

IMPACT OF CAREER AND TECHNICAL EDUCATION PATHWAYS ON STUDENT  
PROFESSIONAL AND EDUCATIONAL OUTCOMES

by

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(Under the Direction of David Jackson)

ABSTRACT

This thesis evaluates the impact of choice of postsecondary Career and Technical Education (CTE) program completers in regards to educational views, current educational and career goals, future career pathways, and aspirations for continued postsecondary education. Considerations to the impact of the No Child Left Behind (NCLB) legislation on CTE programs are made with respect to the effect on CTE programs and students from provisions such as high stakes standardized testing and annual yearly progress (AYP), evaluation of CTE educator qualifications, and CTE student outcomes. A qualitative study on the career and educational outcomes of students from postsecondary CTE programs and four-year undergraduate program was conducted to observe professional and educational implications of these individuals and to establish comparisons between CTE students and four-year college students with respect to the public education system.

INDEX WORDS: Career and technical education, No Child Left Behind Act, Postsecondary education, Secondary education

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## CHAPTER 1:

### INTRODUCTION

#### Education: The American Dream

A deep rooted ideology in all Americans is that in the United States its citizens are endowed inalienable rights which include life, liberty, and the pursuit of happiness. This ethos includes the opportunity for prosperity and success – the American Dream. This idea of the American Dream is what drives our need to prosper, to succeed, and to create a future better than the one provided by the generations before. But how is this possible when people are from different social classes with different opportunities and when an overwhelming majority of Americans aren't from generations of Ivy League graduates whose family portraits are full of senators, doctors, bankers, lawyers, and academics with the opportunity to choose from the most prestigious private grade schools? How can all Americans have an equal opportunity to achieve the American Dream if faced with unequal opportunities for success?

Horace Mann said that education was the great equalizer of the conditions of men. With this foundation we are taught at an early age that a good education brings good employment opportunities which foster the financial ability for the next chapters of one's life. But is education so powerful that it can be the dominant factor for which to predict our successes? Our legislators believe so and create laws and programs to support universal public education. According to the United States Department of Education the structure of the education system in America consists of three tiers: elementary schools, secondary education, and postsecondary education. Within elementary schools students attend nursery school, kindergarten, and grade



school through the 5<sup>th</sup> grade. Within secondary education students attend junior high school through the end of grade school from 6<sup>th</sup> to 12<sup>th</sup> grade. Within postsecondary education is the most variability in types of education offered from vocational and technical institutes, community colleges, four year undergraduate programs, graduate programs, doctoral studies, and professional schools. By law, elementary and secondary education, also known as K-12 education, is compulsory where educational curriculum is determined through federal, state, and district standards. These standards are established with the goal that students continue with their educations at the postsecondary level in pursuit of a vocational certificate, associate degree, college degree, graduate degree, professional degree, or doctorate degree.

Education pathways during secondary education often include two tracks: college preparatory or technical. The college preparatory pathway stresses educational rigor and high stakes testing with the anticipation of continued education after the 12<sup>th</sup> grade and possibility of pursuing a graduate or professional degree after undergraduate degree completion. The technical pathway is specific to a vocation which the student personally expresses aptitude or interest in. These students complete their secondary education with experiences in classes outside of the core curricula such as in vocational type classes or internships. However historically, given these two pathways students are more inclined to choose the college preparatory track, whether for their personal educational or career goals or due to other expectations. In a society that equates higher education with success there is an unsurmountable stigma around choosing the technical pathway. If education is our great equalizer why are some types of education “better” than others? How can one type of education result in a better or worse type of outcome?

A comparison of the workforce of today and the workforce of the mid 1900s will show that today 20% of the workforce is composed of professionals the same as it was then. Today 20% of the workforce is composed of unskilled labor compared to 60% unskilled labor then. Today 60% of the workforce is composed of skilled labor compared to 20% then (Kymes 2007). What led to change the make-up of the workforce? In the mid-1900s, academic success was not linked with life success and the American dream could be achieved with or without an education. Several generations have now proven that this is not the case in today's world. The "substantial increase in immigrants to the United States during the turn of this century created immense competition for low-paying unskilled jobs" and students were forced to correlate education and success (Kymes 2007). This created a competitive market for unskilled labor which pressured students further to pursue education for positions which required higher education. The rise in immigrants and the advancements in industry were some of the factors which established a precedent for postsecondary education being a near requirement for employment.

### What is Career and Technical Education?

Historically, there are many terms that have been associated with this type of education: vocational, career, industrial, and technical. The origins of this type of learning were established due to the demand to produce skilled workers experienced in blue-collar jobs that did not require an undergraduate degree. The United States federal government has long recognized the importance and relevancy of education focused on industry training. This training was recognized as essential to begin prior to an individual's entrance into the workforce and programs to incorporate career and technical educational pathways for secondary education were created.

In present day, industry training and certificate programs have evolved to career and technical education (CTE) that is categorized into several “programs of study: agricultural education, business education, marketing education, family and consumer sciences education, trade and industrial education, health occupations education, technology education, and technical education” (Fletcher 2006). Several certificate programs and two-year associate degrees have emerged from these programs of study to meet industry demands. These programs continue to evolve as industry evolves. The aforementioned categories of programs continuously expand into specific fields as both blue and white collar jobs become increasingly specialized.

#### Why choose CTE?

If given the opportunity to pursue a four year undergraduate degree which could potentially lead to continued education in professional schools, graduate schools, or careers in industry why would a secondary education student choose a CTE pathway? CTE pathways are directly correlated with employment. Often certificates in an industry profession such as medical assistants, paralegals, laboratory technicians, etc. are given opportunities for employment immediately after completion of their program. For example, students graduating from high schools may choose to attend a two-year CTE program in specific laboratory techniques. After graduating, this student can apply for positions that require experience in the laboratory and through their hands on experiences from the CTE program and certificate will be immediately eligible to apply for positions as a laboratory technician after completion of their program. If the same student had chosen a four-year degree in the biological or chemical field for a similar position, the student would attend an undergraduate institution for twice the duration and have experience in many laboratory techniques but not in a specific industry or field to be

immediately qualified or employable for these jobs. This directly contrasts students completing a CTE program. With this consideration emphasis in the “integration of academic and vocational education...workforce education preparation – epitomized by congressional support for...closer linkages between school and work” has been made by lawmakers to support programs for immediate employment in high demand industry positions (Gordon 2003). The choice to pursue a postsecondary career and technical education pathway leads to immediate employment and generates aspirations for continued education and career advancement.

