on a Likert scale. The comparison was based on how vital or very desirable and important or desirable each skill is to the success of the organization and the desired level of new hire competence. In all categories, the importance of the skill to the success of the organization is significantly higher than the desired level of new hire competence.

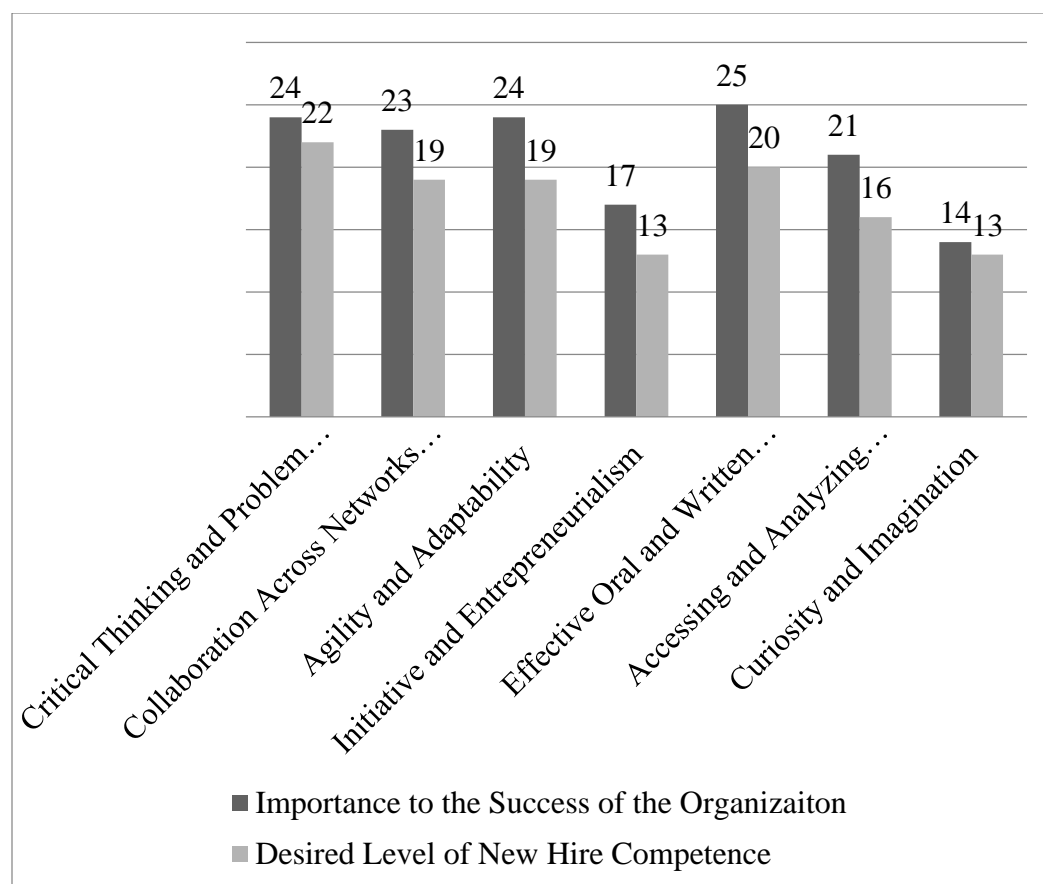


Figure 18. Employer Skills Rating Comparison.

Skill-wise, 14 of 26 responding employers felt that new hires are not prepared to be successful in the workforce. The employers who answered no to this question were asked to respond to an open-ended question with additional skills that they desire recent graduates to possess. They were technical training, communicating in a professional manner, team player, exposure to real-world issues, trustworthiness, self-starter, and maturity.

The findings in the Employer Skill Survey are supported by the findings in The Ill-Prepared U.S. Workforce released by The Conference Board in 2009. The report found that there are significant gaps in five areas where 40% of the respondents rate as

high need. The high need areas are creativity and innovation, ethics and social responsibility, professionalism and work ethic, self-direction, and critical thinking and problem solving (Casner-Lotto et al., 2009).

According to the CTE Comprehensive Needs Assessment for CCCC and Chester County School District (Appendix C), manufacturing accounted for the greatest number of new job creation region-wide. The four counties in the Catawba Region experienced positive net new job creation in the manufacturing sector. This is evident by the addition and expansion of manufacturing facilities in the region, most notably, the recent announcement of Giti Tire locating a manufacturing facility in Chester County. Other leading sectors that created the most new jobs in the region were health services; financial activities; and trade, transportation, and utilities.

Based on the findings in the current research study and the comprehensive needs assessment conducted by the researcher, students need to be prepared in the industries that are projected to grow and prosper in Chester County and the Catawba Region. These industries include manufacturing; health services; financial activities; and trade, transportation, and utilities. Not only should high school students receive a quality technical training, soft skills, particularly critical thinking and problem solving, collaboration across networks and leading by influence, agility and adaptability, and effective oral and written communication, should be integrated into the CTE curriculum that meets the needs of those industries.

The results that were gathered from the Employer Skill Survey concerning the actual level of new hire competence were rather surprising. The employers indicated that the levels of new hire competence are significantly lower than the levels they desire and the levels they deem important to the success of the organization. The employers who

rated the actual level of new hire competence a 4 (very important) and a 5 (vital) were as follows:

Table 13

Actual Level of New Hire Competence that were Rated 4 and 5

	4 and 5	Total Number of Respondents
Critical Thinking and Problem Solving	9	22
Collaboration Across Networks and Leading by Influence	11	22
Agility and Adaptability	10	22
Initiative and Entrepreneurialism	4	22
Effective Oral and Written Communication	6	22
Accessing and Analyzing Information	4	22
Curiosity and Imagination	6	22

Figure 19 illustrates the differences between the skills employers deem as necessary to the success of the organization, the desired level of new employee competence, and the actual level of new hire competence. The employers indicated that the skill level of new hires is significantly lower than what they view as important to the success of the organization and lower than what they desire.

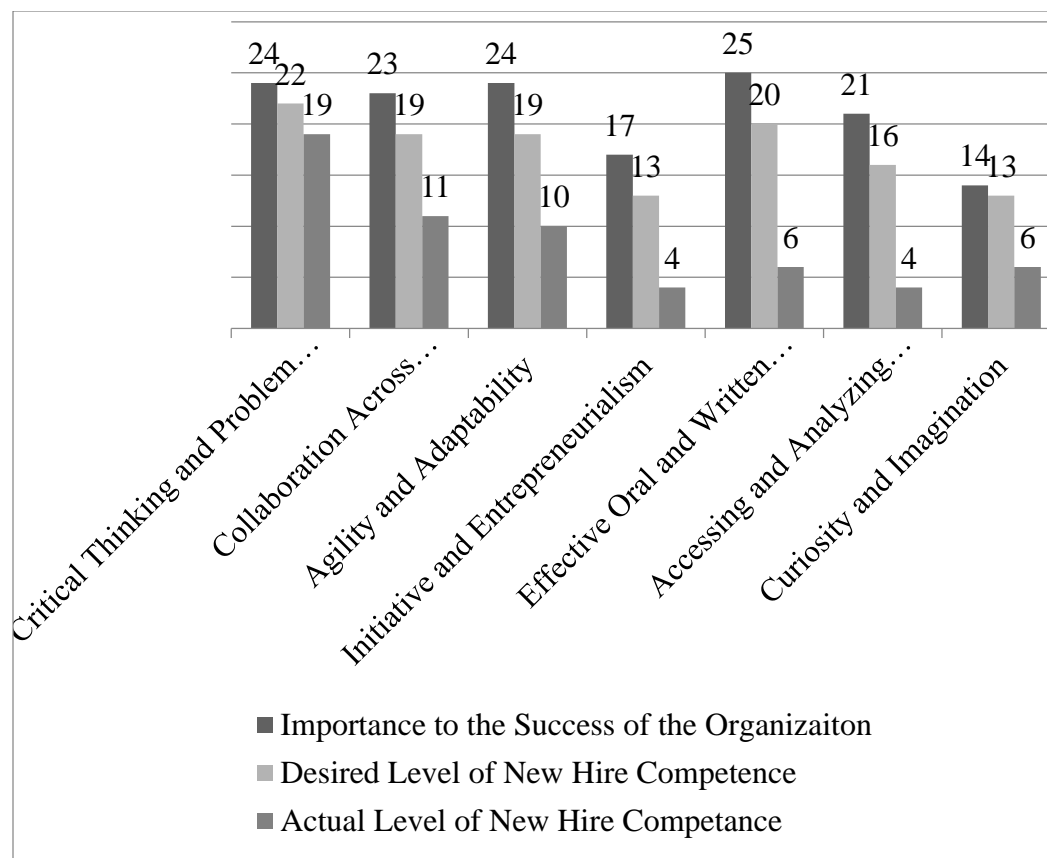


Figure 19. Skill Comparison of Actual Level, Desired Level, and Level of Importance.

The pool from which employers draw their employees plays a big role in the success of the organization. Of the surveyed employers, only 33% of respondents have 50% or more of their workforce who attended schools in Chester County. One can infer that most of the workforce working in Chester County is from outside of the county. Also, the placement rate for recent graduates is an indicator of the makeup of the workforce. For the past 3 years, Chester County School District graduates failed to meet the state standard for placement. A student was successfully placed if he or she joined the military, attended a postsecondary institution, or were employed. Of the students surveyed, 11.76% stated they were unemployed.

Several reasons can explain why a majority of the workforce is coming from

outside the county and why a large number of recent graduates are not placed properly and are unemployed. One explanation is that employers cannot find enough Chester County residents who possess the skills necessary to perform the jobs for which they are hiring. Of the Employer Skill Survey respondents, 53.85% felt that new hires were unprepared to perform entry-level duties. On the contrary, 85.11% of Recent Graduate Survey respondents felt that their training and schoolwork prepared them for the real world. By looking at the survey results from employers and recent students, there seems to be a disconnect between the two groups.

Perceptions of recent graduates. When asked to rate the soft skill areas as they pertain to the importance to their career choice, the recent graduates indicated that locating and analyzing information, the ability to turn ideas into action, and critical thinking and problem solving were vital and very important to their career choice. Table 14 is a listing of the skills with the number of recent graduates who rated the skills very important and vital.

Table 14

Importance of Each Area to Career Choice that Rated Vital and Very Important

	Vital and Very Important	Total Number of Respondents
Critical Thinking and Problem Solving	36	48
Teamwork	30	48
Adapting to Different Situations	28	47
Ability to Turn Ideas Into Action	38	48
Effective Oral and Written Communication	28	48
Locating and Analyzing Information	39	48
Curiosity and Imagination	34	48

Table 15 illustrates the recent graduates' perception of how well their education

and training prepared them for their career choice.

Table 15

Level of Preparedness of Skills that Rated 4 and 5

	4 and 5	Total Number of Respondents
Critical Thinking and Problem Solving	29	48
Teamwork	28	48
Adapting to Different Situations	32	48
Ability to Turn Ideas Into Action	31	48
Effective Oral and Written Communication	31	48
Locating and Analyzing Information	34	48
Curiosity and Imagination	33	48

When compared to the Likert scale that rates how well their education and training prepared them for their career choice, the recent graduates indicated that their preparedness did not meet the level that they felt was important in the areas of critical thinking and problem solving, teamwork, ability to turn ideas into action, locating and analyzing information, and curiosity and imagination. The recent graduates felt their training exceeded what they felt was important to their career choice in the categories of adapting to different situations and effective oral and written communications. Figure 20 illustrates the recent graduates' perceived levels of preparedness compared to what they deem as important to their career choice.

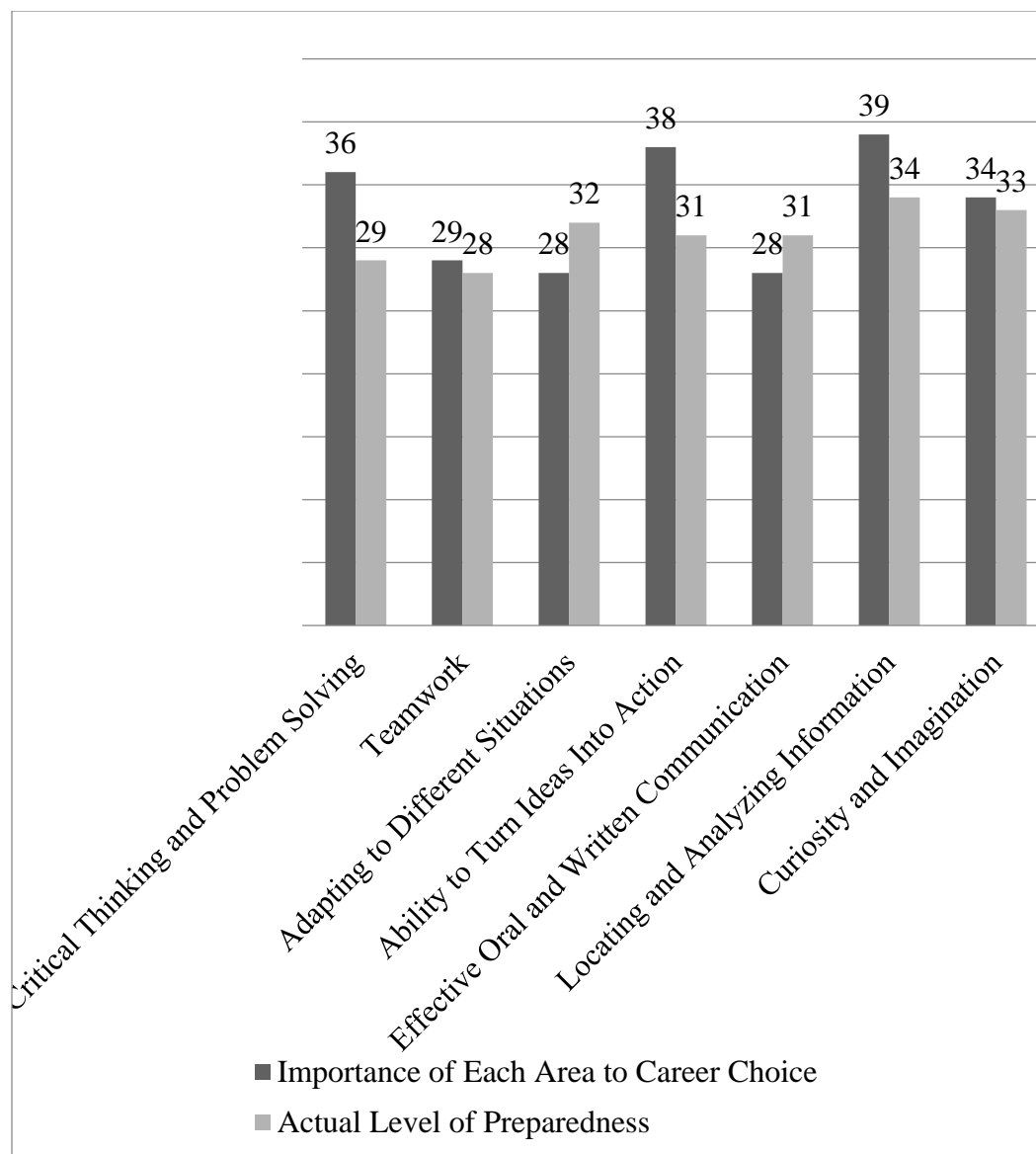


Figure 20. Recent Graduates' Levels of Preparedness Compared to Importance of Each Area to Career Choice.

According to the Recent Graduate Survey, parents are the biggest influence to students when making decisions about careers, followed by teachers and administrators. In May of 2002, *Decisions without Direction: Career Guidance and Decision-Making among American Youth* was released by Ferris State University (Career Institute for Education and Workforce Development, 2002). The report examined high school

students' perceptions of career guidance. This report supports the findings of the Recent Graduate Survey that parents are the primary adult influence on career decisions. Of the 809 students surveyed for *Decisions without Direction: Career Guidance and Decision-Making among American Youth*, 78% stated that one or both parents are the primary influence, while 10% stated that school personnel are the primary influence. Of the students who listed parents as their primary influence, 70% claimed to have spent 3 hours or less in the past few months discussing careers with their parents (Career Institute for Education and Workforce Development, 2002). It is not surprising that parents are such a big influence in the decision making of their children. Unfortunately, most parents have a fairly narrow frame of reference when it comes to jobs and job training.

