2016

Perceptions of Career and Technical Education Held by High School Career Counselors

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COLLEGE OF EDUCATION

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2016

Abstract

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MS, Fort Hays State University, 1989

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Doctoral Study Submitted in Partial Fulfillment

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Abstract

Current enrollment in Career and Technical Education (CTE) programs in the United States and in the state of Kansas is lagging behind the future demand for skilled workers. With millions of skilled labor positions unfilled and the pending retirement of the baby boomer generation, the United States is at a critical juncture to compete in the global marketplace. High school career counselors are the primary resource for CTE program recruitment. The purpose of this study was to examine whether high school career counselors' educational backgrounds, knowledge levels of CTE initiatives and programs in Kansas, and available counseling time were associated with their perceptions of CTE. The study was based on the constructivist learning theory that suggests individuals tend to learn from their past experiences and utilize those experiences to create meaning for the future. A cross-sectional survey design was used for this study to collect data on the knowledge levels, education, counseling time, and perceptions of CTE initiatives and programs held by high school career counselors (N = 485) in the state of Kansas. Chi square analyses of the associations among variables revealed that knowledge levels and counseling time were related to counselors' perceptions of CTE. However, no significant association was found between counselor educational background and perceptions of CTE. This study is significant to educational institutions and the economy in Kansas because the findings may be used to target CTE recruitment training for high school counselors. This training may improve recruiting strategies for CTE students and address Kansas' future needs for a skilled workforce.

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Acknowledgments

I would like to acknowledge the following people for their assistance and guidance over the last seven years during this long doctoral study process. I want to thank my family for their continued support and encouragement throughout this educational process. I also want to thank Dr. Geraldine Spinella and Dr. Keren Meister-Emerich for their assistance during the last year to make this final push to complete the doctoral study process. Thanks to Dr. Spinella and Dr. Meister-Emerich for their practical guidance and realistic critiques of my drafts. Thanks also to Dr. Michelle Brown for helping me navigate through the URR and IRB processes.

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Section 1: Introduction to the Study

Introduction

Evident throughout the United States today is the apparent shortage of a skilled workforce for the 21st century (Bevins, Carter, Jones, Moye, & Ritz, 2012, p. 9; Neumark, Johnson, & Mejia, 2013). With approximately four million skilled-labor positions currently unfilled (U.S. Chamber of Commerce, 2013) and the pending retirement of millions in the baby boomer generation (Combs, 2015), the United States is at a critical juncture to compete in the global marketplace (McMullin & Reeve, 2014; Symonds, Schwartz, & Ferguson, 2011). By 2018 the demand for an educated workforce will outpace the production of college graduates in the United States by almost three million graduates (Carnevale et al., 2010; Neumark et al., 2013). In addition, current enrollment in Career and Technical Education (CTE) programs in the United States and in the state of Kansas is lagging behind the future demand for skilled workers (Governor S. Brownback, personal communication, August 14, 2012; Wachen, Jenkins, & Van Noy, 2011). In its 2010 *Beyond a High School Diploma* report, the Kansas Department of Commerce noted that job openings outweighed the availability of individuals with the needed educational credentials to fill those jobs (p. 1).

Although employment levels have been impacted by job outsourcing to countries with lower wages, U.S. manufacturing is experiencing a shift of jobs back to the United States resulting from lower utility rates and increasing overseas wages (Combs, 2015). In a 2011 report by the Bureau of Labor Statistics, Sommers estimated that by 2020 the United States should see 20 million new jobs created (p. 2). However, almost four million fewer people are projected to enter the workforce by 2018 than in the previous decade.

Gallagher (2005) has noted that 76 million in the baby boomer generation are set to retire over the next decade, but that there are only 46 million in Generation X to replace them (p. 10). Neumark et al. (2013) suggested that skill shortages may be more readily apparent in larger populated states with higher levels of undereducated citizens, primarily from minority populations.

It is predicted that by 2020, approximately two-thirds of all jobs in the United States will require training beyond a high school diploma (Carnevale, Jayasundara, & Hanson, 2012; Hagedorn & Purnamasari, 2012; Harrington & Long, 2013). Neumark et al. (2013) noted that the most substantial increases will be for workers with an associate degree, primarily because of the increased demand for healthcare workers. The Kansas Department of Commerce (2010) expects an increase of just under 100,000 jobs in Kansas which will require additional education beyond a high school diploma by 2020 (p. 1). The Kansas Department of Labor (2014) projects that occupations requiring at least a high school diploma will more than double the job growth projected for jobs requiring less than a high school diploma through 2015 (p. 32).

New CTE initiatives in the state of Kansas are being implemented to address the need for workers with a higher level of education to fill future workforce needs. Preliminary results of these initiatives show a substantial increase in high school students enrolled in CTE programs at community and technical colleges across the state, and a substantial increase in the number of industry-recognized credentials earned by high school students (Kansas Board of Regents, 2015; Kansas Department of Labor, 2014). The Georgetown University Center on Education and the Workforce (2010) acknowledged that by 2018 postsecondary education will be required for approximately

66% of Kansas jobs, with approximately 52% requiring an associate degree or higher (Carnevale, Smith, & Stohl, 2010, p. 121). President Obama has set a goal to provide access to postsecondary education for every American in an effort to build a skilled workforce and narrow the widely discussed skills gap (College & Career Readiness & Success Center, 2013). During the recent economic downturn, over 32,000 jobs in Kansas were unfilled because of a skill shortage, while the number of unemployed Kansans totaled 96,000 (Kansas Department of Commerce, 2010, p. 2).

As technology and workforce demands change, the need for employees with higher-order thinking skills will increase over the next 10 years (Bozick & Dalton, 2013a; Folds & Tanner, 2014; Kansas Department of Commerce, 2010; Kansas Department of Labor, 2014). Symonds et al. (2011) in their *Pathways to Prosperity* report suggested that to remain in the middle class in the 21st century, American workers will need a post-secondary education and technical skills. For U.S. manufacturing, it is estimated that within the next 10 years approximately two million manufacturing jobs will not be filled because of a shortage of skilled workers (Combs, 2015). Romano and Dellow (2009) stated that labor studies show that a shortage of skilled workers is more evident than the shortage of jobs for the future economy (p. 13). Sommers (2011) noted that professional, healthcare, and technical occupations have the largest projected job growth from 2010-2020. In Kansas the highest growth rates will occur in construction, transportation, trade and utilities, education, and healthcare (Kansas Department of Commerce, 2010).

Community and technical colleges are important players in the development of the future skilled workforce and must be proactive in meeting those needs (Kollman & Beck, 2013; Lichtenberger & George-Jackson, 2013; Shulock & Offenstein, 2012).

Institutions of higher education are experiencing an increased demand for applied science degrees to address regional workforce shortages, primarily in medical-related areas (Ignash, 2012; Ruud, Bragg, & Townsend, 2010). This demand has increased the desire of 4-year colleges to work more closely with community colleges to accept previously terminal applied science associate degrees in transfer. Terminal CTE-based degrees traditionally provided through community and technical colleges are increasingly transferable to colleges and universities as these institutions adjust programs to meet industries' workforce needs (Brint & Karabel, 1989).

To address the widely discussed skills gap, an increased focus on science, technology, engineering, and math (STEM) components are needed in the high school curricula (Asunda, 2012; Hagedorn & Purnamasari, 2012; Lichtenberger & George-Jackson, 2013; Schenck, Anctil, Smith & Dahir, 2012). High schools are challenged to incorporate CTE pathways into the mainstream curriculum plans for students in an effort to prepare students for the 21st century workforce (Folds & Tanner, 2014; Hodge & Lear, 2011). High schools, and community and technical colleges must develop partnerships with industry, which are vital to improving the available human resources needed for business and industry to compete globally (Drake, 2012).

CTE programs appear to suffer from an identity problem among high school counselors, students, parents, universities, and some community college staff (College & Career Readiness & Success Center, 2013; Schenck et al., 2012). Often seen as a dumping ground for unmotivated students, CTE programs struggle to attract more computer-savvy, career-minded students (Aliaga, Kotamraju, & Stone III, 2014). Between 1982 and 1992, high school student participation in CTE programs declined by

17% (U.S. Department of Education, 1992), and by 2009 credits earned by high school students in CTE declined another 3% (Hudson, 2013). It is the responsibility of community and technical college leaders, and high school administrators and counselors, to be proactive in changing the perceptions and culture of CTE programs in order to adequately prepare students for the 21st century workforce (Fletcher, Djajalaksana, & Eison, 2012).

There are many possible factors contributing to the lack of a skilled workforce. Among these factors, three are most pronounced: the low career interest in CTE programs by high school students, perceptions of the poor quality of available programs, and the failure of educational institutions to adapt programs and training to meet specific industry needs (Hodge & Lear, 2011); increased high school academic requirements (Folds & Tanner, 2014); and the retirement of the baby boomer generation (Neumark et al., 2013). The declining interest in CTE programs may be impacted by several factors, including the perceived push by high school counselors to send a majority of students into college prep programs instead of CTE avenues (Kelly & Price, 2009; McKillip, Rawls & Barry, 2012). This push by counselors may be due to a misperception that CTE programs are for underachieving students (Belz, 2010; Brown, 2009; Yettick, Cline, & Young, 2012). In addition, students are attending college at a higher rate today (U.S. Department of Education, 2014), although many of these students lack the skills needed to be successful in college (Hughes, Gibbons & Mynatt, 2013; Gigliotti, 2012; McMullin & Reeve, 2014; Rothman, 2012).

High school career counselor's work with students and parents to identify career interests and guide students into an appropriate pathway based on their goals and

individualized education plans. However, students may also be encouraged to bypass a viable CTE career pathway due to pressures from their peers, parents, or counselors. The declining interest in CTE programs may be impacted by negative perceptions from parents, students, counselors, and by the reputation of programs available in the region (College & Career Readiness & Success Center, 2013). Students may also avoid CTE avenues based on readily available data suggesting higher earning potential over their lifetime with a bachelor degree versus a technical certification (Carnevale et al., 2012; Ewert, 2012; Rothman, 2012). To assist students in selecting a viable career pathway to prepare them for the future workforce, educational institutions must identify barriers to CTE enrollments.

In a 2012 press conference on CTE initiatives, Kansas Governor S. Brownback encouraged educators to get high school students engaged in CTE programs in an effort to curb high school dropout rates (S. Brownback, personal communication, August 14, 2012). Although the high school dropout rates in the United States and in Kansas have steadily declined since 1990 (U.S. Department of Education, 2012a), Governor Brownback stated, "we [the state of Kansas] are losing too many high school students now…The number of students in CTE programs is declining and 60% of our future workforce needs technical skills" (S. Brownback, personal communication, August 14, 2012). Nationally, students who enrolled in CTE programs while in high school had a higher high school graduation rate compared to students who were not involved in CTE (Hughes, Rodriguez, Edwards, & Belfield, 2012; Kaine, 2014). However, only 13% of the total credits earned by high school graduates in the United States in 2009 were CTE credits (U.S. Department of Education, 2009b). The governor challenged educators from

Kansas to take another look at the technical education available in the state.

The future of CTE in the United States and in Kansas relies upon the availability of quality advising and counseling services to high school students. Quality services can assist students and parents in making informed decisions about future career choices. However, Schenck et al. (2012) has suggested that federal mandates to schools have significantly impacted a high school career counselor's ability to provide quality career and college counseling services to students. Requirements for increased academic achievements (O'Connor, 2012) and additional responsibilities being assigned to counselors have reduced the amount of time a counselor can spend on career and college counseling activities (Anctil, Smith, Schenck, & Dahir, 2012; Curry & Bickmore, 2012; Hurwitz & Howell, 2014; Slaten, Scalise, Gutting, & Baskin, 2013). In addition, reductions in school funding in a tight economy puts additional pressures on school administrators and counselors to develop students for the future workforce (College & Career Readiness & Success Center, 2013).

Teachers, counselors, and schools in general must be willing to assess, adapt, and strengthen their current practices to provide leadership to meet the needs of students, parents, and industry (Fletcher et al., 2012; Shulock & Offenstein, 2012; Viviano, 2012). All too often teachers, counselors, and institutional leaders are unwilling to change for a multitude of reasons including a lack of funding, the idea that the way they have always done things is best, the fact that they are close to retirement and refuse to change, or simply that change is difficult. In the end, institutional leaders, counselors, and teachers must adapt to an organization's ever-changing culture and provide the leadership to meet the needs of today's students (McNamara, 2009; Viviano, 2012).

Problem Statement

American College Testing (ACT) noted in its 2015 report that nearly one-third of high school graduates are not meeting college-readiness benchmarks in math, science, English, and reading. Industry needs workers with a higher level of competency to solve problems and communicate effectively within the workplace (Yost, 2011). With a greater emphasis on math, computer, and critical thinking skills in CTE programs today, the exposure of all students to career opportunities in CTE is crucial to the future development of a skilled workforce (Bevins et al. 2012; Hodge & Lear, 2011). Globalization is creating a greater demand for talented workers with the flexibility to fill available jobs worldwide (Hodge & Lear, 2011; Lent, 2013; Savickas, 2012). Recruiting and retaining talented workers will be a driving factor for industry leaders to remain competitive in the future marketplace. Failure to develop a skilled workforce will be detrimental to the success of the future U.S. economy (DiMattina & Ferris, 2013).

The purpose of this exploratory study was to examine high school career counselors' knowledge levels, educational background, and counseling time to determine if their orientation affects their opinions of CTE programs. Community and technical colleges, and high school career counselors are important players in the development of the future skilled workforce and must be proactive in meeting those needs (Kollman & Beck, 2013; Lichtenberger & George-Jackson, 2013; Schenck et al., 2012). The demand for increased technical skills will be a driving force in the implementation of future educational plans for students. Yet, almost no research conducted to date, especially in Kansas, draws attention to the critical role of high school career counselors in the placement of students into community and technical college CTE programs.

This study is significant to the U.S. economy, the state of Kansas, educational institutions, and for social change to improve recruitment and retention strategies for CTE students in an effort to address the future skilled workforce needs. If CTE enrollments increase and the negative perceptions of CTE programs diminish, then communities will be positively impacted socially and economically. This study contributes to the body of knowledge regarding postsecondary education by documenting high school career counselors' perceptions of CTE programs, and has the potential to help others understand the importance of CTE training and the development of our future workforce.

Nature of the Study

In this exploratory research study, I used a cross-sectional survey design to explore the relative effects educational background, knowledge level, counseling time, and on high school career counselors' perceptions of CTE initiatives and programs. I selected a quantitative study to generate numerical data to determine the statistical association between a high school career counselor's educational background and knowledge level of CTE initiatives and programs, and their perceptions of CTE. I selected a cross-sectional survey design to gather data that could be generalized from the identified sample to a larger population. The population of interest encompassed all high school career counselors in the 286 school districts in the state of Kansas as identified by the Kansas State Department of Education (KSDE). The 286 school districts provided a representation of both rural and urban districts.

I used a questionnaire-style survey to gather data from Kansas high school career counselors on their educational backgrounds, knowledge levels, and perceptions of CTE

initiatives and programs. The 37-question survey was designed using a five point Likert-scale with responses ranging from one to five, with five representing the highest or most positive assessment (see Appendix C). I discuss the research methods in more detail in Section 3 of the research study.

Research Questions

Insofar as the purpose of this exploratory study was to examine high school career counselors' educational background and knowledge level of CTE initiatives and programs to determine if their educational backgrounds and/or knowledge levels affects their perceptions of CTE, I developed the following research questions to guide the study.

1. What is the association between a high school career counselor's knowledge level of CTE initiatives (e.g. Senate Bill 155), as proposed by Kansas Governor Sam Brownback in January 2012, and their perceptions of CTE programs?

   H_{01}: There is no association between a high school career counselor's knowledge level of CTE initiatives and their perception of CTE.

   H_1: There is an association between a high school career counselor's knowledge level of CTE initiatives and their perception of CTE.

2. What is the association between a high school career counselor's educational background (e.g. attended of a CTE program or traditional academic program) and their perception of CTE programs?

   H_{02}: There is no association between a high school career counselor's educational background and their perception of CTE.

   H_2: There is an association between a high school career counselor's educational background and their perception of CTE.

3. What is the association between the amount of time a high school career counselor has available for career counseling and their perception of CTE programs?

   H_{03}: There is no association between the amount of time a high school career counselor has available for career counseling and their perception of CTE.

   H_3: There is an association between the amount of time a high school career counselor has available for career counseling and their perception of CTE.

Purpose of the Study

The purpose of this study was to explore the effects of high school career counselors' educational backgrounds, knowledge levels of CTE initiatives and programs in Kansas, and their available counseling time on their perceptions of CTE. I sought to answer the question of what factors weigh into a counselor's positive or negative perception of CTE in Kansas. Does the recent push by the state of Kansas for CTE initiatives entice counselors to enroll more students into CTE avenues compared to previous years? What associations exist between a high school career counselor's educational background and knowledge level of CTE, and their positive or negative perceptions of CTE?

The independent variables include a high school career counselor's educational background, their knowledge level of CTE programs, and the amount of time available for counseling. The dependent variable is a high school career counselor's perception of CTE. As noted in several recent studies, parents, peers, and career counselors are the primary individuals that influence a student's career choice (Adams, 2014b; Brown, 2009). This research study explored the role of a career counselor in the process.

Theoretical Framework

For this study I selected the constructivist theory widely attributed to Piaget (1967). Constructivism is an active learning theory which suggested that individuals mold their knowledge and learning from their past experiences (Lambert, Walker, Zimmerman, Cooper, Lambert, Gardner, & Szabo, 2002). Also referred to as the knowledge theory, constructivism suggested that individuals or organizations tend to learn from their experiences and utilize those experiences to create meaning for the future (Stringer, Kerpelman, & Skorikov, 2011). Experiential learning has long been a staple of CTE programs, and Clark, Threeton, and Ewing (2010) suggested that experiential learning is more successful when concepts are reinforced through reflection on the learning, rather than simply through a hands-on experience. In this regard, high school career counselors may develop knowledge of CTE based on their personal experiences with CTE. Exposure to CTE shapes a counselor's knowledge and perceptions of CTE, which may impact the advice given to students. I can hypothesize that if career counselors were not exposed to CTE career opportunities when they were students, then they will provide little or no experiential information to high school students exploring potential career fields. This can also be applied to parents and peers. If parents or peers have not been exposed to CTE in their background, then the information they provide to their student may not be accurate, but rather based on a perception. Likewise, if they had been exposed to CTE in their backgrounds but had a negative experience, then their perception of old vocational programs may cloud their perception of today's programs.

In my experiences working with high school career counselors, I have found that they rely on CTE programs as a last option for the better students, and as the first option

for students who struggle academically. Because of the frustrations faculty have had trying to train lower skilled and in many cases unmotivated students, I wanted to explore the stigma that surrounds CTE programs (Bozick & Dalton, 2013a; Yettick et al. 2012). In addition, I wanted to examine the perceptions that high school career counselors have about CTE programs to determine if their perceptions perpetuated the stigma. In discussions with colleagues and faculty in CTE program areas, I identified career counseling and the development of the 21st century workforce as an area for further research.

Key Research Terms

The following are the key research terms used throughout the study. This section provides working definitions of the terms to help improve clarity.

Baby Boomers: This is the term given to the post-World War II generation of students born been 1946 and 1964 who now are the current leaders in society and nearing their retirement age (Neumark et al., 2013). The baby boomers tend to be hard-working, career-focused individuals who are loyal to their employers (Sandeen, 2008).

Career Guidance and Academic Counseling: The student support process designed to provide direction and access to students to systematically identify and select a future career pathway. The process results in directing students into the right courses to adequately prepare them for a career in the selected field, to expose them to appropriate postsecondary opportunities, and to identify available financial aid resources to assist students (Carl D. Perkins Career and Technical Education Act of 2006, sec.3 [7]).

Career and Technical Education (CTE): Formerly known as vocational education, CTE is the educational term for a sequence of courses providing relevant academic and

technical skills needed to train the 21st century workforce (Carl D. Perkins Act of 2006, sec. 3[5]).

Generation X: Defined as the generation born between 1964 and 1980, this generation is substantially smaller that the Baby Boomer generation (Ware, Craft, & Kerschenbaum, 2007, p. 59). Generation X experienced a rise in divorce rates and economic downturns in society in the 1980s and 1990s (Sandeen, 2008). The emergence of computers coincides with the educational experiences of this generation, leading them to more likely adopt technological changes in society. Robinson (2008) noted that Generation X is more likely to be independent, pessimistic, and entrepreneurial in nature (p. 53). This generation is poised to assume the leadership responsibilities as the baby boomer generation retires from the workforce (Ware et al., 2007, p. 59).

Millennial: Defined as the generation born between 1981 and 2000, the millennials are technology-focused, and more aware of social and global issues (Balda & Mora, 2011; Robinson, 2008). Millennials tend to learn through peer collaboration in their media-rich environment (Ware et al., 2007). Werth & Werth (2011) noted that "millennials, also referred to in the literature as Generation Y, Nexters, the Net Generation, and Gamers, have been described as a challenging group to recruit and manage" (p. 12).