## CHAPTER 2

### LITERATURE REVIEW

#### Reauthorization of the No Child Left Behind Act

In 2001 the United States Congress reauthorized into law the No Child Left Behind Act (NCLB). It was President George W. Bush's greatest impact to the national public education system which affected all public schools receiving federal funding. The single largest provision was increased accountability. This required school districts, school administrators, and teachers to be held accountable for increasing standardized test scores. To meet the requirements set by the provisions of NCLB, schools looked toward recruiting more experienced and qualified teachers as well as implement scientifically researched teaching methods. The intent was on improving core curricular standards, especially in mathematics and science, throughout the nation's public schools which would correlate to improvements on student performance on curriculum. The financial and political burdens imposed by NCLB's requirements left many aspects of schools, school districts, and the public education system in critical states. The measures that school districts have taken and continue to take to meet NCLB's requirements for continued federal funding has affected the quality of education with regard to school administrators, educators, students of average, gifted, and special needs abilities. During the years since its reauthorization, NCLB has garnered advocates and critics weighing heavily on the pros and cons of its lasting influences on the public education system. To closely examine the impact of NCLB one must focus on the ultimate goal – a nation's economic gains.

### Impact of NCLB Legislation on CTE Programs

Creating an educated and skilled workforce has a tremendous impact to the economy at large. One of the provisions of the act was to shorten educational gaps between students to provide fair and equal opportunities for achievement in the core academic areas. This was achieved specifically by directing attention to reading, writing, and mathematics. This tremendous emphasis on the core curriculum areas has immensely limited the focus on career and technical education (CTE) courses and programs in secondary schools. The advocates of career and technical education courses and programs highlight the direct correlation between providing equal educational opportunities and integrating the core curriculum to create a workforce with relevant work and educational experiences.

With the implementation of NCLB's initiatives, core curriculum courses are being directly measured by standardized tests. Consequently, with such emphasis on increasing standardized test scores in core areas it has led to a decrease in instruction of the fine arts, technical and vocational education, and class enrichment activities which limits student exposure to areas of study outside of core curriculum courses. As a result, school districts with limited funding are most likely to devote more time and finances on class instruction in reading and math followed by enrichment areas. School administrators are choosing to forego maintaining or even increasing focus on CTE programs and students. Subsequently, for students who have chosen a CTE pathway for their future education and professional needs the limitations faced by these CTE programs has had a negative impact on student outcomes. Contrary to current trends, studies have shown that the integration of core academic courses and CTE courses allow CTE students to maintain relevance in the constantly evolving demands of industry. This is

accomplished through experiences in CTE courses but also through core area enrichment. Empirical studies of secondary education students have shown “a positive relationship between students who enroll in CTE programs and successful graduation from postsecondary institutions” (Fletcher 2006). Experiences in CTE courses during secondary school may in fact led to student desire to pursue higher education in areas of interest developed from secondary CTE courses and programs.

### Focus on CTE Educators

Who are CTE educators? Prior to the reauthorization of NCLB, the high stakes core curricular course educators were measured for academic proficiency. Core area teachers were required to be qualified in their fields of instruction which was established through advanced degrees in their areas of instruction or extensive teaching experience. However, CTE educators may or may not have held a bachelor’s degree or teaching certificate in their areas of instruction. With the reauthorization of NCLB, schools with CTE programs are now seeking highly qualified CTE teachers since CTE courses are not exempt from NCLB’s provisions because annual yearly progress (AYP) must be met by all students regardless of program or educational need (Fletcher 2006). These provisions have led to shortages of CTE teachers.

In order to find highly qualified teachers, schools first established guidelines to measure teacher quality. The measurement of teacher quality has and always will be a controversial topic. In response to NCLB’s focus on the need for highly qualified teachers, several school districts created criteria to satisfy this standard: “a teacher must be certified in the subject(s) he/she teaches and must be successful in the yearly evaluation process” (Kymes 2007). For core area teachers, these criteria are easily evaluated compared to CTE teachers. This is among the several

differences between core area and CTE teachers. Another fundamental difference is that teacher applicants for core areas are evaluated based on level of education and teaching experiences while contrarily CTE teachers are “hired for their industrial proficiency; and this experience and expertise are usually the primary factors used to make staffing decisions” (Kymes 2007). The CTE educators may only have provisional certificates from their districts and only attain teaching certifications until several years into their instructional careers. If the criteria used to evaluate core area teachers are used to evaluate CTE teachers they could potentially be classified as unqualified.

In 2009, the National Commission on Teaching and America’s Future estimated that we could lose a third of America’s most accomplished teachers to retirements (Wilkin 2011). Taking this into account as well as the increase in teacher certification requirements, there has been a call to recruit industry professionals and prepare them to become teachers or employ them to become mentors to future CTE teachers. Perhaps proactively, since the 1980s, the state of New York has been addressing the shortage of CTE teachers by creating a three pathway system for CTE teacher certification: (1) completion of an approved CTE teacher preparation program from an accredited university, (2) alternative certification where school districts that hire industry professionals with at least 4 years of industry experience and complete teacher certification, and (3) an individual certification for those who meet both college course work, industry experience, and completion of the certification test for evaluation on a case-by-case basis as determined by the district (Wilkin 2011). In addition, the creation of the Success Via Apprenticeship (SVA) Program has seen much success with recruitment and retention of CTE teachers since the 1980s. The program recruits “highly motivated graduates of CTE high schools to become CTE teachers... [and] is a comprehensive five and one half year program” which includes a salaried



teaching internship, college courses, and industry work experience (Wilkin 2011). By creating several pathways for individuals to complete CTE teaching certification the state of New York has placated CTE teacher shortages that other states currently and will continue to face. These pathways also create opportunities for individual's at all different stages of their education and professional career to become certified to teach CTE courses.