Overall, the recent graduates of Chester County School District felt that their teachers (academic and CTE) assisted them with connecting schoolwork with their career interest. All of the recent graduates responded that at some point, their teachers showed them the real-world relevancy of the classes they were taking.

According to the CTE Needs Assessment for CCCC and Chester County School District, a majority of the students surveyed indicated that they wanted to go to a 4-year college; however only 16 of 51 respondents to the Recent Graduate Survey attended a 4-year college, and 25 attended a technical school. When asked, most young people reply that they want to attend a 4-year college after graduation. In *Decisions without Direction: Career Guidance and Decision-Making among American Youth*, 68% said that the best jobs require at least a 4-year college education; 41% attribute a sense of embarrassment to vocational education training programs; and 45% said pursuing technical training might limit their career options (Career Institute for Education and Workforce Development, 2002).

Another reason for the large number of non-Chester County residents working in Chester County is the lack of opportunities for WBL experiences. WBL provides access to local employers for students. The students who responded to the Recent Graduate Survey rated WBL as the most important career activity in which a student can participate. Even though a large number of Chester County School District students participate in job shadowing, a small number of CTE students participate in internships, school-based enterprises, cooperative education, and apprenticeships. WBL programs provide internships, mentoring, work-place simulations, and apprenticeships along with classroom-based study. WBL provides connections between the classroom and real-world learning, produces high student completion rates, fosters student ownership, and aids in the development of the critical skills (Rogers-Chapman & Darling-Hammond, 2013).

An area of note that stood out during the analysis of the data was the performance of Chester County School District's three high schools and the CTE program, which is housed mainly at CCCC. Lewisville High School is the highest performing high school in the district, followed by Great Falls High School. For the 2013-2014 school year, Lewisville High School was rated 34 of 213 public and charter high schools in South Carolina. The average Language Arts HSAP score for all Lewisville High School students was 77.1 and 53.0 for Math. Great Falls High School was ranked 141 of 213 with a Language Arts score of 56.0 and a Math score of 36.0. Chester High School was ranked 170 of 213 with a Language Arts score of 50.7 and a Math score of 27.6. Rank was determined by adding each school's average HSAP Math score with the average HSAP English Language Arts score to form a combined average score. The values used for HSAP are the percentage of students who met the standard (Claarware, LLC, 2014).

Of the 496 students who completed CTE programs from 2010 to 2014, only 14% came from Lewisville and Great Falls High Schools. Chester High School had the largest percentage of students who attended CCCC and had the largest enrollment of the three high schools. The average GPA of students attending the three high schools is higher for students who come from Great Falls High School. When one looks at the overall performance of each high school, Great Falls High School and Lewisville High School outperform Chester High School based on graduation rates and HSAP passage rates. Even though Chester High School students overwhelmingly made up the majority of the students partaking in CTE, they were consistently outperformed by students from Lewisville High School and Great Falls High School.

One indicator of performance for CTE programs is the Perkins Indicators. The Reading/ELA part of the HSAP directly impacts the skill of effective oral and written communication. The district did not meet the state standard for Reading/ELA for 4 consecutive years. Community employers stressed the importance of effective communication in the returned surveys.

The Technical Skill Attainment rating for CTE completers did not meet the state standard for 2 consecutive years. Technical Skill Attainment is the percentage of concentrators who passed a technical skill assessment that was aligned with industry-recognized standards or achieved a 2.0 or better in the CTE course. Two factors contributed to the lack of performance of CTE students in CTE courses and the lack of performance of CTE students on the HSAP. One factor is the overall academic quality of students who enroll in CTE courses. An analysis of the data indicates that the higher performing students from Great Falls High Schools and Lewisville High School are not enrolling in CTE courses. Secondly, once enrolled in CTE programs, the students are not

learning the necessary industry standards.

According to the Perkins Indicators for Chester County School District, students who complete a CTE program graduate and complete high school at a much higher rate than students who do not participate in CTE programs. In both categories, Chester County School District exceeded the state standard for 4 consecutive years. CTE programs increase student engagement, build positive relationships, and provide alternative delivery methods, all of which contribute to the graduation success of CTE completers.

The Secondary Placement rate for Chester County School District is of concern. The placement rate fell below the state standard for 3 consecutive years. The placement rate indicates that students are not going to college, obtaining employment in the area where they were trained, or enlisting in the military at an acceptable rate once they graduate high school. Several factors contribute to the low placement rate. Employers indicated on the Employer Skill Survey that only four employers had 75% or more of their workforce who graduated from Chester County School District. The low percentage of employers with a high percentage of Chester County workers suggests that graduates of Chester County School District are not prepared to enter into the workforce. Also, it appears that a large number of students are not receiving the proper career guidance. Of the large number of students indicating that they plan to attend college compared to the actual number of students attending is an area of concern.

Nontraditional participation and nontraditional retention within CTE programs are areas that need addressing. For 3 consecutive years, Chester County School District has not met the state standard. Once a nontraditional participant is enrolled in a CTE program, they are not completing the program. Emphasis needs to be placed on

recruiting and retaining the underrepresented gender in programs that are labeled nontraditional.

Recommendations for Improvement

One purpose of this study was to examine the perceptions of employers and recent high school graduates as they pertain to the necessary skill levels that new entrants into the workforce need. The following recommendations are intended to improve the CTE program of Chester County School District.

1. To ensure that the CTE program of Chester County School District is meeting the needs of the local community and the region, program evaluations need to occur on a yearly basis. Factors such as type of industry available, market trends, and market projections need to be examined. The information that is obtained should be used to design CTE programs that provide the necessary skills to meet the needs of regional employers, foster student engagement, and provide relevancy to future careers. By aligning the CTE programs with the needs of industry, the workforce will be better prepared to meet the needs of employers. When surveyed, 53.85% of Chester County employers felt that new hires were unprepared to perform entry-level duties.
2. Each CTE program should be aligned with a CTSO that is closely related to the CTE classroom program. A study of CTSOs found that CTSO activities positively affect student academic engagement, and the more involved the students are, the better the results (Stone, 2006).
3. Each program that is offered in Chester County School District should offer a national certification that is endorsed and accepted by industry. There are many benefits for students earning an industry certification. High school and

postsecondary CTE programs that lead to associate degrees, certificates, and industry-recognized credentials can help young people find skilled employment and give them the option of later returning to school for a higher degree. CTE programs that earn industry certification receive high-quality curricula and professional development opportunities for their instructors. Employers benefit from a more highly skilled workforce with certifiable skills (National Research Center for Career and Technical Education, n.d.).

4. The implementation of a job skill assessment system may aid employers in hiring employees who are better prepared, which can lead to improved retention and a reduction in training costs. WorkKeys is a job skills assessment system that helps employers select, hire, train, develop, and retain a high-performing workforce. This series of tests measures foundational and soft skills and offers specialized assessments to target institutional needs. WorkKeys has helped millions of people in high schools, colleges, professional associations, businesses, and government agencies build their skills to increase global competitiveness and develop successful career pathways. Successful completion of the WorkKeys assessments in Applied Mathematics, Locating Information, and Reading for Information can lead to earning ACT's National Career Readiness Certificate (NCRC), a portable credential earned by more than 1 million people across the United States. When surveyed, only 16% of employers in Chester County utilized WorkKeys as part of their hiring process.
5. The graduation rates of CTE students are significantly higher than those of non-CTE students. CTE offers alternative delivery methods which are

appealing to a large number of students. The alternative delivery methods include magnet schools, smaller learning communities, middle college high schools, and accelerated programs (Martin & Halperin, 2006). Guilford County, North Carolina, schools have seen substantial success using the early college model. Four of the early college schools allow students to earn college credit while still in high school. Each had a 100% graduation rate in 2011 (Adams, 2012). Dual enrollment programs can raise the academic rigor of a CTE program, and students are more motivated to succeed in these programs. Students who participate in dual-credit opportunities through a middle college also earn the benefit of earning credits toward an Associate's or Bachelor's degree at a minimum cost.

Recommendations for Further Study

The following are recommendations for further study:

1. Providing rigorous CTE programs that are infused with academic elements will aid in ensuring that students are prepared for 21st century industry. With the change in the global economy and the requirements needed to succeed, individuals need to possess a higher order skill set. The skills needed must stay on par with the skills that students are obtaining worldwide. According to the Pearson education firm, the United States ranked 17th in the developed world for education (Huffington Post, 2013). By integrating academics into CTE, students will have the opportunity to enhance their math and reading skills. CTE programs should also provide students opportunities to enhance their oral and written skills. Further research in this area could determine the impact of integrating CTE and academic content on the preparation of the

workforce.

2. Due to the low placement rate, the area of career guidance needs to be examined further. The placement rate indicates that students are not pursuing postsecondary education or seeking employment in the area where they were trained. By strengthening the efforts in career guidance, students will be placed in the proper career pathway. One way for a student to determine the proper career pathway is WBL. The research provided by Bottoms et al. (2005) proved that students in high-achieving rural high schools receive quality work-site learning experiences. At several high performing high schools mentioned in this study, a significantly higher percentage of teachers serve as advisors who are involved in giving the students and parents the right information and advice on careers and opportunities.
3. Further research should be conducted on the parents' perceptions of CTE and how they align with student perspectives of CTE. Parents and family members influence a large percentage of student decisions. It is important to understand the similarities and differences in the perceptions of CTE.

Limitations

There were several limitations that were encountered during the course of the research study. One of the limitations of the study was the time period in which the study was conducted. If given more time, the researcher could have retrieved data from more data sources. The data that were gathered through the surveying instruments were of concern to the researcher. The time constraint that was imposed contributed to the low rate of return of the surveys. Due to the nature and scope of this study, a time constraint had to be put in place.

The findings of the surveys could have been affected by the economic conditions in Chester County and the surrounding area. The economic condition at the time of the study could have affected the hiring needs of the employers. The perceptions of the respondents, especially the employers, could have changed based on the talent pool of potential employees who were available at a given time.

Another limitation was the potential bias of the researcher. The researcher is employed by Chester County School District at CCCC. The perception that there could be bias on behalf of the researcher exists.

Conclusions from Study

A high school education has grown in importance over the past half century. Advances in technology have fueled the demand for a more highly skilled labor force, transforming a high school education into a minimum requirement for entry into the labor market. At a time when economic conditions require a workforce of lifelong learners who can quickly gain the knowledge and skills needed to work with new technologies in emerging careers, a high school diploma is critical for any individual who wishes to compete in the 21st century workforce. High school completion has become a requirement for accessing additional education, training, and career advancement. The skills that employers demand today are vastly different than the skills required a number of years ago (Jerald, 2009).

This study examined CTE's role in keeping students in school and closing the skills gap. Research has shown that students who complete a CTE program are more likely to complete high school (Bishop & Mane, 2003). CTE has been found to be an effective method of dropout prevention and is credited with keeping a number of at-risk students in school. CTE possesses characteristics such as increased student engagement,

positive relationships with instructors, and alternative delivery methods, which increase the likelihood of students staying in school.

This study focused on the perceptions of local employers and recent graduates to determine if adequate preparation is being provided to the residents of Chester County. The findings of the study identified several areas that are deficient. Through these deficiencies, it is clear that the skills that employers desire are not being learned and practiced by students while they are in high school. This study supported the findings in Wagner (2008) and the findings in The Ill-Prepared U.S. Workforce released by the Conference Board in 2009. Through the findings of this study, it is the intention of the researcher to improve CTE in Chester County, hence improving the quality of employees who are entering into the workforce.

CTE can play a vital role in the preparation of America's workforce and the development of America's youth. It is the duty of the education system to produce students who are prepared to become productive citizens in the 21st century. With the changing marketplace, education and, in particular, CTE must be willing and prepared to meet the challenges of preparing the next generation of the American workforce. One recent graduate of Chester County School District and CTE completer stated, "hands-on experience and making the connection from the classroom to the real world is key in the road to success."

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Appendix A
Recent Graduate Survey

In an effort to better address the needs of employers and Chester County residents, you are being invited to participate in a research study entitled, “Determining the Skills Gap: A Study of Entry-Level Skills Deficiency Between Career and Technology Education Concentrators and Non-Concentrators.” This study will examine the perceived “skills gap” between new entrants into the workforce and the skills desired by employers. This study is being conducted by Lee C. Green (Director of Chester County Career Center) and my advisor, Dr. John Reynolds (Gardner-Webb University).

There are no known risks if you decide to participate in this research study. There are no costs to you for participating in the study. The questionnaire will take approximately ten minutes to complete. The information collected may not benefit you directly, but the information learned should provide more general benefits.

Your participation in this study is voluntary. By completing the survey, you are voluntarily agreeing to participate. You are free to decline to answer any particular question you do not wish to answer for any reason.

I will protect against breach of confidentiality by using a password-protected computer to handle participant information and data. All responses will be identified as anonymous and no identifying information will be provided. Only a numbering system will be used to identify school and individuals participating in this study.

If you have any questions about the study, please contact Lee C. Green at
xxxxxxx or xxxxxxxxxxxxxxxx.

1. What high school did you attend?

- ☐ Chester High School
- ☐ Great Falls High School
- ☐ Lewisville High School

2. What year did you graduate?

- ☐ 2007 or before
- ☐ 2008
- ☐ 2009
- ☐ 2010
- ☐ 2011
- ☐ 2012
- ☐ 2013
- ☐ Received GED
- ☐ Did not graduate

3. What is your gender?

- ☐ Female
- ☐ Male

4. What is your race?

- ☐ White
- ☐ Black or African American
- ☐ American Indian
- ☐ Asian
- ☐ Hispanic
- ☐ Pacific Islander
- ☐ Other (please specify): _____

5. What was your GPA?

- ☐ 4.1 or above
- ☐ 3.6-4.0
- ☐ 3.1-3.5
- ☐ 2.6-3.0
- ☐ 2.1-2.5
- ☐ 2.0 or below
- ☐ Do not know
- ☐ Other (please specify): _____

6. Who had the most influence over your career decisions?
(choose all that apply)

- ☐ School Counselor/Teacher/School Administrator
- ☐ Parents/Family Members
- ☐ Media
- ☐ Friends
- ☐ Other (please specify)

7. What did you do the first year after you graduated high school? (choose all that apply)

- ☐ Worked full-time
- ☐ Entered the military
- ☐ Worked part-time
- ☐ Attended a technical/two-year college
- ☐ Attended a four-year college
- ☐ Unemployed

8. If you attended college, what college did you attend?

9. If employed, in what career field do you work?

- ☐ Agriculture, Foods, and Natural Resources
 - ☐ Architecture and Construction
 - ☐ Arts, Audiovisual Technology and Communication
 - ☐ Business, Management and Administration
 - ☐ Education and Training
 - ☐ Finance
 - ☐ Government and Public Administration
 - ☐ Health Science
 - ☐ Hospitality and Tourism
 - ☐ Human Services
 - ☐ Information Technology
 - ☐ Law, Public Safety and Security
 - ☐ Manufacturing
 - ☐ Marketing, Sales and Service
 - ☐ Science, Technology, Engineering and Mathematics
 - ☐ Transportation, Distribution and Logistics
 - ☐ Other (please specify):
-

10. Did your teachers assist you in connecting your schoolwork with your career interest?

- ☐ Sometimes
- ☐ Often
- ☐ Most of the time
- ☐ Always
- ☐ Never

11. Which career activities did you participate in while you were in high school? (choose all that apply)

- ☐ Career Fair (you visit employer's booths set up in your school)
- ☐ Career Guest Speakers (employers visit your classroom)
- ☐ Work-Based Learning (shadowing, internships)
- ☐ Company Tours (you tour a company)

12. Of the following career activities, rate on a scale of 1 to 5 (1 being least important) the importance of each activity.