Vocational Education: Established by the 1917 Smith-Hughes Act, vocational education referred to the education provided by schools in agriculture, the trades, and industry to prepare workers for available jobs (Gasbarre, 2006).

Workforce Development: This is the process of preparing people with the skills needed to compete for higher-skilled jobs and to develop the future pipeline of workers to

meet the employment demands of business and industry (Kansas Board of Regents, 2011).

Nominal Definitions of Variables

Educational Background: For this research study the variable of educational background refers to the educational experiences a high school career counselor has acquired over their lifetime. The word educational is defined as "intended or serving to educate or enlighten" (Pearsall, 2013, para. 1). The word background is defined as "a person's education, experience, and social circumstances" (Pearsall, 2013, para. 2). I sought to determine if a high school career counselor's educational experiences have an impact on their perceptions of CTE initiatives and programs.

Knowledge: Knowledge is defined as "facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject" (Pearsall, 2013, para. 1). I evaluated the level of knowledge a high school career counselors has about CTE initiatives in Kansas and compare that knowledge level to a counselor's perceived knowledge of CTE. Does a counselor think they know more than they actually do about CTE initiatives and/or programs?

Perceptions: The heart of this research study is to determine what perceptions a high school career counselor has about CTE initiatives, programs, and pathways in Kansas. Perception is defined as "the way in which something is regarded, understood, or interpreted" (Pearsall, 2013, para. 2). Perception can be favorable as well as unfavorable, and may be impacted significantly by the level of knowledge a person has about a given topic. If a high school career counselor is very knowledgeable about CTE initiatives and programs, do they also have a more positive perception of CTE? If a counselor has a

more positive perception of CTE, do they also have more time available for career counseling activities for their students?

Assumptions, Limitations, Scope, and Delimitations

The following section discusses the underlying assumptions, limitations, scope, and delimitations of the study. Here I examine the potential weaknesses and areas of concern which may have impacted the study.

Assumptions

The following are underlying assumptions, which may have negatively impacted this study:

1. The study was based on the assumption that enrollments in CTE programs across the United States are gradually increasing, but not at a rate equal to the demand for a skilled workforce. (Governor S. Brownback, personal communication, August 14, 2012; Wachen et al., 2011)
2. The study was based on the assumption that community and technical colleges and school districts have a vested interest in the development of the 21st century workforce.
3. The study was based on the assumption that counselor perceptions drive their interest in and support of CTE programs.
4. The study was based on the assumption that all counselors (as project participants) would answer the survey openly and honestly.
5. The study was based on the assumption that all high school career counselors at school districts in the research study were Master's degree prepared, and

that their primary job responsibility was counseling high school students about college and career pathways.

Limitations

The following limitations to this research study may present potential weaknesses and areas for concern:

1. Sampling errors due to an under-representation of small schools and an over-representation of large schools in the sample from the returned surveys may be of concern.
2. There may have been an unwillingness by high school counselors to participate in the survey due to the perception that the study is questioning the motivation and knowledge level of current high school counseling staff.
3. There may have been concerns from high school counselors at the implication that they are primarily college-prep focused.
4. There may have been a resistance to change from a college-prep focus to a career-prep focus. University officials may disagree with a change in focus from college-prep to career-prep. With the increasing costs to attend a university, more students may seek shorter-term career training opportunities; thus, negatively impacting university enrollments. The universities may eventually see the students transfer in through the many articulation agreements which exist between the community colleges and the colleges and universities in Kansas.

5. The use of a researcher-developed survey instrument may have been a weakness of the study. To help establish the validity and reliability of the survey instrument, I used the software program SPSS to assess the Cronbach Alpha scores to determine if the survey items were measuring what was intended for the data analysis phase of the study. As I removed survey items to increase the alpha score, the intent of the survey may have been impacted.
6. Researcher bias may have been a weakness of the study due to the vested interest I have with the future of CTE enrollments at community colleges. I am currently employed as an administrator at an area community college within the research area.

Scope and Delimitations

This exploratory research study was focused on the evaluation of the knowledge levels, educational backgrounds, counseling time, and perceptions of CTE initiatives and programs of high school career counselors in the 286 school districts in the state of Kansas. Career counselors are key to providing potential CTE students with the information they need to understand the requirements of CTE programs and the skills they need to secure jobs with area industry.

Because the study was limited to the 485 career counselors in the 286 school districts in the state of Kansas during 2013-2014, the study may not be applicable to the population of the United States as a whole. Results of the study may not be generalized to the whole country primarily due to the rural nature of the state of Kansas. Results may

not reflect the cultural, socioeconomic, and regional differences found in other parts of the country

Significance of the Study

This study is significant to educational institutions and the economy in Kansas. It provides data that may aid in improving recruitment and retention strategies for CTE students, which may in turn address state's future needs for a skilled workforce. This study can affect social change by compelling improvements in counselor training programs to better educate high school counselors, teachers, and college recruiters on CTE opportunities and requirements of CTE programs. This, in turn, can affect the dissemination of information to future students and parents about the rewarding career opportunities in CTE areas.

In addition, this study may positively affect change by encouraging a potential increase in CTE enrollments that will assist communities with the development of a qualified workforce to meet future demands. Symonds et al. (2011) noted that a large majority of jobs in the future will require an education beyond a high school diploma. CTE programs nationwide are tasked with developing the new generation of workers to replace the retiring baby boomers (McNamara, 2009; Robinson, 2008). If CTE enrollments continue to increase and the negative perceptions of CTE programs diminish, then this will significantly impact social change within communities. Additionally, the study contributes to the knowledge level of CTE opportunities and may potentially improve community perceptions and acceptance of CTE. However, to make these improvements, educational institutions and their staff must adapt programs accordingly, and be ready to train the new generation of students for the new generation of jobs (See

Appendix B for Kansas Community College CTE program list).

Summary

This study investigated high school career counselors' perceptions of CTE programs in high schools and community colleges to determine if an association exists between a counselor's educational background and knowledge level, their perceptions of CTE, and their subsequent frequency to promote CTE as a plausible career pathway for high school students. High school counselors are the key holders to exposure and knowledge of CTE programs for junior high and high school students (Adams, 2014b). If counselors do not understand the value and critical need for CTE programs, their passion for advisement of students may not lead a student to a potentially rewarding career opportunity in CTE, thus impacting the future enrollment in CTE programs.

After researching this topic, it became evident to me that there is a shortage of skilled workers for the 21st century workforce (Carnevale et al., 2010; Neumark et al., 2013; Helman, Greenwald & Associates, Copeland, & Vanderhei, 2015). The United States is not training enough students today to meet the future workforce needs with the pending retirement of millions in the baby boomer generation (Symonds et al., 2011). Researchers have suggested that to remain in the middle class in the 21st century, American workers will need a post-secondary education and technical skills (Symonds et al., 2011). High school counselors are the key holders in the dissemination of career information for students, and yield influence over a student's career choice (Adams, 2014b). Although these are external factors, they all impact CTE at some level. The primary internal factor affecting CTE is the need for educational institutions and faculty

to adapt the curriculum and processes to meet the varied learning styles of today's learners (McNamara, 2009; Ware et al., 2007).

Section 2 reviews the available literature on the history of CTE and its foundation in the history of community colleges. I also examine workforce shortages, the need for a qualified workforce, and the influences on students in selecting a career. The literature review explores how to adapt programs to meet the needs of today's generation of student, which will help business and industry maintain competitiveness in the global marketplace. The final three sections of the study discuss the methodology, the statistical analysis, final conclusions, and implications for the future. Section 3 outlines the data collection process, identifies the sampling process and sample size, discusses efforts to ensure reliability and validity of the study, and identifies the statistical analysis I used to measure the data. Section 4 addresses the analysis of survey data to answer the research questions and determine if the null hypotheses could be rejected. Section 5 presents the final conclusions, discusses implications for the future, examines how the study creates positive social change, and identifies areas for future research.

Section 2: Literature Review

Introduction

Examining how high school career counselors view CTE is vital to future recruitment of students into CTE programs for community and technical colleges. Understanding these perceptions in concert with a counselor's knowledge level of the available CTE programs will assist decision-makers in addressing the skilled workforce shortage evident in Kansas. Kelly and Price (2009) suggested that the lack of knowledge about CTE careers may be the primary factor influencing high school career counselors to push students to traditional college liberal arts programs. I hypothesize that as high school students are exploring career fields, they are receiving limited information about CTE careers, especially if career counselors were not exposed to CTE career opportunities when they were students. Exposure to CTE shapes a counselor's knowledge and perceptions of CTE, which may impact the advice given to students. Experiential learning has long been a staple of CTE programs, and Clark et al. (2010) reported that experiential learning is more successful when concepts are reinforced through reflection on the learning, rather than simply through hands-on experience.

I selected the constructivist theory widely attributed to Piaget (1967) as the theoretical framework for this study. Constructivism is defined as an active learning theory which suggests that individuals mold their knowledge and learning from their past experiences (Lambert et al., 2002). Constructivism is also referred to as the knowledge theory, which suggests that individuals tend to learn from their experiences and utilize those experiences to create meaning for the future (Stringer et al., 2011). In this regard,

high school career counselors may develop knowledge of CTE based on their personal experiences with it.

This theory can also be applied to parents and peers. In a study of Michigan high school students, Gaunt and Palmer (2005) found that parents and peers had the largest amount of influence on a student's career choice. If parents or peers had not been exposed to CTE in their background, then information provided to the student may not be accurate. Conversely, if they had been exposed to CTE in their backgrounds but had a negative experience, their perception of old vocational programs will cloud their perception of today's programs.

Educating counselors, parents, and students about current and future CTE programming, current and future job demand, and the viability of CTE training is an outcome of this research study. Community colleges have been an integral part of the CTE training since their inception over 100 years ago. Increasing the knowledge of CTE by examining its history, its integration into community colleges, and its impact on the workforce in the United States will contribute to the body of knowledge necessary for high school career counselors to educate students and parents about current and future CTE opportunities. Many jobs of the future have yet to be created, and higher-order thinking skills will be critical to the development of the future workforce to compete in the global economy. This section will explore the rich history of CTE, its integration with community colleges, and the importance of CTE on the development of the future workforce.

Research Strategy

My review of literature included the use of current academic journal articles to

gather contemporary perspectives on CTE and to assess the impact of the recent economic downturn on CTE. I used research databases (e.g. EBSCO, ERIC, ProQuest, SAGE) available through Walden University Library and other libraries to review books, journals, periodicals, and dissertations. The research process was primarily focused on perceptions of CTE, vocational education, career guidance and academic counseling, 21st century workforce projections, workplace skills, learning styles for today's generation of student, classifications of generations (e.g. baby boomers, generation X, and millennials), and educational leadership for the future. I identified strengths and weaknesses of the literature in an effort to determine gaps, which may lead to further areas of research.

I examine the following topics in the literature review section:

1. The history of career and technical education in the United States.
2. The history of junior/community colleges.
3. Influences on students selecting CTE.
4. The projected workforce shortage.
5. The need for a qualified workforce.
6. Adapting programs for today's learners.
7. The ability to compete globally.

Description of Research Variables

In this exploratory research study, I examined four research variables, including the educational background of high school career counselors, their level of knowledge of CTE programming, their available counseling time, and their perceptions of CTE. The independent variable of educational background refers to a high school career counselor's educational experiences acquired over a lifetime. I utilized Pearsall's definitions of the

research variables for consistency and clarity. The word "educational" is defined as "intended or serving to educate or enlighten" (Pearsall, 2013, para. 1). The word "background" is defined as "a person's education, experience, and social circumstances" (Pearsall, 2013, para. 2). "Knowledge" is defined as "facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject" (Pearsall, 2013, para. 1). In my study, I evaluated the level of knowledge a high school career counselor has about CTE initiatives in Kansas and compared that knowledge level to a counselor's perceived knowledge of CTE. The independent variable of available time for counseling is referring to the amount of physical time a counselor has dedicated for career counseling activities for each student. Perception is defined as "the way in which something is regarded, understood, or interpreted" (Pearsall, 2013, para. 2). Perception can be favorable as well as unfavorable and may be impacted significantly by the level of knowledge a person has about a given topic. If a high school career counselor is very knowledgeable about CTE initiatives and programs, do they also have a more positive perception of CTE?

Differing Methodologies

To assess the educational background and knowledge level of high school career counselors and their positive or negative perceptions of CTE, I chose to employ a quantitative survey research design. Creswell (2003) described a quantitative approach as a method to evaluate a theory by employing an inquiry strategy to gather statistical data on a sample population (p. 153-154). Relative to a qualitative or mixed-methods approach, a quantitative approach collects data on the research variables in a timely and cost-effective method. Creswell (2003) noted that a qualitative approach is interpretive

and broad in nature in comparison with a quantitative approach (p. 182). The quantitative approach allowed me to select a random sampling of the population, whereas a qualitative study would have been more selective and purposeful in determining the research participants (Creswell, 2003). Several studies (Hughes et al., 2012; Brown, 2009; Gaunt & Palmer, 2005) that focused on career counseling and perceptions of CTE also utilized quantitative approaches to gather statistical data on a sample population. The Hughes et al. (2012) study examined graduation rates and college readiness of students enrolled in CTE curriculum. The Brown (2009) and Gaunt and Palmer (2005) studies surveyed high school students about their perceptions of CTE programming. These studies, in addition to the recent CTE initiatives in Kansas, provided a basis for this research study.

Content and Organization

To establish an organizational framework for this study, I reviewed the history of CTE and the legislation that has provided the funding for CTE programs in the United States. Secondly, I reviewed the extant literature on the projected shortage of a skilled workforce facing the United States in the 21st century. The pending retirement of millions in the baby boomer generation may be a key element in the projected workforce shortage (Neumark et al., 2013; Symonds et al., 2011). Although the recent economic slump has significantly slowed the retirement of the baby boomer generation, it is still projected that baby boomers will retire and re-enter the workforce part-time (Cahill, Giandrea, & Quinn, 2011; Helman et al., 2015).

This review then shifts to focus on the need for a qualified workforce and what educational institutions need to do to attract new students to CTE programs (Belz, 2010).

I explore influences on students and their career decisions in addition to the role of high school career counselors in career development (Adams, 2014b; Pham & Keenan, 2011). Collectively, my research efforts demonstrate the need for educational institutions to adapt programs and leadership styles to the meet the ever-changing needs of today's student and society. New leadership styles and strategies for reaching today's students are vital to the future training of tomorrow's workforce for which many jobs of the future do not yet exist (Executive Office of the President Council of Economic Advisers, 2009). In addition, I discuss the future role of education and strategies to position the United States to compete in the global marketplace.

History of Career and Technical Education and Junior/Community Colleges

Junior colleges emerged at the turn of the 20th century through the work of William Raney Harper, then president of the University of Chicago. Originally envisioned as schools to provide the first two years of general post-secondary education, the junior college concept would allow universities to focus on higher level thinking and research (Brint & Karabel, 1989; Brawer, Brawer, & Kisker, 2014). In the early days, most junior colleges were an extension of high schools or operated as private institutions with religious affiliations (Brawer et al., 2014).

Based upon the passage of the Smith-Hughes Act in 1917, the United States legislature officially established vocational education which later was renamed Career and Technical Education (CTE). The Smith-Hughes Act provided $1.7 million in funding for vocational programs in secondary schools, primarily focused on agriculture and the trades and industry (Barlow, 1976; Gasbarre, 2006). In this act, the government defined vocational education as the "preparation for employment in positions requiring less than a

baccalaureate degree" (Oklahoma Department of Career & Technical Education, 2006, p. 4). Much of the focus of the Smith-Hughes Act was on vocational training to support the war effort (Barlow, 1976). Additional legislation was passed in 1918 to address the retraining needs of the veterans returning from World War I (Hayward & Benson, 1993).

In the 1920s, as many junior colleges sprang up across the country the mission evolved into offering vocational coursework for what many university presidents felt were programs for students who could not function at the university level (Brint & Karabel, 1989). The offering of vocational programs became a primary purpose to the junior college mission for many years to come. In 1926, the American Vocational Association was founded with the approval of the George-Reed Act. This Act created an emphasis on home economics in addition to the previously funded agriculture and trades and industry programs (Jacobs & Grubb, 2002). As the United States was thrust into economic uncertainty in the 1930s, some states started "emergency junior colleges" to address the immediate vocational training needs for their communities (Diener, 1986, p. 117).

The United States government allocated additional funding for vocational education. The passage of the George-Ellzey Act (1934) and the George-Deen Act (1936) added distributive education for federal funding (Barlow, 1976). President Roosevelt assembled an external team to assess the government's efforts with vocational education in 1936. This group, the Advisory Committee on Vocational Education, provided the direction for additional changes in vocational education, which were later implemented in the 1946 George-Barden Act (Jacobs & Grubb, 2002).

In the late 1930s, the United States had to prepare for national defense with the impending war in Europe, and the use of existing vocational schools was the avenue to accomplish the training needs. During 1940 alone, over 500,000 workers were trained in vocational centers across the United States (Barlow, 1976, p. 70), and that number increased to 2.6 million in 1942 (Barlow, 1976, p. 64). In addressing this need, Congress and the President allocated $15 million in funding for vocational education with an emphasis on training aircraft mechanics (Barlow, 1976). Following the attack on Pearl Harbor and with the United States being thrust into war, Congress reacted with the passage of the National Defense Act. This act sent many women into training facilities to learn the trades for war time production, and during a five year span over 1.5 million women were trained (Barlow, 1976).

Near the end of World War II, President Roosevelt signed a historic piece of legislation, the Servicemen's Readjustment Act of 1944, also known as the GI Bill of Rights (Vaughn, 2006). The GI Bill of Rights provided funding to retrain millions of soldiers returning from the war to transition them back into the workforce (U.S. Department of Education, 2009a). The GI Bill gave the junior college movement a substantial enrollment boost. An additional boost came following World War II, when President Truman formed the Commission on Higher Education. The Commission was an advocate for two-year colleges and pushed for federal support for such institutions (Diener, 1986).

The George-Barden Act (1946) doubled vocational funding and increased agriculture education funding (Oklahoma Department of Career & Technical Education, 2006, p. 6). In 1956 health-related program amendments were added to the George-

Barden Act (Rich, 2009). Less than two years later when the Soviet Union put Sputnik in space, the United States scrambled to address the perceived inferiority of United States students in math and science education by passing the National Defense Education Act (NDEA) of 1958 (U.S. Department of Education, 2009a). New legislation pushed for a renewed interest in math, science, foreign language, and vocational education curriculum. The legislation also helped schools hire career counselors to provide direction and support to students.

Junior colleges struggled with an identity crisis throughout the early years. Educational leaders debated over the mission and purpose of the junior colleges and the nickname of "glorified high schools" became difficult for junior college leaders to break (Brint & Karabel, 1989). The Commission on Higher Education recommended the title change from junior to community colleges to reflect their true mission of serving their respective communities (Brawer et al., 2014; Diener, 1986). In the mid 1960's the junior colleges started to become stand-alone institutions out from the umbrella of high schools and in many states junior colleges changed their names to community colleges (Brawer et al., 2014).

The community college movement received another boost when the Vocational Education Act of 1963 provided funding for the construction of new technical schools and earmarked funding for high demand career fields (Rich, 2009; Vaughn, 2006). Community Colleges sprang up across the country providing access to students who previously did not have the means to attend a university. In the 1960s, the number of community colleges jumped by almost 500 institutions (Vaughn, 2006, p. 1). Additional legislation including the Higher Education Facilities Act of 1963 and the Higher

Education Act of 1965 provided the needed financial support for two-year colleges and their students (Vaughn, 2006, p. 43).

In 1984, the Vocational Education Act was renamed the Carl D. Perkins Vocational Education Act (Jacobs & Grubb, 2002). In 1990, the Carl D. Perkins Vocational Education Act was reauthorized and created the Tech-Prep initiative which was designed to teach basic technical skills to prepare students for the workforce (Dalton, Lauff, Henke, Alt, & Li, 2013; Haag, 2015). In the 1998 reauthorization the Perkins legislation pushed for more accountability from schools on student achievement (Matthews-Cook, 2009). The most recent change in the Perkins legislation occurred in 2006. This reauthorization officially changed the title of vocational education to career and technical education (CTE) and was developed to coincide with the No Child Left Behind (NCLB) legislation from 2001 (Kansas Board of Regents, 2009). The 2006 reauthorization of the Carl D. Perkins Career and Technical Education Act had a renewed push for the development of a trained workforce for business and industry and recommended the usage of third party assessments for CTE programs to validate a student's skill attainment (Carl D. Perkins Career & Technical Education Act, 2006; Castellano, Sundell, Overman, & Aliaga, 2012). Current legislative efforts are underway to reauthorize Carl D. Perkins funding with a focus on modernizing CTE programs to meet workforce demands; improving alignment; and, increasing accountability, collaborations, and innovations (Kaine, 2014; U.S. Department of Education, 2012b).

With less than 10 thousand students enrolled in 1920, community colleges enrolled more than four million students by 1980, and over six and a half million by 2005 (AACC, 2005; Brint & Karabel, 1989). Enrollment at community colleges continues to

increase in part due to the rising cost of education and the recent economic downturn (Belfield & Bailey, 2011; Tschechtelin, 2011). Today, community colleges serve a primary role in the development of the future workforce and the ability of the United States to compete in a global economy (Kollman & Beck, 2013; McKernan Jr. & Hansen, 2014).