The high success of these programs and others similarly structured may also be attributed to the involvement of administrators and teachers through direct monitoring of prospective teacher progress as well as supervision of these individuals at school and on the job. These programs also are highly sought after by prospective CTE teacher candidates due to higher teacher compensation, contracts, and performance expectations. The compensation is noted to be highly competitive. The contracts require teachers to teach for five years as a CTE teacher in the New York City Public Schools System which not only guarantees school districts a CTE educator for a minimum of five years but teachers also benefit by being able to immediately employ their school experiences at their new teaching position and gain knowledge from other teachers and school administrators (Wilkin 2011). Though aspects of this program could be replicated in other states, there are several issues which would limit its replication such as high administrative costs, high salary costs, and cooperation between academia and industry leaders within the regions. If aspects of this program are restructured then the ability to create other such programs in states with CTE teacher shortages would benefit immensely.

CTE course educators are themselves representations of the merger between traditional educations and industry experiences. CTE educators have been challenged to unify core curriculum and CTE curriculum. The term *new vocationalism* focuses on "curriculum alignment,

articulation, and integration between CTE and academic education, postsecondary education, and family-wage sustaining careers” (Bragg 2007). CTE programs and educators face challenges to correlate educational aspirations and career goals and do so by creating career pathway programs. Career pathways are defined as a:

...coherent, articulated sequence of rigorous academic and career courses, commencing in the ninth grade and leading to an associate degree, and/or an industry-recognized certificate or licensure, and/or a baccalaureate degree and beyond. A career pathway is developed, implemented and maintained in partnership among secondary and postsecondary education, business, and employers. Career pathways are available to all students, including adult learners, and are designed to lead to rewarding careers. (Warford 2006, p. 8)

Teacher education and training is a critical part of CTE pathways since they directly correlate persistence in programs and future outcomes. Students are continuously encouraged by teachers to “stay in school, improve their academic performance, and realize that college is a viable option... students enrolled in their programs may be able to develop the self-identity of a college student... boosting their commitment to school and their performance at the postsecondary level” (Bragg 2007). This is a result of the multiple paths to and from CTE pathways such as continued education, employment, etc. CTE teachers are an extension of the CTE program in preparing students for jobs or continued education outside of a student’s CTE pathway. However, despite this progress, CTE teachers and programs integrate CTE courses and core curricula into career pathways. The NCLB legislation continues to force CTE programs to modify their curriculum to further stress core curricular standards while removing focus from essential CTE program courses. The challenges imposed on teachers and schools by NCLB created shortages of CTE teachers as well as imposing greater constraints on CTE programs. The movement to create alternative teaching certificate pathways for CTE teachers in recent years through partnerships between secondary schools and community colleges has mitigated some of

the immediate issues surrounding shortages in schools. However, these concerns do not address the curriculum limitations imposed by NCLB and the constraints levied by strict legislation used to measure all programs of study.

### Primarily CTE Education

The latter half of secondary education, high school, has shown to play a critical role in a student's ability to transition from grade school to postsecondary education or entry into the workforce. The association that high school programs and courses prepare students either in the continuation of their education or introduction to work life have been proven to be directly related. One particular study showed that "students who complete a higher level mathematics course in high school are more likely to enroll in a 4-year college, persist through postsecondary education and earn a bachelor's degree" (Laird 2006). However, there are limited studies on the predictability for a student to choose a CTE program over a four-year college program after secondary school.

Career and technical education programs at the secondary and postsecondary levels encompass several different types of instruction. There is a great variety of CTE programs offered at the high school level and even differences among them regionally and through socioeconomic areas within a region (Laird 2006). Research has shown that the single greatest strength of a CTE program is from successfully integrating core academic courses and CTE courses. By focusing directly on the courses which are career oriented schools have the ability to remove non-essential courses and place greater emphasis on successful courses and teachers. Providing programs with a rigorous course load and experienced teachers will improve the overall quality of the nation's CTE schools (Wilkin 2011).

Even less understood are students and pathways which lead to a CTE based education. Past and current research has revealed that demographically CTE students are representative of other students pursuing a 4-year college education: the majority of students are white and black with Hispanics, Asians/Pacific Islanders, and American Indians/Alaska Natives following in descending percentages (Laird 2006). Research shows that a majority of students who complete a CTE pathway in secondary school also are from homes of lower socioeconomic family backgrounds than students that are college bound (Laird 2006). Students who choose a CTE pathway during high school have a weaker focus on the core courses and take a wider range of courses in their selected CTE fields. In the area of mathematics, CTE students are weakest with the lowest level of mathematics course enrollment (Laird 2006). Among CTE course concentrations, CTE students were more likely to have “earned credits in business and engineering and related technology, but less likely to have earned credits in communications and related technology, education and child care, and health care” (Laird 2006). A stronger emphasis placed on business, engineering, and technology CTE courses in secondary school created higher enrollment in these fields.

The Carl D. Perkins Career and Technical Education Improvement Act of 2006 instated by Congress stresses the importance for students to participate in dual or concurrent CTE programs to complete postsecondary education credits. Studies have shown that students who “enter college in high school commit themselves to studying much harder than the average student” and have a more focused educational pathway than other students with respect to transitioning and retention in postsecondary schools (Lewis 2008). However, with respect to academic achievement there were only modest gains and studies have found that there were minimal differences between students who did and did not participate in dual enrollment courses.

Though taking into consideration the impact on the successful transitions to postsecondary schools by these students the opportunity to integrate more dual enrollment programs in schools would be beneficial with the incorporation of core curriculum integration with these CTE programs (Lewis 2008).

Measurable persistence of students in CTE programs is through the completion of a CTE program. To increase this student persistence schools must identify the elements which put students at risk for not completing their CTE programs. An exploratory study measured persistence in a suburban high school where it was found that 70% of CTE students did not complete their CTE program. Those students who did not complete their programs of study were less likely to have had direction and a field of focus for their program and nearly 80% of these students were also employed during their senior year of their program compared to 67% of working students who completed their program (Miller 2002). Researchers made several conclusions such as poor academic performance in the core area of mathematics was the reason for the lack of persistence. This indicated the need for further integration of core curriculum with CTE courses and that school counselors were found to be the strongest influences on students who enrolled but did not complete their CTE programs suggesting that there should be more emphasis placed on continued guidance after program enrollment. This guidance was found to be necessary for persistence and that the continued modifications to programs were needed to improve persistence (Miller 2002).