	1	2	3	4	5	N/A
Career Fair (you visit employer's booths set up in your school)						
Career Guest Speakers (employers visit your classroom)						
Work-Based Learning (shadowing, internships)						
Company Tours (you tour a company)						

13. What Career and Technology Education program(s) did you complete?

- ☐ Agriculture (Horticulture)
- ☐ Automotive Technology
- ☐ Business Information Management
- ☐ Carpentry
- ☐ Cosmetology
- ☐ Culinary Arts
- ☐ Drafting
- ☐ Electricity
- ☐ General Management
- ☐ Graphic Communications
- ☐ Health Science
- ☐ Interactive Media

- ☐ Machine Technology
- ☐ Marketing Management
- ☐ Masonry
- ☐ Mechatronics/Engineering
- ☐ Sports Medicine
- ☐ Welding Technology

14. Did you enter into the career field that you prepared for when you were in high school?

- ☐ Yes
☐ No

15. Please rate the level of importance of each area.

1=Not Important

2=Somewhat Important

3=Important

4=Very Important

5=Vital

	How important is each area to your career choice:	How well did your education and training prepare you for your career choice in each area:
Critical thinking and problem solving (ability to think clearly and rationally)	1 2 3 4 5	1 2 3 4 5
Teamwork (participating as a member of a team).	1 2 3 4 5	1 2 3 4 5
Adapting to different situations.	1 2 3 4 5	1 2 3 4 5
Ability to turn ideas into action.	1 2 3 4 5	1 2 3 4 5
Effective oral and written communication.	1 2 3 4 5	1 2 3 4 5
Locating and analyzing information.	1 2 3 4 5	1 2 3 4 5
Curiosity and imagination (the desire to know or learn).	1 2 3 4 5	1 2 3 4 5

16. Overall, do you feel that your education and training from Chester County School District adequately prepare you for life after high school?

- ☐ Yes
☐ No

17. After reflecting on your experiences with Chester County School District, do you have any suggestions that could enhance the Career and Technology Education program?

Thank you for participating in this survey.

Appendix B
Employer Skill Survey

In an effort to better address the needs of employers and Chester County residents, you are being invited to participate in a research study entitled, “Determining the Skills Gap: A Study of Entry-Level Skills Deficiency Between Career and Technology Education Concentrators and Non-Concentrators.” This study will examine the perceived “skills gap” between new entrants into the workforce and the skills desired by employers. This study is being conducted by Lee C. Green (Director of Chester County Career Center) and my advisor, Dr. John Reynolds (Gardner-Webb University).

There are no known risks if you decide to participate in this research study. There are no costs to you for participating in the study. The questionnaire will take approximately ten minutes to complete. The information collected may not benefit you directly, but the information learned should provide more general benefits.

Your participation in this study is voluntary. By completing the survey, you are voluntarily agreeing to participate. You are free to decline to answer any particular question you do not wish to answer for any reason.

I will protect against breach of confidentiality by using a password-protected computer to handle participant information and data. All responses will be identified as anonymous and no identifying information will be provided. Only a numbering system will be used to identify school and individuals participating in this study.

If you have any questions about the study, please contact Lee C. Green at
XXXXXXXXXXXX or XXXXXXXXXXXXXXXX.

1. Please mark the one career cluster that best represents the primary focus of your organization:

- ☐ Agriculture, Foods, and Natural Resources
 - ☐ Architecture and Construction
 - ☐ Arts, Audiovisual Technology and Communication
 - ☐ Business, Management and Administration
 - ☐ Education and Training
 - ☐ Finance
 - ☐ Government and Public Administration
 - ☐ Health Science
 - ☐ Hospitality and Tourism
 - ☐ Human Services
 - ☐ Information Technology
 - ☐ Law, Public Safety and Security
 - ☐ Manufacturing
 - ☐ Marketing, Sales and Service
 - ☐ Science, Technology, Engineering and Mathematics
 - ☐ Transportation, Distribution and Logistics
 - ☐ Other (please specify):
-

2. How many full-time employees are employed by your organization?

- ☐ less than 25
- ☐ 26-50
- ☐ 51-100
- ☐ 101-200
- ☐ 201-500
- ☐ 501 +

3. What is the average yearly wage per employee?

- ☐ less than \$25,000
- ☐ \$25,000 - \$40,000
- ☐ \$40,000 - \$70,000
- ☐ \$70,000 +
- ☐

4. In the past two years, have you hired anyone that attended Chester County schools?

- ☐ Yes
- ☐ No

5. If you answered “yes” to the previous question, approximately what percentage of new hires are Chester County School District graduates?

- ☐ less than 25%
- ☐ 25% - 50%
- ☐ 50% - 75%
- ☐ 75% - 100%

6. Please rate the level of importance of each employee skill area to your organization.

1 = Not Important

2 = Somewhat Important

3 = Important

4 = Very Important

5 = Vital

	Importance to the success of your organization.	Desired level of new hire competence.	Actual level of new hire competence.
Critical thinking and problem solving (ability to think clearly and rationally).	1 2 3 4 5	1 2 3 4 5	5 1 2 3 4
Collaboration across networks and leading by influence (participating as a member of a team).	1 2 3 4 5	1 2 3 4 5	5 1 2 3 4
Agility and adaptability (learning from experiences and applying what you learned to perform successfully).	1 2 3 4 5	1 2 3 4 5	5 1 2 3 4
Initiative and entrepreneurialism (individual’s ability to turn ideas into action).	1 2 3 4 5	1 2 3 4 5	5 1 2 3 4
Effective oral and written	1 2 3 4 5	1 2 3 4 5	5 1 2 3 4

communication (ability to communicate one's thoughts clearly and concisely).			
Accessing and analyzing information (the skill of gathering information on a certain topic and analyzing the quality of that information).	1 2 3 4 5	1 2 3 4 5	5 1 2 3 4
Curiosity and imagination (the desire to know or learn and a desire to know about people or things that do not concern one).	1 2 3 4 5	1 2 3 4 5	5 1 2 3 4

7. Do you use WorkKeys in your organization?

- ☐ Yes
☐ No

8. Overall, do you believe employees entering your place of employment immediately after high school bring the basic skills needed to complete the job assignments (assuming a high school diploma is all that is required)? i.e. Are high school graduate job seekers prepared?

- ☐ Yes
☐ No

9. If you answered “no” to the previous question, what skills should students have when they leave high school to be a successful entry-level employee?

10. What can Chester County Career Center and Chester County School District do to improve our services?

11. Are there any programs that need to be added to the program offerings of Chester County Career Center that may meet the needs of your particular industry? The current program offerings are as follows:

- **Advanced Manufacturing**
- **Agriculture**
- **Business**
- **Carpentry**
- **Cosmetology**
- **Culinary Arts**
- **Electricity**
- **Emergency and Fire Management Services**
- **Family and Consumer Science**
- **Graphic Communications**
- **Health Science**
- **Law Enforcement Services**
- **Machine Technology**
- **Marketing**
- **Mechatronics/Engineering**
- **Sports Medicine**
- **Welding Technology**

Thank you for taking the time to complete this survey. If you have any questions or would like further information, please contact Lee Green at xxxxxxxxxxxx.

Appendix C

Career and Technology Education Comprehensive Needs Assessment for Chester County
Career Center and Chester County School District

Executive Summary

A Career and Technology Education Planning Committee, representing a cross-section of Chester County businesses and education, was charged to review the current status of career and technology education at the Chester County Career Center and to make recommendations addressing future needs for the center. The 21-person committee met 6 times during 2012-2013 school year to review background information, data, studies and surveys and made the following recommendations:

- Conduct a facilities study to determine the need for a new Career and Technology Education facility or to renovate and expand the existing facility.
- Add an Assistant Director.
- Add program from the Law, Public Safety, Corrections, and Security cluster (Fire and/or Law).
- Eliminate the Drafting program and eliminate one Business Education/Marketing position.
- Expand the Health Science program by adding an additional teacher and the Certified Nursing Assistant certification.
- Implement an intensive marketing program within the district with the goal of increasing attendance at Chester County Career Center.
- Converting the Mechatronics/Engineering position into a full-time position at Chester County Career Center.

Full details of the report are to be presented to the Chester County School Board at its April, 2013 meeting. For more information about the Chester County Career Center, contact the Director, Lee C. Green at xxxxxxxxxxxxxxxxx.

Section 1: Purpose, Process, and Historical Perspective of Chester County Career

Center Purpose

A needs assessment is defined as a systematic process to acquire an accurate and thorough picture of an organization. The needs assessment identifies the strengths and the weaknesses of an organization and addresses how we can improve those weaknesses. In conducting the needs assessment for Chester County Career Center and Chester County School District, the following two questions must be answered:

1. Are we effectively and efficiently meeting the needs of the students?
2. Are we producing students who are meeting the needs of the local community and industry and are we preparing them to be successful in a global economy?

In order to properly address the above questions, a comprehensive needs assessment must be conducted to determine the gap between current performance and desired performance.

Career and Technology Education (CTE) provides students and adults with the academic and technical skills, knowledge and training necessary to succeed in future careers and develop skills they will use throughout their lives. CTE programs have been organized into 16 career clusters and similar occupational groupings that identify the knowledge and skills students need as they follow a pathway to their goals. CTE prepares students for the world of work by introducing them to workplace competencies and by making academic content accessible to students by providing content in a hands-on context.

In order to provide the students of Chester County with the skills and knowledge necessary to meet the employment needs of 21st century, a strong CTE program is necessary. Properly preparing students for current and future employment opportunities

strengthens the community and the economic base of the surrounding region. It is our mission at Chester County Career Center and Chester County School District to give each student the necessary skills to compete on the local and global scale.

Process

A committee of 21 individuals representing a cross-section of the Chester County business and education communities was invited to serve. Attention was given specifically to representatives who had an overall knowledge of current job trends and work skills necessary for successful employment. Of the 21 people invited, 20 attended and actively participated in one or more of the meetings. The following is a list of the individuals that participated in this process:

Name	Business/Position
Autry, Susan	Parent/ CCCC SIC Member
Bennett, Dr. Marilyn	Special Populations Coordinator (CCCC)
Brunson, Abby	Chester County School District GCDF
Caldwell, Paul	Fire Chief
Chisholm, Renada	CHS Student/ CCCC SIC
Darby, Beth	YTC Chester Center
Fort, Brenda	Principal (GFHS)
Fuller, Jim	Chamber President
Gardner, Jeff	Principal (CHS)
Green, Lee	Director (CCCC)
Jordan, Sandy	Guidance (LHS)
King, Dr. Charles	Deputy Superintendent
McCutcheon, Chucky	LHS student/CCCC student

Neal, Joey	Chester County Natural Gas
Parker, Karlisa	Director, Chester County Economic Development
Parsons, Debbie	Guidance/WBL Coordinator (CCCC)
Roddey, Bobby	Director of Maintenance/Chester County School District
Snipes, Tammy	Asst. Principal (LHS)
Teal, Allen	Retired Career Center Director/Consultant
Witherspoon, Rene	Guidance (CHS)
Woods, Derion	CHS Student/ CCCC SIC
Yarbrough, Robbie	Guidance (GFHS)

The committee met 6 times during the fall and spring semester and also shared information via email. During the first meeting September 18, 2012, Chester County Superintendent of Schools, Dr. Agnes Slayman addressed the committee about the purpose of the committee. Director Lee Green gave a historical perspective and overview of career and technology education and Chester County Career Center (CCCC). Responsibilities and duties were also given to each team member. At the October 2, 2012 meeting, committee members toured the campus so they could become familiar with the state of the facilities and observe the programs and ongoing instruction. The committee members finalized the data collection procedures and identified the instruments that were going to be used to collect the data. At the November meeting, the committee identified critical technological, academic and workplace skills needed by students to be successful in today's global economy. The committee reconvened on February 4, 2013 and continued to examine the data and to further identify areas of

concern and possible solutions. On March 8, 2012, the committee toured York Comprehensive High School and Floyd D. Johnson Technology Center in York, SC. YCHS and FDJTC is a comprehensive high school and less than three years old. On March 12, 2013, the committee met and finalized the contents of this report. Appendix 7 contains the detailed minutes from each meeting.

Background and Historical Perspective of Chester County Career Center

Chester County Career Center was built in 1968 to provide CTE programs and courses to students from Chester, Lewisville, and Great Falls High Schools. In 1976, CCCC was expanded by adding four classrooms and the shop areas currently used by Cosmetology and Electricity. No further renovations or expansions have occurred since 1976. Building B (Agriculture, Culinary Arts, and Graphic Communications) was also added during this expansion.

The current programs at CCCC are as follows:

- Agriculture
- Business Education
- Marketing
- Health Science
- Sports Medicine
- Cosmetology
- Culinary Arts
- Drafting (Architectural and Mechanical Design)
- Automotive Technology
- Carpentry

- Electricity
- Engineering
- Mechatronics
- Welding Technology
- Machine Technology
- Graphic Communications.

A student can become a completer by successfully completing four Carnegie units in a related area of career and technology instruction. Work-Based Learning (WBL) opportunities are available to the students. Students can participate in job shadowing, cooperative education, internships, service learning, and apprenticeships. College credit can be earned through the EXCELS program with York Technical College.

Students enrolled at CCCC are eligible to participate in co-curricular organizations. Co-curricular organizations are incorporated into the curriculum and offer students the opportunity to obtain leadership skills and the opportunity to compete against other students from across the state and nation. In recent years, several CCCC students have represented South Carolina at national and international competitions. The co-curricular organizations at CCCC are as follows:

- Future Business Leaders of America (Business Education)
- DECA (Marketing)
- SkillsUSA (Graphic Communications, Welding Technology, Machine Technology, Electricity, Carpentry, Automotive Technology, Cosmetology, Culinary Arts, and Mechatronics)
- Health Occupation Students of America (Health Science and Sports Medicine)

- Future Farmers of America (Agriculture)
- National Technical Honor Society.

Chester County Career Center offers industry certification in nine program areas.

Industry certifications give the students at CCCC an advantage in the marketplace by ensuring that the student has received the skills that many employers are looking for in prospective employees. Table 1 is a list of the programs offered at CCCC and if the program offers an industry certification. Dual credit opportunities are also listed in Table 1.

Table 1: Industry Certification and Dual-Credit

Program	Industry Certification	Dual–Credit Offered
Agriculture	No	Yes
Automotive Technology	No	No
Business Education	No	No
Carpentry	National Center for Construction and Education Research; OSHA	Yes
Cosmetology	South Carolina Cosmetology License	No
Culinary Arts	ServSafe	No

Drafting	No	Yes
Electricity	National Center for Construction and Education Research; OSHA	No
Engineering	No	No
Graphic Communications	No	No
Health Science	First Aid; CPR; AED; National Health Science Assessment	Yes
Machine Technology	OSHA	Yes
Marketing	No	No
Mechatronics	No	No
Sports Medicine	First Aid; CPR; AED; National Health Science Assessment	Yes
Welding Technology	National Center for Construction and Education Research; OSHA	Yes

During the 2011-2012 school year, 802 students were enrolled at CCCC. Of the 802 students, 671 were Chester High students, 43 were Great Falls High students, and 88 were Lewisville High students. In 2008, the enrollment of CCCC was 954. This represents a reduction of enrollment of 152 students. A major contributing factor to the reduction of enrollment at CCCC is the declining enrollment at the feeder high schools. In 2008, the overall enrollment at the secondary level in Chester County School District was 1,719. For the 2011-2012 school year, the secondary enrollment is 1543. This is a reduction of 176 students.

Currently, 751 students are enrolled at CCCC. Of the 751 students, 645 are Chester High students, 43 are Great Falls High students, and 63 are Lewisville High students.