Influences on Students Selecting Career and Technical Education

Industry today needs workers with increased problem solving and critical thinking skills (AACU & Hart Research Associates, 2013; Bevins et al., 2012; Hodge & Lear, 2011; Symonds et al., 2011). However, institutions are struggling to attract a higher level of student for CTE programs (Aliaga et al., 2014). Several studies identified that students taking a mixture of academic and CTE courses are less likely to drop out of high school and tend to have higher proficiency in math compared to students who take a primarily CTE focused curriculum (Bozick & Dalton, 2013b; Hughes et al., 2012; Yettick et al. 2012). The U.S. Department of Education noted in a 1992 report on vocational education that high school graduates who earned more vocational credits while in high school were less likely to meet academic standards compared to high school graduates who earned fewer vocational credits. Yettick et al. (2012) found similar results 20 years later in a study on dual enrollment of college prep students. Students who struggle academically have a historically higher dropout rate and are more readily funneled into CTE programs (Bozick & Dalton, 2013b). These result in the negative perception that CTE is primarily training the lower level academic students (Aliaga et al., 2014; Haag, 2015).

In a study of counseling influence, Pham and Keenan (2011) found that students whose parents were not college educated, needed more counseling assistance to attend

college. The study also found that students with parents who had college educational experience were more likely to attend college and less likely to need assistance from their counselor. A similar result was also found in a study of a parental influence on female students to further their education by Gibbons, Woodside, Hannon, Sweeney & Davidson, (2011). In this study female students with parents without an education beyond high school were less likely to continue their education. Engberg and Allen (2011) reported that parents could have substantial influence on low-income students and their likelihood to attend college.

According to Gaunt and Palmer (2005) understanding why students select, or do not select a CTE area is vital for educators to know. In a study of high school seniors in Michigan and their perceptions of CTE programs, Gaunt and Palmer (2005) noted that the biggest influence on a student's career selection was from their friends and parents. High school career counselors and CTE faculty also played a role, but were not identified as the primary influences in the Gaunt and Palmer study. In addition, the Gaunt and Palmer's (2005) study reported being able to get out of school for a half of a day as a determining factor for high school students to select a CTE program. However, overall the students in this study reported a positive attitude toward CTE and did not perceive CTE being for unmotivated students (Gaunt & Palmer, 2005).

In a similar study in Mississippi, Brown (2009) found consistent results to the Gaunt and Palmer study. Friends, parents and counselors were influencing factors in a student's decision to attend, or not attend a CTE program. Although it was not significant, Brown (2009) noted that some CTE students in the study stated they were encouraged not to enroll in CTE programs by their high school counselors, which was

also noted in the Gaunt and Palmer (2005) study. Did the counselors attempt to persuade students to avoid a CTE program due to their perception of CTE, or due to factors related to a student (e.g. gender, motivation, or socioeconomic issues)? Belz (2010) reported that a union official felt high school counselors did a good job of educating students about attending college, but fell short when showing students how to enroll in training for a technical trade. Counselors may be disconnected from CTE opportunities because they lack the CTE background themselves (Kelly & Price, 2009).

In Connecticut, the study conducted by Lapan, Whitcomb, and Aleman (2012) found that students had fewer disciplinary issues when they were exposed to increased levels of career and college counseling activities. The study also noted that lower student-to-counselor ratios had a direct impact on the number of disciplinary issues with students. Additional studies found that students who participated in dual-credit CTE programs during the high school day were more likely to continue their education and be college-ready (Hughes et al., 2012; Pretlow & Wathington, 2014). High school graduation rates in the United States are substantially higher for students involved in CTE programs compared to students not involved in CTE (Hughes et al, 2012; Kaine, 2014).

Schenck et al. (2012) suggested that federal mandates to schools (e.g. *No Child Left Behind Act*) have significantly impacted a high school career counselor's ability to provide quality career and college counseling services to students. Requirements for increased academic achievements (O'Connor, 2012), and additional responsibilities being assigned to counselors have reduced the amount of time a counselor can spend on career and college counseling activities (Anctil et al., 2012; Besnoy, Clayton-Code, & Whitman, 2013; Hurwitz & Howell, 2014). Several studies (Lapan, 2012; Pham & Keenan, 2011)

noted that higher student-to-counselor ratios also impacted a counselor's ability to provide students with the needed counseling services. Counselors identified additional job responsibilities as a limiting factor to providing career counseling activities (Bridgeland & Bruce, 2011; Sumerlin & Littrell, 2011) and a primary reason for lower levels of job satisfaction (Pyne, 2011).

Whiston, Tai, Rahardja, and Eder (2011) stated that previous research findings have not concluded that counselors have positively impacted a student's career choice. However, their study found that career counseling activities have positively impacted students and the influence of counselors has helped students improve their problem-solving abilities. Belasco (2013) found similar results that counselors are a primary influence for students to attend college and more notably with students from lower socioeconomic levels. Additional studies (Anctil et al., 2012; Dimmitt, Wilkerson, & Lapan, 2012) suggest that counselors who valued the importance of career counseling had a higher frequency in providing career counseling opportunities for their students. The importance of counselors providing comprehensive information about available CTE programs and pathways available to students is even more critical in the global economy today (Lent, 2013; Schenck et al., 2012).

Kelly and Price (2009) suggested that high school counselors push a large majority of students to traditional college liberal arts programs, primarily because of a lack of knowledge about careers in technical programs and the future availability of jobs. This practice may limit the amount of information provided to students about CTE options. Completion of CTE credits in public high schools in the United States has declined while academic credits steadily increased between 1990 and 2009 (Hudson,

2013). Several studies suggested that the "College for All" movement has shifted the focus to preparing students for a college-prep curriculum (Aliaga et al., p. 137; Engberg & Gilbert, 2014, p. 239; Jacobs & Grubb, 2002, p. 12). In a 2011 nationwide study of high school career counselors, Bridgeland and Bruce noted that a large majority of counselors ranked college and career exploration as a top priority behind increasing graduation rates. However, counselors reported additional administrative duties as a primary factor in their inability to provide more college and career exploration services to their students.

In a 2011 study, Bryan, Moore-Thomas, Day-Vines, and Holcomb-McCoy noted that gender, socioeconomic levels, and race played a role in the likelihood that a student would ask their high school career counselor for information about college opportunities. In addition, they found that a student's likelihood of applying to college was impacted by the amount of counseling time received by students. Engberg and Allen (2011) found that socioeconomic levels had a direct impact on the probability of a student attending college. Participation in concurrent enrollment classes has also been found to be significantly different between gender and race (Pretlow & Wathington, 2014). A lack of resources, a lack of knowledge about program availability, a lack of information provided about schools and stereotyping students based on gender, socioeconomic levels, or race may hinder a student's career choice.

Several studies (Engberg & Gilbert, 2014; Lara, Kline, & Paulson, 2011; Morgan, Greenwalt, & Gosselin, 2014) noted a deficiency in career counselor education programs due to a lack of advanced coursework focused on career development. They also noted that the career counselors in their studies reported a lack of confidence to provide career

counseling to students based on the education they received. In a 2011 study of high school career counselors, counselors reported the need for additional resources and training to prepare student for college opportunities (Hart Research Associates, 2012). Additional continuing education programs for counselors may be needed to provide inexperienced counselors with pragmatic approaches to career and college counseling (Adams, 2014b; Curry & Bickmore, 2012; Hines & Lemons, 2011; Morgan, Greenwalt, & Gosselin, 2014). Pyne (2011) suggested the need for exposure to "best-practice models" in counselor education programs as an avenue to better prepare counselors (p. 92). The practice of career counseling needs to adapt with the ever-changing society and incorporate a collaborative approach involving students, parents, career counselors, teachers, college officials, and community members (Besnoy et al., 2013; Koslowski, 2013). As new models of career counseling emerge counselors need to rethink simply matching students to careers in today's global economy (Lent, 2013).

High school career counselors are key in the dissemination of career and college information to students and parents. Having the proper resources, training, professional development, and time to provide students with needed career exposure is vital to a school's counseling program and necessary for students to make informed career decisions. A counselor can significantly impact a student's career and college plans with the proper resources and training.

Workforce Shortage

Numerous studies suggest that business and industry in the United States will experience a lack of workers with the skills needed to replace the retiring baby boomer workforce and fill the jobs of the future (Combs, 2015; Dumay & Rooney, 2011; Jenkins,

2011). U.S. manufacturing is projecting over two million jobs will not be filled due to a shortage of skilled workers over the next 10 years (Combs, 2015). The pending retirement of millions in the baby boomer generation may be the key element in the projected workforce shortage (Combs, 2015; Neumark et al., 2013). Gallagher (2005) noted that 76 million in the baby boomer generation are set to retire, but there are only 46 million in Generation X to replace them (p. 10). Although, the recent economic slump significantly slowed the retirement of the baby boomer generation (Jenkins, 2011), it is still estimated that baby boomers will retire as projected and potentially re-enter the workforce part-time (Cahill, Giandrea, & Quinn, 2011; Helman et al., 2015). This may lessen the impact on the projected workforce shortage for a few years, and keep industry from losing the skills of the baby boomers. However, Symonds et al. (2011) estimates that a majority of the future job openings will be a direct result of the baby boomer retirements.

According to Symonds et al. (2011), the United States is currently not educating enough skilled workers to meet anticipated demands of business and industry. This is primarily due to the shift in industry from the need for unskilled labor twenty years ago to skilled labor today. U.S. manufacturing is projecting over two million jobs will not be filled due to a shortage of skilled workers over the next 10 years (Combs, 2015). Technological enhancements and global competition has pushed American industry to seek the skilled labor to compete in the global economy (Bevins et al., 2012; Symonds et al., 2011).

Hemphill and Perry (2012) suggest that although the United States has lost millions of jobs to lower cost labor in other countries, as the wages increase in those

countries companies will move those jobs back to the United States in the near future. U.S. manufacturing is beginning to see the "reshoring" of jobs and lower utility costs are a determining factor (Combs, 2015). The demand for lower skilled labor will decrease as the demand for higher skilled labor in the United States increases. By 2018 the United States should see 15 million new jobs created (Bartsch, 2009, p. 8).

Need for a Qualified Workforce

The American economy relies upon the ability of the American educational system to develop a skilled workforce for the 21st century. Future workers must become lifelong learners with the flexibility to adapt to the ever-changing global marketplace (Bevins et al., 2012). Current educational models have been identified by researchers as failing to meet the needs of the next generation of students (McNamara, 2009). Educational institutions will need to attract often overlooked populations of students to meet future workforce demands (McKillip et al., 2012; U.S. Department of Education, 2012b). Those students may require developmental course work to bring their skills to the levels required for the completion of a college degree (Gigliotti, 2012).

The greatest challenge in the future will be the ability to acquire talented workers to compete in the global marketplace (Symonds et al., 2011). Failure to develop a skilled workforce will be detrimental to the success of the future United States economy (DiMattina & Ferris, 2013). If industry cannot find an ample supply of trained workers, companies will be forced to subcontract the workload. The loss of jobs in the United States to lower cost labor in other countries is a real threat to the success of American industry (Hemphill & Perry, 2012). As a country, the United States has lost ground not only economically, but educationally to other progressive countries (U.S. Department of

Education, 2012b). The United States must develop a sense of urgency to address the potential economic impact of the lack of a skilled workforce to compete in the global marketplace (Bevins et al., 2012).

With job demand outweighing the availability of qualified workers, the United States must focus efforts on training new workers and retraining existing workers as technology changes to meet employment demands as the baby boomer generation retires. By 2020, approximately two-thirds of all jobs in the United States will require training beyond a high school diploma (Carnevale et al., 2012; Hagedorn & Purnamasari, 2012; Harrington & Long, 2013). To remain competitive in the ever-changing global economy, industry must be able to secure a qualified workforce, which is increasingly difficult with fewer potential workers available in Generation X.

Adapting Programs for Today's Learners

In reviewing the strengths and weaknesses of the literature supporting this study, I found consistency in the literature to support the determination that learning activities must continually be adjusted to meet the needs of the current generation of students. Industry leaders perceive that the current generation of students is not adequately prepared by the current educational system to be successful in the 21st century workforce (Symonds et al., 2011). With the increasing number of students coming into community colleges who require developmental coursework (Hughes et al., 2013), institutions must determine if the lower entrance scores are a by-product of the motivation of the new generation, or is the educational system failing to adapt to reach today's students (U.S. Chamber of Commerce, 2013).

The literature also identifies the need for institutions to adapt training for the varying learning styles of consumers, and how institutions and their leadership must be flexible to meet the demands of the 21st century workforce (Hodge & Lear, 2011). Educational leaders and teachers must learn to adapt to the ever-changing world and provide the leadership for change within their institutions. In addition, McKernan and Hansen (2015) noted that in the past education and industry was disconnected. Industry failed to communicate needed competencies to education and education failed to keep programs up-to-date to meet industry needs.

The characteristics of successful leaders are consistently found in collaborative democratic models of leadership. Multiple studies discussed by Lunenberg (2008) centered on identifying leadership styles and the characteristics of successful and unsuccessful leaders. Although there is no exact science for determining an effective leader, a leader's context may dictate the level of success of the leader and the organization. In the end, institutional leaders and faculty must adapt to the ever-changing culture of an organization to be effective and meet the needs of today's students (McNamara, 2009; Ware et al., 2007).

Technical education has a strong foundation in providing applied learning opportunities to increase knowledge and skill levels for students. Several concepts found in the literature review are in line with standard practices in the learning processes in many technical education programs today. These concepts include a diversion from a traditional academic learning system; an informal, more social learning environment; and learning opportunities in small groups. Symonds et al. (2011) suggested that a "more collaborative approach" to learning is needed to develop needed critical thinking and

problem-solving skills for our youth (p. 38). The value of practical hands-on learning activities is more than just the development of skills, but also the construction of social networks between students.

Cox (2005) researched the shift from a traditional learning style to a more collaborative learning model where learning takes place in more social, informal situations compared to learning from a traditional teacher. This theory suggested that consumers will learn through a process of peer-to-peer learning as in a social setting. This concept can be directly applied to technical education practices today where students learn through practical hands-on applications in small group settings. The informal and social learning exists within the small group as students assist other students to learn the task at hand. Ware et al. (2007) identified this phenomenon of increased learning occurring in primarily informal situations.

The focus in many CTE programs on the use of applied learning activities continues to be a pragmatic approach to building student knowledge and skills. How better to learn how to weld pipe, or take a blood pressure than through actually performing the required task first hand. Although a traditional academic learning style (e.g., lecture) is still utilized in technical programs (O'Connor, 2012), technical educators are grounded in the belief that hands-on learning activities are the key to student achievement in most technical fields (Gasbarre, 2006).

Environmental factors are key influences on organizations to adapt their teaching and learning activities to better meet the needs of the community and industry. The consumers of CTE programs will demand different modes of delivery for programs and support services compared to instructional practices of 20 years ago (McNamara, 2009).

Higher level skills are needed for workers to succeed in the 21st century workforce (Symonds et al., 2011). The new generation of student is the first generation to be raised on technology (Werth & Werth, 2011). Training programs needed for this generation will be varied and scientific in nature. The need to provide varied learning options to Millennials will be a critical change for educational institutions to address the learning styles differences from past generations (Balda & Mora, 2011; Werth & Werth, 2011).

Understanding and adapting learning activities to meet the educational needs of today's generation is critical for the future development of tomorrow's workforce. Educational leaders must be in a continual improvement process to make changes to training programs and support services to assist students to be successful after high school. With the increase in students requiring developmental learning at the college level, colleges are challenged to meet the needs of these students and prepare them with the skills needed for future employment.

Ability to Compete Globally

Understanding and adapting to the global economy is vital to the future economy of the United States. Being equipped with a skilled workforce will assist United States-based companies to compete in the global marketplace. The shift in thinking of a regional or national economy to a global perspective must be on the forefront of training programs at educational institutions today. With a struggling economy and the subsequent budget cuts across education, schools are challenged to develop a trained workforce for industry with less funding (DiMattina & Ferris, 2013). The shift in workforce skill requirements and competiveness of the global economy is integral in the demand for higher skills and increased problem-solving abilities (Symonds et al., 2011).

In the report, *Investing in America's Future: A Blueprint for Transforming Career and Technical Education*, U.S. Secretary of Education Arne Duncan stated "Our federal investment in CTE must be dramatically reshaped to fulfill its potential to prepare all students, regardless of their backgrounds or circumstances, for further education and cutting-edge careers. The need to strengthen and elevate CTE is urgent. This is a not a time to tinker with CTE—it is a time to transform it." (U.S. Department of Education, 2012b, "Dear Colleagues letter," para. 5). In addition, the lack of preparation of the future workforce is costing the United States taxpayers and industry millions in retraining expenses to bring the workforce to a globally competitive level (McMullin & Reeve, 2014). A lack of attention to this issue could greatly impact the success of the United States economy.

In January 2012, Kansas Governor Sam Brownback proposed new CTE initiatives to the Kansas Legislature to create incentives for school districts, community and technical colleges, and universities to put a renewed focus on CTE in an effort to address the projected skilled workforce shortages in Kansas (State of Kansas, 2012). Governor Brownback's initiative recommended financial incentives for school districts to encourage more students to participate in CTE avenues and to remove transportation barriers for access to available CTE programs in the state. The Governor's CTE plan called for high school students to complete industry-recognized third party assessments prior to their graduation from a Kansas high school. This coincides with the push by the federal Carl D. Perkins grants to encourage community and technical colleges to provide an industry-recognized third-party assessment for program completers. Early results of the CTE initiative in Kansas show substantial increases in CTE enrollments and the

completion of third party certifications (Kansas Board of Regents, 2015). Financially, community colleges are a great value for students to attain a postsecondary education and prepare themselves for future employment (Belfield & Bailey, 2011).

Implications for Social Change

The study can be utilized to affect social change through the dissemination of the study results to the Kansas State Department of Education, the Kansas Board of Regents, school districts, high school career counselors, students, parents, and university and community/technical college officials. The study provides additional exposure to the need for increased CTE enrollments and focus on CTE initiatives to address the existing and projected workforce shortages as noted in the literature. An increased understanding of the workforce shortages and the need for a skilled workforce will assist these entities to adjust programming and hopefully dedicate additional funding to prepare students for jobs needed in their respective areas of the state.

Recent changes in state funding and additional legislation (e.g. SB 155) has affected the perception of CTE in Kansas. This renewed interest in CTE is impacting social change within school districts, colleges, and communities across Kansas. College and school leaders are being tasked with adapting programming to meet the needs of area business and industry in an effort to address local workforce needs. Although the results of the study may not immediately impact the local workforce needs, they may help increase the awareness of the workforce shortage, the job and educational opportunities available to our youth, and help college and school leaders to see the need to be responsive to business and industry needs. Some companies are starting their own internal training programs to address their specific workforce needs due to the shortage of

available qualified workers.

Colleges and school districts are placing more emphasis on CTE and the recruitment of students for CTE areas. The perceived problem of counselors pushing most students to college-prep avenues instead of CTE appears to be gradually diminishing. Again, this could be attributed to the additional funding available now for CTE programs in Kansas. The new problem may be the ability of CTE programs to handle the increased enrollments and the ability of college administrators to find qualified instructors to meet enrollment demands.

Summary

CTE has a rich history in the development of community colleges and the development of the workforce for the last 100 years. Key pieces of legislation provided the catalyst to propel community colleges to the forefront of training a workforce for the war efforts and retraining servicemen as they returned to civilian life. Following significant events in history (e.g. the Depression and World Wars) the development of the workforce became an area of focus for the United States and it is no different today following the recent economic downturn. The literature establishes that there is a high demand for a skilled workforce; however, the lack of a skilled workforce now and into the future is evident. The pending retirement of the baby boomer generation may be another significant event, which will further compound the skilled workforce shortage.

To compete in the global economy, United States industry is reliant upon the ability of the educational system to produce a higher skilled workforce. However, the declining interest in CTE programs and the push by high school career counselors and parents for their students to attend a traditional liberal arts pathway is challenging

community and technical colleges to attract students to CTE avenues. Past perceptions of CTE being a dumping ground for underachieving students and training for dirty jobs may impact the enrollment in CTE programs today. The ability to adapt programs to meet the needs of today's learners and changing the perceived negative image of CTE is a challenge for educational leaders.

Recent CTE initiatives within the state of Kansas are providing a renewed focus and increased interest in CTE programs specifically at two year colleges. The desired result is a trained workforce coming out of high school with industry-recognized third party certifications (Governor S. Brownback, personal communication, August 14, 2012). Educating counselors, parents and students about CTE opportunities and the demand for skilled workers is vital to increasing enrollments and in turn addressing the workforce shortage. High school career counselors are key players in the dissemination of career information to high school students. Their knowledge level and perceptions of CTE is important to understand.