#### CTE Program Outcomes

One of the most critical aspects of secondary education is the preparation students undergo to be able to develop their identity and make decisions about their future career plans

and consequently their next steps for postsecondary education or entry into the workforce. For some students who have decided to continue with postsecondary education without a decision on their future career the postsecondary school environment may be the place to develop this identity. However, for the majority of students secondary school has been the ideal environment to cultivate future plans. CTE programs offer the opportunity for students in secondary school through elective courses and internships outside of core curriculum to evolve their prospects on future career pathways.

When secondary school students are presented the opportunity to choose a CTE field of study while in high school, do these students continue to study the same career field at the postsecondary level? One study revealed that about half of students enrolled into a postsecondary school pursuing the same field of study however only about a third of students who completed their postsecondary education did so in the same field (Laird 2006). CTE programs give the opportunity for students to consider continuing their education by igniting interest in a field of industry which may lead to completion of the degree and subsequent employment in the field. In addition, their choice in program could lead students to other educational pathways once they enter into postsecondary school. But why do students pursue other fields of study? How prepared is a graduate from a CTE program to enroll in a postsecondary school to continue their education both inside and outside of their CTE field?

A study of students in a secondary CTE program focusing on healthcare careers showed that students experienced difficulty transitioning into postsecondary education. The researchers concluded that there were several reasons as to why the majority of students found it difficult to transition into postsecondary education programs in their fields from secondary school such as

differences in the course content as well as more challenging standards in postsecondary programs compared to their secondary CTE program. The Perkins Act of 2006 signed by Congress stated that CTE content must “incorporate secondary education and postsecondary education elements, include coherent and rigorous content aligned with challenging academic standards... to adequately prepare students to succeed” in the postsecondary education environment (McCharen 2008). The legislation was established when CTE programs were found to be developed without an understanding of the educational progression of students from secondary school, postsecondary school, and into the workforce. It was found that the key components to assess CTE program success were enrollment, retention of students and completion of the program. In regard to enrollment, 19% of CTE students were attempting to enroll into postsecondary CTE programs however only 78% of those students were successful in enrolling (McCharen 2008). Of students who completed their programs, only 33% were placed into a related occupation (McCharen 2008). The findings from this study indicates that further investigation needs to be conducted to determine what reasons there are for the discrepancies in transitioning, enrollment, retention, and completion of CTE programs. With regard to employment, a study found that there was no measurable difference in full-time or part-time employment of CTE program completers and non-completers. The same study showed that work-related courses taken during CTE program participation to be a predictor of future career outcomes (Levesque 2008).

Other studies have indicated that when students are exposed to areas of personal interest confidence is gained and students are able to create realistic career goals. A coherent program of study to establish resources such as career counseling and guidance will be valuable for creating successful transitions from secondary CTE to postsecondary CTE programs. Creating

accountability standards for CTE programs and secondary schools through NCLB's initiatives may be a good foundation for additional methods of developing successful programs of study in CTE and career pathways. Such coherent programs may be more attractive to students and encourage increased enrollment and program completion. A better understanding of not only industry demands but student needs proves to be beneficial. In a study performed in Tennessee, it was found that approximately 92% of graduates were enrolled in a secondary school which offered CTE type education but nearly 18% of students would need to change their program of study to "match the distribution of workers in the labor market" (Mohker 2011). A comprehensive understanding of the job market and an alignment between industry demands and CTE program offerings would create more attractive programs of study for students to enroll.

Educating students with disabilities and special needs in the traditional public education system has always been complex and challenging due to the individual attention these students require with limited resources and experience. This has been further exacerbated by implications of NCLB. In the view of NCLB's legislation, students with special needs must also meet AYP and are not exempt which proves difficult when these students face their own personal challenges both in and outside of the school environment. Educators also face challenges with educating students with special needs in a CTE program constrained by NCLB. For these types of students, secondary school can be a place to learn basic life skills to be used at home or in the workforce after graduation. CTE programs often serve these exact purposes and have "been found to be important in promoting successful post-school employment for students with disabilities" since "work experience and CTE were significant factors leading to postsecondary employment" (Harvey 2007). These students face two challenges: meeting academic AYP goals as imposed by NCLB and achieving relevant work experiences for their future career, life, and



educational outcomes after secondary or postsecondary graduation. CTE programs in secondary schools have created positive environments for these CTE students to grow educationally and professionally in their fields.

## CHAPTER 3

### MEHTODS AND PROCEDURE

#### Methods

This action research study was designed to examine the question: How does student choice in postsecondary educational pathways affects their educational and career outcomes? The specific aim of this study is to understand what considerations are taken to choose a career and technical education or college education and ultimately career outcome. An action research study was designed to examine how participants reasoned their actions within a similar environment. The participants all graduated secondary school and received postsecondary educations prior to employment. The participants were interviewed for their personal reasons for choosing their educational pathway as well as their career choice in the related field. In addition, the participants were evaluated on their views of education, any current or future educational pursuits, and future career aspirations. Independent variables of this study include completion of a postsecondary degree and employment in their field of study since all participants were employed by the same company at the time of their participation in this study. Dependent variables of this study include the type of postsecondary degree and continued education.

The study's research population consisted of three participants: Susan, David, and Kristen. Susan graduated secondary school and completed a CTE degree in life sciences and found employment in her field of study. At the time of her involvement in this study she was in pursuit of a bachelor degree in a concentration not related to her current career. David graduated secondary school and completed a CTE degree in life sciences and found employment in his

field of study. At the time of his involvement in this study he was not involved with continued education. Kristen graduated secondary school and completed a bachelor degree in life sciences and found employment in her field of study. At the time of her involvement in this study she was in pursuit of a graduate degree in a field indirectly related to her current career.

This study was conducted with the understanding that the researcher had an inherent bias on this topic through the researcher's personal experiences which was the ultimate reason for studying this particular topic. As in any qualitative research experimental design, the process to minimize the effects of the researcher's bias was taken by attempting to understand how bias could affect the results of the study. This study had inclusive sampling bias because the participants were selected for convenience and were volunteers for this study and fit a very narrow demographic range. The results of the study cannot be applied to the entire population, however, this was somewhat minimized by selecting participants who had different educational levels and career outcomes. This study may have had a measurement bias as the participants may have been reluctant to give socially acceptable answers as opposed to personal opinions which could have possibly skewed the results of the study, however, this was minimized by asking general questions and re-wording questions to achieve responses that were of true personal opinion. This study included interviewer bias since the researcher knew the participants personally and may have subconsciously influenced the participant's responses, however, this was minimized by asking questions to all participants in similar tones using similar body language and interview set-up.