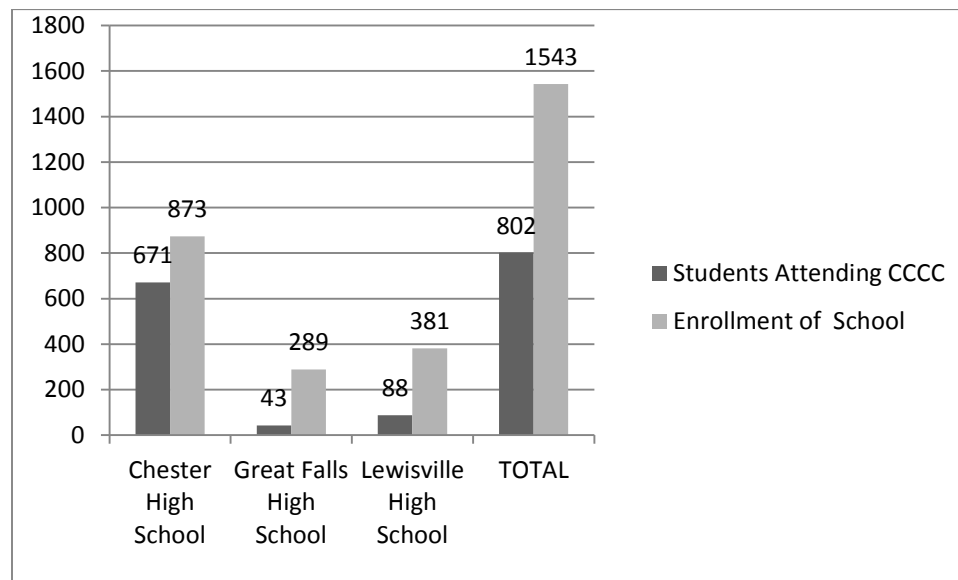


Figure 1: 2012-2013 Enrollment for High Schools and Chester County Career Center

Figure 2 depicts the percentage of students from each high school.

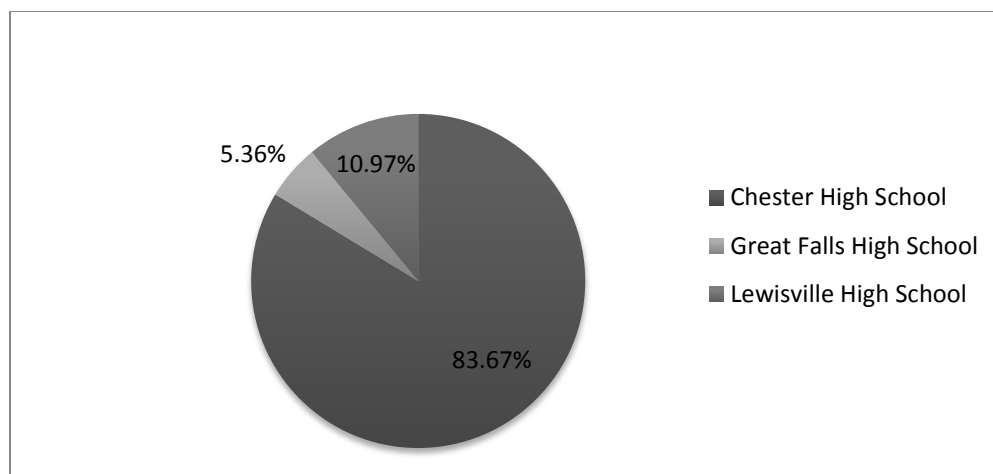
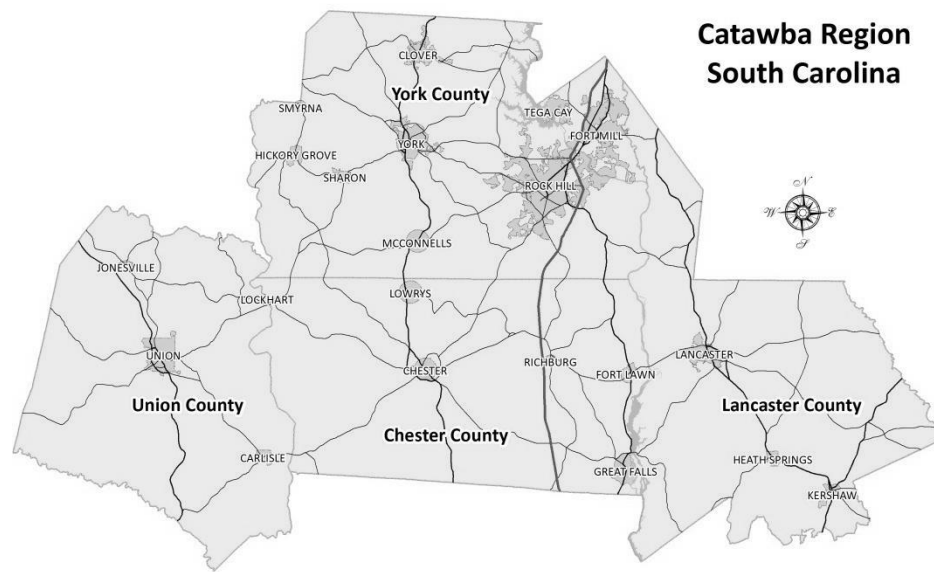


Figure 2: Percentage of Career Center Enrollment

Section 2: Description of Chester County and Catawba Region

The data for this section was obtained from the report, *Comprehensive Economic Development Strategy for the Catawba Region*. The Catawba Regional Council of Governments developed the report in 2012. The Catawba Region consists of Chester, York, Lancaster, and Union Counties.



Population Growth

The Catawba Region experienced dynamic population growth between 2000 and 2010. The region's population increased from 289,914 in 2000 to 368,460 in 2010. This represented a 27.1% increase for that time period. The United States as a whole grew by 9.7% during that same period. Figure 1 shows the population of the region from 1910 to 2010.

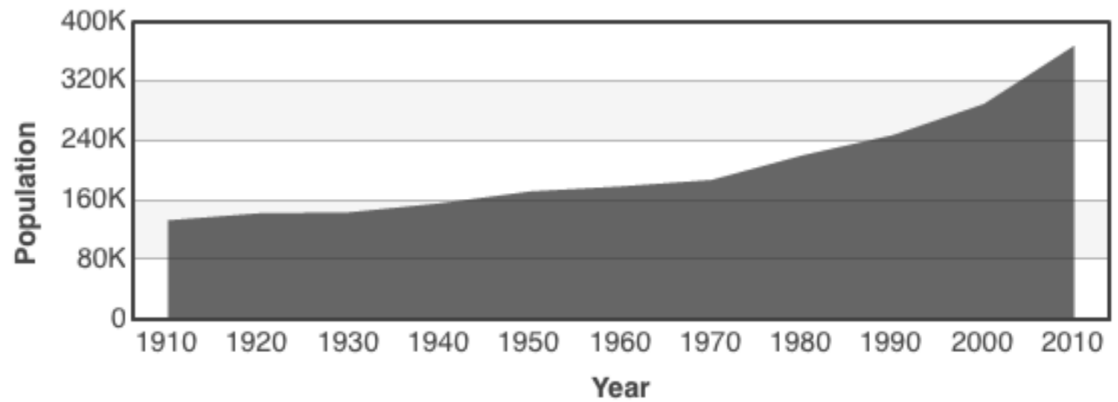


Figure 3: Population Trend for Catawba Region

Figure 4 shows the net new population by decade between 1920 and 2010.

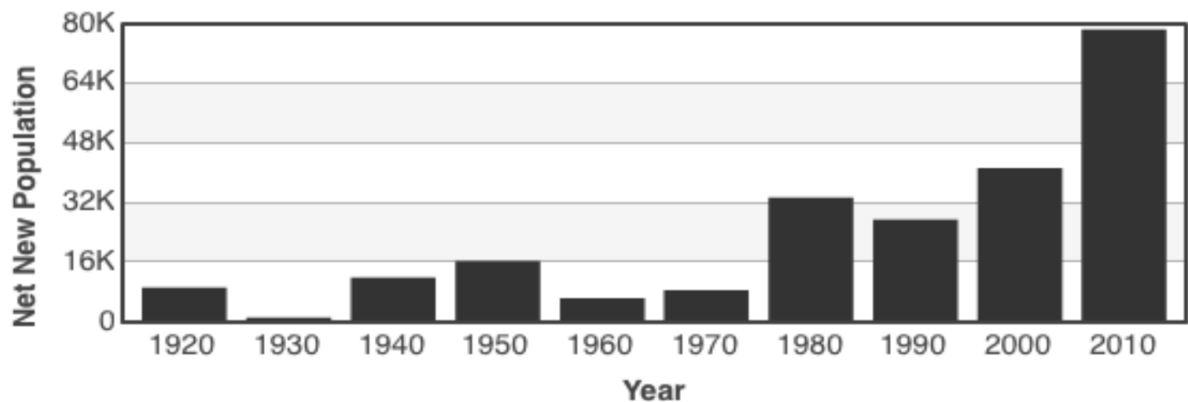


Figure 4: Population by Decade

Figure 5 shows that the region has grown at a higher rate than the US for much of the last decade. The period between 2004 thru 2008 saw population increases that were unprecedented. The impact of the nation-wide recession that began in 2007 was fully realized within the region by 2009 when growth rates in the region returned to historically normal levels and dipped below the US average by 2011.

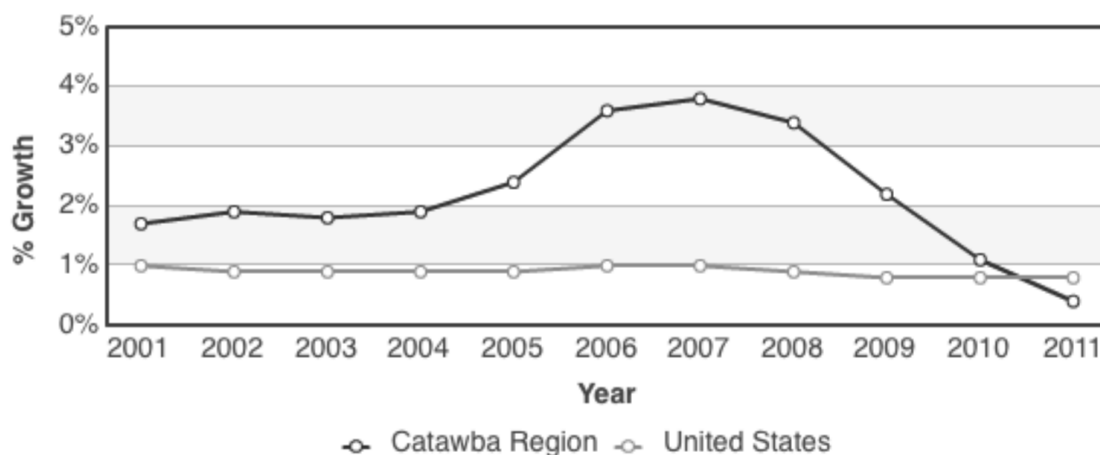


Figure 5: Population Growth, 2001-2011: Catawba Region vs. U.S.

Figure 6 shows that much of this new population growth occurred in the pre-recession years prior to 2008.

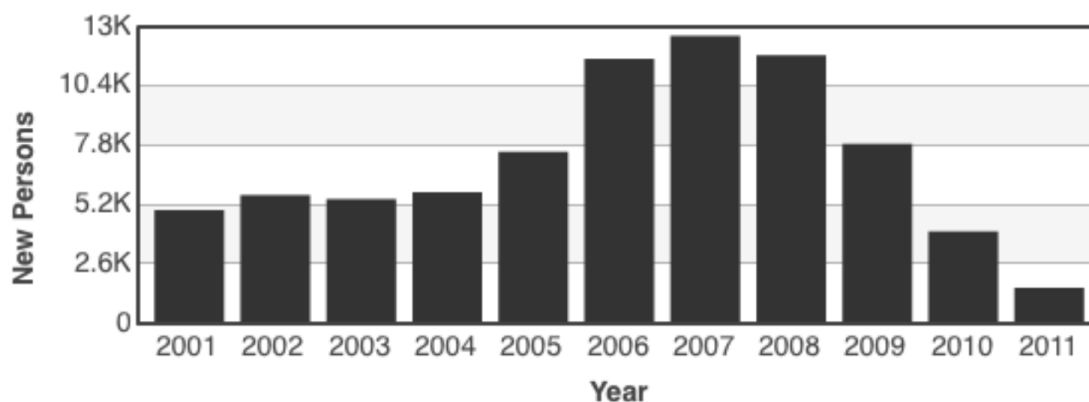


Figure 6: New Persons per Year, 2001-2011

Although the Catawba Region has experienced significant population growth between 2000 and 2011, the distribution of that growth has been uneven within the region. York and Lancaster counties grew at an accelerated rate of nearly four and two times the national rate, respectively, while Chester and Union counties experienced small population declines. For the foreseeable future Lancaster and York counties are expected to continue to grow while Chester and Union counties are predicted to roughly maintain their existing population levels. Figure 7 shows the populations of each county as of

2011.

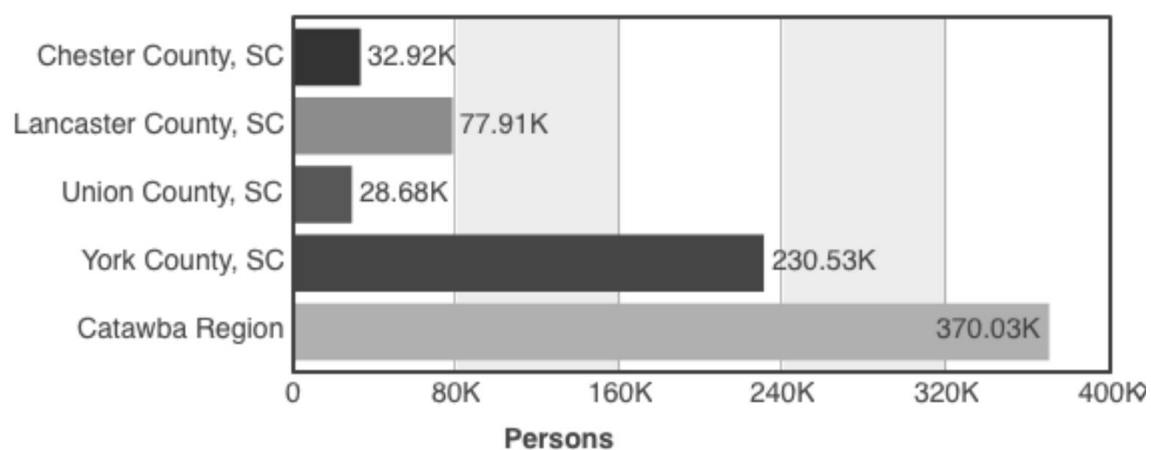


Figure 7: Population by County, 2011

Figure 8 shows individual county growth rates between 2000 and 2011.

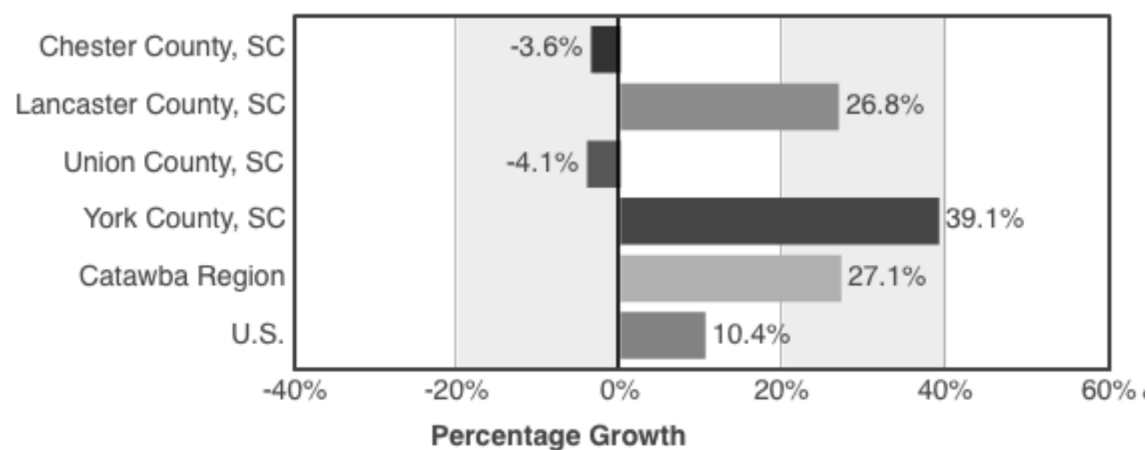


Figure 8: Population by County: 2000-2011

As has been highlighted, this unprecedented growth within the Catawba Region has primarily been driven by two of the region's counties, Lancaster and York, which are closest to the greater Charlotte metropolitan area. In addition, a few key areas of these counties have contained a majority of this growth. In York County, the high-level growth areas were found in the northeastern portion of the county surrounding Fort Mill, Rock

Hill, Tega Cay, and the Lake Wylie area. In Lancaster County, a vast majority of the growth took place in the northern Indian Land “panhandle” area.