The final three sections of the study discuss the methodology, the statistical analysis, final conclusions, and implications for the future. Section 3 outlines the data collection process, identifies the sampling process and sample size, discusses efforts to ensure reliability and validity of the study, and identifies the statistical analysis utilized to measure the data. Section 4 addresses the analysis of survey data to answer the research questions and determine if the null hypotheses could be rejected. Section 5 presents the final conclusions, discusses implications for the future, and examines how the study impacts positive social change. Additionally, areas for future research and recommended actions are presented in Section 5.

Section 3: Research Method

Introduction

The purpose of this study was to explore the effects of a high school career counselor's educational background and knowledge level of CTE initiatives and programs in Kansas on their perceptions of CTE. With the documented shortage of a skilled workforce and the perceived push by high school career counselors to direct students to traditional college avenues, it is important to investigate the impact of a high school career counselor in students' career exploration processes. High school career counselors are key players in the dissemination of career information to high school students; therefore, I designed this study to assess their perceptions of CTE.

To assess the knowledge level of high school career counselors and their positive or negative perceptions of CTE, I chose to employ a quantitative survey research design. Creswell (2003) described a quantitative approach as a method to evaluate a theory by employing an inquiry strategy to gather statistical data on a sample population (p. 18). The methodology section addresses the merits of the design of the research study, the data I collected, the research variables I examined, and the variables I analyzed in an effort to test the hypotheses and corresponding research questions.

Research Design

This study utilized a cross-sectional survey design with the goal of collecting data on Kansas high school career counselors' educational backgrounds, knowledge levels, and perceptions of CTE initiatives and programs. I selected a quantitative study to generate numerical data to test the hypothesis that there is an association between a high school career counselor's educational background and knowledge level of CTE initiatives

and programs available to high school students, and their positive or negative perceptions of CTE. Creswell (2003) explained that a survey design provides the researcher with a mechanism to examine a sample population's "trends, attitudes, or opinions" (p. 153). Surveys are used to measure items that may otherwise be difficult for a researcher to observe (Cook & Cook, 2008, p. 101). I selected a cross-sectional survey design to gather data that could be generalized from the identified sample to a larger population.

The independent variables included a high school career counselor's educational background, available counseling time, and their knowledge level of CTE programs. The dependent variable was a high school career counselor's perceptions of CTE. Parents, peers, and career counselors are the primary individuals that influence a student's career choice (Adams, 2014b; Brown, 2009; Engberg & Allen, 2011).

Research Questions

Insofar as the purpose of this exploratory study was to examine if high school career counselors' perceptions of CTE programs were associated with their educational backgrounds, knowledge levels, and/or available time for counseling of CTE programs, I developed the following research questions to guide the research study.

1. What is the association between a high school career counselor's knowledge level of CTE initiatives, as proposed by Kansas Governor Sam Brownback in January 2012, and their perceptions of CTE programs?

   H_{01}: There is no association between a high school career counselor's knowledge of CTE initiatives and more positive perceptions of the CTE program.

   H_1: There is an association between a high school career counselor's knowledge of CTE initiatives and more positive perceptions of the CTE program.

2. What is the association between a high school career counselor's educational background (e.g. attended a technical college or CTE program) and their perceptions of CTE programs?

   H_{02}: There is no association between a high school career counselor's educational background and more positive perceptions of the CTE program.

   H_2: There is an association between a high school career counselor's educational background and more positive perceptions of the CTE program.

3. What is the association between the amounts of time a high school career counselor has available for career counseling and their perceptions of CTE programs?

   H_{03}: There is no association between the amount of time a high school career counselor has available for career counseling and a more positive perception of CTE.

   H_3: There is an association between the amount of time a high school career counselor has available for career counseling and a more positive perception of CTE.

I selected high school career counselors for this study because of their job responsibilities which include career exploration with high school students. Understanding their perceptions of CTE programs and initiatives is vital to determining if their positive or negative perceptions of CTE are a driving factor in their tendency to expose and promote CTE avenues to their students. Between 1982 and 1992, high school student participation in CTE programs declined by 17% (U.S. Department of Education, 1992), and by 2009 credits earned by high school students in CTE declined another 3%

(Hudson, 2013). CTE programs have struggled with an identity problem among high school counselors, students, parents, universities, and some community college staff (Schenck et al., 2012). Declining CTE enrollments may be impacted by several factors, including the perceived push by high school career counselors to send a majority of students into college prep programs instead of CTE avenues (Kelly & Price, 2009; McKillip et al., 2012). This push by counselors may result from a misperception that CTE programs are for underachieving students (Belz, 2010; Brown, 2009).

Today, high school graduates are attending college at a high rate; 66% of graduates enrolled in college in 2012, a 6% increase from the preceding decade (U.S. Department of Education, 2014). Although students are attending college at a higher rate today, many of these students lack the skills needed for college success (Gigliotti, 2012; Hughes et al., 2013; McMullin & Reeve, 2014; Rothman, 2012). Kansas Governor S. Brownback has stated, "we [the state of Kansas] are losing too many high school students now…The number of students in CTE programs is declining and 60% of our future workforce needs technical skills" (S. Brownback, personal communication, August 14, 2012). With the documented retirement of the baby boomer generation and a shortage of a qualified workforce, this study is important because it can help policy makers and other interested parties understand why CTE enrollments are stagnate.

Recent legislation in Kansas (SB 155) was enacted in an effort by the governor's office to curb the trend of declining CTE enrollments (Kollman & Beck, 2013; State of Kansas, 2012b). Early results show a substantial increase (120%) in high school student enrollments in CTE programs at Kansas community and technical colleges (Kansas Board of Regents, 2015); however, this increase may be attributed to the financial

incentives provided in the legislation (e.g. free tuition and incentives for certifications). Nationally, students who enrolled in CTE programs while in high school had a higher high school graduation rate compared to high school students who were not involved in CTE (Hughes et al., 2012; Kaine, 2014). To assist students in selecting a viable career pathway to prepare them for the future workforce, educational institutions must identify barriers to CTE enrollments. High school career counselors are key players in the dissemination of career information to high school students. This study examined if high school career counselors' perceptions of CTE potentially inhibited CTE enrollments.

Data Sources

Setting and Population Selection

The population for this study encompassed public high school career counselors in the state of Kansas. I used two hundred eighty-six (286) school districts in Kansas for this study (Kansas State Department of Education, 2013), and invited all 485 career counselors employed in those 286 school districts to participate based on their position and employment with a public high school in Kansas during 2013-2014.

I determined that a total sample size of 215 was necessary for a 95% confidence interval and a 5% margin of error with a total population size of 485. The typical size of a sample with a 95% confidence level and a 5% margin of error for a large population is 385. Downward adjustments are made for smaller populations. To compensate for an anticipated 50% response rate on the survey, I determined a need to survey all of the 485 high school career counselors employed by public school districts in the state of Kansas in an effort to obtain a desired sample size of 215 responses. This sample size represents an adjusted 95% confidence level based on the small size of the population. For accuracy,

I cross-checked the sample size with a sample-size calculator provided by www.surveysystem.com/sscalc.htm.

I used a single-stage process involving the stratification of the population to ensure a representative sample of male and female high school career counselors. Creswell (2003) stated a single-stage process is utilized if a researcher has access to the potential research participants directly (p. 156). I collected the gender of the participant for the stratification process to ensure that the study collected a representative sample of female and male counselors in Kansas. Of the 485 counselors invited to participate in the study, 394 (81%) were female and 91 (19%) were male. Table 1 lists the demographic characteristics of the population surveyed.

For the purpose of this study I assumed that each participant held the minimum of a master's degree, was employed full-time, and their primary job responsibility was counseling high school students about college and career pathways. I identified public school districts and high school career counselors through the Kansas State Department of Education's Educational Directory information and from school district websites. I compiled the list of e-mail addresses of eligible participants from these two resources. The larger school districts employ three or more high school career counselors, while smaller districts employ one or two.

Table 1

Counselor Demographics in Kansas Public High Schools (2013-2014)

School Size	Number of Schools	%	Number of Counselors	%	Females	%	Males	%
< 250	195	61%	172	36%	143	83%	29	17%
250-500	41	13%	53	11%	48	91%	5	9%
501-1,000	38	12%	74	15%	63	85%	11	15%
> 1,000	47	14%	186	38%	140	75%	46	25%
TOTALS	**321**	**100%**	**485**	**100%**	**394**	**81%**	**91**	**19%**

Instrumentation and Materials

Survey Design

I used a survey to gather data from high school career counselors regarding their knowledge and perceptions of CTE programs. Insofar as I could not identify an existing validated instrument in the review of literature for either knowledge or perceptions of CTE Programs, I developed a survey that was capable of gathering data needed to address my research questions. The lack of tested instruments is directly attributable to the lack of attention from high education to high school career counselors and the critical role they play in CTE programs.

I designed the survey instrument to address the five primary variables in the study: knowledge level, perceived knowledge of CTE, perceptions of CTE, counseling time, and educational background. I selected survey items from data provided by the Kansas Board of Regents in regards to the requirements of Governor Sam Brownback's approved CTE plan known as Senate Bill 155. This information provided the basis for the development of Sections A and B of the survey. I designed Section A to assess a

participant's knowledge level of CTE initiatives in Kansas. I designed Section B to assess a participant's perceived knowledge level of CTE. I created the perceived knowledge level questions specifically to compare a counselor's perceived knowledge of CTE initiatives with their actual knowledge in an effort to answer the question: Is their perceived knowledge level consistent with their actual knowledge level of CTE?

I designed Section C to assess a counselor's perception of CTE. High school career counselors work with students and parents to identify career interests and guide students into an appropriate pathway based on their goals and individualized education plans. However, students may also be encouraged to bypass a viable CTE career pathway because of pressures from their peers, parents, or counselors. The declining interest in CTE programs may be impacted by negative perceptions from parents, students, and counselors, and from the reputation of the programs available in the region (College & Career Readiness & Success Center, 2013). I designed Section C from empirical data and from reading literature on the workforce skill shortages, the retirement of the baby boomer generation, and counselors' roles in the career counseling process to determine if they held a positive or negative perception of CTE in Kansas.

I developed Sections D (Educational Background) and E (Demographics) to gather information necessary to assess the educational background and demographics of the counselors who responded to the study (See CTE Survey in Appendix C). Survey items were validated through the use of the Delphi method, which I discuss in the section on methods of validity and reliability.

Variables

The variables I examined in this study included the level of actual knowledge of CTE programming, the level of perceived knowledge of CTE programming, the educational background of high school career counselors, the amount of time available for counseling, and a high school career counselor's perceptions of CTE. The dependent variable for the study was perceptions of CTE. The independent variables were actual knowledge of CTE, perceived knowledge of CTE, educational background, and counseling time. To provide a clear understanding of the variables and how they were utilized in the study, I developed the following operational definitions.

Operationalizing Variables of the Study

Dependent Variable Perceptions of CTE. Counselor's perceptions of CTE are defined as "the way in which something is regarded, understood, or interpreted" (Pearsall, 2013, para. 2). To measure the dependent variable of CTE perception, I developed seven survey questions relating to a high school career counselor's perceptions of CTE (Survey Section C). To evaluate the validity of these measures I assessed the reliability among these items using SPSS software. The reliability between items was not sufficiently validated; thus, the seven perception questions were evaluated individually as dependent variables in the study. This information is discussed later in this chapter under the section on methods of validity and reliability.

The seven questions used to measure perceptions of CTE included CTE support of employment needs (Survey Item #15); the value of certifications (Survey Item #16); CTE's impact on at risk students (Survey Item #17); when students should be exposed to CTE programming (Survey Item #18); the academic preparation of CTE students (Survey

Item #19); if students can attend CTE programs and get the required credits to graduate high school (Survey Item #20); and whether parents are supportive of their student enrolling in CTE (Survey Item #21). These items can be viewed in the CTE Perception Survey, which is presented in Appendix C, Section C.

Using a Likert scale of one to five, with one corresponding to poor and five corresponding to excellent, I designed this section of the survey to measure a counselor's perceptions of CTE. Following a check on reliability, I compiled each of the survey questions in this section to determine a composite score for the section. Score ranges were determined by dividing the highest score possible by the number of determined levels of perception. There were three levels of perception (e.g. negative, moderate, and positive). The minimum score possible on Section C was nine and the maximum score was 45. The bottom third of the scores were identified as negative, the middle third as moderate, and the upper third as positive. For Section C of the survey composite scores between nine and 20 were coded as having a negative perception. Composite scores between 21 and 32 were coded as having a moderate perception of CTE. Composite scores between 33 and 45 were coded as having a positive perception of CTE. The bottom third of the scores were identified as below average or minimal, the middle third as moderate, and the upper third as above average or significant.

Survey Section C: Perceptions of CTE Composite Scores:
9 - 20 = Negative Perception
21-32 = Moderate Perception
33-45 = Positive Perception

Independent Variable Actual Knowledge Level. Knowledge is defined as "facts, information, and skills acquired through experience or education; the theoretical

or practical understanding of a subject." (Pearsall, 2013, para. 1). I evaluated the level of actual knowledge high school career counselors had about CTE initiatives in Kansas and compared that actual knowledge level (Survey Section A) to a counselor's perceived knowledge of CTE (Survey Section B). To measure the independent variable of actual knowledge level, I selected six questions that tapped into participants' actual knowledge about CTE initiatives and programs in Kansas. To evaluate the validity of these measures, I assessed the inter-item reliability by utilizing the SPSS software to produce a Cronbach alpha score. To determine if a counselor's perceived knowledge of CTE initiatives is consistent with their actual knowledge level of CTE, the actual knowledge level question responses were compared back to the perceived knowledge questions in Survey Section B. The SPSS software assisted in identifying items which when removed would improve the alpha score.

The actual knowledge level questions included: the intent of the Kansas Governor's CTE initiative (Survey Item #3); the financial incentives in the Governor's plan (Survey Item #4); third-party certifications needed or required as part of the plan (Survey Item #5); CTE programs at the community and technical colleges and high schools qualify for the financial incentives (Survey Item #6); how CTE programs in Kansas are funded (Survey Item #7); and the ability for students to earn both secondary and college credits by completing coursework at the two-year college (Survey Item #8). Table 2 lists the Actual Knowledge Level survey questions with the corresponding correct answers.

Table 2

CTE Survey Section A Questions with Correct Answers Chart

1. In 2012, Kansas Governor Sam Brownback's new CTE initiative for Kansas schools, Senate Bill 155, was passed. Senate Bill 155 provided for which of the following?

a. No new money for Community and Technical Colleges
b. Financial incentives to Unified School Districts (USD's) – CORRECT ANSWER
c. Financial incentives paid to students to complete a CTE course or program
d. All of the above
e. I do not know

2. The following is true of the Governor's CTE Plan:

a. High school students enrolled in a CTE course within a program at a Community or Technical College do not pay tuition.
b. High school students enrolled in a CTE course within a program at a Community or Technical College must pay ½ of any industry-recognized third party certification testing.
c. USD's will receive a $1,000 bonus for each student who completes an industry-recognized third party assessment within six (6) months of graduation from high school for high demand occupational areas.
d. All of the above – CORRECT ANSWER
e. I do not know

3. From your experience, which of the following is a true statement?

a. Many Community and Technical Colleges have articulation agreements in place to transfer CTE credits to a university allowing CTE students the opportunity to complete a bachelor degree.
b. Industry is seeking qualified workers with industry-recognized third-party certifications.
c. The Governor's CTE plan stresses the need for industry-recognized third party certifications.
d. All of the above are true statements – CORRECT ANSWER
e. I do not know

4. From your experience, which of the following is a true statement?

a. All available CTE programs at Community and Technical Colleges in Kansas qualify for the financial incentives to USD's in Senate Bill 155.
b. Only the programs listed on the Kansas Department of Labor's high demand occupation list qualify for the financial incentives to USD's in Senate Bill 155. – CORRECT ANSWER
c. Under Senate Bill 155, a high school may not claim a financial incentive on a CTE program/pathway that the school district does not provide.
d. All of the above are true statements
e. I do not know

5. From your experience, CTE programs in Kansas are partially funded by which of the following grant programs:

a. Federal Title IX funding
b. Carl D. Perkins funding through the state of Kansas – CORRECT ANSWER
c. Federal Title III funding
d. Workforce Solutions grant funding through the Kansas Department of Commerce
e. I do not know

6. From your experience, the following is true of CTE programs in Kansas:

a. High school students who enroll in a college CTE course or program will only receive high school credits.
b. High school students who enroll in a college CTE course or program will receive college credit.
c. High school students who enroll in a college CTE course or program during the high school day cannot receive college credits.
d. High school students who enroll in a college CTE course or program during the high school day can receive high school and college credit at the same time (e.g. dual credit).CORRECT ANSWER
e. I do not know

Score ranges were determined by dividing the highest score possible by the number of determined levels of knowledge. There were three levels of knowledge (e.g. minimal, moderate, and substantial). The minimum score possible on section A was zero and the maximum score was six. The percentages were determined by taking 1, 2, 3, 4, & 5 divided by 6 which represents the total number of questions available (5 = 83%; 4 = 67%; 3 = 50%; 2 = 33%; 1 = 17%). The bottom third of the scores were identified as minimal, the middle third as moderate, and the upper third as substantial. Participants who answered five or six of the questions correctly (83-100%) were identified as having a substantial knowledge level of CTE initiatives. Participants answering three or four answers correctly (50-67%) were identified as having a moderate knowledge of CTE initiatives. Participants answering two or fewer questions correctly were identified as having minimal or no knowledge of CTE initiatives in Kansas.

Survey Section A: Knowledge Level Scores:
83 – 100% = Substantial Knowledge
50 - 67% = Moderate Knowledge
0 - 33% = Minimal or No Knowledge

Of the 209 counselors who completed Section A of the survey, 52% (108) of the respondents answered at least one of the knowledge level questions, as “I do not know”. Eighty-one (81) percent of the “I do not know” respondents were female and 19% were males. Forty-one (38%) of the respondents reported 10 plus years of counseling experience of which 32 (78%) were female and nine (22%) were male, percentages comparable to those in the full population. Counselors with 1-3 years of counseling experience accounted for 27% of the “I do not know” respondents. Six of the respondents answered five or six of the responses as “I do not know”, and two of the six stopped the

survey after completing Section A. No demographic information was available on the two respondents that stopped the survey.

Independent Variable Perceived Knowledge Level. Six survey questions were designed to measure a counselor's perceived knowledge of CTE. To evaluate the validity of these measures I assessed the reliability among these items using the SPSS software. The perceived knowledge question responses were compared back to the knowledge level questions in Survey Section A to determine if a counselor's actual knowledge of CTE initiatives is consistent with their perceived knowledge. The SPSS software assisted in identifying items that, when removed, would improve the alpha score. The perceived knowledge questions included knowledge of available CTE pathways (Survey Item #9); knowledge of skill requirements for CTE careers (Survey Item #10); the quality of information available to students (Survey Item #11); knowledge of current workforce needs in Kansas (Survey Item #12); knowledge of current workforce needs locally (Survey Item #13); and knowledge of the Governor's recent CTE initiatives (Survey Item #14). (See CTE Perception Survey in Appendix C, Section B).

Using a Likert scale of one to five, with one corresponding to poor and five corresponding to excellent, I designed this section of the survey to measure a counselor's perceived knowledge of CTE. Following a check on reliability each of the survey questions in this section were compiled to determine a composite score on the section. Score ranges were determined by dividing the highest score possible by the number of determined levels of perceived knowledge. There were three levels of perceived

knowledge (e.g. minimal or no knowledge, moderate, and substantial). The minimum score possible on Section B was six and the maximum score was 30.

For Section B of the survey, composite scores between six and 13 were coded as having minimal or no perceived knowledge. Composite scores between 14 and 21 were coded as having a moderate perceived knowledge of CTE. Composite scores between 22 and 30 were coded as having a substantial perceived knowledge of CTE.

Survey Section B: Perceived Knowledge of CTE Composite Scores:
6 -13 = Minimal or no Perceived Knowledge
14-21 = Moderate Perceived of Knowledge
22-30 = Substantial Perceived Knowledge

Independent Variable Educational Background. Educational background references a high school career counselor's educational experiences acquired over their lifetime. The word educational is defined as "intended or serving to educate or enlighten" (Pearsall, 2013, para. 1). The word background is defined as "a person's education, experience, and social circumstances" (Pearsall, 2013, para. 2). Research question two was designed to determine if a high school career counselor's educational experiences had an impact on their perceptions of CTE initiatives and programs.

To measure the independent variable of educational background (Survey Section D), I selected four questions to identify the background experiences of participants in regards to CTE. The four questions included: whether the participant attended a community or technical college (Survey Item #23); whether the participant participated in a CTE program while they were in high school (Survey Item #24); whether the participant participated in a CTE program while they were in college (Survey Item #25); and, what curricular area (e.g. academic or CTE) they taught prior to becoming a career

counselor (Survey Item #26). (See CTE Survey in Appendix C, Section D). Depending upon their responses to these questions the participants were categorized based on their attendance at a community or technical college, their participation in a CTE program in high school, and their teaching experience. The educational background responses were compared to the dependent variable of perceptions to determine if educational background influenced a counselor's perceptions of CTE.