There were limitations to this study. The limited sampling size and the difficulty in applying findings from this study to a larger population was inherent since there were only three

participants, however, this limitation was minimized by selecting participants who had completed and were pursuing different levels of education and career aspirations. The longitudinal effects and the further study of participants throughout their educational and professional careers was extremely limited, however, this limitation was minimized by asking participants to identify any current or future educational and professional aspirations. The types of questions asked during the interview may have been a limitation to the study; however, this limitation was minimized by asking participants similar guide questions as well as giving participants and the researcher a second opportunity to clarify statements by conducting a second interview after the first interview.

### Procedure

The three participants of varying educational levels and career experiences took two 30 minute interviews one week apart. At the first interview the participants were asked the following guide questions based on their circumstances:

- Did your academic experiences during grade school have an impact on your choice to pursue a career/technical or college education?
- If you chose a CTE pathway, did experiences in your technical program lead you to want to pursue a college degree?
- How have your educational experiences benefited you in your current job?
- Do you feel that you would be better prepared for your current job if you had chosen the other educational pathway?
- Do you plan on continuing your education?
- Do you feel to further your career you need more work experience or education?
- Given all of your experiences, would you choose a different pathway if you could start your educational pathway again? Why?

Their responses were transcribed and immediate first impressions of the findings from the interview by the researcher were also noted. The participants were presented with the transcription and findings from the first interview directly prior to the second interview. This gave participants the opportunity to read over the first interview transcription and also to read over the findings of the researcher which included a summary of findings and conclusions made by the researcher. The second interview was a discussion of the participant's opinions on the researcher's findings, questions the participants may have had for the researcher, and further questions to clarify statements made by the participants in the first interview. This concluded the participant's experiences in the study. The second interview was transcribed by the researcher however not presented to the participants.

For the research question, the researcher completed data analysis through codifying the interviews and categorizing for systemic classification of the participant's responses and analyzed the individual responses as well as compared the three participant's responses. The coding included a categorical coding scheme of educational pathway, career choices, future educational aspirations, and future career aspirations as well as subsequent subcategories as presented further in the following chapters.

## CHAPTER 4

### RESULTS

Susan, a female in her twenties, completed a postsecondary degree in a CTE program in microbiological laboratory techniques. At the time of her participation in the study she was currently enrolled in a four-year undergraduate program in technology management systems, and employed as a microbiology laboratory technician. Susan claimed to have not been impacted by her secondary educational experiences for choosing a CTE postsecondary pathway. She admitted that her pathway choice was due to personal reasons not impacted by her educational experiences during her high school career. She began her CTE pathway due to pressure for employment because “not necessarily out of enjoyment of this type of work. It was what was going to make [her] the most money in the shortest amount of time” and that her goal was to always work first to save money for an undergraduate degree (Susan, interview one). She identified weaknesses in her CTE program such as time allotment due to quarter system scheduling and asked, “I mean what do you really learn in three month time?” (Susan, interview one). She also stated the limited availability of courses outside of her specific CTE focus as a limitation and felt that “in general you learn more in a four-year program” compared to a two-year program (Susan, interview one).

She also identified some strengths of her CTE program such as the knowledge she gained from her CTE teachers with industry experience who brought real-world applications to her courses, “related to industry more so than academia” with the understanding that most students would immediately enter the job market after the completion of their CTE program and as well as the internship course part of her CTE program which required her to gain industry experience

as part of her CTE program completion (Susan, interview two). She admitted that education was important but that she perceived it to be a societal norm which does not guarantee a high paying position or that those who are more educated were more knowledgeable in real-world settings. However, she emphasized that this only applied for certain fields such as her concentration of biological sciences. In comparison to her coworkers with higher degrees she felt that they were more knowledgeable and had more exposure to varied curriculum and therefore were more experienced in the biologics field than herself. Her personal evaluation as a candidate in the current job market revealed that she felt more advantaged over other candidates her age mostly attributed to her work experiences. This was not attributed to her postsecondary educational degree and stated “I do think that work experience outside of our educational degree attainment is directly related to employment and career advancement” (Susan, interview one).

If presented with the opportunity to choose again she stated she would have chosen a four-year degree in the field of psychology with the intent to complete a doctorate in this field because she discovered this is her true passion. In regard to her current educational goals, the undergraduate degree program she was enrolled in at the time of her participation in the study is not directly related to her CTE field of study. However, she stated her interest was linked to her current focus in the industry but in regard to business management. The need to continue her education was foremost for career advancement, then financial gain, her own personal goals, and finally some social and family pressure citing, “my family on both sides is from an educated background. All have gone to college so I felt like it was my duty to go too” (Susan, interview one). In regard to her future educational aspirations the participant desired to complete a graduate degree similar to her current work and educational experiences such as a Master in Business Administration or Master of Science in Regulatory Affairs but was undecided at the

time of her participation in the study. She expressed the importance of work experience over the attainment of higher educational degrees:

“I feel like college can teach you a lot. But it doesn’t teach you about the real world and most of the stuff I learned in school I do not even use today. And I feel like it was a waste of money and I feel like we are told that we have to go to college and it’s proven that we have to but I don’t. I think that it’s a societal norm and that it’s not necessarily something that will make you better or smarter than somebody else” (Susan, interview one)

She directly related work experience to a more employable candidate and in career advancement where she also identified that certain areas of industry require more educational experience than work related experience.

David, a male in his twenties, completed a postsecondary degree in a CTE program in microbiological laboratory techniques. At the time of his participation in the study he was employed as a microbiology laboratory technician with no future plans for continued education. David claimed to have not been impacted by secondary educational experiences in his decision to pursue a CTE postsecondary pathway and admits that pathway was due to personal reasons. He began an undergraduate degree and switched to a CTE program citing that it was less effort to complete a two-year CTE program than a four-year degree. He expressed some strengths in his CTE program compared to a four-year program in a related field and stated that in his CTE program he had received more “general hands on experience because... at the four-year school you walk in and everything is prepared for you but at the two year you walk in and you have to prepare it for yourself” in reference to his laboratory techniques course (David, interview one). A strength in his CTE program as identified by the participant was the relatable industry experience he gained from the required internship course part of his CTE program where he was later employed after graduation. In regard to the skills he acquired from his CTE program he related



to being able to go from the classroom to a job without much training since his program specifically catered to his current position. His program of study gave him access to acquire skills he employs at his current position. He linked the importance for others in acquiring a four-year degree and continuing education for not only career advancement but attaining employment since “the four-year degree has become the equivalent of graduating college [high-school – participant misspoke] sixty-years ago.... basically have to go to get that job” (David, interview one). However, he did not agree that this was his situation and felt that he was just as qualified as his colleagues with more education and stated “I personally don’t value education but other people do” (David, interview two).