The Charlotte urban area was the fastest growing urban area with 1 million or more people in the US between 2000 and 2010, growing at an astonishing 64.6% during that time period to a total population of 1.25 million people. The magnitude of this growth is underscored by the Austin, TX urban area and Las Vegas, NV urban area trailing Charlotte at 51% and 43.5% respectively in the 1 million people or more category.

The lower cost of living, enhanced transportation infrastructure, and explosive affordable housing development between 2000 and 2007 within the Fort Mill and Rock Hill areas of York County and the Indian Land area of Lancaster County make these areas attractive alternatives for residences within the Charlotte area.

Employment by Industry

The data in this section is based on the standard employment categories used by the US Census Bureau. As shown in Figure 9, currently the three industrial sectors with the largest employment in the Catawba Region are Trade, Transportation, and Utilities, Government, and Manufacturing.

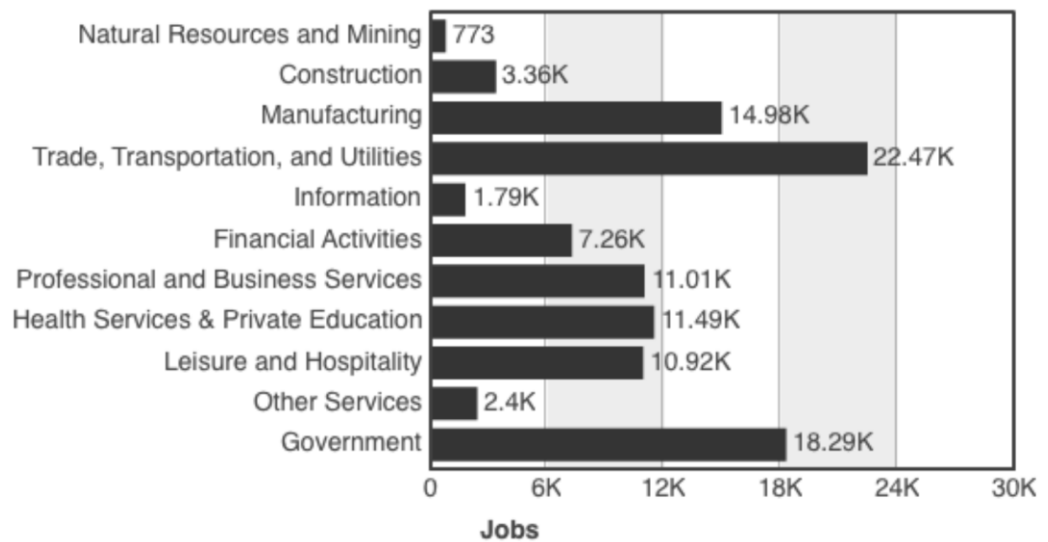


Figure 9: Employment by Industry: 2011

According to the Bureau of Labor and Statistics, the category of Trade, Transportation and Utilities includes wholesale and retail trade, transportation and warehousing, and utilities. While the Bureau of Labor and Statistics does not delineate it as such, it is important to note that there has been a transition within the region away from the manual labor intensive manufacturing of the textile era to a more technical and skilled manufacturing process requiring a more technically proficient workforce.

It also should be noted that the Government category includes all levels of federal, state, and local government inclusive of law enforcement, social and housing services, emergency services, public education, emergency response, as well as federal, state, and local governmental support.

Just as population trends varied county-by-county within the region, likewise employment sectors vary as well. This is primarily due to the same factors that impacted population trends within the region coupled with the more rural nature of Union and Chester counties.

Chester County – Employment by Industry

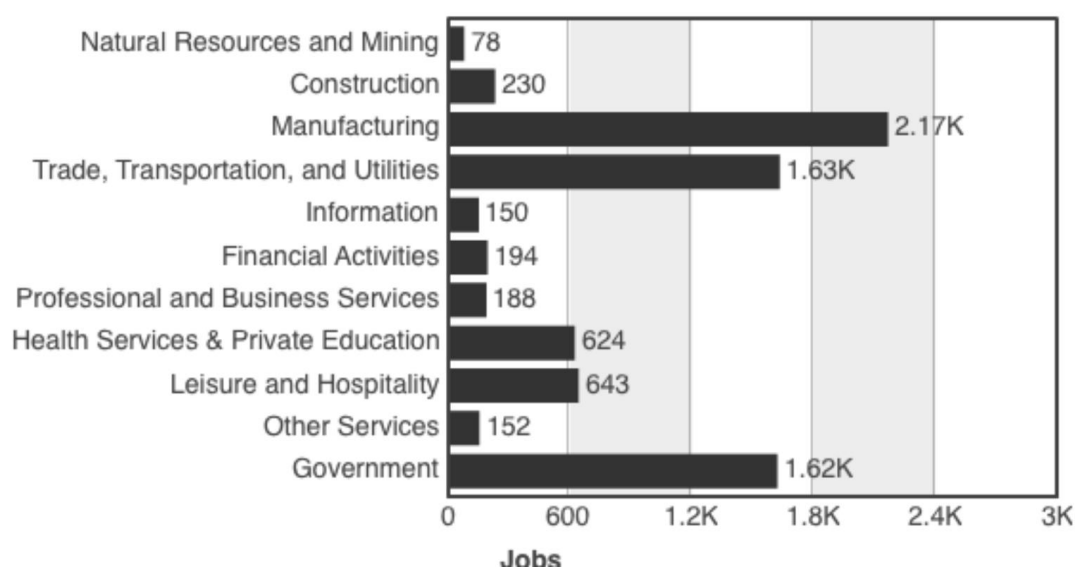


Figure 10: Chester County Employment by Industry

Approximately 7.3% of the region's non-farm workforce is in Chester County. As seen in Figure 8, the county's largest employment sector is manufacturing, followed by Trade, Transportation, and Utilities, and Government.

While not contiguous with Charlotte, Chester is well connected by virtue of Interstate 77, which bisects the county heading north toward Charlotte and south toward

Columbia and the coast.

Catawba Region – Employment Growth and New Job Creation

Following job losses and stagnation from 2008 to 2010, Figure 11 shows that in 2011 the Catawba Region experienced job growth in excess of the US rate.

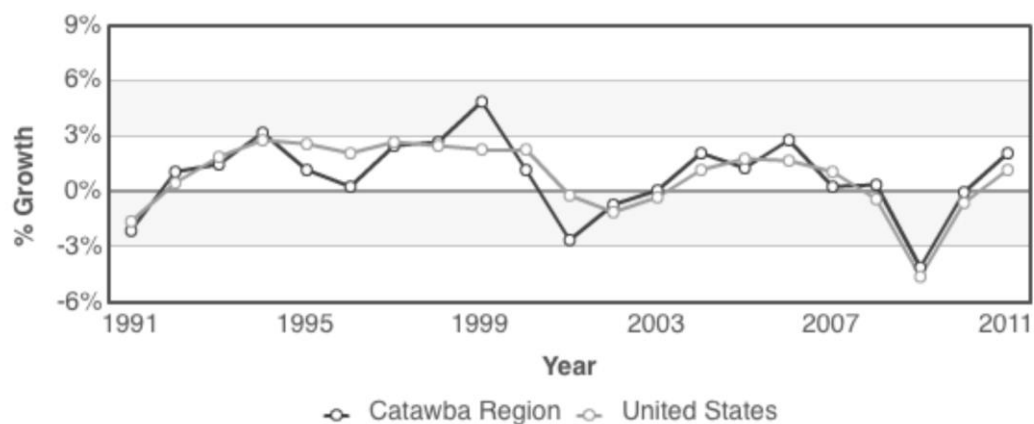


Figure 11: Annual Growth Rate, Employment for All Industries (1991-2011)

This recovery was more rapid than the US and resulted in the net creation of 2,200 jobs. However, as can be seen in Figure 12, it did not offset the 4,400 jobs lost in 2009.

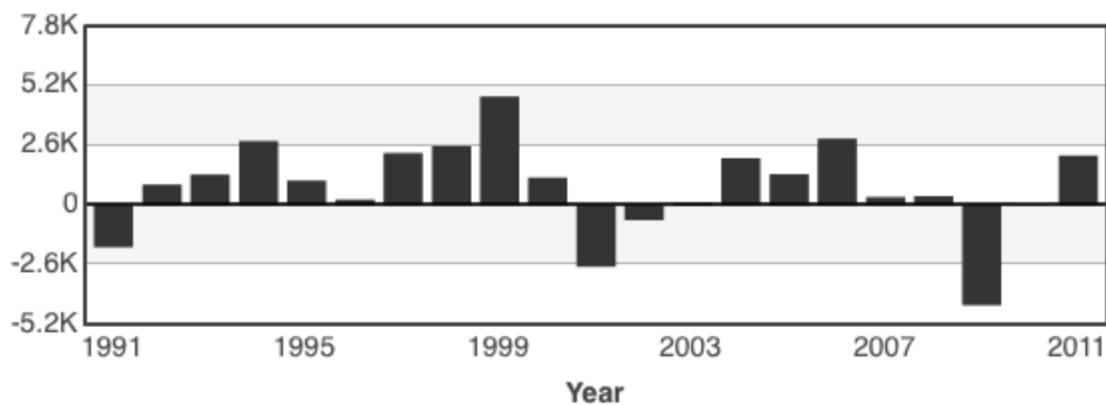


Figure 12: Net New Employment – Catawba Region (1991-2011)

Between 2001 and 2011, Figure 13 shows that York was the only county in the region to experience positive net new employment. While Chester, Lancaster and Union

counties also saw jobs created during this period, the net increase was not enough to offset the number of jobs lost during the recession in the latter part of the decade.

14.92K

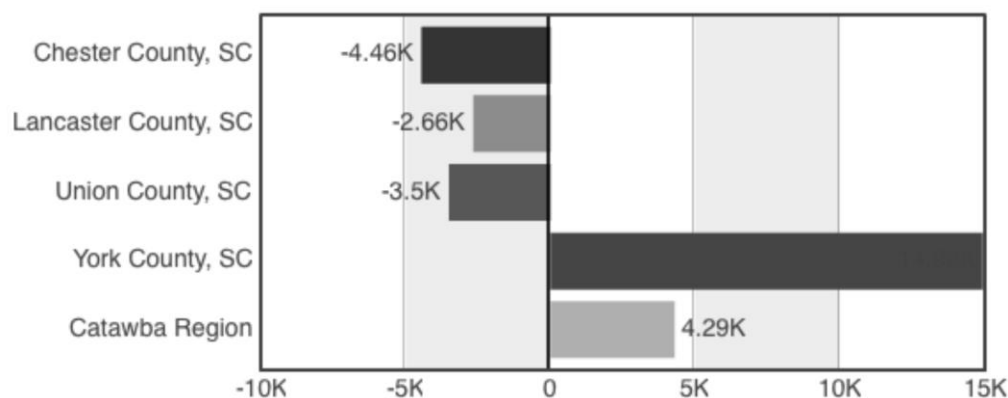


Figure 13: Net New Employment by County, All Industries (2001-2011)

As illustrated in Figure 14, the leading sectors creating new jobs within the last decade were Health Services, Financial Activities, and Trade, Transportation and Utilities. Most of the job loss within the region occurred in the Manufacturing sector, which can be greatly attributed to the continued decline of the textile industry. The Catawba Region's entire Manufacturing sector experienced a net loss of 9,841 jobs region-wide between 2001 and 2011.

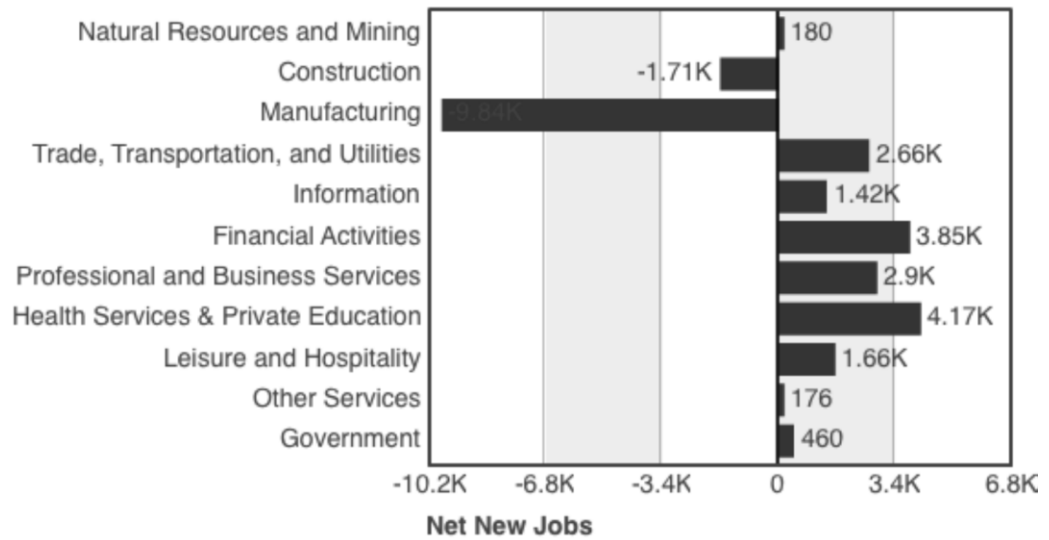


Figure 14: New Jobs (2001-2011)

Recent Trends – Employment Growth and New Job Creation

While the region experienced substantial job losses in the manufacturing sector between 2001 and 2011, manufacturing accounted for the greatest number of new jobs created region-wide between 2010 and 2011 as can be seen in Figure 15. All four counties within the region experienced positive net new job creation in the Manufacturing sector with Chester being responsible for 7% of the growth region-wide, Lancaster 12%, Union 46%, and York 35%.

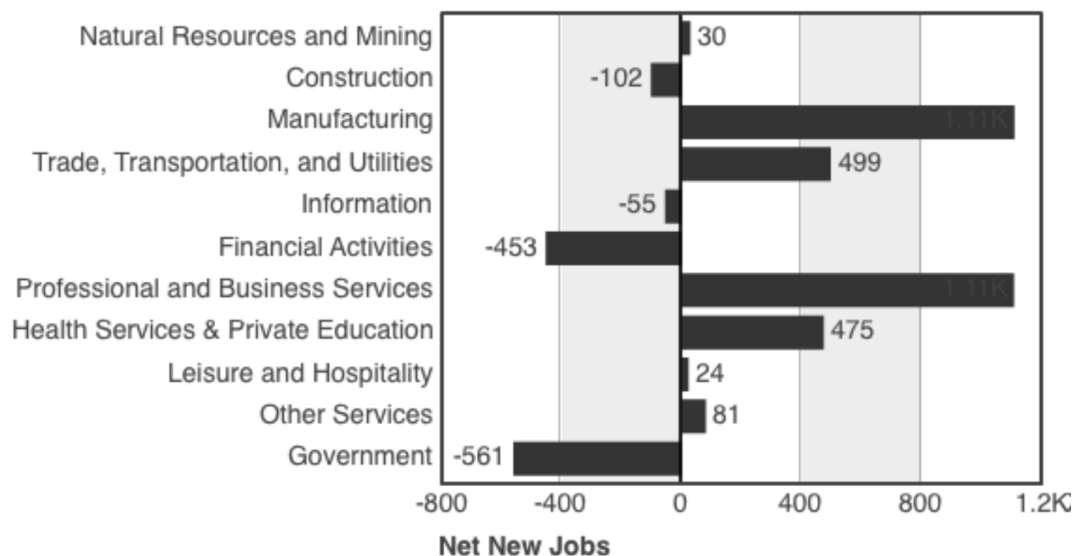


Figure 15: New Jobs (2010-2011)

Other leading creators of new jobs in the Catawba Region over the past two years were Professional and Business Services, and Trade, Transportation, and Utilities. New job creation within Professional and Business Services was exclusively within Lancaster and York counties while Trade, Transportation, and Utilities occurred primarily in York with 84% of the region's new jobs within that sector being created within York County.