Independent Variable Time Available for Counseling. Time available for counseling references the amount of time a high school career counselor has available to provide CTE and career counseling activities for students. The word counseling is defined as "to listen to and give support or professional advice to somebody who needs help" (OED Online, 2015, para. 3). The word time is defined as "a moment or definite portion of time allotted, used, or suitable for a purpose" (Pearsall, 2013, para. 2.1).

To measure the independent variable of time available for counseling (Survey Section C), I selected two questions to identify the amount of time a high school career counselor has available to provide CTE and career counseling activities for students. The two counseling time questions included: whether counselors have sufficient time to expose students to CTE pathways (Survey Item #22); and, whether counselors have sufficient time to counsel students on their career aspirations (Survey Item #23). (See CTE Perception Survey in Appendix C, Section C). Depending upon their responses to these questions the participants were categorized based on their job status (e.g. full or part-time), and their years of counseling experience. The available time for counseling responses were compared to the dependent variable of perceptions to determine if counseling time influenced a counselor's perception of CTE.

Demographic Control Variables. The demographic control variables collected included a counselor's highest level of education (Survey Items #24); gender (Survey Item #31); years of counseling experience (Survey Item #32); years of teaching experience (Survey Item #33); employment status (Survey Item #34); how many students they counsel (Survey Item #35); size of high school (Survey Item #37); and what factors influenced their knowledge level of CTE (Survey Item #39). (See CTE Perception Survey in Appendix C, Section E). The demographic of gender is necessary to determine the stratification of the population. The respective items categorized demographic information responses.

Survey Implementation

The survey instrument was available online to allow participants to access, complete, and submit the survey electronically for convenience. An electronic survey generation tool, *Survey Monkey*, was utilized to create and collect the survey data electronically. The counselors were contacted via e-mail requesting their assistance to participate in the research study. Counselors were sent an initial invitation e-mail with the link to the electronic survey. A copy of this invitation e-mail request is located in Appendix C. The first e-mail invitation was sent out on September 3, 2014. A total of 61 respondents (13%) submitted completed surveys. A total of four follow-up contacts were administered each time the response rate declined. The additional e-mail invitations were sent on September 12, 2014 resulting in 47 completed surveys; September 22, 2014 resulting in 56 completed surveys; September 29, 2014 resulting in 31 completed surveys; and October 9, 2014 resulting in 29 completed surveys. Increased survey completion corresponded with the timing of the e-mail requests for participation. Figure 1

displays a cumulative response rate graph to log the dates of the return of surveys. The dark vertical lines indicate the dates when the four follow-up e-mails were sent to counselors requesting their participation.

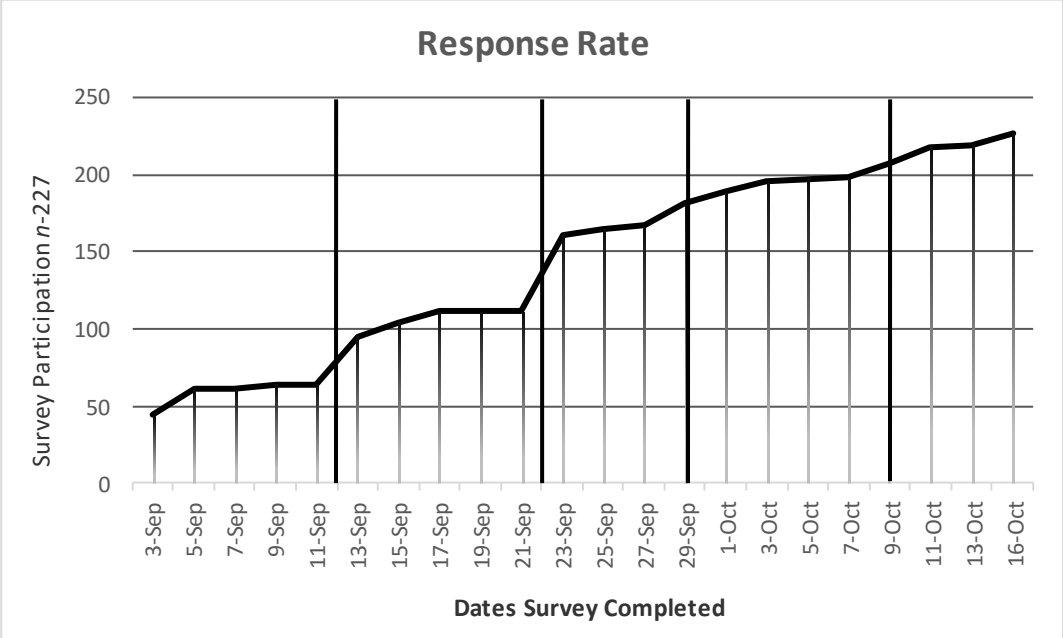

Figure 1. Response volume chart by date

To check for potential response bias, survey responses were cross-checked using a wave analysis to compare responses as they came in (Creswell, 2003). Survey responses were tabulated and stored in spreadsheets for data analysis. The invitation e-mail estimated the time to participate in the survey at under 20 minutes. On average the survey took participants 16 minutes to complete.

Methods of Validity and Reliability

Insofar as an existing validated instrument could not be identified in the review of literature for either knowledge or perceptions of CTE programs, given the exploratory

nature of this research study, I developed a survey that was capable of gathering data needed to address the identified research questions. The lack of tested instrumentation is directly attributable to the lack of attention to high school career counselors and the critical role they play in the advisement and enrollment in CTE programs.

Statistical checks and the Delphi method were used to establish the validity of the instrument as noted in this section. Creswell (2003) identified two common threats to validity; internal and external validity (p. 171). Lord and Novick (1968) suggested that reliability is a necessary condition for the presence of validity; patently, one cannot have valid results without also having reliable ones (p. 262). Internal validity may encompass, but is not limited to, a participant's experiences, which can affect the manner of responses to questions in the survey. External validity may encompass expanding the data beyond the scope of the study (e.g. applying results to a larger population).

I employed the Delphi method to establish content validity of the survey instrument. The Delphi method, originally developed by the Rand Corporation, is an evaluation process whereby experts in a subject area are asked to anonymously provide input on items in an effort to improve consistency in their interpretations of the questions. The Delphi method employs the old adage that "two heads are better than one" (Dalkey, 1969, p. 6). A panel of three experts in the field of CTE in Kansas was selected to review, modify and validate the survey instrument I developed for this study. Panel members were selected based on their years of service to education, expertise in the field of CTE, and their current positions in education in Kansas. One member was selected from a public school district, one from a community college, and one from the Kansas Board of Regents.

Members of the panel were asked to review each survey item and recommend changes in an effort to improve clarity, accuracy, and to determine if the instrument measures what was intended. The survey document was e-mailed to each member and they were asked to validate each survey item. Comments from each panel member were shared with the panel as a whole to allow input from each member on any changes to the survey instrument. Panel members suggested changes to six of the survey questions to improve accuracy and clarity. The panel member from the Kansas Board of Regents recommended wording changes on the Knowledge Level questions to match the language contained in Senate Bill 155. The Delphi method was used until all members of the expert panel agreed on a final draft of the survey instrument. Following agreement upon the survey items, I conducted a pre-test of the knowledge level and perception questions with a group of educators not included in the sample population in an effort to establish content validity before administering the survey to the counselors in the state of Kansas.

Lord and Novick (1968) stated that "the most important characteristic of a test is its construct validity" (p. 279). To establish validity in this exploratory research study, construct validity was selected to determine if the survey instrument accurately measures what is intended (Creswell, 2003; Lord & Novick, 1968). Carmines and Zeller (1979) noted that a researcher must assess the accuracy of the instrument in relation to the purpose of the study to ensure that the instrument is serving its intended purpose. In addition, the survey will be considered to possess construct validity if the results support the "theoretical expectations" of the survey (Carmines & Zeller, 1979, p. 27).

Statistical software from SPSS was used to measure the internal consistency of the survey items by producing a Cronbach's Alpha value for a set of items; a Cronbach's

alpha is essentially an inter-item reliability assessment. I used the SPSS software to assess the potential reliability of the survey items and identify items which, when removed from the equation, improved the alpha score (Kirkpatrick & Feeney, 2014). I employed SPSS to remove survey items that did not support the intentions of the survey. Initial reliability test results ranged from .537 on the knowledge level section to .840 on the perceived knowledge section.

Actual Knowledge Level. Actual knowledge level survey questions three, seven, and eight were identified and removed individually to improve the alpha score (See Table 3). Removing survey question seven (CTE Funding) increased the alpha to .593. Removing survey question three (SB 155 Initiatives), in addition to question five, increased the alpha from .537 to .692. Removing survey questions three, seven, and eight increased the alpha from .537 to .797; thus, significantly increasing the alpha to an acceptable level. A minimally acceptable Cronbach's alpha level ranges between .70 (Institute for Digital Research and Education, 2015) and .80 (Carmines & Zeller, 1979, p. 51) for a survey, which constitutes a maximum validity between .49 and .60.

After the identified survey questions were removed to increase the alpha score to an acceptable level, I reviewed the removed questions to determine if the items were significant to the study, or if the items were inadvertently measuring a different construct. The survey questions removed included: question three (SB 155 Initiatives), which asked about the specific initiatives of SB 155; question seven (CTE Funding), which inquired about how CTE programs are currently funded; and, question eight (Dual Credit), which asked if students could enroll for dual credit through a college while still in high school. I designed these questions to gather information about a counselor's knowledge of the

respective items in an effort to determine how much they knew about not only current CTE initiatives in Kansas, but also how CTE programming works within area colleges, and how it is funded.

Table 3

Cronbach's Inter-Item Alpha Scores for CTE Perceptions Survey Instrument

Description	Initial Alpha Score	Alpha Score w/ Items Removed	Maximum Validity
Counselors' Actual Knowledge (AK)	**.537**	**.797**	**.893**
AK Q3: SB 155 Initiatives	.591	Removed	
AK Q4: SB 155 Incentives	.471	.697	
AK Q5: Certifications	.332	.421	
AK Q6: High Demand	.332	.421	
AK Q7: CTE Funding	.593	Removed	
AK Q8: Dual Credit	.539	Removed	
Counselors' Perceived Knowledge (PK)	**.840**	**.840**	**.917**
PK Q9: CTE Pathways	.801		
PK Q10: Skill Requirements	.799		
PK Q11: Quality of Information	.792		
PK Q12: KS Workforce Needs	.819		
PK Q13: Local Workforce Needs	.833		
PK Q14: SB 155 Initiatives	.836		
Counselors' Perception of CTE (CTEP)	**.450**	**.517**	
CTEP Q15: Workforce	.464	Removed	
CTEP Q16: Certifications	.362	.443	
CTEP Q17: At-Risk	.336	.430	
CTEP Q18: Exposure	.400	.485	
CTEP Q19: Preparation	.485	Removed	
CTEP Q20: Completion	.392	.447	
CTEP Q21: Parents	.425	.495	
Available Counseling Time (CT)	**.820**	**.820**	**.906**
CT Q22: CTE Counseling Time	.233		
CT Q23: Career Counseling Time	.339		
Educational Background (ED)	**.717**	**.771**	**.878**
ED Q26: CTE in High School	.771	Removed	
ED Q27: CTE in College	.443	.443	
ED Q28: CTE Teaching Experience	.626	.626	

In assessing the three actual knowledge level questions that were removed (e.g. Questions 3, 7 & 8), only question three (SB 155 Initiatives) specifically dealt with the Governor's CTE plan. Questions three through six were measuring the same construct of the specific details of SB 155; however, question three statistically did not connect to the other three questions measuring SB 155 details. I determined that question three (SB 155 initiatives) is similar in nature to question four (CTE incentives). Due to the nature of their positions counselors may not be exposed to the actual initiatives of SB 155; however, they most likely would be familiar with the financial incentives and benefits to their students. Removing this question would not adversely affect the intent of the survey or the outcome of the study.

In assessing questions seven and eight, I identified that each question was individually focused on a specific aspect of CTE programming which can explain why those items did not produce higher alpha levels for reliability between items. Patently, each of these items reflects an independent underlying construct that is distinct from the other items. Question seven addressed federal funding for CTE and question eight addressed current enrollment practices utilized in the high school setting in Kansas.

Due to the nature of the positions, counselors may not be privy to the specific funding options available to school districts, or colleges, and what is specifically available in the governor's plan. Comments received in the survey reflect this perception (e.g. "I do not know all the particulars of funding sources, nor do I think I need to in order to promote the pathways programs we are able to create in our district", and "I don't deal directly with the funding"). This may explain the lower scores associated with question seven, which affected the reliability of the item. Removing this question does

not adversely affect the intent of the survey or the outcome of the study, since the study is focused on Kansas initiatives. However, question eight (Dual Credit) is a question that counselors should have substantial knowledge about and most likely are utilizing within their schools. In further analyzing this question, I determined that some larger schools with multiple counselors assign counselors to a grade level (e.g. freshmen, sophomores, juniors, seniors). Thus, counselors assigned to the freshmen and sophomore levels would not work with dual credit programs. This may explain the reason for the lower scores associated with question eight, which affected the reliability of the question. Again, since this question is measuring a specific aspect of CTE programming, and is distinct from the other items, it will not adversely affect the intent of the survey, or the outcome of the study when removed.

Perceived Knowledge Level. On the perceived knowledge level section, the initial reliability test result produced an alpha of .840; thus, falling within an acceptable level. Since the reliability test resulted in an acceptable alpha level I did not remove items from this section of the survey. Alpha results are noted in Table 3.

Perceptions of CTE. On the perceptions section the initial reliability test result produced an alpha of .450. Removing one survey item at a time gradually increased the alpha score to .517; however, an acceptable level was not achieved. Of the original seven survey questions, questions 15 (Workforce) and 19 (Preparation) were removed to raise the alpha score. (See Table 3). Although all of the items are assessing the underlying construct of a counselor's perception of CTE, the items did not hold together as a scale to establish an acceptable alpha score for reliability. In assessing the perception survey items I identified that each question was individually focused on a specific aspect of CTE

programming which can explain why those items did not produce higher alpha levels for reliability between items. Patently, each of these items reflects an independent underlying construct that is distinct from the other items. Since the dependent variable is perceptions of CTE, I determined the need to focus the perception section on the individual questions which assessed a high school career counselor's perceptions of CTE issues that addressed the research problem.

Questions 15 (Workforce) and 16 (Certifications) measured the perceptions of CTE serving the workforce and the importance of certifications for employment. Items 17 (At-Risk) and 19 (Preparation) measured perceptions of the type of student who is involved in CTE (e.g. to serve at-risk students; and, whether CTE students are well-prepared academically), which are similar constructs. Question 18 (Exposure) measured when a student should be exposed to CTE (e.g. junior high). Question 20 (Completion) and Question 21 (Parents) are measuring perceptions of the probability of a student completing a CTE program while in high school, and if parents support their participation in CTE.

The expert panel utilized in the Delphi process did not question the reliability of survey items; however, it is possible the panel did not examine the survey for consistency between survey items. Delphi members were asked to review the document for accuracy and clarity to eliminate confusing questions, or inaccurate questions and terminology.

Educational Background. On the educational background section the initial alpha score was .717. By removing survey question 26 (CTE background in high school) the alpha score increased to .771; thus, significantly increasing the alpha to an acceptable level. In further assessing question 26, I identified that this item was individually focused

on a specific aspect of education, which can explain why this item did not produce higher alpha levels for reliability between items. Patently, this item reflects an independent underlying construct that is distinct from the other items. In addition, a student taking CTE programming while in high school may be more exploratory in nature, where in college a student may be more focused on a career pathway. Removal of this item will not adversely affect the intent of the survey, or the outcome of the study.

Table 3 lists the alpha scores for the survey items. Final alpha scores after the identified survey item was removed ranged from .771 to .840. The alpha scores were evaluated post hoc. Conducting the post hoc review helped to identify any association between the variables, which may otherwise go undetected. Additional statistical tests were processed to determine if an association existed among variables as noted in the next section.

Counselor's Available Time for Counseling. On the available time for counseling section, the initial reliability test result produced an alpha of .820; thus, falling within an acceptable level. Since the reliability test resulted in an acceptable alpha level I did not remove items from this section of the survey. Alpha results are noted in Table 3.

Analysis of Data

The data collected from the survey instrument was compiled into multiple spreadsheets and analyzed through a variety of statistical processes. Since the survey data was categorical in nature a chi-square test for independence was selected to evaluate if an association existed between the two variables, and if they were significant at the .05 level (Kirkpatrick & Feeney, 2014; Gravetter & Wallnau, 2013; Creswell, 2003). Participant scores from each section of the survey representing the independent variables (e.g. actual

knowledge level, perceived knowledge level, educational background, and available counseling time) were utilized to plot a linear relationship between the respective independent variable and the dependent variable of perception level in a scatter plot. I evaluated the scatter plots to identify any outliers, which may affect the perceived association between the variables. In the analysis of the scatter plots, one outlier was identified, assessed, and noted. In further assessing the data, I determined that the outlier was the one respondent that was scored as having a negative perception of CTE. This respondent provided contradictory responses on the survey as she was scored as having a substantial knowledge level, but reported that she had limited knowledge of CTE due to not being involved in CTE. This appears to be an anomaly. Results of the statistical analyses are reported and discussed in the following results section.

Summary

The methodology for this quantitative study was designed to examine a cross-sectional random sample of high school career counselors to gauge their perceptions of CTE. I used an electronic survey instrument, *Survey Monkey*, as an added convenience to potential participants with a goal of increasing participation in the study. The research study tested the hypothesis that there is an association between a high school career counselor's educational background and knowledge level of CTE initiatives and programs, and their perceptions of CTE initiatives and programs. Efforts were made to minimize researcher bias as I am employed in the field and work with a handful of the career counselors in the sample setting. To help establish the validity and reliability of the survey instrument, I used the software program SPSS to assess the Cronbach Alpha scores to determine if the survey items were measuring what was intended for the data

analysis phase of the study. In addition, I employed the Delphi method of utilizing a panel of experts to establish content validity of the survey instrument. Survey data was compiled into spreadsheets and analyzed through multiple statistical processes including descriptive statistics, scatter plots, and a chi-square test for independence. Results were analyzed and reported in the results section.

Section 4: Results

Introduction

This section explores the results of the survey, the response rate, demographic information about the survey participants, and the findings related to the two research questions. In an effort to quantify the backgrounds of the high school career counselors who chose to participate in the study I selected the following control variables: years of teaching and counseling experience, gender, level of education educational background, additional responsibilities, number of students counseled, time available for counseling, and school size. I aligned the results with the respective research questions.

Survey Sample Results

Demographics of Respondents

I collected demographic information from participants including gender, years of counseling experience, years of teaching experience, educational background (Research Question 2), highest degree attained, number of students counseled, amount of counseling time (Research Question 3), school size, employment status (e.g. full or part-time), and if they were assigned additional job responsibilities. Of the 485 counselors surveyed, 227 responded to the survey. There were 23 counselors (4.7%) who I was unable to contact because of bad e-mail addresses (e.g. bounced back as undeliverable); three (0.6%) who replied with an automatic message stating they were on medical/maternity leave; and, one (0.2%) who responded that she was not a career counselor, but a scholarship coordinator. Thus, a total of 458 counselors were directly contacted to participate in the study.

The first question on the survey gave the participants the option to participate or to decline participation. Seven (1.4%) counselors opted out of the survey and 220 agreed

to participate. Of the 220 participants, 16 (3.3% of total) failed to complete more than one-half of the survey, which resulted in 204 completed surveys. The final survey response rate was 42% (n = 204). Of the 204 completed surveys, two (2) participants failed to completed the demographic information section at the end of the survey (n = 202). I thus collected this information on only the 202 participants who completed the demographic section of the survey (Section E). Demographic information on gender was necessary for the stratification of the population process to ensure the study collected a representative sample of male and female counselors.

School Size. Counselors who responded to the survey that were from schools with less than 250 students (42%) had a lower response rate than the number of potential counselors in the population (61%). Respondents from schools with 250-500 students and 501-1,000 students matched the percentage of the population surveyed. Respondents from schools with over 1,000 students (28%) exceeded the population percentage (14%). This data reflects an under-representation of small schools and an over-representation of large schools in the sample (See Table 4). This disparity may have potentially biased the study.

Table 4

Frequency of Participants by School Size

School Size	Population	Sample
Less than 250	61%	42%
250-500	13%	14%
501-1,000	12%	16%
Over 1,000	14%	28%

Upon further examination of the respondents from schools with over 1,000 students, I found that 34 reported counseling 301-500 students, and 18 reported counseling 100-300 students. In comparison, nine (9) counselors from small schools reported counseling 301-500 students, and 59 reported counseling 100-300 students. Forty-seven of the responding counselors from schools with over 1,000 students stated that they spent less than five (5) hours counseling their students compared to 41 of the responding counselors for schools with less than 250 students. Nine respondents from the largest schools reported counseling for 6 to 10 hours compared to 26 for the smaller schools.

From this data I determined that the larger the school, typically the larger the student counseling load for counselors. However, schools with over 1,000 students (36%) and schools with less than 250 students (31%) were comparable in spending less than five hours counseling their students. This could be a product of having too many students to counsel in larger schools, or too many additional responsibilities in addition to career counseling in smaller schools. Overall, counseling time does not appear to be a function of school size.