If presented with the opportunity to choose again, he would not have chosen a different path but would have repeated his choices and felt satisfactory in his current employment with no plans for continued education. If he so desired to continue his education it appeared that his reasons for doing so would be limited and directly related to career advancement and not for personal educational growth. He admitted that though education is important and essential for employment that it is also industry specific and career dependent, “you don’t have to go to school to become a mechanic or plumber or most of the trades work you don’t have to go to school for that” indicating that there were fields which did not require education or continued education to be a competitive potential candidate (David, interview one). His personal evaluation as a candidate in the current job market revealed that he felt more disadvantaged than others due to having less educational achievement than other candidates his age. Despite having stressed the societal importance of continuing education he expressed the importance of work experience over educational attainment and expressed that those who had completed more advanced degrees than himself “may know more about the stuff that they are doing but I may perform it better” in

regard to his position as a laboratory technician (David, interview one). Though he felt strongly about his personal educational and professional achievements he suggested that each candidate should be judged individually.

Kristen, a female in her thirties, completed a postsecondary degree from a four-year university with a concentration in microbiology, and at the time of her participation in the study she was enrolled in a graduate program, Master of Science in Regulatory Affairs, and employed as a scientist for an animal health company. She claimed to have not been impacted by secondary educational experiences in her decision to choose a four-year undergraduate educational pathway and admits that choice was due to personal reasons. She admitted that her secondary school had a very well established CTE program with many different concentrations but that she had never been interested because she thought college was her only option stating:

“I just thought that’s what you did. So being that I was all in the honors and AP courses it was just...being surrounded by all of that I just never saw another path. I was always going to go to college. So I didn’t understand the whole technical part and it wasn’t something I wanted to do” (Kristen, interview one).

She started her four-year undergraduate degree with an undeclared program of study but changed program concentrations twice before graduating with a concentration in microbiology.

The participant failed to realize that she had participated in a career and technical based program during the attainment of her four-year degree. She was made aware of this after her first interview when the researcher identified that she had participated in a work-study experience that was not a requirement of her undergraduate program. She agreed that this was not an experience shared by her peers and that this set her apart from other students in her program. She had been employed through a work-study program at a government agency where she was able to gain real world experience outside of an academia setting – much different than her school peers and a

majority her coworkers. During her second interview for this study she admitted that she knew she was hired at her current company because of the work experience at the government agency where she was employed as an undergraduate student and said regarding her interview, “that was all that they asked me about was my experience working there. They barely asked me about school” (Kristen, interview two). Once realizing the importance of her work-study experience she hoped that more students could have the opportunity to work in work settings outside of positions on campus because of the difficulty of acquiring such limited positions and because industry experience was more relatable to future employment. She linked the importance of a college education for employment and felt that education was directly related to career advancement stating “I believe that people need more work experience to make people better at their jobs but it seems that it just is that the more education you have the better off you are on paper” and indicated that companies actively pursue candidates with higher degrees and advance current employees with more education for promotions (Kristen, interview one).

However, in contrast she felt more experienced and more knowledgeable than her coworkers with more education than herself. She felt that after a certain degree of educational attainment that degrees became very specialized and individual knowledge narrowly limited to one aspect of study especially in her field of industry since her scope of work was very broad. In comparison to her colleagues with doctoral degrees she expressed that “they know a whole lot about one thing so it’s hard to apply it to... all genres of science because they haven’t been learning that and they haven’t been at the workplace... you don’t get that hands-on experience or industry experience” in an academic setting and at times she felt equally if not more qualified than someone with higher education because she had been in industry for longer (Kristen, interview one). The participant expressed the importance of work experience to be a competitive

candidate in the job market since she stated that her educational courses were theoretically based while her work-study experience was where she was able to build hands-on skills which she employed at her job after graduation. She acknowledged that her pursuit to continue her education was personally grounded because she wanted to further her education stating that “I’ve always loved learning” (Kristen, interview one). However, she also expressed great interest in the possibility for professional mobility both with her current company and if she were to seek employment elsewhere after the completion of her graduate degree stating “I felt that if maybe I wanted to move into human pharmaceuticals than that masters would help because its regulations that applies to human pharmaceuticals...having that experience would open doors to that arena if I chose that later” (Kristen, interview one).

## CHAPTER 5

### DISCUSSION AND CONCLUSIONS

#### Discussion

Susan and David completed the same postsecondary CTE program and also were in similar employment positions. Both participants chose the CTE pathway because of nearly similar reasons the primary reason being the need for quick employment. In regard to their CTE program, they identified similar strengths and weaknesses but overall felt that their program prepared them for their entry into the job market and was completely satisfied with the ability to transition quickly from school to work. They also found that industry related work experience with focus to their program of study was more important than higher educational degrees. The pursuit of education and continued education as part of societal pressure was one of the themes in their views of postsecondary educational attainment. Despite these similarities these two participants were inherently different. Susan felt very strongly in continuing her education to not only further her career but to equalize herself with her college educated parents and other family members while in contrast, David felt content with his degree of education and had no further plans to continue educational pursuits.

Most similar were Susan and Kristen who initially had different postsecondary educational backgrounds but shared nearly the same educational and career aspirations. Susan felt that furthering one's education and continuing to attain educational degrees was essential in not only maintaining one's professional position but also in professional career advancement. This view was also shared by Kristen. Kristen also shared similar ideals on continued education

as related to personal growth as did Susan. Both participants were currently enrolled in programs of study not directly related to their current fields of work but indirectly related through the business and regulatory aspects of their industry. In regard to their respective postsecondary programs they identified that internship and work-study programs were the greatest contributing factors to their employment and both ascribed great significance to the ability for all students to participate in such industry related work experiences. A difference between Susan and Kristen in regard to their continuation of educational degree attainment was the timing of their current program enrollment. Susan enrolled in an undergraduate program approximately two years after completion of her postsecondary CTE degree and entry into the workforce while Kristen enrolled in her graduate program approximately fifteen years after the completion of her postsecondary undergraduate degree and entry into the workforce.