Catawba Region – Comparative Analysis of Employment Growth versus U. S.

Between 2001 and 2011 the fastest growing employment sectors in the Catawba Region were Financial Activities, Health Services & Private Education, and Professional and Business Services. These employment sectors all gained substantial employment within the region. Comparative losses, however, were experienced in the Construction and Manufacturing sectors.

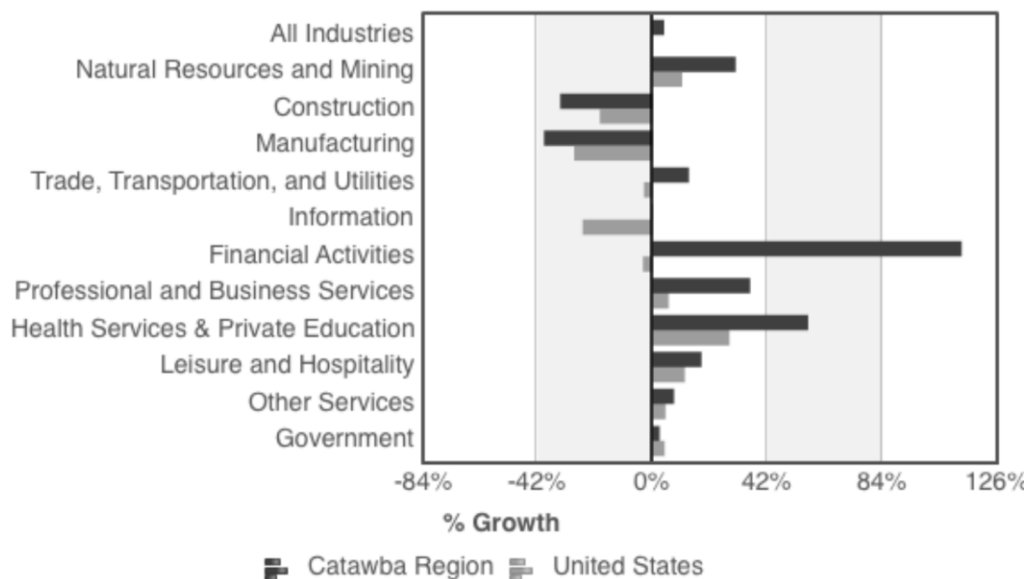


Figure 17: Percent Growth, Employment (2001-2011)

It is important to note that the region-wide growth in the Financial Activities sector can be attributed to a reported 4,289 new jobs created in York County between 2001 and 2011. During that same period, Chester, Lancaster, and Union all lost jobs in the Financial Activities sector resulting in a combined loss of 438 jobs. New jobs created in the Professional and Business Services sector were confined to Lancaster and York counties with 1,412 and 2,316 new jobs created, respectively. Chester and Union both lost jobs in that sector for a combined loss of 832 jobs. As previously mentioned, it also should be noted that the loss of manufacturing jobs during this period can be greatly attributed to the continued decline of the textile industry in the region.

Recent Trends– Comparative Analysis of Employment Growth versus U. S.

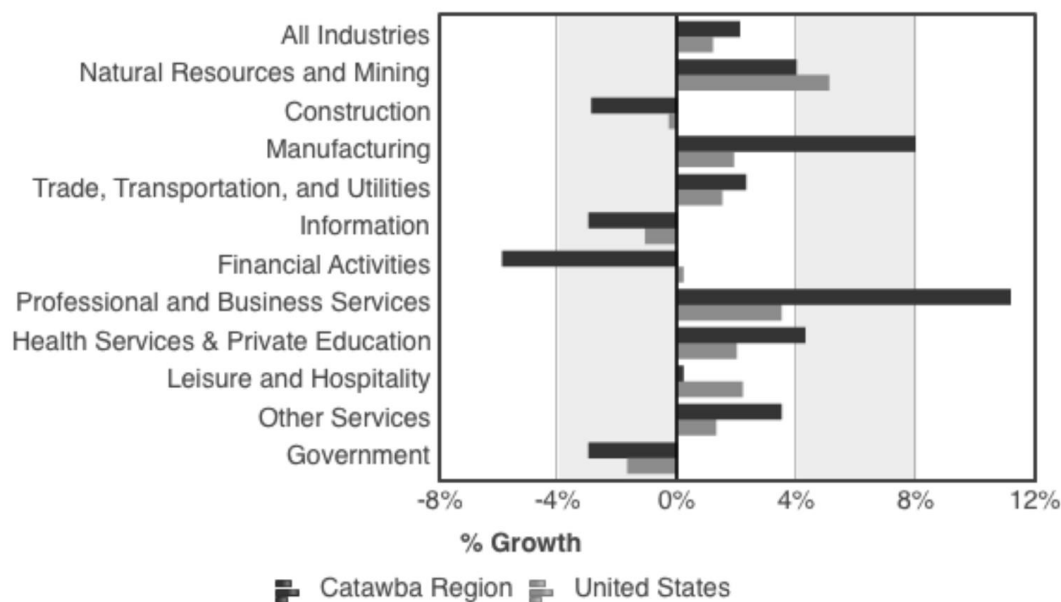


Figure 18: Percent Growth, Employment (2010-2011)

Between 2010 and 2011, Professional & Business Services was the fastest growing sector in the Catawba Region, creating 1,110 jobs and growing 11.2%. Positive job growth in this industry only occurred in Lancaster and York counties, with job losses in this sector in Chester and Union counties.

Manufacturing, the second fastest growing regional sector, created 1,111 jobs and grew at a rate of 8% region-wide. Each county saw positive employment growth in Manufacturing, but Union accounted for 505 (46%) of these new jobs. Health Services & Private Education employment growth occurred in Lancaster, Union and York counties at a rate of 4.3% for a gain of 475 new jobs.

Financial Activities and Government employment experienced decline in all four counties during this period, declining at a rate of 5.9% and 3%, respectively.

Chester County – Comparative Analysis of Employment Growth versus U. S.

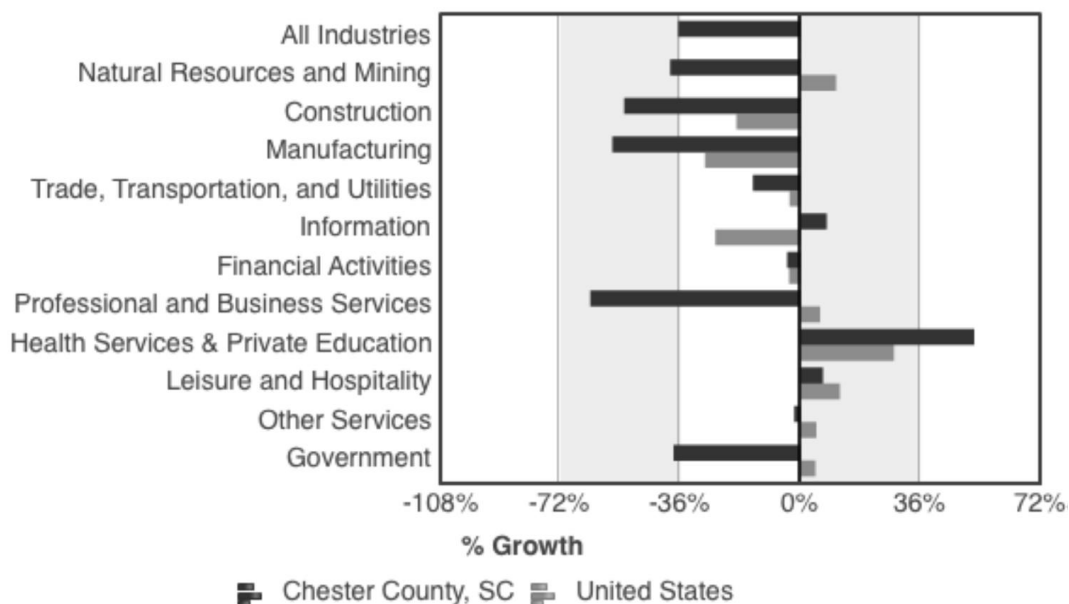


Figure 19: Percent Growth, Employment (2001-2011) – Chester County vs. US

Between 2001 and 2011, Chester County experienced a 36.7% decline in employment resulting in a net loss of 4,452 jobs. This net job loss is the most severe in the region with a majority of the jobs lost being in the Manufacturing sector. The impact of the decline of the textile industry in Chester County during this period was a major contributor to the resulting loss of 2,810 jobs in the Manufacturing sector for the county.

Other significant areas of decline between 2001 and 2011 included Government, down 38.1%, resulting in a loss of 997 jobs and a loss of 900 jobs in Construction, Professional and Business Services, Natural Resources and Mining, and Trade, Transportation, and Utilities, combined.

Areas of employment growth between 2001 and 2011 included Health Services & Private Education, Information, and Leisure and Hospitality and resulted in a total of 266 new jobs.

Health Services & Private Education accounted for a majority of the growth sector with a growth rate of 59.1% resulting in 214 new jobs.

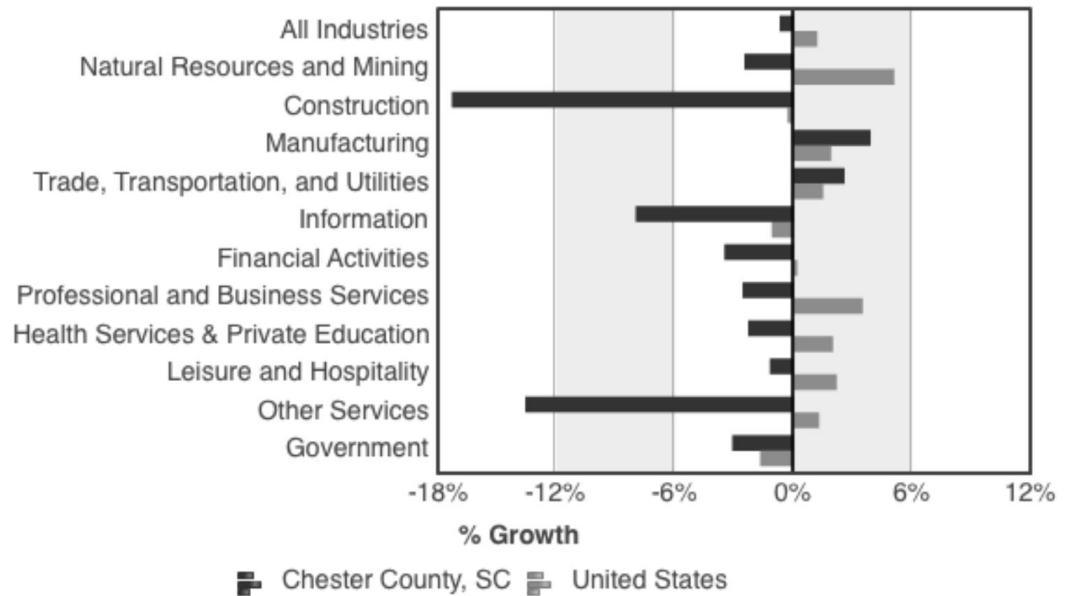


Figure 20: Percent Growth, Employment (2010-2011) – Chester County vs. US

Recent Trends – Chester County

Chester County was the only regional county to lose jobs between 2010 and 2011 with a 0.7% net loss accounting for a net reduction of 51 jobs countywide. The most significant contributor to job losses in Chester County was the Construction industry, which declined 17% resulting in a loss of 48 jobs. The growth sectors within the county during this time period were Manufacturing and Trade, Transportation, and Utilities which accounted for 123 combined new jobs in those sectors.

Recent industrial developments in Chester County include the opening of the Institute for Business and Home Safety (IBHS) Research Center in October 2010, which drew nationwide coverage for Chester County and the region.

New industries announced in the last year include Jones-Hamilton Chemicals and Rolled Alloys. In addition, several industries in Chester have expanded capabilities or announced expansions within the last year including Ring Container Technologies, Boral Stone Products, Chester Wood Products, and Guardian Industries. These expansions and

new industries underscore the growth that is taking place in current technical manufacturing.



Insurance Institute for Business and Home Safety research facility in Chester County.

Catawba Region – Comparative Analysis of Salaries versus U. S.

The data in this section is based on the Department of Labor and Statistics Census of Employment and Wages (CEW). The CEW is conducted quarterly and covers 98% of jobs in the US. Major exclusions from the CEW include self-employed workers, most agricultural workers on small farms, all members of the Armed Forces, elected officials in most states, most employees of railroads, some domestic workers, most student workers at schools, and employees of certain small nonprofit organizations.

CEW data is collected from employers within a county, not employees living in that respective county. Average compensation therefore may not be reflective of mean/average earnings within that county due to employees who may be commuting in or out of the county to work.

It is important to note that the term “salary” in this section refers to all employees subject to state and federal Unemployment Insurance laws and includes all earnings inclusive of hourly and part-time wages.

Overall salaries in the region grew slightly slower than the US from 2001 to 2011. The only industries that saw salary growth exceed the US were: Professional & Business Services (84% growth); Information (53%); Manufacturing (44%); and Trade, Transportation, & Utilities (30%). Figure 21 shows the salary growth by industry for the Catawba Region and the US.

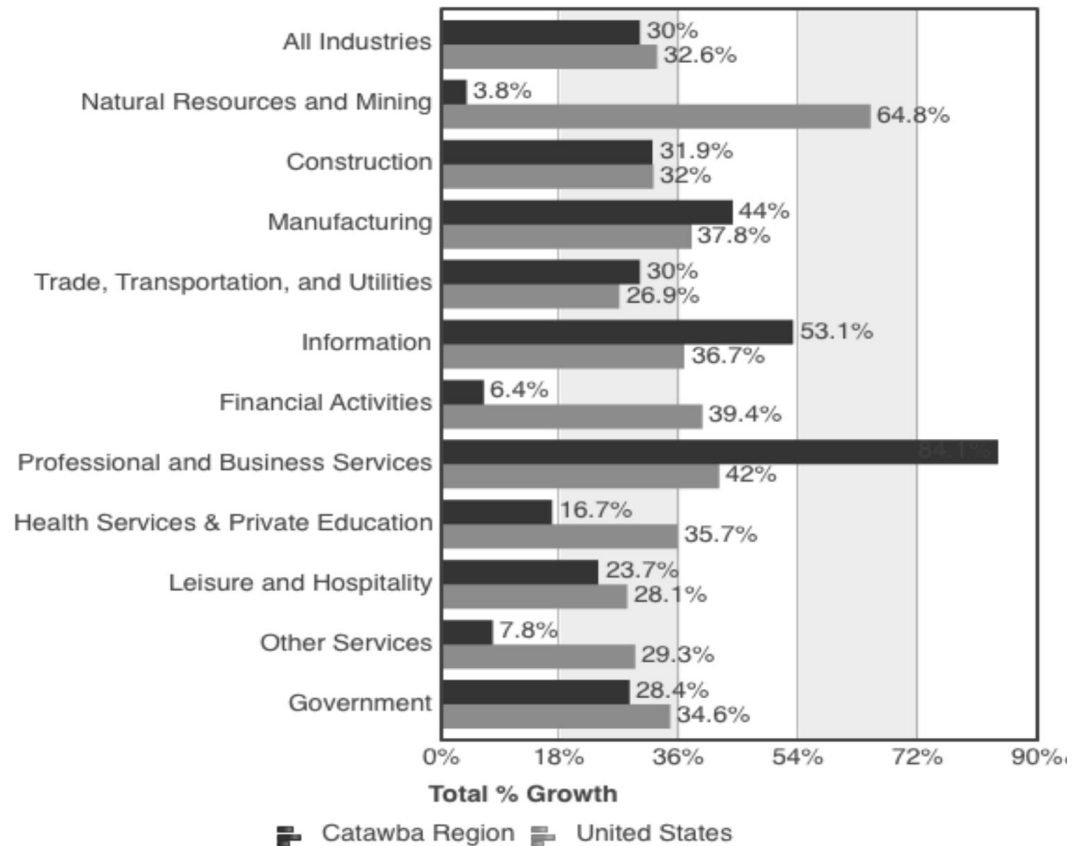


Figure 21: Salary Growth by Industry (2001-2011) – Catawba Region vs. US

Recent Trends – Comparative Analysis of Salaries versus U. S.

In 2011, the average salary for all industries in the Catawba Region was \$37,412, approximately 78% of the US average salary of \$48,040. The highest paying industries in the region were Information (average salary of \$53,829), Manufacturing (\$51,820), and

Financial Activities (\$45,721). Figure 18 shows 2011 Average Salaries by Industry for the region versus the US.

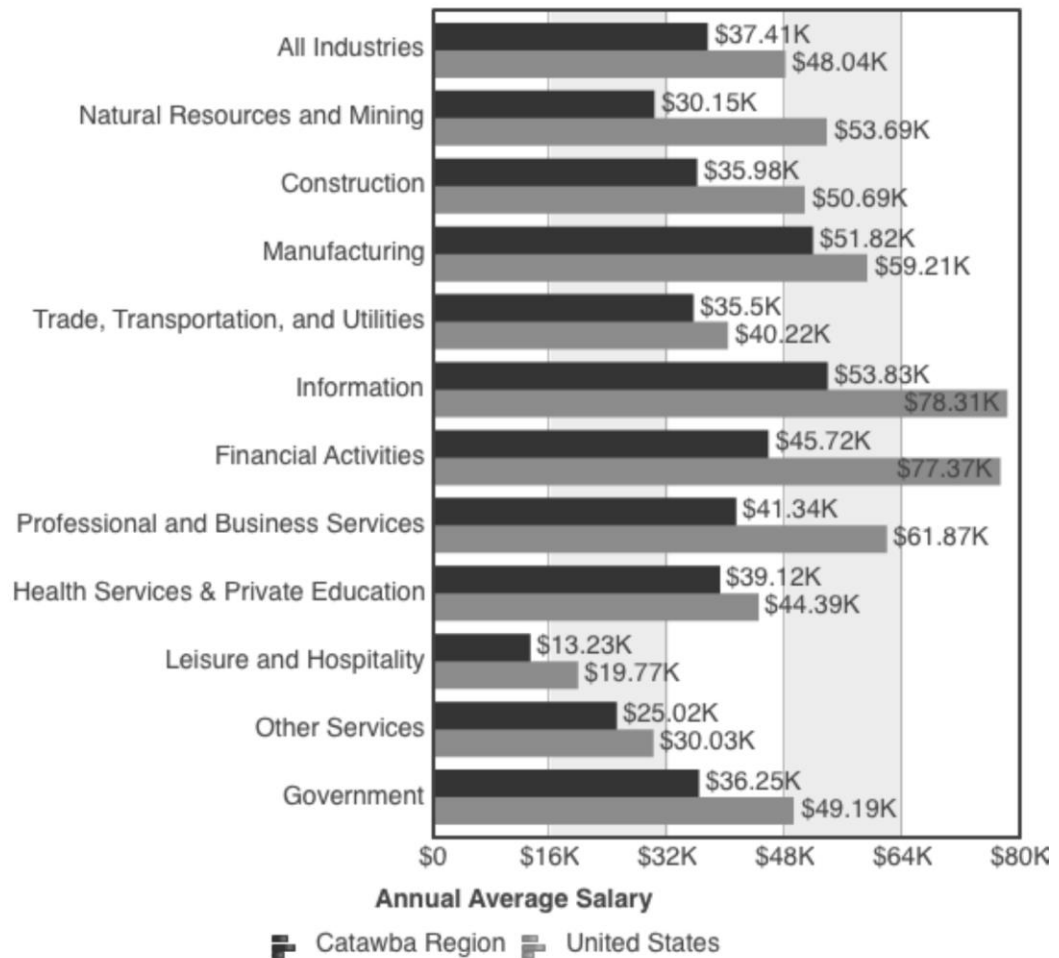


Figure 22: Average Salary by Industry (2011) – Catawba Region vs. US

The industries with the highest salaries relative to the US average were Manufacturing, Health Services & Private Education, and Trade, Transportation & Utilities, all of which were 88% of US salary level. A consideration when comparing salaries in the region to the US is that the Kiplinger 2012 Cost of Living Index for the Charlotte Metro area was 93% of the US Average.

Recent Trends – Comparative Analysis of Salaries in the Catawba Region

At the county level, York County had the highest average salary within the

Catawba Region at \$38,379. Chester and Lancaster counties were slightly below the regional average with salaries at \$35,760 and \$36,105, respectively. At \$31,357, Union County had the lowest average in the region.

Table 1
Average Salary by County for the Catawba Region

	2011 Average Salary			
	Chester County	Lancaster County	Union County	York County
All Industries	\$35,760	\$36,105	\$31,357	\$38,379
Natural Resources and Mining	\$40,497	\$37,534	\$35,316	\$27,527
Construction	\$38,887	\$30,204	\$25,495	\$37,600
Manufacturing	\$50,295	\$50,548	\$43,970	\$53,634
Trade, Transportation, and Utilities	\$27,915	\$27,672	\$22,702	\$38,300
Information	\$52,120	\$49,555	\$28,868	\$55,350
Financial Activities	\$36,226	\$40,982	\$35,732	\$47,015
Professional and Business Services	\$32,726	\$40,310	\$21,643	\$42,506
Health Services & Private Education	\$31,477	\$44,966	\$35,735	\$38,056
Leisure and Hospitality	\$13,956	\$12,740	\$12,558	\$13,286
Other Services	\$19,176	\$21,026	\$16,123	\$27,356
Government	\$34,201	\$33,719	\$33,469	\$37,782

Interestingly, the industry sector with the highest average salary in the region is manufacturing. As previously cited, Manufacturing was the sector with the sharpest decline in employment between 2001 and 2011, yet during the 2010-11 year it was shown to rebound mainly due to sector growth in Union County as the second fastest growing sector that year. These data would seem to be a clear indicator of the radical

change that sector has had in the region over the last decade.

In all but York County, Manufacturing was the sector with the highest average salary. In York County, the Information sector surpassed Manufacturing by a marginal amount. The sector with the lowest average salary in all four counties was Leisure and Hospitality.

In most sectors, individual sector salaries follow the average for all industries in regard to county-by-county comparisons with York typically having the highest average salary followed by Lancaster, Chester, and Union, respectively. Notable exceptions to this are Construction, Leisure and Hospitality, and Natural Resources and Mining in which Chester County offers the highest average salary. In all but Natural Resources and Mining, and Health Services and Education, Union County had the lowest average salary region-wide.

Catawba Region – Comparative Analysis of Per Capita Income and Mean Earnings

Table 2
Per Capita Income
Catawba Region and the US
2000 – 2010

Year	Catawba Region	United States
2000	\$24,137	\$30,319
2001	\$24,696	\$31,157
2002	\$25,321	\$31,481
2003	\$25,794	\$32,295
2004	\$26,872	\$33,909
2005	\$28,184	\$35,452
2006	\$29,634	\$37,725
2007	\$30,464	\$39,506
2008	\$30,962	\$40,947
2009	\$29,517	\$38,846
2010	\$30,223	\$39,937

The Catawba Region consistently lags behind the US national average for per capita income. Table 2 shows the Per Capita Income levels for the region and the US between 2000 and 2010.

This trend is mirrored at the county level where three (Chester, Lancaster and Union) of the region's four counties trail the US and state Median Household Income. Table 3 shows the 2010 Median Household Income and Mean Individual earnings for counties in the Catawba Region as well as the US and South Carolina.

Table 3
Median Household Income / Mean Annual Earnings & Pay
Chester, Lancaster, Union and York Counties
South Carolina and the US 2010

	Median Household Income	Mean Individual Earnings
Chester County	\$32,307	\$39,221
Lancaster County	\$38,905	\$40,987
Union County	\$31,223	\$37,141
York County	\$51,217	\$51,045
South Carolina	\$43,208	\$46,506
United States	\$51,222	\$55,061

Catawba Region – Comparative Analysis of Unemployment

Figure 23 shows that the Catawba Region had unemployment rates similar to the US national rate from 1990 to 2000.

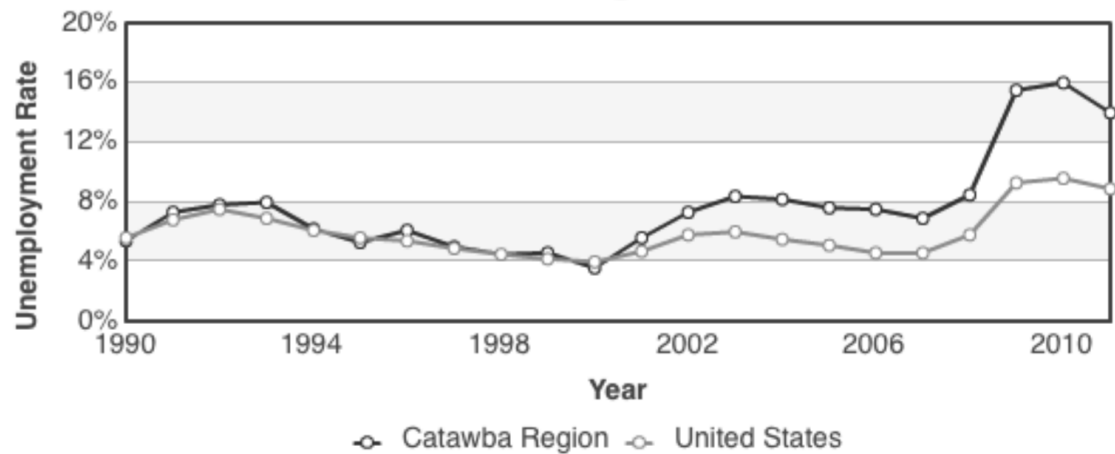


Figure 23: Unemployment Rate (1990-2011) – Catawba Region vs. US

Beginning in 2001, however, as the remainder of the major textile industry locations within the region began to shut down, the gap began to widen with

unemployment rates remaining approximately double that of the US between 2003 and 2008. With the added impact of the recession being fully realized in the area by 2008 and the collapse in population and housing growth in the region, unemployment rates rose in line with the US between 2009 and 2011, but the gap between the regional rate and the US rate widened greatly to average a 64% greater regional unemployment rate than that of the nation.

Between 2009 and 2011, the regional unemployment rate averaged 15.2%, which represented a 122% increase in the average unemployment rate of the prior decade.

The total unemployed workforce, as seen in Figure 24, also reflects this marked increase beginning in 2009.

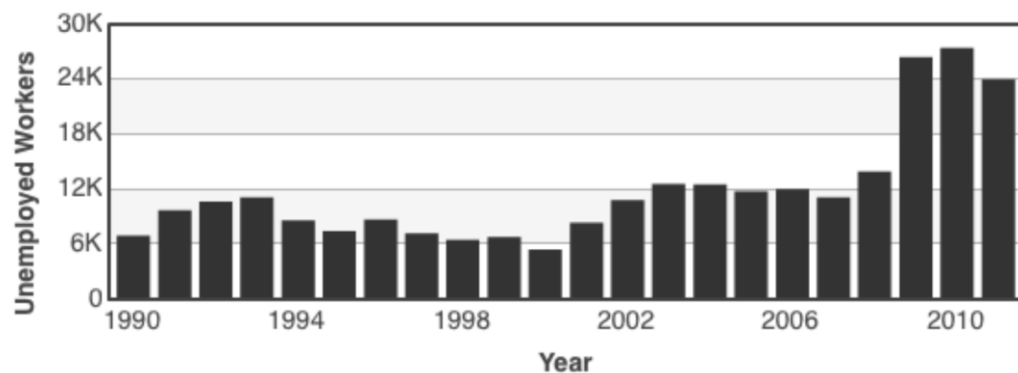


Figure 24: Total Unemployed Workforce (1990-2011) – Catawba Region

Catawba Region – Comparative Analysis of Poverty

Figure 25 shows that the percentage of people in poverty in the Catawba Region closely matches the rate for the US as a whole between 2000 and 2010.

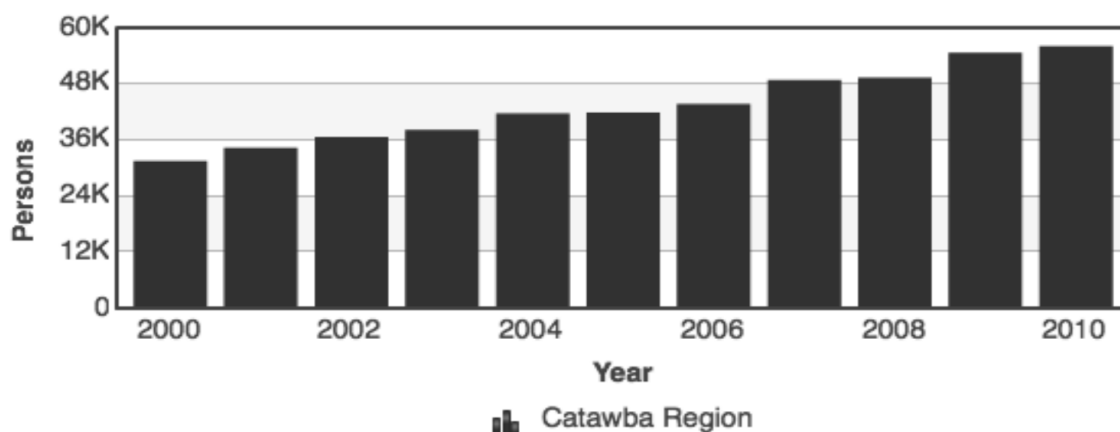


Figure 25: Persons in Poverty (2000-2010) – Catawba Region

It is important to note, however, that while the overall poverty rate within the region has remained in line with the US rate, the regional growth in population in poverty between 2000 and 2010 was dramatically greater within the region in comparison to the US.

Figure 26 reflects this showing the regional population in poverty growing by 78% within the region during this period in contrast to a US rate of 46%. Additionally, the growth in children under 18 in poverty grew by 74% between 2000 and 2010 while the US grew at 36%. This is largely due to the regional population growth rate when compared to the US as a whole.

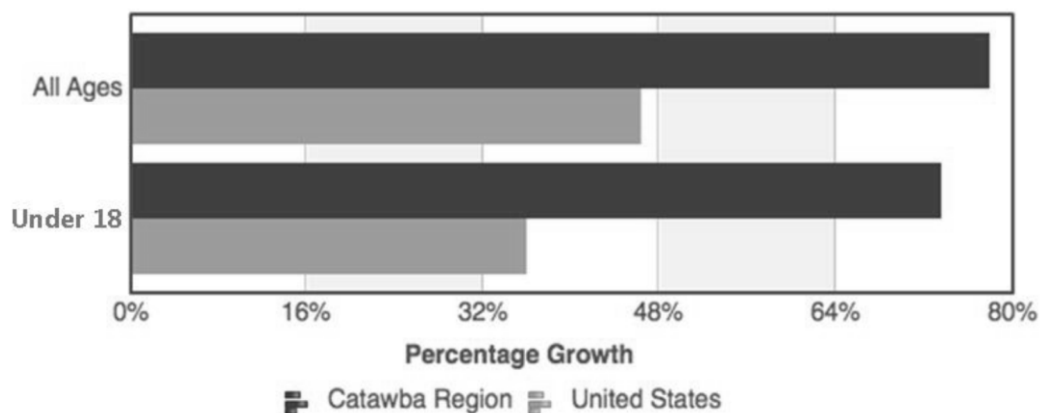


Figure 26: Growth of Population in Poverty (2000-2010) – Catawba Region vs. US

Catawba Region – Comparative Analysis of Educational Attainment

The Catawba Region has made advancements since 2000 with regard to the percentage of residents who have graduated from high school or obtained a college degree. As Table 4 illustrates, however, the percentage of people with less than a high school degree remains notably high in every county but York. The region as a whole is remarkably consistent with the state levels in every category, yet still lags behind the US in regard to people who have earned a high school degree or higher as well as those holding a Bachelor's Degree or higher.

When analyzing the percentages in Table 4, it is important to note that the US Census Bureau only counts an individual who is over 25 years of age in one category and counts them according to their highest education attained. If a person holds a Bachelor's Degree, for example, they are only represented in the "Bachelor's Degree" category even though they also would hold a high school degree or equivalent. The "high school or higher" category represents all individuals who hold a high school degree or higher and the "bachelor's or higher" category combines the "bachelor's degree" and "master's/professional degree or higher" categories.

As can be noted, there is county-by-county variation showing Chester, Lancaster, and Union counties generally having higher rates of high school graduates but a significantly lower rate of college graduates with a Bachelor's degree or higher when compared with the state and nation. York County exceeds both the state and national averages for persons with a Bachelor's degree which contributes to the county's lower percentage in the "high school degree or equivalent" category due to the aforementioned method by which an individual is categorized.

Table 4
Educational Attainment of
Percentage of Persons 25 and Older - 2010

	Chester County	Lancaster County	Union County	York County	Catawba Region	South Carolina	United States
Less than high school degree	23.3	20.0	23.7	13.5	16.7	16.3	14.7
High school degree or equivalent	39.5	34.5	34.6	28.5	31.3	30.5	28.4
Some college, no degree	18.3	21.2	20.6	21.5	21.1	20.5	21.3
Associate's degree	8.4	8.3	9.2	8.9	8.7	8.5	7.6
Bachelor's degree	8.4	10.8	8.4	18.7	15.2	15.6	17.6
Master's/Professional degree or higher	2.1	5.1	3.4	8.9	7.0	8.6	10.4
High school or higher	76.7	79.9	76.4	86.5	83.3	83.7	85.3
Bachelor's or higher	10.5	15.9	11.8	27.6	22.2	24.2	28.0

Source: US Census Bureau, ACS 2010.

Section 3: Data Findings

Data for this needs assessment was collected from a number of sources. Students, parents, educators, and businesses were surveyed via a web based data collection program called Survey Monkey. The purpose of the surveys was to determine the skills that are needed to enter the workforce and to determine if the students felt they received those skills. The surveys also determined the types of programs that the community desired. Examples of the surveys can be found in Appendixes 8, 9, 10, and 11.

Historical data such as employment trends and the projected labor market was collected. Historical data were also collected from the high schools and the career center in Chester County School District. The committee examined the various types of data and identified commendations and concerns.

Programs

Commendations

- The number of completers is on the rise for five consecutive years.
- Large number of completers in Health Science (61), Cosmetology (65), Graphic Communications (50), and Electricity (46) for a five-year period.
- Variety of classes – of the 16 career clusters, 13 are offered at CCCC.
- 81.5% of teachers are familiar with the career clusters that are offered in the district.
- 83.6% of students want to attend a postsecondary institution.
- 66.7% of the employers are familiar with Career Guidance efforts in the schools.
- Excel in WBL according to employers.

Concerns and Observations

- Low number of completers in Machine Technology, Drafting, Engineering, and Mechatronics.
- Low enrollment in Machine Technology, Drafting, Mechatronics, and Engineering.
- Retention issues in Culinary Arts, Engineering, and Machine Technology.
- 96.1% of employers feel that it is very important or vital that knowing the basic skills is important to the success of the organization. However, 70.8% believe that new hires do not possess the necessary basic skills.
- 87.5% of employers do not use WorkKeys.
- 42.4% of employers do not want to participate in WBL activities.

- Surveys suggest that we educate the business community on CTE in Chester County.
- According to employers, students need more basic skills.
- 71.4% of parents want their children to attend a 4-year college.
- Parents want more Health Science offerings.
- 40.2% of teachers are not familiar with the programs offered at Chester County Career Center.
- Educators suggest that Keyboarding and Computer Applications should be moved to the middle school level.
- ninth graders should not be enrolled in the first level of a program.
- Lack of advertising.
- Some have a negative perception of CCCC.
- 3-period classes hinder student participation.
- Teachers request more professional development on CCCC and CTE in Chester County.
- According to the students' choices of the top demanded career clusters, all but one is offered at CCCC.
- 48.5% believe that their teachers sometimes assist them in connecting schoolwork with career interest.
- 58.4% of students have not participated in WBL activities.
- Overall decline in enrollment at CCCC.
- A number of teachers want to add Masonry, Law and Fire, and expand Health Science.

- 75.9% of students say that family influences their career decisions.
- According to the 2012 IGP data
 - 19% requested Health Science (364)
 - 7.6% requested Architecture and Construction (147)
 - 9.68% requested Arts, Audio-Video Technology (187)
- Parent demand for the following clusters:
 - Business Management and Administration (24.3%)
 - Education and Training (18.6%)
 - Health Science (25.7%)
 - Law and Public Safety (15.7%)
 - STEM (28.6%).
- All high demand areas are offered at CCCC except for Law and Public Safety and Education and Training.
- Recruitment efforts geared toward outlying areas
 - Tours
 - Open houses.
- Need for career readiness and soft skills class.
- Schedules and buses hinder student participation.
- Complete assessment of skills prior to taking courses at CCCC.
- Discuss appropriate grade level to participate in courses.

Facilities

Commendations

- Roof was replaced in 2012.

- Large shops.
- Up to date equipment.
- Computer infrastructure is current.

Concerns and Observations

- Distance to outlying high schools.
- Looks like 1968; has not been renovated or expanded since 1976.
- Plumbing issues.
- Adult Ed. is housed at CCCC.
- Restrooms are not up to code in regards to the disabled.
- There is no room for additional program expansion in current building.
- Rooms and shops will need to be retrofitted to accommodate new programs.
- Building cannot be secured during the school day due to the layout and the number of entrances. (per Safety Audit).
- No handicap accessibility in the front of building.
- Wheelchair ramp connected to the parking lot is dangerous. (OCR Review)
- The wheelchair ramp going into the building is too steep and does not have enough room to stop. (OCR Review)
- Main entrance is out of date; walkway is deteriorating and unsafe.
- Need new bell and intercom system.
- Emergency buttons in all classrooms do not work.
- Windows are not energy efficient.
- Restrooms – 1 boys and 2 girls

Programmatic Recommendations

1. The committee recommends adding an Assistant Director.

RATIONALE:

Standard 4.10 of SACS/CASI Accreditation Standards for Vocational-Technical

Institutions reads as follows:

The human resources of the institution shall be deployed and supported to facilitate student learning.

Membership	- 249	2 50 - 499	5 00 - 749	7 50 - 999	10 00 – 1249	12 50 – 1499	15 00 - up
Director or Principal		1	1	1	1	1	1
Administrative or Supervisory Assistants		.5	1	1.5	2	2.5	
Career Guidance Professionals		1	1.5	2	2.5	3	
Secretaries or Clerks for administration and support		2	3	3.5	4	4.5	
Custodian or maintenance		In addition to one full-time custodian, custodial and maintenance shall be provided in such numbers that the facilities are adequately cleaned and maintained.					

Currently, CCCC has an enrollment of 751 students. There is one administrator, one secretary, one career guidance counselor, and one bookkeeper. To properly service the students at CCCC and to meet the requirements of SACS/CASI, an additional administrator needs to be added to the staff. With the increasing demands of a CTE Director, it is virtually impossible to manage the day-to-day operations and to advance

the CTE programs to the level where it should be. To compensate for the understaffing in the administrative area, teachers and secretarial staff are performing duties that are usually performed by administrative certified personnel. For example, a teacher is in charge of the textbook inventory. Another example is the secretary handling low-level discipline. The following is a table of career and technology centers in the area and career and technology centers with comparable enrollment with the number of administrators they have.

<u>CTE Center</u>	<u>Enrollment</u>	<u>Number of Administrators</u>
Academy for Career and Excellence	397	2
Aiken County Career Center and Technology Center	620	2
Applied Technology Education Center	881	2
Cherokee Technology Center	512	2
Chester County Career Center	802	1
Clover High School	Comprehensive	1 CTE; 1WBL Coor; 4 APs 2 AdMin Asst
Daniel Morgan Technology Center	848	2
Darlington County Institute of Technology	441	2
Fairfield Career and Technology Center	344	1
Florence Career Center	1199	3
Floyd D. Johnson Technology Center	1002	2
Fort Mill High School	Comprehensive	1 AP with CTE Director at DO
Fred P. Hamilton Career Center	996	2
H.B. Swofford Career Center	964	2
Heyward Career and Technology Center	745	2
Nations Ford High School	Comprehensive	1 AP with

		CTE Director at DO
Orangeburg Technology Center	1125	2
Pickens County Career and Technology Center	1076	2
Strom Thurmond Career Center	719	2

As illustrated by the table, a majority of centers with comparable enrollment have 2 or more administrators.

TIMEFRAME: 2013-2014

ESTIMATED FISCAL IMPACT: +\$80,000

2. The committee recommends that a program from the Law, Public Safety, and Security Cluster be added at CCCC.

RATIONALE:

- According to the students surveyed, CCCC offers majors from all highly demanded areas except for Law, Public Safety, and Security. A number of teachers surveyed want CCCC to add a program from this cluster. When parents were surveyed, 15.7% want their children to go into this field. The two programs from this cluster are Emergency and Fire Management Services and Law Enforcement Services (see Appendix 12 and 13).
- Employment in protective services is expected to grow by 7 percent from 2010 to 2020. Continued demand for public safety will lead to new openings for officers in local departments; however, both state and federal jobs may be more competitive.

TIMEFRAME: January 2014

The program will begin January 2014. Due to this program starting in the spring,

the teacher will be ½ time during the first year.

ESTIMATED FISCAL IMPACT: +\$65,000

The newly created teaching position will be paid for by the elimination of the Drafting program.

3. The committee recommends closing the Drafting program.

RATIONALE:

- Not economically feasible to pay a Drafting teacher a salary for the low number of students that is taught in the Drafting program.
- Continual low enrollment in Drafting.
- Continual low number of completers in Drafting.
- Low retention rate in Drafting.
- Drafting is not highly requested by parents, students or the business community.
- The basics of Drafting can be taught in the Engineering program.

TIMEFRAME: 2013-2014

ESTIMATED FISCAL IMPACT: -\$65,000

The committee recommends CCCC retain the 2 FTE to teach new CTE programs or additional sections of current programs.

4. The committee recommends expanding the Health Science program by adding an additional Health Science teacher and adding the Certified Nursing Assistant certification.

RATIONALE:

- Of the parents surveyed, 25.7% wanted their children to go into a Health

Science field.

- Many of the teachers surveyed want to see the Health Science program expand.
- According to the 2012 IGP data, 19% of the 8th graders requested Health Science.
- For 2012, of the 28 students completing the program, 28 were placed.
- Identified as one of the fastest growing professions in the Catawba Region.
- Add additional Health Science classes that would meet the needs of the local labor market.

TIMEFRAME: 2013-2014

ESTIMATED FISCAL IMPACT: +\$65,000

5. The committee recommends making the Mechatronics/Engineering position a full-time position.

RATIONALE:

Currently, the Mechatronics/Engineering teacher is a shared position with Lewisville Middle School. One of the recommendations is to eliminate the Drafting/Engineering position. At the current enrollment level, one teacher can teach and maintain both Mechatronics and Engineering.

TIMEFRAME: 2013-2014

ESTIMATED FISCAL IMPACT: \$20,000 (additional ½ FTE)

Facility Recommendations

1. The committee recommends that the district conduct a facilities study for Chester County Career Center.

While considering the visual and functional aspects of the buildings, the following deficiencies should be addressed:

1. The physical current location of Chester County Career Center hinders the access of Great Falls High School and Lewisville High School students. A facility study needs to take into account the location of the career center and how it affects the district's ability to provide CTE courses and programs to all students.
2. Due to the age of the facility, plumbing issues exist.
3. Adult Education being housed at Chester County Career Center poses a security issue.
4. Accessibility of the restrooms for individuals with disabilities is limited (per Office of Civil Rights review).
5. The number restrooms available for students and staff are insufficient.
6. Classrooms and shop areas need to be retrofitted to accommodate new programs.
7. The building cannot be fully secured due to the layout and the number of entrances (per safety audit).
8. No handicap accessible entrances at the front of the building (per Office of Civil Rights review).
9. Wheelchair ramp leading to the parking lot area is dangerous (per Office of Civil Rights review).
10. Main entrance is dated; sidewalk is deteriorating.
11. Bell and intercom systems are not fully functional.
12. Not all classroom emergency buttons are operational.

School Improvement Suggestions

The following are suggestions the committee makes in regard to school improvements. Many of the improvement suggestions do not require additional funding. But they are suggestions the committee believes that CCCC's faculty and staff should reflect upon yearly and seek to implement.

MARKETING. The outdated image of career based education being for students who do not have the ability or desire to pursue post-secondary education needs to be replaced with the more accurate image of modern technology and high wages for any student interested in productive careers and lifelong learning. Efforts to improve the image and perception of CCCC and career and technology education should be continued through direct and in-direct marketing and recruitment of students. Effort should be made to target prospective students, parents, teachers, and the community at large with messages of outstanding student and instructor achievements and community service. Chester County Career Center must be an active participant in the business community. Chester County Career Center must be perceived as an institution where students can acquire the skills necessary to compete in the 21st century. Suggestions include:

- Possible name change to reflect a 21st century image
- Tours at various grade levels
- Career fairs
- Parent open-houses
- Videos
- Promotional materials

SCHEDULING. The committee recommends that the current bell schedule be examined. A master schedule should be developed that allows for more flexibility and gives more students the opportunity to attend CCCC.

CONTINUE OFFERING WORK-BASED LEARNING OPPORTUNITIES. Work-based learning is an extremely valuable way for students to experience first-hand knowledge about workplace expectations and job skills. All students should be encouraged to participate in work-based learning as a part of their experience. Cultivate relationships with area business and industry to offer more student internships and shadowing opportunities. Each program's business advisory committees should be an excellent resource for this and provide avenues to make this happen. Apprenticeships, where possible, should be pursued to connect work-based learning with post-secondary education.

ELIMINATE THE BARRIERS. During the data collection analysis, it was discussed several times that barriers exist that may keep a student from attending CCCC. Two of the barriers that were most often discussed were the lack of driving privileges and class fees. The committee suggest that both areas be examined and determine the feasibility of eliminating those barriers.

CONTINUE CAREER COUNSELING. Career counseling is a vital aspect in helping students and their parents understand the opportunities and value of completing career and technology education programs at CCCC.

KEYBOARDING. It is the recommendation of the committee that CCCC cease teaching Keyboarding and Computer Applications. By not teaching Keyboarding and Computer Applications, Business Education teachers will be able to teach higher level business classes that will better prepare students for high skill/high wage professions.

Keyboarding and Computer Applications are taught at the middle school level.

PROFESSIONAL DEVELOPMENT. Professional development is a key ingredient for any organization. CCCC instructors must maintain their professional teaching certificate as well as industry-level certification for themselves and their programs. The committee suggests CCCC continue to support and seek funding for professional development to help instructors achieve or maintain industry certifications.

DUAL-CREDIT AND ARTICULATION AGREEMENTS. The committee suggests that efforts be made to increase the number of students who participate in dual-credit programs. Dual-credit provides students with college credit while they are still in high school. Dual-credit also creates a seamless transition between high school and college.

9TH GRADE CONSIDERATIONS. Ninth grade is a difficult year for many students transitioning from middle school to high school. These students need to concentrate on creating a strong academic base at their home high schools. There is also an expectation of a certain maturity level for many of the classes offered at CCCC. Many 9th graders do not meet the minimum threshold of the maturity level needed to successfully complete a CTE course. It is suggested that 9th graders not enroll in classes where there is a high potential for injury such as Carpentry, Welding, Automotive, Machine Technology, Electricity, Culinary Arts, and Graphic Communications.

CAREER AND TECHNOLOGY EDUCATION PLANNING COMMITTEE. The Director of Chester County Career Center suggests CCCC maintains this committee and it should meet annually, or as often as necessary, to review and monitor the status of carrying out the recommendations.