Gender. I collected the gender of the participant for the stratification process to ensure the study collected a similar number of female and male counselors in Kansas (n = 202) reflective of the state's actual gender distribution amongst counselors. A total of 158 females (78%) and 44 males (22%) completed the demographic section of the survey. Two respondents did not complete the demographic section of the survey, so I was unable to classify them by gender. As noted in Table 5, the total number of participating females and males in the study is similar to the total number of females and males in the

population.

Table 5

Frequency of Participants by Gender

Gender	Population	Sample
Female	81%	78%
Male	19%	22%

Job Status. Of the high school career counselors responding to the survey, 182 (90%) reported being employed as full-time counselors and 20 (10%) were employed as part-time counselors. Table 6 provides a breakdown of the distribution of counselors by school size, gender, and job status. The largest majority of counselors are females, employed full-time, and working at schools with less than 250 students. A majority of the part-time counselors are also females working at schools with less than 250 students. Male counselors are primarily employed at schools with less than 250 students and are employed full-time. Overall 90% of part-time counselors are employed at schools with less than 250 students. This is indicative of small schools with limited budgets.

Counseling and Teaching Experience. The majority of the high school career counselors participating in the study reported their counseling experience at over 10 years (38% female and 12% male). Fewer than 19% reported their counseling experience at 1-3 years, 17% reported 4-6 years, and 15% reported 7-9 years (See Figure 2). Over 87% of the Kansas high school counselors participating in the study had previous teaching experience. Sixty-eight female and 27 male counselors reported 10 years or more of teaching experience (See Figure 3). Less than 13% of the career counselors in Kansas had

no teaching experience prior to becoming a career counselor. Sixty-five percent of the counselors without prior teaching experience reported having less than six years of counseling experience and only 15% reported having 10 or more years of counseling experience.

Table 6

Frequency of Participants by School Size, Gender, and Job Status

School Size	Females				Males			
	Full-time		Part-time		Full-time		Part-time	
	N	%	*N*	%	*N*	%	*N*	%
< 250	50	35%	14	100%	16	42%	4	66%
250-500	21	15%	0	0%	6	16%	1	17%
501-1,000	30	20%	0	0%	3	8%	1	17%
Over 1,000	43	30%	0	0%	13	34%	0	0%
TOTAL	**144**	**100%**	**14**	**100%**	**38**	**100%**	**6**	**100%**

Note. Two (2) respondents did not complete the demographic section to determine gender.

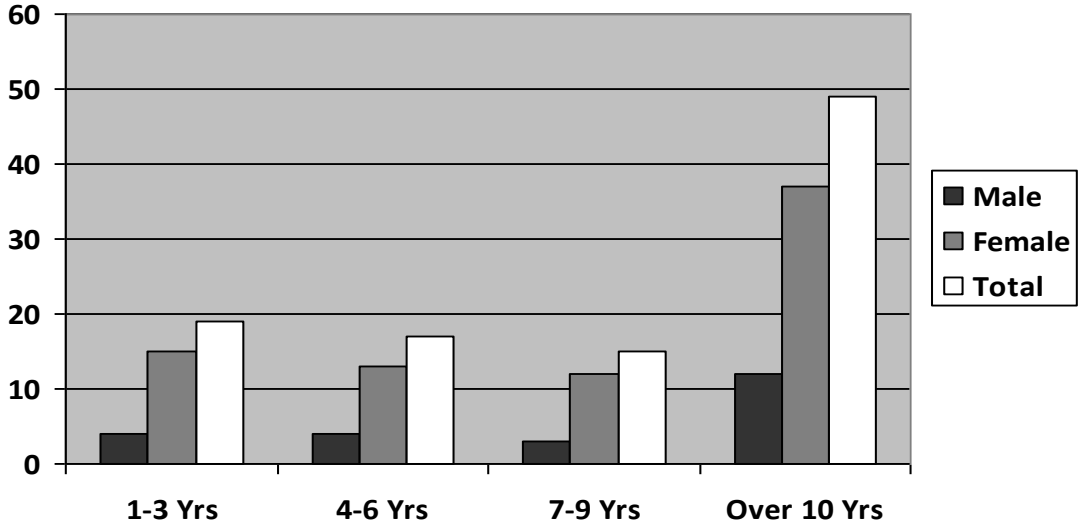

Figure 2. Years of counseling experience percentage by gender as reported by high school career counselors.

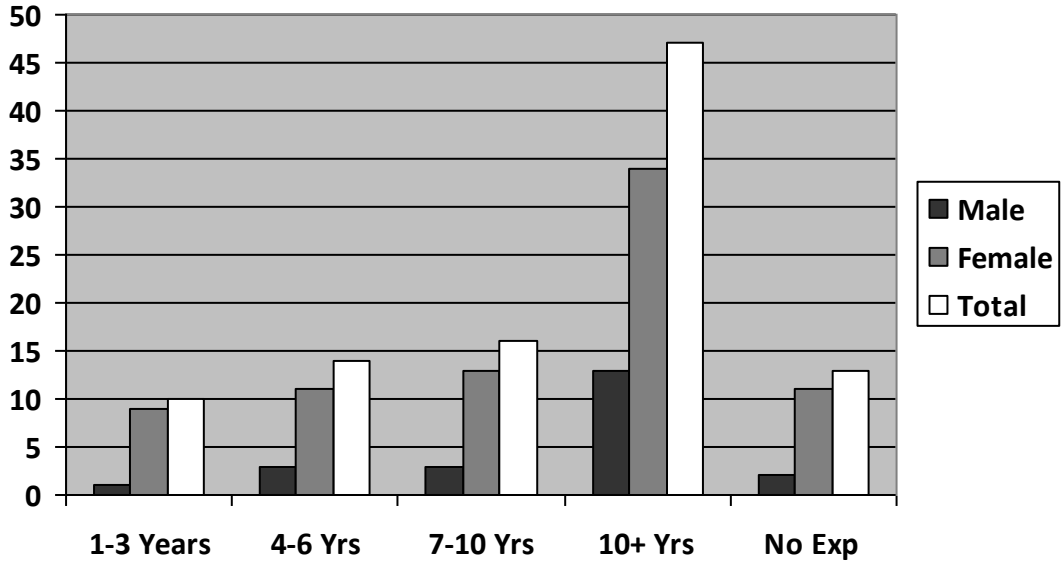

Figure 3. Years of teaching experience percentage by gender as reported by high school career counselors.

Additional Responsibilities. Over 86% of the respondents reported having additional job responsibilities beyond their career counseling duties. Additional duties listed by counselors included, but were not limited to teaching, administration, state assessment testing coordination, class sponsors, migrant student liaison, crisis counseling (drugs, alcohol, bullying, personal, etc.), coaching, lunch duty, scholarship assistance, transcripts/registrar, and special events coordinator. A majority of the counselors reported their student-to-counselor ratio at more than 100 students per counselor (55%) and 33% reported being responsible for more than 300 students. In contrast, a majority of counselors noted that their face-to-face time spent with each student was less than five (5) hours per year. This is reflective of higher workloads and additional job responsibilities outside the scope of career counseling.

When asked to list the additional job responsibilities, one counselor stated, “Too long to list. I’m responsible for everything!” In addition, multiple counselors reported being responsible for the K-12 counseling at their respective schools, which is indicative of small school districts. Heavier workloads and the assignment of additional job duties may be a significant factor that limits the amount of time a career counselor has available to expose students to CTE opportunities. This limitation may contribute to the problem of lower enrollments in CTE programs which in turn may impact the shortage of a qualified workforce.

Non-respondents. Over 58% of the counselors who were initially surveyed were non-respondents (283). Non-respondents accounted for 236 (83%) females and 47 (17%) males. This includes the seven (7) counselors who opted out of the survey, the 16

participants who failed to complete more than one-half of the survey, and the two (2) participants who did not complete the demographic section of the survey. I determined the gender of non-participants using the original contact information.

By examining the demographic information from the survey and comparing the data to the original contact information and the Kansas State Department of Education data, I was able to identify that a large majority of non-respondents were from schools with over 1,000 students (See Table 7). The lower response rate from counselors at schools with over 1,000 students may potentially bias the study; however, as noted by the Kansas State High School Activities Association (2014), over 73% of Kansas schools enroll fewer than 500 students. Overall, the demographics of the non-respondents are similar to the respondent group; thus, the results may be effectively generalized to the entire population and should not negatively impact the study.

Table 7

Frequency of Participants and Non-Respondents by School Size

School Size	**Participants**		**Non-Respondents**		**TOTALS**	
	N	%	*N*	%	*N*	%
< 250	84	49%	88	51%	172	100%
250-500	28	53%	25	47%	53	100%
501-1,000	34	46%	40	54%	74	100%
Over 1,000	56	30%	130	70%	186	100%
TOTALS	**202**		**283**		**485**	

Quantitative Analyses

Research Question One

Research question one states, "What is the association between a high school career counselor's knowledge level of CTE initiatives, as proposed by Kansas Governor Sam Brownback in January 2012, and their perceptions of CTE programs?"

H_{01}: There is no association between a high school career counselor's knowledge of CTE initiatives and their perceptions of CTE.

H_1: There is an association between a high school career counselor's knowledge of CTE initiatives and their perceptions of CTE.

I developed the null and alternative hypotheses to answer research question one by determining if an association exists between actual knowledge level (Survey Section A) and a counselor's perceptions of CTE (Survey Section C). I first wanted to determine if a counselor's perceived knowledge of CTE initiatives (Survey Section B) was consistent with their actual knowledge level of CTE initiatives before I tested for an association between actual knowledge and CTE perceptions, and an association between perceived knowledge and CTE perceptions.

Actual Knowledge vs. Perceived Knowledge Analysis. Amongst the 204 counselors who participated in the study, actual knowledge level was relatively evenly distributed between substantial, moderate, and minimal levels. In comparison to the perceived knowledge level, a large majority of counselors scored in the moderate perceived knowledge level with numeric scores between 14 and 21. Table 8 displays the breakdown of counselors' actual and perceived knowledge levels by gender and school size. Counselors from schools with less than 250 students had the highest levels of actual

and perceived knowledge, which may be indicative of small schools employing only one counselor and that counselor being responsible for all aspects of counseling. Thus, the counselor is more likely to be involved in decision-making and new CTE initiatives such as SB 155.

Table 8

Actual Knowledge vs. Perceived Knowledge by Gender and School Size

	Actual Knowledge Level						**Perceived Knowledge Level**					
	Substantial Score=3		**Moderate Score=2**		**Minimal Score=0-1**		**Substantial Score=22-30**		**Moderate Score=14-21**		**Minimal Score=6-13**	
	n	**%**	***n***	**%**	***n***	**%**	***n***	**%**	***n***	**%**	***n***	**%**
Gender												
Females	57	28	60	30	41	20	28	14	121	60	9	4
Males	19	9	9	5	16	8	14	7	24	12	6	3
Totals	**76[a]**	**37**	**69[a]**	**35**	**57**	**28**	**42**	**21**	**145[a]**	**72**	**15**	**7**
School Size												
< 250	39	19	24	12	21	10	18	9	56	28	10	5
250-500	8	4	5	3	15	7	6	3	20	10	2	1
501-1,000	13	6	16	8	5	3	10	5	24	12	0	0
> 1,000	16	8	24	12	16	8	8	4	45	22	3	1
Totals	**76[a]**	**37**	**69[a]**	**35**	**57**	**28**	**42**	**21**	**145[a]**	**72**	**15**	**7**

[a] Two (2) respondents did not complete the demographic section to determine gender. One respondent had a substantial actual knowledge level and one a moderate actual knowledge level. Both respondents had moderate perceived knowledge levels.

Ninety-three percent of the respondents perceived their knowledge level to be at the moderate or substantial perceived knowledge levels while 72% of the counselors scored at the moderate or substantial levels for actual knowledge. Thirty-two percent (65) of counselors perceived their knowledge level to be higher than their actual knowledge level indicated. On actual knowledge, 57 counselors were scored as having minimal or no knowledge of CTE initiatives. In analyzing this data, I found that 51 of those 57

counselors perceived their knowledge level to be at the substantial (10), or moderate (41) levels. In addition, 14 counselors perceived their knowledge level to be at the substantial level; however, their actual knowledge level was moderate. In essence these counselors overestimated their knowledge levels (See Table 9).

Table 9

Actual Knowledge vs. Perceived Knowledge Comparison

	Perceived Knowledge			
Actual Knowledge	**Substantial** Score=22-30	**Moderate** Score=14-21	**Minimal** Score=6-13	**TOTALS**
Substantial (Score=3)	18 (9%)	52 (26%)	7 (3%)	**77 (38%)**
Moderate (Score=2)	14 (7%)	54 (26%)	2 (1%)	**70 (34%)**
Minimal or No Knowledge (Score=0-1)	10 (5%)	41 (20%)	6 (3%)	**57 (28%)**
TOTALS	**42**	**147**	**15**	**204**

Of these 51 counselors, 38 were female, and 13 were male. Seventeen (33%) were from schools with less than 250 students, 15 (29%) from schools with 251-500 students, five (10%) from schools with 501-1,000 students, and 14 (28%) were from schools with over 1,000 students. However, 61 counselors perceived their knowledge level to be below their actual knowledge level (e.g. underestimated their knowledge level). Of these 61 counselors, 50 were female, nine (9) were male, and two (2) did not report gender on the survey. Twenty-six (46%) were from schools with less than 250 students and eleven (20%) from schools with over 1,000 students. Counselors from schools with less than 250

students (51%) had the highest actual knowledge level (e.g. substantial level) compared to counselors from the other sized schools.

For the statistical analysis on research question one, I utilized SPSS to process the statistical tests to determine if the null hypothesis could be rejected. I examined the independent variable of actual knowledge to determine if an association existed between a counselor's actual and perceived knowledge levels. A chi-square test for independence of actual vs. perceived knowledge was performed and no significant association was noted, $\chi^2(4, n = 204) = 4.05, p > .05$. Thus, a counselor's perceived knowledge did not have a statistically significant effect on a counselor's actual knowledge level. These two variables are independent of each other and do not have a statistically significant association.

Actual Knowledge Analysis. The next step in the analysis process to determine if the null hypothesis could be rejected for Research Question One involved the processing of a chi-square analysis of actual knowledge level compared to each of the seven CTE perception areas. The chi-square analysis produced significant results between actual knowledge and CTE perception Certifications, $\chi^2(6, n = 204) = 12.97, p < .05$; thus, I was able to reject the null hypothesis. The other six perceptions areas (e.g. Workforce, At-Risk, Exposure, Preparation, Completion, & Parents) did not produce statistically significant results; thus, representing no association between the variables. From the results I determined that an association exists between a counselor's actual knowledge level and a counselor's perception that certifications are valuable for future employment.

Perceived Knowledge Analysis. The next step in the analysis process to determine if the null hypothesis could be rejected for Research Question One involved

the processing of a chi-square test for independence of a counselor's perceived knowledge level compared to each of the seven CTE perception areas. The chi-square analysis produced significant results between perceived knowledge and CTE perception Certifications, $\chi^2(6, n = 204) = 13.86$, $p < .05$; and, CTE perception Parents, $\chi^2(6, n = 204) = 15.45$, $p < .05$; thus, I was able to reject the null hypothesis. The other five perceptions areas (e.g. Workforce, At-Risk, Exposure, Preparation, & Completion) did not produce statistically significant results; thus, representing no association between the variables. From the results I determined that a counselor's perceived knowledge was associated with a counselor's perception that certifications are valuable for future employment, and that a parents are supportive of their student participating in a CTE program in high school.

Control Variables Analysis. Although an analysis of the control variables was not required to answer research question one, I wanted to drill deeper into the data collected to thoroughly understand what additional variables impacted a counselor's actual and perceived knowledge levels. I conducted a chi-square test for independence of the control variables in relation to a counselor's actual and perceived knowledge level to determine if there is an association between a counselor's knowledge levels and one or more of the control variables. The control variables included additional responsibilities, job status, school size, gender, number of students counseled, years of counseling experience, and years of teaching experience. The chi-square analysis produced significant results between actual knowledge level and school size, $\chi^2(6, n = 202) = 18.30$, $p < .01$, and actual knowledge level and years of teaching experience, $\chi^2(8, n = 202) = 18.05$, $p < .05$. The other control variables (e.g. additional responsibilities, job

status, gender, number of students counseled, and years of counseling experience) did not produce statistically significant results at the .05 level.

For the chi-square test for independence on a counselor's perceived knowledge level in relation to the control variables, a statistically significant result was produced between perceived knowledge level and additional responsibilities, $\chi^2(2, n = 202) = 7.69$, $p < .05$; perceived knowledge level and gender, $\chi^2(2, n = 202) = 8.54$, $p < .05$; perceived knowledge level and number of students counseled, $\chi^2(6, n = 202) = 15.55$, $p < .05$; and, perceived knowledge level and years of counseling experience, $\chi^2(6, n = 202) = 17.92$, $p < .01$. The other three control variables (e.g. job status, school size, and years of teaching experience) did not produce statistically significant results at the .05 level; thus, suggesting no association between variables.

In addition, I compared the control variables to each of the seven CTE perception areas to determine if an association existed between the variables. A statistically significant association was identified between a counselor's job status (e.g. full or part-time) and the CTE perception area of Certifications, $\chi^2(3, n = 202) = 9.57$, $p < .05$; between additional responsibilities and the CTE perception area of exposure, $\chi^2(4, n = 202) = 9.64$, $p < .05$; between additional responsibilities and the CTE perception area of Preparation, $\chi^2(4, n = 202) = 11.68$, $p < .05$; and, between years of counseling experience and the CTE perception area of Parents, $\chi^2(9, n = 202) = 22.33$, $p < .01$.

Thus, full-time counselors overwhelmingly agreed that certifications are valuable for future employment. In addition, counselors who reported additional job responsibilities had a more positive perception of CTE in the areas of exposure and

preparation. These counselors perceived early exposure to CTE avenues as a valuable activity, and perceived students in CTE areas to be academically prepared. More experienced counselors also reported parents being supportive of their student's participation in CTE programs. The other control variables (e.g. school size, gender, number of students counseled, and years of teaching experience) did not yield a statistically significant association to any of the seven CTE perception areas.

Based on the results of the statistical tests for research question one, the null hypothesis which stated that "there is no association between a high school career counselor's knowledge of CTE initiatives and their perceptions of CTE" is rejected, $p < .05$. A statistical significance was noted between a counselor's actual knowledge level and the CTE perception area of Certifications, $\chi^2(6, n = 204) = 12.97$, $p < .05$; and, between a counselor's perceived knowledge level and the CTE perceptions in the area of Certifications, $\chi^2(6, n = 204) = 13.86$, $p < .05$; and, the CTE perception area of Parents, $\chi^2(6, n = 204) = 15.45$, $p < .05$. The CTE perception area of Certifications produced a significant result for both actual knowledge and perceived knowledge levels.

Research Question Two

Research question two states, "What is the association between a high school career counselor's educational background (e.g. attended a community or technical college; or a CTE program in high school or college; or taught in a CTE area) and their perceptions of CTE programs?"

H_{02}: There is no association between a high school career counselors' educational background and their perceptions of CTE.

H_2: There is an association between a high school career counselors' educational background and their perceptions of CTE.

The null and alternative hypotheses were developed to answer research question two by analyzing the demographics section responses (Survey Section D) to determine if a counselor's educational background had a statistically significant impact on a counselor's perceptions of CTE.

Education level. One of the assumptions of this study was that individuals employed as high school career counselors in the state of Kansas held a minimum of a Master's degree. The demographic data collected verified this assumption with 96% of the respondents holding a Master's degree or higher. Approximately four (4) percent of the respondents reported a bachelor degree as their highest level of education. Less than seven (7) percent of the respondents held an education specialist, or doctoral degree. Participants listed a variety of majors for their Master's degree including Guidance Counseling, School Counseling, K-12 Counseling, Administration and Counseling, Educational Leadership and Counseling, Social Work, and Curriculum and Instruction.

Educational Background. Participants were also asked demographic questions about their education background to determine if a counselor's background affected their perception of career and technical education (e.g. Research Question 2). Of the 203 counselors who completed this portion of the demographic section of the study, a large majority did not attend a community or technical college, did not have a CTE background in high school or college, and did not have CTE teaching experience (See Table 10). Counselors reporting they did not have a CTE background totaled 157 (77%) out of 203;

thus, a large majority of the responding counselors did not report having an educational background in CTE. Only 46 (23%) counselors reported having a CTE background.

Of the 204 counselors in the study, 19 were scored as having a substantial knowledge level, a substantial perceived knowledge level and a positive perception of CTE. Nine (9) of these 19 respondents reported having a CTE educational background. One respondent was scored as having a negative perception of CTE. This respondent had a substantial actual knowledge level, a moderate perceived knowledge level, did not report having a CTE background, reported spending less than five (5) hours counseling each student, and reported working as a part-time counselor at a school with less than 250 students.