David and Kristen shared very few similarities on their views about the choice in postsecondary educational pathway and their views on continued education; however, one major theme both participants shared was that they both viewed their personal work-experience to be greater than their colleague's. Even when faced with the question: Do you feel more or less qualified than others with more or less education than you? Both participants responded that they felt more qualified than their colleagues who had more education than them because of their extensive work experiences. Though they reiterated that this view was personal and that each candidate must be judged individually it appeared that given their current work circumstances that they valued their own work experience more so than their own education and the education of others. This shared ideal was constant throughout their interviews and was expressed in other responses especially about future career aspirations.

For students who chose a postsecondary career and technical education pathway, the ultimate goal is to be readily employed after the completion of their CTE program. As observed by Susan and David this can be achieved with an established program with close ties with industry within the community to support internship and work study programs. CTE programs such as theirs have the resources for teachers to expose CTE students to curriculum which is relatable to future work experiences. Having a successful and positive experience in a CTE program can be relayed to high personal confidence in executing work skills through the experience from their program. This experience grants these graduates an opportunity to consider continuing in the advancement of their career in this field.

The decision for a student to choose a postsecondary CTE pathway is determined by personal life pressures such as the need for employment due to financial reasons or the need to enter into the workforce quickly as displayed by Susan and David. However, the reasons for this choice were not found to correlate to having similar views on the need for education and future educational and professional aspirations. The outcomes of these two participants were innately different. Susan chose a CTE program for the same reason as David but ultimately learned through work experience that continuing her education would be essential if not required to continue advancing in her company and career. Though Susan stated that her career does not necessarily need to continue at her current company she expressed that completing higher educational degrees would provide her the opportunity to seek other positions if she so desired. In addition, Susan qualified that her work experiences at her current position would only be a benefit in the continuation of her current work but also that she would be a desirable candidate considering her advanced industry experience for her age and currently completed education level.

David chose a CTE program for the same reason as Susan and though expressed a similar importance of continuing education as viewed by society he did not have any current personal goals or aspirations to continue his education. In contrast, Kristen chose a four-year undergraduate program because of her love of learning and did so without any intentions for a specific program of study. She pursued a work-study program during her undergraduate studies which ultimately led to her hire at the company where she has currently been employed for fifteen years. Her four-year undergraduate educational pathway gave her the opportunity to participate in a competitive program of study and later in an industry setting which was the foundation for her career outcome. Her future educational and career aspirations are strongly supported by her desires to further her education for personal growth and prospects of professional advancement.

Comparatively, all of the participants completed a postsecondary degree and found subsequent employment immediately after completing their respective program of study. The pursuit of their postsecondary degree programs were personal choices and not affected by their secondary school experiences. All participants expressed the societal importance of continuing education for professional advancement. However, completion of a CTE program did not have bearing on an individual's choice to pursue continued education since both Susan and Kristen from differing postsecondary backgrounds were in the process of continuing their educations at the time of their participation in this study.

The highest indicator of professional confidence was attributed to work experience rather than educational degree attainment. All participants expressed having extensive expertise in their fields of work as compared to their colleagues which was mainly attributed to their respective



experiences in the industry. All participants expressed desire for career advancement but Susan and Kristen were more strongly in pursuit of this goal which displayed that postsecondary educational pathway did not have an effect on professional outcomes.

### Conclusions

Career and technical education programs are focused in providing students an education specific to their field of study for quick entry into the workforce. These programs both in secondary and postsecondary schools have served industries with knowledgeable and trained candidates to fill positions that are in demand. Providing students the opportunity to be readily employed after a two-year program is attractive and studying the reasons for choosing this educational pathway over that of a four-year education have revealed several implications of choice on the positive or negative impacts to student professional and educational outcomes as well as future career and educational aspirations.

In studying the impact of career and technical educational pathways I had personal interest invested into the outcomes of the study. As a female in my twenties I had completed an undergraduate degree in cellular biology. At the time of this study I was in pursuit of a Master of Arts in Science Education and had four years of industry work experience in chemical and pharmaceutical production. My initial entry into the workforce brought me into contact with a colleague who had completed a postsecondary CTE degree. I felt she had more technical expertise in the field than me. It was at this time that I began to compile research for this study. Though not included in the study as a participant it is imperative at this point to draw conclusions between my views and outcomes with those expressed by the participants.

Compared to the participants and me, I was most dissimilar to Susan though we shared similar views on the importance of education and continuing education for career advancement. We differed in the reasoning for the pursuit of postsecondary educational pathway as I chose my postsecondary pathway due to familial and social pressures. With respect to educational background, Kristen and I were most similar having attended the same four-year university with similar fields of study. However, while Kristen participated in a work-study program in industry I participated in a research program with a researcher at the university isolating my postsecondary work experiences to academia. While Kristen expressed the benefit of her industry related work-study experience as potential candidate for employment I felt disadvantaged by my limited focus in an academic laboratory setting while searching for employment after the completion of my undergraduate degree. With respect to the areas of educational views and educational and professional outcomes David and I were most similar. We both viewed that continued education had some importance but agreed that work experience was most essential to work performance and career advancement and regarded personal industry experiences to be valued higher than educational degree attainment.

The comparisons made between the participants and the participants and me substantiates several conclusions. The educational views on the need for continued education of all four individuals were similarly impacted by societal pressures. The decision to pursue postsecondary education was not always affected by societal pressure but most often by personal goals. The educational program experiences of Susan and David, CTE students, were most similar, highly specialized, and focused while four-year college student experiences, of Kristen and myself, were found to be more broad and varied even among similar fields of study. Work confidence was attributed solely to experiences related to industry and not to levels of educational degree

attainment since the study found that CTE program completers had equal confidence to those with four-year degrees in the workplace compared to colleagues with higher educational degrees. The completion of a postsecondary CTE program did not limit individuals to a specific job, field, or industry and as indicated from the findings, CTE students were just as likely to pursue continued education and also consider careers in fields outside of their CTE concentration similar to four-year college students. Satisfaction with current career progress was not affected by the completed level of education since CTE program completers and four-year college degree completers showed both satisfaction and dissatisfaction which also did not impact professional outcomes but dissatisfaction did impact future educational and career aspirations.

While findings from this study indicated strong correlations to student employment after postsecondary CTE program completion overall conclusions on whether four-year college graduates or CTE program graduates are more qualified for the same job opportunity cannot be made due to the limited number of participants. The critical question to study further would be the structure of CTE programs in comparison to four-year college programs to compare positive and negative aspects as directly related to student employability after graduation. The researcher briefly speculates that the structure of CTE programs are more supportive of student employability compared to four-year college programs by requiring students to participate in internships and work-study programs in their future field of work. This appeared to be the most positive aspect of CTE programs as a whole with incorporation of CTE teachers with industry experience compared to four-year college professors with limited industry experience but extensive academia experiences.

This study suggests four important findings: (1) postsecondary educational pathway choice is a decision affected by individual personal pressures of which societal pressure has some effects, (2) confidence in the workplace is attributed solely to industry related work experience and not that of educational degree attainment, (3) CTE program completion does not prevent an individual from continuing their education, and (4) CTE program structure is more supportive of future employability through internship opportunities for students to attain industry related experience. The comparative findings from this study have led to continued personal evaluations of my own educational and career experiences and future aspirations.

I had always expected myself to continue my education past my current degree pursuit but I currently have no degree concentration intentions. At this point in my career, I have accepted that work experience within the industry is of significant more value for advancement than education. This perception supports my suggestions for further research in improving current CTE programs and creating new ones that support industry demands. My observations from the three participants both from prior personal interactions and through the ones gained from this study maintains my view that work related experiences gained in postsecondary education is the strongest indicator for career outcomes. In regard to strengthening current four-year college programs, I feel that emphasizing co-operative or internship programs with businesses outside of the academia setting would allow students to cultivate career path avenues after degree completion. The lack in availability of such programs in my own undergraduate study was what disadvantaged me most in the industry environment after entry into the workforce.

The stigma surrounding the choice to complete a CTE degree compared to a four-year college degree persists even in the workplace which I feel creates unequal opportunities for workers in all industries. By placing such great importance on the completion of a degree over work related experience will only further exacerbate current conditions in the job market. The inherent idea that everyone should complete a four-year degree is unrealistic when our current industry demands for both blue and white collar jobs require skilled workers at all educational levels. It is my belief that creating successful postsecondary programs of all degree levels which prepare students for their future career paths will be the greatest way to ensure equal opportunities for all to accomplish their aspirations.

#### Recommendations for Further Research

Based on the research and findings from this study, the following recommendations for further research were made:

1. A longitudinal study on students who complete a dual CTE and core area secondary education and continue to a postsecondary educational program with measurable professional outcomes. A previous study on self-assessments at the secondary level in regard to problem-solving could be applied to CTE programs (Pate 2011). The integration of technology into general education has been strongly supported by legislators, industry leaders, and educators and this emphasis could also be applied to students participating in a dual CTE and core area program. Students participating in CTE programs with strong emphasis in technology applications, such as science, technology, engineering, and mathematics (STEM) applications, and hands-on activities have been found to “produce something of value...the knowledge that they gain will stay

with them all of their lives” (Renfrow 2011). A study on the implementation of these two ideas would serve to provide secondary and postsecondary school administrators the ability to create educational pathways for students interested in a career and technically focused education with a strong emphasis in core curricular areas. This type of study could reveal the importance of creating secondary educational programs for students to engage earlier on in their educational pathways for making choices about postsecondary degree attainment through secondary educational experiences.

2. Research to create standardized CTE programs supported by industry to educate students as future employees. The Human Capital Theory predicts that “individuals and, by extension, employers who invest in human capital through investment in education and training are more productive and therefore generate more revenue than when human capital is limited or missing” entirely (Bragg 2007). CTE programs are a direct representation of this theory. Students are motivated by what employers have to offer – a wage – and employers are motivated to encourage skilled labor to increase revenue. As a result of NCLB, the call to create skills standards for CTE courses are becoming more persistent. Several studies show that skills standards for CTE courses would benefit students/workers, teachers, and employers by improving communication between education and the industry, improved curriculum relevancy, improved teaching and learning processes, enhancing graduation and employment, preparation for entry level-positions, and improved accountability at all levels (Bragg 2007). Though studies have shown positive outcomes for students, teachers, and business with the implementation of standards the data established that teachers were most aware of the standards and were

most likely to use and perceive the impact of changes. This was true even though employers were the main indicators for these standards that they were more used as a measurement of job-readiness and employability of a candidate (Bragg 2007). As a result, the need to create CTE standards proves to be complex and challenging due to the variable needs of industries and employers. Creating a national or even state standardization of CTE program standards will require much continued research.

3. Further study into the perspective that the factors of socioeconomic status, race, and family structure can affect a student's educational achievement with respect to CTE programs offered at schools, past and present research supports that work-based learning courses and programs to decrease high school drop-out rates and increase postsecondary school enrollment. A study examined the direct effects of these factors and the effects that they have on CTE student achievement, graduation, and postsecondary aspirations (Stone 2005). Data from the study revealed that African American students were more likely to identify themselves as CTE students than non-African Americans, as GPA in the 8<sup>th</sup> grade increased it was less likely for students to identify themselves as CTE students, and higher parent educational degree completion indicated less likelihood for students to participate in CTE programs (Stone 2005). The researchers concluded that high school GPA to be the strongest indicator for academic achievement and that CTE students were more realistic about their postsecondary education aspirations compared to core area students not participating in CTE programs. Students who elect to participate in CTE programs are more prepared for their outcomes than their counterparts. CTE pathways appear to create a vision of career pathway for these students whether they continue in

their education at the postsecondary level or in their future careers. Studies show that the impact of NCLB on schools as a whole increased the amount of time students spend in traditional core classes which reduces the time spent in CTE and other elective courses and nationally have seen a decrease in CTE participation at the secondary educational level. Increasing workplace and industry experience for students in the CTE concentrations has shown to be beneficial to minority students, students with low academic goals, and students whose parents with lower levels of academic completion.



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