Table 10

Educational Background Demographics

Characteristics	Category	Frequency	Percent
Attended a Community or	Yes	57	28%
Technical College	No	146	72%
CTE background in high school	Yes	33	16%
	No	170	84%
CTE background in College	Yes	30	15%
	No	173	85%
Area of Teaching Experience	Academic Courses	125	62%
	CTE Courses	22	11%
	Both Areas	18	9%
	No Teaching Experience	38	18%
	TOTALS	**203**	**100%**

Note. Of the 204 respondents who completed more than one half of the survey, one (1) counselor did not report this demographic information.

One hundred eleven (54%) of the 204 respondents were scored has having a positive perception of CTE. Of these, 84 (76%) reported no CTE background and 27 (24%) reported having a CTE background. Ninety-two respondents were scored as having a moderate perception of CTE. Of those 92 respondents, 73 (79%) reported no CTE background, and 19 (21%) reported having a CTE background. Overall, a large majority of the counselors in the study did not have a CTE background prior to their professional careers. This is indicative of the lack of emphasis on CTE programming within school districts in the 1980s and 1990s when many of the study respondents were in high school.

Again I utilized SPSS to process the statistical tests to determine if the null hypothesis could be rejected. The null hypothesis stated that "there is no association between a high school career counselors' educational background and their perceptions of CTE. The seven CTE perception areas were the dependent variables. The independent variable was educational background. I processed a chi-square test for independence to determine if educational background was associated with a counselor's more positive perceptions of CTE. The chi-square test for independence was performed and no significant association was noted between any of the seven CTE perception areas, $p > .05$; thus, I was not able to reject the null hypothesis for Research Question two.

Control Variables Analysis. Although an analysis of the control variables was not required to answer research question two, I wanted to drill deeper into the data collected to thoroughly understand what additional variables were associated with a counselor's educational background. I conducted a chi-square test for independence of the control variables in relation to a counselor's educational background to determine if

there is an association between educational background and one or more of the control variables. The control variables included additional responsibilities, job status, school size, gender, number of students counseled, years of counseling experience, and years of teaching experience. The chi-square analysis produced significant results between educational background and years of teaching experience, $\chi^2(4, n = 202) = 14.52, p < .01$. The other control variables (e.g. additional responsibilities, job status, school size, gender, number of students counseled, and years of counseling experience) did not produce statistically significant results at the .05 level.

A counselor's perception of CTE areas is not significantly impacted by their educational background and experiences. As education level increased there was not an equal increase in positive or negative perceptions of CTE with counselors. As assumed coming into the study that a majority of counselors are master degree prepared, the study supported this assumption and verified that education level was not a predictor of perception. Only the control variable of years of teaching experience had a significant association with a counselor's educational background.

Research Question Three

Research question three states, "What is the association between the amounts of time a high school career counselor has available for career counseling and their perceptions of CTE programs?"

H_{03}: There is no association between the amount of time a high school career counselor's has available for career counseling and their perception of CTE.

H_3: There is an association between the amount of time a high school career counselor's has available for career counseling and their perception of CTE.

The null and alternative hypotheses were developed to answer research question three by analyzing the available counseling time question responses in Survey Section C to determine if a counselor's available time for counseling activities had a statistically significant impact on a counselor's perceptions of CTE.

Again I utilized SPSS to process the statistical tests to determine if the null hypothesis could be rejected. The null hypothesis stated that "there is no association between the amount of time a high school career counselor's has available for career counseling and their perception of CTE." The seven CTE perception areas were the dependent variables. The independent variable was available counseling time. A chi-square analysis was utilized to examine the association between the seven individual CTE perception areas and the independent variable of available counseling time. Results of the chi-square analysis produced a statistically significant association between available counseling time and the CTE perception area of Preparation, $\chi^2(12, n = 202) = 38.56, p < .001$; thus, I was able to reject the null hypothesis for Research Question three. The other six CTE perception areas (e.g. Workforce, Certifications, At-Risk, Exposure, Completion, and Parents) did not produce significant results, $p > .05$. Thus, a counselor's perception of CTE students being academically prepared was associated with the amount of time a counselor had available for counseling students.

In addition, I processed a chi-square test for independence to examine the association between available counseling time and a counselor's actual and perceived

knowledge levels. Results of the chi-square test for independence did not show a statistical significance between a counselor's actual or perceived knowledge of CTE initiatives and their available counseling time. As counseling time increased or decreased a counselor's actual and/or perceived knowledge of CTE initiatives was not significantly affected, $p > .05$.

Control Variables Analysis. Although an analysis of the control variables was not required to answer research question three, I wanted to drill deeper into the data collected to thoroughly understand what additional variables impacted a counselor's available counseling time. I conducted a chi-square test for independence of the control variables in relation to a counselor's available counseling time to determine if there is an association between available counseling time and one or more of the control variables. The control variables included additional responsibilities, job status, school size, gender, number of students counseled, years of counseling experience, and years of teaching experience. The chi-square analysis produced significant results between available counseling time and additional responsibilities, $\chi^2(3, n = 202) = 22, p < .001$; available counseling time and school size, $\chi^2(9, n = 202) = 30.37, p < .001$; available counseling time and number of students counseled, $\chi^2(9, n = 202) = 40.78, p < .001$; and, available counseling time and years of counseling experience, $\chi^2(9, n = 202) = 19.75, p < .05$. The other control variables (e.g. job status, gender, and years of teaching experience) did not produce statistically significant results at the .05 level. From the statistical analysis, the amount of time a counselor has for counseling students is affected by a counselor being

assigned additional responsibilities, a counselor's school size, the number of students assigned to a counselor, and by the number of years of counseling experience.

Of the 202 counselors who completed the demographic section of the survey, a large majority reported spending less than five (5) hours per year counseling each student. Both small and large school counselors reported this as the primary amount of time available to students as noted in Table 11.

Table 11

Frequency of Participants by School Size and Counseling Time

	Counseling Time									
School Size	**< 5 hrs**		**5-10 hrs**		**11-15 hrs**		**> 15 hrs**		**TOTAL**	
	N	%	*N*	%	*N*	%	*N*	%	*N*	%
< 250	40	20%	26	13%	11	5%	7	4%	84	41%
250-500	17	8%	7	3%	2	1%	2	1%	28	14%
501-1,000	27	13%	7	3%	0	0%	0	0%	34	17%
Over 1,000	47	23%	9	5%	0	0%	0	0%	56	28%
TOTAL	**131**	**65%**	**49**	**24%**	**13**	**6%**	**9**	**5%**	**202**	**100%**

Note. Two (2) respondents did not complete the demographic section.

In drilling deeper into the data, I identified that of the 131 counselors who reported spending less than five (5) hours counseling their students, 117 (89%) reported being employed as a full-time counselor, and 14 (11%) reported being employed as a part-time counselor. In comparison, of the nine counselors who reported spending over 15 hours of face-to-face counseling time with their students, all of those counselors were female, employed full-time, and working at small schools with less than 500 students.

One counselor attributed the lack of time available for face-to face counseling to not having a designated block of time for counseling activities at their school.

Summary

CTE enrollments in Kansas and the United States lag behind the demand for a more skilled workforce; although, recent legislation in Kansas is creating a new emphasis on CTE initiatives. With a majority of future jobs reliant on technical skills training, educators will be tasked with increasing enrollments in CTE program areas to meet future workforce demands. This study identified a shortage of a skilled workforce and investigated the role of a high school career counselor in the process. As a basis of the study counselors were surveyed to determine their level of knowledge about CTE initiatives in Kansas and to gauge their positive or negative perceptions toward CTE. A large majority of the study respondents scored in the moderate or substantial levels for actual CTE knowledge and perceived knowledge. It was determined that as a counselor's knowledge level increased on average their perceived knowledge level increased as well. A large majority of study respondents were employed full-time, had more than 10 years of counseling experience, had additional job responsibilities beyond career counseling, and did not have a CTE background while in high school or in college. Overall, counselors had a positive perception of CTE initiatives in Kansas and knowledge level was associated with a more positive perception of CTE. The final section of the study will provide an interpretation of the findings, identify implications for social change, discuss recommended actions, and identify areas of further study.

Section 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this study was to explore the effects of high school career counselors' educational backgrounds, counseling time, and knowledge levels of CTE initiatives and programs to determine if their educational backgrounds, counseling time, and/or knowledge levels affect their perceptions of CTE. Results of the study indicated that knowledge levels did have a significant impact on a counselor's positive or negative perception of CTE. As knowledge levels increased, so did a counselor's positive perception of CTE. However, the results of the study did not show a significant impact of a counselor's educational background on their positive or negative perception of CTE. The amount of time available for counseling produced a significant result in relation to a counselor's perceptions of CTE as an avenue for students to earn certifications. This section provides an overview of the problem and recommendations for future actions in light of the findings, and a summary of the findings of the study and their impact for the state of Kansas. It also identifies the study's impact for social change and makes suggestions for future research.

Discussion of the Problem

The United States is facing a shortage of skilled workers for the 21st century (Romano & Dellow, 2009, p. 13), and the pending retirement of the baby boomer generation will only compound the problem (Combs, 2015; Neumark et al., 2013). American College Testing (ACT) noted in its 2015 report that nearly one-third of high school graduates do not meet college-readiness benchmarks in math, science, English, and reading. Industry needs workers with a higher level of competency to solve problems

and communicate effectively within the workplace (Yost, 2011). With a greater emphasis on math, computer, and critical thinking skills in CTE programs today, it is crucial to the future development of a skilled workforce to expose all students to career opportunities in CTE (Bevins et al., 2012; Hodge & Lear, 2011; McNamara, 2009). Globalization is creating a greater demand for talented workers with the flexibility to fill available jobs worldwide (DiMattina & Ferris, 2013; Lent, 2013; Savickas, 2012). Recruiting and retaining talented workers will be a driving factor for industry leaders to maintain competitiveness in the future marketplace. Failure to develop a skilled workforce will be detrimental to the success of the future U.S. economy (DiMattina & Ferris, 2013).

The original purpose of this exploratory study was to examine high school career counselors' knowledge level and perceptions of CTE programs to determine if their orientation affected their perceptions of CTE programs. Community and technical colleges and high school career counselors are important players in the development of the future skilled workforce and must be proactive in meeting future workforce needs (Kollman & Beck, 2013; Lichtenberger & George-Jackson, 2013; Schenck et al., 2012). The demand for increased technical skills will be a driving force in the implementation of future educational plans for students. Yet, almost no research conducted to date, especially in Kansas, has drawn attention to the critical role of high school career counselors in the placement of students into community and technical college CTE programs.

Romano and Dellow (2009) stated that labor studies show that a shortage of skilled workers is more evident than the shortage of jobs for the future economy (p. 13). Current enrollment in CTE programs in the United States and in the state of Kansas lags

behind the future demand for skilled workers (Governor S. Brownback, personal communication, August 14, 2012; Wachen et al., 2011). In a 2011 report by the Bureau of Labor Statistics, Sommers estimated that by 2020 the United States should see 20 million new jobs created (p. 2). However, almost eight million of those jobs are simply needed to recover the loss of workers from the recent economic downturn. During the recent economic downturn, over 32,000 jobs in Kansas were unfilled due to a skill shortage while the number of unemployed Kansans totaled 96,000 (Kansas Department of Commerce, 2010, p. 2).

Finding workers with the necessary technical skills is a challenge for business and industry across the United States as well as in Kansas. In a 2012 press conference on CTE initiatives, Kansas Governor S. Brownback encouraged educators to get high school students engaged in CTE programs in an effort to curb high school dropout rates (S. Brownback, personal communication, August 14, 2012). Although the high school dropout rates in the United States and in Kansas have steadily declined since 1990 (U.S. Department of Education, 2012a), Governor Brownback stated "we [the state of Kansas] are losing too many high school students now…The number of students in CTE programs is declining and 60% of our future workforce needs technical skills" (S. Brownback, personal communication, August 14, 2012). Nationally, students who enrolled in CTE programs while in high school had a higher high school graduation rate compared to students who were not involved in CTE (Hughes et al, 2012; Kaine, 2014).

The declining interest in CTE programs may be impacted by several factors including the perceived push by high school counselors to send a majority of students into college prep programs instead of CTE avenues (Kelly & Price, 2009; McKillip et al.,

2012). This push by counselors may be due to a misperception that CTE programs are for underachieving students (Belz, 2010; Brown, 2009; College & Career Readiness & Success Center, 2013). Because of the nature of their positions, high school career counselors are key players in the dissemination of career information to high school students. Therefore, I determined that it was important to investigate the impact of high school career counselors in a student's career exploration process. A counselor's role in this process has a direct impact on the enrollment of students in CTE programs at community and technical colleges in Kansas. The ability of community and technical colleges to help produce a skilled workforce will have an impact on the problem of a shortage of a skilled workforce.

Interpretation of the Findings

I designed the study to answer three research questions:

Research Question 1:

What is the association between a high school career counselor's knowledge level of CTE initiatives, as proposed by Kansas Governor Sam Brownback in January 2012, and their perceptions of CTE programs?

Research Question 2: What is the association between a high school career counselor's educational background (e.g. attended a technical college or CTE Program) and their perceptions of CTE programs?

Research Question 3:What is the association between the amount of time a high school career counselor's has available for career counseling and their perceptions of CTE programs?

Results of the study showed that, in regard to question one, knowledge levels did have a significant impact on a counselor's positive or negative perception of CTE. I thus rejected the null hypothesis. As knowledge levels increased so did a counselor's positive perception of CTE. When comparing a counselor's actual and perceived knowledge levels, I identified that perceived knowledge did not have a statistically significant impact on a counselor's actual knowledge level. These two variables are independent of each other and did not have a statistically significant association. A large majority of counselors scored at the moderate or substantial knowledge levels for actual and perceived knowledge, and only 32% of counselors perceived their knowledge level to be higher than their actual knowledge level showed.

Counselors who actually know more about CTE and counselors who perceive they know more about CTE both see the value in the attainment of certifications for future employment in CTE areas. Counselors who perceived certifications as a function of CTE programs varied significantly between counselors who had a moderate perceived knowledge of CTE and counselors with a substantial perceived knowledge level of CTE. In addition, counselors who perceived that parents were supportive of their students enrolling in a CTE program showed a significant difference between those with a moderate perceived knowledge level and those with a substantial knowledge level.

My assumption going into the study was that counselors did not have a positive perception of CTE before the implementation of SB 155 (Research Question 1); thus, counselors may have been less likely to promote CTE as a viable career option for high school students. This may have been a product of a lack of knowledge about CTE programs and their value to our communities. However, SB 155's financial incentives

(such as free tuition and incentives for certifications) may have impacted the outcomes of this study. When the survey was administered to the study participants, they had already been exposed to SB 155 information and their students may have been enrolled in a CTE program at an area community or technical college receiving the free tuition incentive.

The study verified that a majority of counselors do have a higher level of both actual and perceived knowledge, and a more positive perception of CTE than I had originally predicted. Counselors with a higher knowledge level had a more positive perception of CTE initiatives in Kansas, thus validating that knowledge level is associated with a counselor's positive perception of CTE initiatives. Substantial actual and perceived knowledge level results were produced in relation to a counselor's perception of the need for certifications to secure future employment. Although counselors did not see CTE as an avenue for under-achieving students, they did see parents as being supportive of their student's participation in CTE programming. The relevance of this finding is that it appears that counselors may feel more support from parents for student participation in CTE, which may positively impact a counselor's perceptions of CTE.

Prior to the enactment of SB 155, Kansas school districts and/or students were responsible for paying the tuition and fees to attend a CTE program at a community or technical college. As funding cuts were realized prior to SB 155, many districts were faced with cutting outside expenditures such as tuition for students to attend CTE programs to remain within budget. SB 155 incentives provided school districts with a new funding source to offer CTE options to their students.

Since 2012 and the enactment of SB 155, Kansas high school CTE enrollments

have increased by 120% (Kansas Board of Regents, 2015). Community and technical college administrators have developed partnerships with high schools across Kansas, giving principals and counselors additional CTE opportunities for their students. Counselors have been instrumental in utilizing these partnerships to enroll their students in CTE programs at community and technical colleges. The CTE enrollment increase may be attributed to the financial incentives in the legislation, or to a counselor's perception that CTE is a viable option for their students through the additional partnerships.

As colleges increase tuition and fee rates because of declining funding from the state, more schools and students will find it difficult to continue participation in CTE programs, thus impacting enrollments. As of June 2015, Kansas is currently in litigation over the school funding formula which leaves school districts with uncertainty in their future funding. If school districts receive a reduction of state aid, normally the end result is a reduction in non-essential programming such as college credit programs. A decline in enrollment in CTE program areas is detrimental to the development of a skilled workforce.

Although a majority of the study respondents had a positive perception of CTE, I anticipated that more respondents would have reported having a CTE background in high school. My assumption going into the study was that a high school counselor would have a more positive perception of CTE if they had a CTE background while in high school or college. The assumption could be made that a CTE background would be associated with a more positive perception of CTE; however, the data from this study did not validate that assumption. Only 46 counselors in the study reported having a CTE background.

For research question number two on educational background, the results of the study did not show a significant impact of a counselor's educational background on their positive or negative perception of CTE; thus, I was not able to reject the null hypothesis. A counselor's perception of CTE areas is not significantly impacted by their educational background and experiences. As education level increased there was not an equal increase in positive or negative perceptions of CTE with counselors. As assumed coming into the study that a majority of counselors are master degree prepared, the study supported this assumption and verified that education level was not a predictor of perception. Over 84% of the respondents did not have a CTE background and as noted above a large majority of those counselors had a positive perception of CTE.

Research question three focused on the amount of time a counselor had available for career counseling and their perceptions of CTE. Coming into the study I assumed that a majority of counselors had limited counseling time with each student primarily due to workload demands. The limited counseling time would in turn result in fewer counseling opportunities; thus, negatively impacting knowledge level and perceptions of CTE. Results of the study showed that a large majority of counselors are spending less than five hours per year providing career counseling to each student. Those counselors predominately were employed at either schools with over 1,000 students (35%) or at schools with less than 250 students (31%). The study identified a statistical significance between the amount of time available for counseling students and a counselor's perception that CTE students are academically prepared. However, the results were not significant in relation to the other six CTE perception areas (e.g. Workforce, Certifications, At-Risk, Exposure, Completion, and Parents).

Control variables of additional responsibilities, number of students counseled, and years of counseling experience had a statistically significant association to the amount of time a counselor had available for career counseling. The results are consistent with large school counselors being responsible for larger numbers of students and small school counselors being responsible for counseling K-12 grade levels vs. 9-12 grade levels in larger schools. As I had initially suspected, workload demands had a significant impact on the amount of time a counselor had available for career counseling; thus, affecting their perceptions of CTE. Counselors clearly have limited counseling time available to spend with each student; however, with their higher than anticipated knowledge levels and positive perceptions of CTE it appears that counselors do not push students to a traditional college avenue because they lack knowledge of CTE or because they have a negative perception of CTE.

In light of the findings of this study, the original problem of the lack of a qualified workforce and the declining interest in CTE educational opportunities is still a concern both regionally and nationally. Since the inception of SB 155 in the state of Kansas, enrollments at community and technical colleges by high school students have increased, which will impact the availability of a skilled workforce in the future. However, the level of that impact is yet to be realized. Since the implementation of SB 155 the high school drop-out rate in Kansas declined slightly in 2014 (Kansas State Department of Education, 2015); nevertheless, it is uncertain if SB 155 initiatives specifically affected the drop-out rate. Future examination of graduation and drop-out rates would be areas for further research.

Concentrated efforts by state and local leaders will be required to change the

culture of thinking about the value of CTE. Years of social stigmas about CTE will not be changed overnight. SB 155 created an increased emphasis on CTE initiatives in Kansas and created a new source of funding for CTE programs at two year colleges. However, the concern is whether this renewed interest in CTE will continue if the funding is eliminated. With the state of Kansas facing a budget deficit in 2016, legislators are looking for areas to reduce funding and education is a high ticket item. The lure of free tuition for CTE programs in SB 155 has enticed schools and students to seek CTE training opportunities. However, without the SB 155 funding school districts do not have adequate resources to fund the current CTE training activities and colleges cannot provide the training for free. In the end funding may affect the future enrollments in CTE program areas.

Increased education and awareness of available CTE opportunities and initiatives will be needed to further impact the problem of a shortage of a skilled workforce. This study validates that as knowledge level and counseling time increases so does a more positive perception of CTE. If counselors hold a positive perception of CTE in Kansas and education leaders are touting the benefits and demand for CTE careers, then potentially perceptions of CTE can be impacted within communities. Based on the results of this study showing that counselors hold a more positive perception of CTE overall they may be more likely to present CTE as a viable option for students than originally anticipated. Marketing of CTE initiatives and the availability of CTE programs to parents, students, and communities as a whole are needed to increase awareness and increase knowledge levels beyond high school counselors.

It appears that SB 155 has helped increase awareness of CTE opportunities in

Kansas and will potentially impact the availability of a skilled workforce in the near future. However, without these types of initiatives in other states the problem of a skilled workforce may not be adequately addressed nationwide. As the baby boomer generation continues to retire the problem is projected to increase; thus, reinforcing that education and/or exposure to CTE information impacts perception. Nevertheless, the identity problem for CTE may still exist among counselors in other states, students, parents, universities, and community college staff.

Implications for Social Change

The study can be utilized to affect social change through the dissemination of the study results to the Kansas State Department of Education, the Kansas Board of Regents, school districts, high school career counselors, students, parents, and university and community/technical college officials. The study will provide additional exposure to the need for increased CTE enrollments and focus on CTE initiatives to address the existing and projected workforce shortages as noted in the literature. An increased understanding of the workforce shortages and the need for a skilled workforce will assist these entities to adjust programming and hopefully dedicate additional funding to prepare students for jobs needed in their respective areas of the state.

Counselors have a challenging job within school districts in Kansas. From the study I identified that counselors wear multiple hats serving not only as a counselor, but also as curriculum, testing, and special needs coordinators, coaches, teachers, and administrators. A majority of the counselors are employed full-time and reported having multiple additional responsibilities in addition to career counseling. With limited resources and tight budgets school districts rely on counselors to absorb more

responsibilities to meet the needs of students. Potentially this study will highlight the workload concerns of counselors and the need for additional funding to assist counselors in focusing primarily on exposing students to future career opportunities.

Recent changes in state funding and additional legislation (e.g. SB 155) has affected the perception of CTE and the study results verify that counselors have a more positive perception of CTE. The argument could be made that the additional funding for CTE has significantly impacted the perceptions of and enrollments in CTE programs in Kansas. This renewed interest in CTE is impacting social change within school districts, colleges, and communities across Kansas. College and school leaders are being tasked with adapting programming to meet the needs of area business and industry in an effort to address local workforce needs. Although the results of the study may not immediately impact the local workforce needs, they may help increase the awareness of the workforce shortage, the job and educational opportunities available to our youth, and help college and school leaders to see the need to be responsive to business and industry needs. Some companies are starting their own internal training programs to address their specific workforce needs due to the shortage of available qualified workers.

Colleges and school districts are placing more emphasis on CTE and the recruitment of students for CTE areas. The perceived problem of counselors pushing most students to college-prep avenues instead of CTE appears to be gradually diminishing. Again, this could be attributed to the additional funding available now for CTE programs in Kansas. The new problem may be the ability of CTE programs to handle the increased enrollments and the ability of college administrators to find qualified instructors to meet enrollment demands.

Recommendations for Action

As vested parties in the development of the future workforce, educational leaders must work diligently to increase awareness of available CTE programming for not only high school students but postsecondary students as well. Increased collaboration between high school career counselors and community and technical colleges is necessary to increase enrollments in an effort to address the current workforce needs. Marketing CTE student successes and completion rates will assist in educating community members about CTE programs and their impact. In addition, community and technical college leaders must focus on quality improvement initiatives to keep the available CTE programs relevant and ensure they are adequately preparing students for the workforce. Years of poor perceptions of CTE will not be replaced overnight. It will take a concentrated effort by the key stakeholders to showcase the critical need and opportunities available through CTE avenues. Funding will also be a key contributor to the future success of CTE initiatives in Kansas.

SB 155 legislation has significantly impacted the enrollments of high school students in CTE programs at community and technical colleges in Kansas as is documented with the significant increase in CTE enrollments over the last three years in Kansas (Kansas Board of Regents, 2015). The legislation has also provided an incentive for students to complete industry-recognized third party certifications. Kansas high school students have attained more than 2,600 certifications over the three year period since SB 155 was enacted. With the push to increase high school enrollments in CTE program areas and to increase the number of industry-recognized certifications high school students possess prior to their high school graduation, the state of Kansas has

made remarkable strides in preparing the future workforce and addressing the shortage of a skilled workforce. Efforts like those in Kansas will be needed in other regions of the United States to address workforce shortages.

Financial incentives provided by SB 155 (e.g. free tuition and incentives for certifications) may have driven the increased CTE enrollments in Kansas (Kansas Board of Regents, 2015). However, will the financial incentives continue as the Kansas legislature struggles with balancing the state budget during 2015? Will the high school enrollments at community and technical colleges decline if the free tuition funding is eliminated? Is the current demand for CTE programs artificial in nature due to the funding mechanisms currently in place? Most likely the answer is no. If the funding is removed the CTE enrollments may return to pre-SB 155 levels and the number of high school students taking advantage of CTE opportunities may decline unless another funding source is identified. Counselors may continue to encourage students to take advantage of CTE opportunities; however, if the student cannot afford to pay for the training they may not be able to attend. The Kansas state legislature has already reduced the financial incentives paid to school districts for the completion of industry-recognized credentials for fiscal year 2016 dropping the incentive from $1,000 to $250 per student. The long-term effects of these initiatives are yet to be realized.

Recommendations for Further Study

This study opens the door for additional research into the existing perceptions of CTE initiatives in specific regions of the state of Kansas, in other states, and nationwide in an effort to better understand how CTE is perceived and if regional differences exist. It would be interesting to know if CTE is more widely accepted in specific parts of the

country, or within a state (e.g. metropolitan areas vs. rural areas). This study could be broken down to focus on different regions of Kansas to see if CTE has a higher or lower perception in a specific region. Additionally, research could be conducted to determine the perceptions of different groups of individuals that have an impact on a student's decision to attend a CTE program, or an academic program. Although the study did not investigate the perceptions of CTE held by the other noted groups it will provide a basis for further research opportunities. Exploring whether parents have a negative perception of CTE and/or whether they perceive CTE as a dumping ground for lower performing students is an area for research. Additionally, examining the impact that peers have on a student's selection of a career pathway could be explored through further research.

I believe with the increased focus on CTE initiatives in Kansas that additional research projects could be designed to look at the future impact on the initiatives. Will the initiatives continue to impact enrollments at community and technical colleges? Will the initiatives affect Kansas high school graduation or drop-out rates? Initial statistics available from the Kansas Board of Regents suggest that CTE enrollments are increasing; however, will the increased enrollments be short-lived or impacted by funding reductions? Currently, the state of Kansas is projecting budget shortfalls for 2015, and past history tells us that education is a target for funding reductions. Early estimations suggest that community and technical colleges in Kansas will lose five percent of their funding in 2015. Community and technical colleges are providing a large majority of the CTE training available to high school students in Kansas. Community and technical colleges are key players in training and preparing skilled workers for the area workforce. It is unclear what the impact of funding reductions will have on the future development

of CTE. Community and technical colleges may not be able to continue to provide CTE training at an affordable cost for Kansas students. Funding reductions typically result in reduced programming and services available to students and communities.

Summary

In summary, high school career counselors and community and technical colleges are key stakeholders in the dissemination of CTE program information to high school students and their parents. Counselors are challenged to expose students to career opportunities with increased workloads and responsibilities outside of career counseling (Adams, 2014a). These additional responsibilities reduce the amount of face-to-face time a counselor has with students to disseminate career information and discuss future career opportunities.

From this study I verified that a majority of counselors hold a positive perception of CTE initiatives in Kansas and as a counselor's actual knowledge level increased their perceived knowledge of CTE initiatives increased as well. A counselor's knowledge level and the amount of time available for counseling was associated with a more positive perception of CTE. However, a counselor's educational background did not have a statistically significant association with a counselor's perception of CTE.

Results of this study have the potential to impact social change through a better understanding of the future workforce demands in Kansas and the United States to allow us to compete in the ever-changing global marketplace. With the retirement of the baby boomer generation and the demand for an increasingly skilled workforce, it is imperative that we better prepare our students for future employment opportunities.

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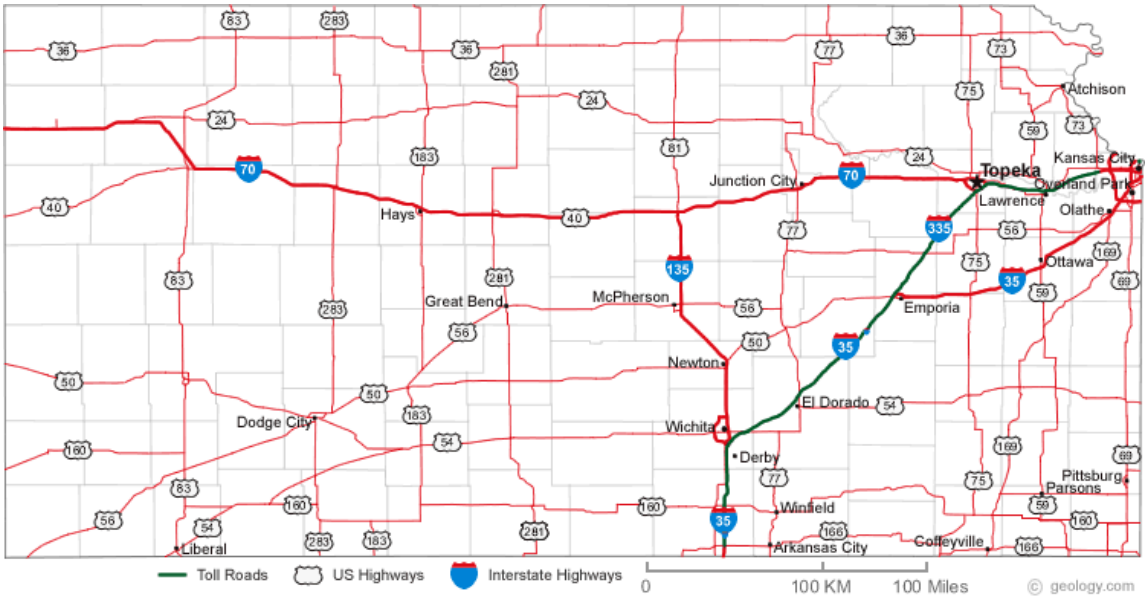
Appendix A

State of Kansas Map



Source: Map retrieved from http://geology.com/cities-map/kansas.shtml

Appendix B

CTE Programs at Community and Technical Colleges in Kansas

Agriculture-related
Allied Health
Automotive Collision Repair
Automotive Service
Avionics
Aviation Mechanic
Biotechnology
Business/Marketing
Child Care
Composite Technology
Computer Information Systems
Construction
Corrosion Technician
Cosmetology/Nail Technician
Criminal Justice/Police Science
Culinary Arts
Dental Assisting
Dental Hygiene
Diesel Mechanics
Dietary Manager
Drafting/CAD
Electrical
Electrical Power Transmission/Technician
Electronics
Emergency Medical Technician
Energy Auditing
Environmental Technology
Fire Science
Fish and Wildlife Officer
Graphic Design
Hazardous Materials Management
Health Information
Heating/Air Conditioning/Ventilation
Heavy Equipment Operation
Horticulture
Hospitality Management
Industrial Engineering
Interactive Media/Game Design
Machining/CNC
Massage Therapy
Mechatronics
Medical Assisting
Medical Coding
Motorcycle Technician
Mortuary Science
Natural Gas Transmission
Nondestructive Testing
Occupational Therapy Assistant
Paralegal
Paramedic
Pharmacy Technician
Phlebotomy
Physical Therapy Assistant
Practical Nursing
Radiography
Real-time Reporting
Recording Arts
Respiratory Therapy
Robotics
Sign Language Interpreter
Solar Technician
Sonography
Sustainable/Renewable Energy Surgical Technician
Surveying
Truck Driving
Registered Nursing
Veterinary Technician
Viticulture
Water Quality Technician
Web Design
Welding
Wind Energy

Appendix C

Career and Technical Education (CTE) Perception Survey

Dear Colleague:

Please accept this invitation to participate in a research study designed to assess the level of understanding and perceptions of career and technical education (CTE) by high school career counselors in Kansas. With the recent CTE initiatives in Kansas the purpose of this study is to increase the level of understanding of CTE initiatives for interested parties and as a current high school career counselor in Kansas you have been selected to participate.

The survey data will be collected and compiled into a final summary report within the electronic survey software *Survey Monkey*. Due to the electronic nature of Survey Monkey respondents are anonymous to the researcher. Data will be collected and compiled by an independent research assistant to the sole researcher for this study.

Participation in this research study is voluntary and participants may withdraw from the study at any time. Your participation in this study is greatly appreciated and will lead to a better understanding of the perceptions of CTE in general. The survey should take approximately 20 minutes or less to complete.

If you have questions about your rights as a participant, you can call Dr. Leilani Endicott, at Walden University, phone (612) 312-1210. If you have any questions about this research project, or would like a copy of the study results please contact me, or you may contact my committee chair.

Thank you for your willingness to complete this important survey.

Sincerely.

Marlon Thornburg

Doctoral Student

Walden University

Career and Technical Education (CTE) Perception Survey

The following survey is designed to assess the level of understanding and perceptions of career and technical education (CTE) by high school career counselors. CTE is the educational term for a sequence of courses providing relevant academic and technical skills needed to train the 21st century workforce (Carl D. Perkins Act of 2006, sec. 3[5]). CTE was formerly known as vocational education.

The survey data will be collected and compiled into a final summary report within the electronic survey software *Survey Monkey*. Due to the electronic nature of *Survey Monkey* respondents are anonymous to the researcher. Data will be collected and compiled by an independent research assistant to the sole researcher for this study.

Participation in this research study is voluntary and participants may withdraw from the study at any time. Your participation in this study is greatly appreciated and will lead to a better understanding of the perceptions of CTE in general. If you would prefer not to participate in this research study, please mark the appropriate box below and exit the survey.

[ ] Yes, I agree to participate in the following survey and understand my personal information will be kept confidential.

[ ] No, I would prefer not to participate in this research study.

Section A: Career Counselor's Knowledge Level of CTE (IV 1)

The following questions are designed to assess the knowledge level of high school career counselors regarding new CTE initiatives in Kansas as noted in Senate Bill 155.

1. In 2012, Kansas Governor Sam Brownback's new CTE initiative for Kansas schools, Senate Bill 155, was passed. Senate Bill 155 provided for which of the following?

    a. No new money for Community and Technical Colleges
    b. Financial incentives to Unified School Districts (USD's)
    c. Financial incentives paid to students to complete a CTE course or program
    d. All of the above
    e. I do not know

2. The following is true of the Governor's CTE Plan:

    a. High school students enrolled in a CTE course within a program at a Community or Technical College do not pay tuition.
    b. High school students enrolled in a CTE course within a program at a Community or Technical College must pay ½ of any industry-recognized third party certification testing.
    c. USD's will receive a $1,000 bonus for each student who completes an industry-recognized third party assessment within six (6) months of graduation from high school for high demand occupational areas.
    d. All of the above
    e. I do not know

3. From your experience, which of the following is a true statement?

    a. Many Community and Technical Colleges have articulation agreements in place to transfer CTE credits to a university allowing CTE students the opportunity to complete a bachelor degree.
    b. Industry is seeking qualified workers with industry-recognized third-party certifications.
    c. The Governor's CTE plan stresses the need for industry-recognized third party certifications.
    d. All of the above are true statements
    e. I do not know

4. From your experience, which of the following is a true statement?

    a. All available CTE programs at Community and Technical Colleges in Kansas qualify for the financial incentives to USD's in Senate Bill 155.
    b. Only the programs listed on the Kansas Department of Labor's high demand occupation list qualify for the financial incentives to USD's in Senate Bill 155.
    c. Under Senate Bill 155, a high school may not claim a financial incentive on a CTE program/pathway that the school district does not provide.
    d. All of the above are true statements
    e. I do not know

5. From your experience, CTE programs in Kansas are partially funded by which of the following:

    a. Federal Title IX funding
    b. Carl D. Perkins funding through the state of Kansas
    c. Federal Title III funding
    d. State Aid through the state of Kansas raised from state-wide sales taxes
    e. I do not know

6. From your experience, the following is true of CTE programs in Kansas:

    a. High school students who enroll in a college CTE course or program will only receive high school credits.
    b. High school students who enroll in a college CTE course or program will only receive college credits.
    c. High school students who enroll in a college CTE course or program during the high school day cannot receive college credits.
    d. High school students who enroll in a college CTE course or program during the high school day can receive high school and college credit at the same time (e.g. dual credit).
    e. I do not know

Section B: Career Counselor's Perceived Knowledge Level (IV 1)

Please respond to the following survey questions using the following 5-point Likert scale.

Scale: 1 = Poor
2 = Below Average
3 = Average
4 = Above Average
5 = Excellent

The following questions are designed to assess how a high school career counselor rates his/her knowledge level of CTE programs, area workforce needs, and the new CTE initiatives in Kansas.

7. My knowledge of CTE career pathways available to high school students in the state of Kansas is:

1	2	3	4	5
Poor				Excellent

Please explain why:

8. My knowledge of the skill requirements of CTE careers is:

1	2	3	4	5
Poor				Excellent

Please explain why:

9. The quality of information I am able to provide to students about CTE programs is:

1	2	3	4	5
Poor				Excellent

Please explain why:

10. My knowledge of current workforce needs in the state of Kansas is:

1	2	3	4	5
Poor				Excellent

Please explain why:

11. My knowledge of local workforce needs in my community is:

1	2	3	4	5
Poor				Excellent

Please explain why:

12. My knowledge of the CTE initiatives in Senate Bill 155 is:

1	2	3	4	5
Poor				Excellent

Please explain why:

Section C: Career Counselor Perceptions of CTE (DV)

Please respond to the following survey questions using the following 5-point Likert scale.

Scale:
1 = Disagree
2 = Disagree somewhat
3 = Undecided
4 = Agree Somewhat
5 = Agree

The following questions are designed to assess a high school career counselor's perceptions about CTE programs and its incorporation into high school curricula.

13. CTE programs serve primarily to support area employment needs.

1	2	3	4	5
Disagree				Agree

14. Certifications are valuable for students to secure future employment.

1	2	3	4	5
Disagree				Agree

15. CTE is an avenue to retain students who are at risk.

1	2	3	4	5
Disagree				Agree

16. Exposure to available CTE programming for students should occur prior to the start of high school.

1	2	3	4	5
Disagree				Agree

17. Students enrolled in CTE programs tend to be well-prepared academically.

1	2	3	4	5
Disagree				Agree

18. It is feasible for a student to attend a CTE program and get all their required high school credits to graduate.

1	2	3	4	5
Disagree				Agree

19. Parents are supportive of their students enrolling in CTE courses or programs.

1	2	3	4	5
Disagree				Agree

20. Counselors have sufficient time to expose students to CTE pathways.

1	2	3	4	5
Disagree				Agree

21. Counselors have sufficient time to counsel students on their career aspirations.

1	2	3	4	5
Disagree				Agree

Section D: Educational Background (IV 2)

The following questions are designed to determine the educational background of high school career counselors participating in this research study.

Please check the appropriate response:

22. Highest level of education

Bachelors [ ] Masters [ ] Education Specialist [ ] Doctorate [ ]

23. As a student, which of the following did you attend? Select all that apply.

A community/junior college [ ]
A technical school/college [ ]
A four-year college or university [ ]

24. Did you participate in a CTE program while in high school?

    Yes [ ] No [ ]

25. In College did you study in a CTE program area (e.g. Agriculture, Automotive, Electrical, Construction, Computer Graphics, Nursing etc.)?

    Yes, I have a CTE background [ ]

    No, I do not have a CTE background [ ]

26. Area of Teaching Experience?

    Academic Courses [ ] CTE Courses [ ] Both Areas [ ]

27. What was your major for your Bachelor degree?

28. What was your major for your Master's degree?

Section E: Respondent Demographics

The following questions are designed to collect demographics about high school career counselors participating in this research study.

Please check the appropriate response:

29. Sex

    Male [ ] Female [ ]

30. Years of Counseling Experience

    1 – 3 [ ] 4 – 6 [ ] 7 – 9 [ ] 10 + [ ]

31. Years of Teaching Experience

    1 – 3 [ ] 4 – 6 [ ] 7 – 9 [ ] 10 + [ ]

32. Do you work as a full- or part-time counselor at your school?

    Full-time Counselor [ ] Part-time Counselor [ ]

33. How many students do you currently counsel?

    Less than 100 [ ] 100 – 300 [ ] 301 – 500 [ ] Over 500 [ ]

34. How much face-to-face contact do you have with each student you currently counsel per school year?

    Less than 5 hours [ ] 6 – 10 hours [ ] 11 – 15 hours [ ] Over 15 hours [ ]

35. How many students attend your high school?

    Less than 250 [ ] 300 – 500 [ ] 501 – 1,000 [ ] Over 1,000 [ ]

36. Do you have additional job responsibilities at your school in addition to career counseling of students?

    Yes [ ] No [ ]

    If yes, please list those responsibilities:

37. <u>My knowledge level of CTE is based on the following factors. Select as many as applicable.</u>

    [ ] I completed a CTE program in high school
    [ ] I completed a CTE program in college
    [ ] A family member or someone I know personally completed a CTE program
    [ ] I have read materials about CTE programming
    [ ] My school currently provides CTE programming
    [ ] I have toured or observed students in a CTE program
    [ ] My school administration has discussed CTE programming for our students.
    [ ] I have toured area industry and/or discussed CTE programs with community members
    [ ] I have attended state meetings and/or conferences about CTE initiatives
    [ ] I have limited knowledge of CTE because I have not been involved, or have read very little about CTE.

Additional comments about this survey: