

ABSTRACT

KANDALEC, KATHERINE RAE. Perceptions of Postsecondary Career and Technical Education: A Q Method Examination. (Under the direction of Dr. James Bartlett)

High school counselors are considered key decision influencers for students in the college search stage. The purpose of the study was to identify the perceptions currently held among public school counselors in the state of North Carolina towards postsecondary career and technical education. Q methodology, which provides an opportunity to study individual's subjective reality using both quantitative and qualitative methods, is used to investigate counselors' perceptions and viewpoints. Literature on postsecondary career and technical education, the roles of high school counselors, and student outcomes were used to develop a set of statements. Then, twenty-six public school counselors sorted, in a forced distribution, the statements according to their beliefs about professional postsecondary career and technical education. A post-sort survey was given to the counselors in order to gather demographic information and to gain an in-depth of understanding about each individual participant's sort. Data analysis indicated three distinct and statistically significant factor groups: the Career and Technical Education Experienced group, the CTE Spectator group, and the Stereotypical Vocational Education Stigma group. The findings of this study generate considerations for practice, policy, and further research in the field of postsecondary career and technical education perceptions and outcomes

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Perceptions of Postsecondary Career and Technical Education:
A Q Method Examination

by
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DEDICATION

This body of work is dedicated to my dear friends and family. Your love and laughter and weekly brunch dates have provided me with more motivation and courage than you will ever know.

BIOGRAPHY

Katherine Rae Kandalec grew up in Muskegon, Michigan. After some time spent working various service industry management jobs in the National Park System, she graduated from Athens Technical College with an A.A.T. in Business Management, and an A.A.T. in Accounting, The University of Georgia with a B.S.Ed. in Business Education and an M.Ed. in Workforce Education and Development. It was through these educational experiences and her experience in the workforce that the interest and passion in exploring the perceptions of postsecondary career and technical education was formed.

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Katherine lives in Athens, Georgia with her horses and dogs, and enjoys traveling and spending time outdoors and away from research methods and statistics books on the weekends.

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CHAPTER 1

Introduction

Any attempt to define the current perceptions of postsecondary career and technical education among high school guidance counselors through a review of current, scholarly research is a fruitless endeavor. There has been remarkably little attention paid to how these influencers view these higher educational options. There is a critical need to understand the current perceptions among secondary school counseling staff, as these individuals serve on the front line of school choice decisions (McDonough, 1997). The high school counselor fundamentally summarizes their own perceptions and then communicates them to the school's students, faculty, and administration. The high school counselor is an important source of information and encouragement in regard to precollege guidance to both students and their families. As a former college advisor, Elfers (2007) emphasized the importance of providing students with the facts and features of two-year colleges in addition to four-year colleges. Elfers identifies a major challenge on her high school campus termed "prestige pressure" and reported that she felt she had to be careful to keep confidential where students had applied to college because they did not want their peers to know what their choices had been. Elfers shared:

"not that it's anybody's business anyway, of course, but doesn't that give us a glimpse of student concern for the opinions of others? Isn't prestige at the root of that concern? Given this complication, will the student who finds that a community college fits his or her needs risk feeling inferior? Isn't it sad that students think they

have to make education choices that sound good rather than those that feel good?" (Elfers, 2007, p. 33).

Elfers (2007) also highlights the importance of respectfully discussing two-year institutions options with high school students and being supportive and enthusiastic when students show an interest in these educational options.

In 1992, the State Higher Education Executive Officers (SHEEO) reported on building a quality workforce and specifically emphasized the importance of the high school counselor's role in career development. The SHEEO report also revealed that there are concerns about high school counselors' views concerning community college and technical education postsecondary options. This research disclosed that historically counselors have viewed career and technical education programs as dumping grounds for students who are academically beneath skill level or have behavior issues. Additionally, it revealed that counselors generally do not perceive community colleges as an option that can lead to successful futures. Meanwhile, Mitkos and Bragg reported that high school counselors may lack awareness of community colleges or "they may hold perceptions of the diminished value of community colleges" (2008, p. 376). It is suggested that the cause for the view of "diminished value" may be the established hierarchy of higher education, the community colleges' open admissions policies, or the belief that there is a lack of academic rigor in the two-year programs. The authors suggest that it is the high school counselors' lack of knowledge and understanding about community colleges that has the possibility of establishing an "unfavorable perception" of these colleges (Mitkos & Bragg, 2008, p. 376).

In 2004, Hugo's qualitative study of high school counselors in California revealed yet a third viewpoint on the issue to contraindicate the SHEEO view of poor perceptions and the suggestions of Mitkos and Bragg of simple lack of awareness; this research implied that the high school counselors surveyed were adamant about the mission to provide students with unbiased information about all postsecondary options (Hugo, 2004). In the 2004 study, high school counselors expressed that students who decide to not pursue a program of study at a traditional four-year institution of higher education were still entitled to get the information they needed to access appropriate training options for their chosen career paths. The finding that unbiased college and training information should be available to all students would fuel the assumption that a student choosing to attend an institution other than a traditional four-year postsecondary program would also have the likely outcome of a productive and meaningful career.

In 2007, as part of the College Board's Center for Innovative Thought, the National Commission on Community Colleges (NCCC) was assembled. The NCCC was established as a result of the recognition that two-year institutions have an indispensable and overlooked role in American life. The commission released its January 2008 report entitled "Winning the Skills Race and Strengthening America's Middle Class: An Action Agenda for Community Colleges," which summarizes obstacles and makes recommendations to highlight two-year institutions in the efforts to enrich American communities and guarantee national competitiveness. It persuasively pointed out that "the ingrained habit of ignoring the current and potential contributions of community colleges must be broken if the United States hopes

to respond effectively to several significant trends reshaping national and international life” (College Board, 2008, p. 5). Additionally, in July of 2009, President Obama, recognizing the need for a well-trained workforce, proposed the “American Graduation Initiative” to invest over \$12 billion over ten years for community colleges and career training programs to develop, improve, and provide services for displaced workers. Obama declared that the program

“will reform and strengthen community colleges . . . so they get the resources that students and schools need -- and the results workers and businesses demand.

Through this plan, we seek to help an additional 5 million Americans earn degrees and certificates in the next decade -- 5 million” (Brandon, 2009).

There has been some response to this high-profile support and awareness, such as the Aspen Institute’s creation of the Aspen Prize for Community College Excellence, which focuses on the important work done at community colleges; however, more work remains in order to bring postsecondary career and technical education programs to the forefront for our secondary school guidance and career counselors.

Problem Statement

Lack of recent information on perceptions of postsecondary career and technical education among high school guidance counselors is an issue for policy makers, postsecondary educational institutions, and students seeking guidance on two-year postsecondary education options. There has been significant attention paid to ranking and classifying postsecondary institutions; however, it has been suggested that these rankings

play a much smaller role in the college choice decision-making process than some postsecondary administrators would like to believe (McCormick, 2007). It has been shown through both practitioner experience and scholarly research how important the role of the school counselor is to high school students' awareness and interest in postsecondary options (Elfer, 2007; Hugo, 2004). In many ways, high school counselors hold the key to students' ability to see the community colleges and other postsecondary career and technical education training as viable options for their future education and career aspirations. If high school counselors play an essential role in the college choice process, then it is important to understand the values, perceptions, and considerations high school counselors hold towards the community colleges, technical training programs, and career academies as institutions of higher learning. Many high school students are lacking the vital information needed to make an appropriate individual college choice. This gap in information on the availability of non-four-year education and career preparation options may result in students who prematurely and inappropriately attend four-year institutions consequently becoming discouraged for various reasons and discontinuing their studies (Barefoot, 2004).

Career and technical education is an evolving field, as it is by nature designed to respond to labor market needs (Carnevale, Smith, & Strohl, 2010). As such, the image of career and technical education may be outdated in the minds of some counselors, who may remember a single course shop or mechanics program options from their own educational histories. Brand, Valent, and Browning state in their 2013 working paper on secondary career and technical education options:

CTE continues to face challenges with regards to its image as a low-level vocational education track that often leads to a low-skill job with no intermediate postsecondary education. Historically, many low-performing students were tracked into low-level vocational education courses that did not prepare them for access to or success in postsecondary education. Though most current CTE programs are designed to hold all students to more rigorous standards in preparation for postsecondary education and beyond, the perception of vocational education still overshadows CTE's advances. This persistent negative image continues to impact students' and parents' decisions about high school course taking and career pathways (p. 7).

Through examining high school counselors' current perceptions of postsecondary career and technical education and how they feel that those perceptions can be changed, which is an area that is currently lacking as a focus of academic study, the potential negative image problem as described by Brand, Valent, and Browning in 2013 can be more thoroughly addressed. In 2010 researchers projected that by 2018 two-thirds of available jobs will require some level of industrial or workforce training (Carnevale, Smith, & Strohl). As such, the need to increase the number of students with the education, skills, and training to meet these demands is apparent. Students require guidance counselors to help them make well-informed decisions about their future career plans (Brand, Valent, & Browning 2013). If high school guidance counselors are fully trained and knowledgeable about the full range of postsecondary career and technical education options, they can better serve students through

the mapping of course pathways leading to fulfilling careers (Brand, Valent, & Browning, 2013).

Through the analysis of the opinions and viewpoints of the study respondents, we may be able to map what changes in perceptions, however subtle, can be made through time and exposure to information on the positive gains that CTE graduates are experiencing.

Purpose Statement

The purpose of the current study is to identify the perceptions towards postsecondary career and technical education among high school guidance and career counselors in North Carolina through the use of Q methodology. It has been demonstrated that the high school counselor is a key influencer in the postsecondary decisions made by high school students (Hugo, 2004; Elfer, 2007). In many ways, high school counselors hold the key to students' ability to see postsecondary career and technical education as a viable option for their future educational endeavors. If high school counselors play an essential role to community and technical college recruitment, then it is important to understand the values, perceptions, and considerations high school counselors hold about the CTE programs in question.

Brown (1993) has discussed Q methodology as being used to determine perspectives on a topic, therefore Q method will be used to gather and analyze these perspectives of postsecondary career and technical education among high school guidance teachers, with follow-up questions used to determine what types of information is most utilized in advising practice. As part of the final analysis, identification of the highest and lowest ranked statements among each group, as well as consensus items between the groups, will provide

information on the commonalities and differences between the factors, or groups of high school counselors that feel similarly towards postsecondary career and technical education, as well as provide the contextual information necessary to name and evaluate the factor groups. It is important to understand not only which statements each group feels most strongly about but also why they feel the way they do.

Theoretical Framework

Much of the literature regarding the college choice process reflects the various stages that a student will pass through in determining their higher educational goals. The models of student choice vary slightly from one to the next, but all flow linearly through the process. The flow of stages tends to make the broad perspective of college choice relatively consistent.

The primary theoretical framework guiding this study on perceptions of career and technical education among key decision influencers is a blended model of Jackson's three-phase design (1982) and Hossler and Gallagher's three-step model (1987). In 1982, Gregory Jackson created a model of student college choice that had a traditional three-phase design. He combined sociological and economic influences before dividing the process into three phases: preferences, exclusion, and evaluation. Under this model, the phase of preferences includes areas of influence such as family, friends, personal aspirations, and academic achievement. The second phase of exclusion utilizes more economic factors including cost implications that cause students to exclude institutions from their list of potential colleges. The third phase of evaluation under Jackson's model is where students evaluate their options

and ultimately make a final decision. This final phase includes the development of a personal internal rating scheme to rank institutions and make a decision that makes the most sense. Jackson's three-step model can be seen in Figure 1 on the following page.

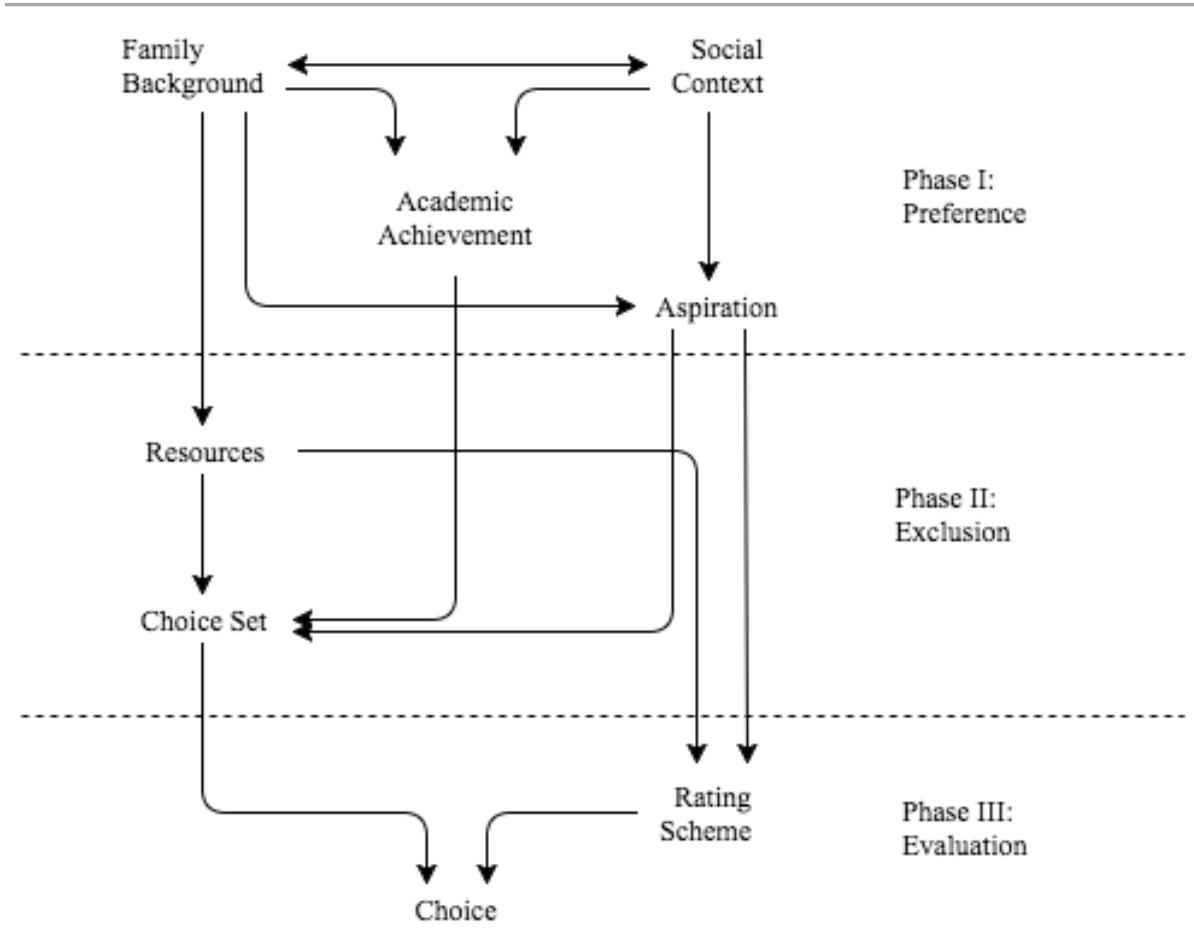


Figure 1: Jackson's three-step model of college choice (1982)

Hossler and Gallagher (1987) took a similar three-phase design that included predisposition, search, and choice. The Hossler and Gallagher model was reiterated by several other studies (Galotti, 1995; Hossler, Braxton, & Coopersmith, 1989; Hossler, Schmit, & Vesper, 1999). In the Hossler and Gallagher model, seen in Figure 2, the first phase focuses on characteristics of the students and whether they have aspirations to pursue

higher education. The second phase involves the search process and the way that students and institutions seek out each other. In the second stage, students narrow their institutional options and still evaluate whether attending college is the right fit. The final phase of the model focuses on the choice process where students take the information they gather from the search phase and make a decision on which school to attend based on their own evaluation criteria.

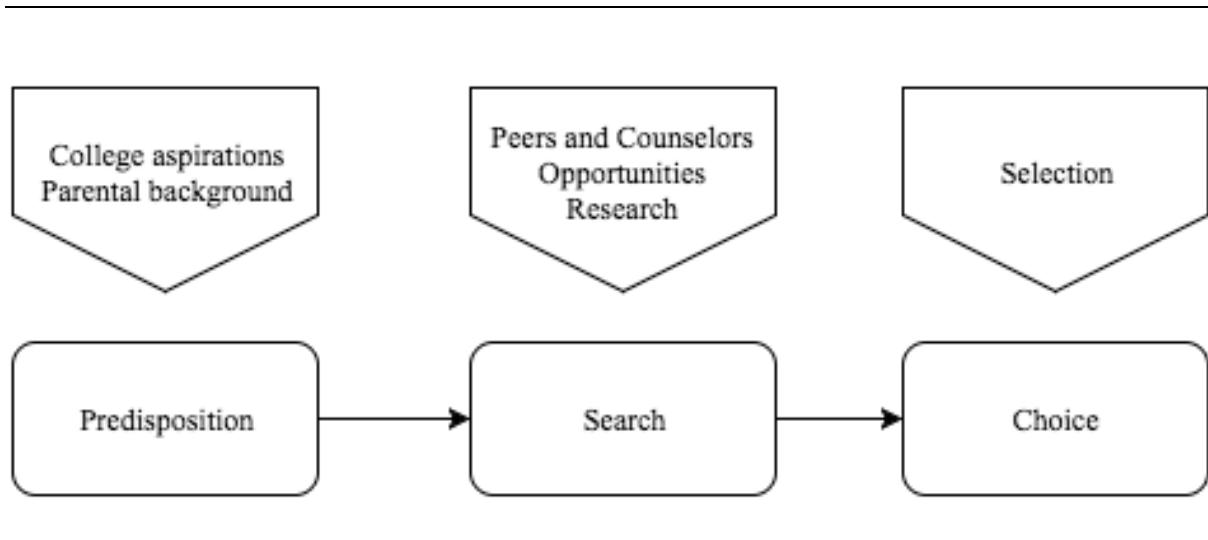


Figure 2: Hossler and Gallagher's three-phase design of college choice (1987)

The Jackson model (1982) and the Hossler and Gallagher design (1987) were chosen from the available options based on their similar timelines for the student college choice process and their applicability to career and technical education. Kotter (1976) and Litten (1982) also developed models of choice; however, these two incorporate each aspect found in both the Jackson (1982) and Hossler and Gallagher (1987) models without as much detail,

and also without the exclusionary aspects of the Jackson model, as can be seen in Figure 3.

Kolter's (1976) model was developed by using marketing theory to establish stages of choice. He divided the process into seven stages: decision to attend; information seeking and receiving, specific college inquiries, applications, admissions, college choice, and registration. Litten (1982) reexamined Kolter's model and simplified the choice process into five stages: college aspirations, beginning the search process, gathering information, sending applications, and enrolling.

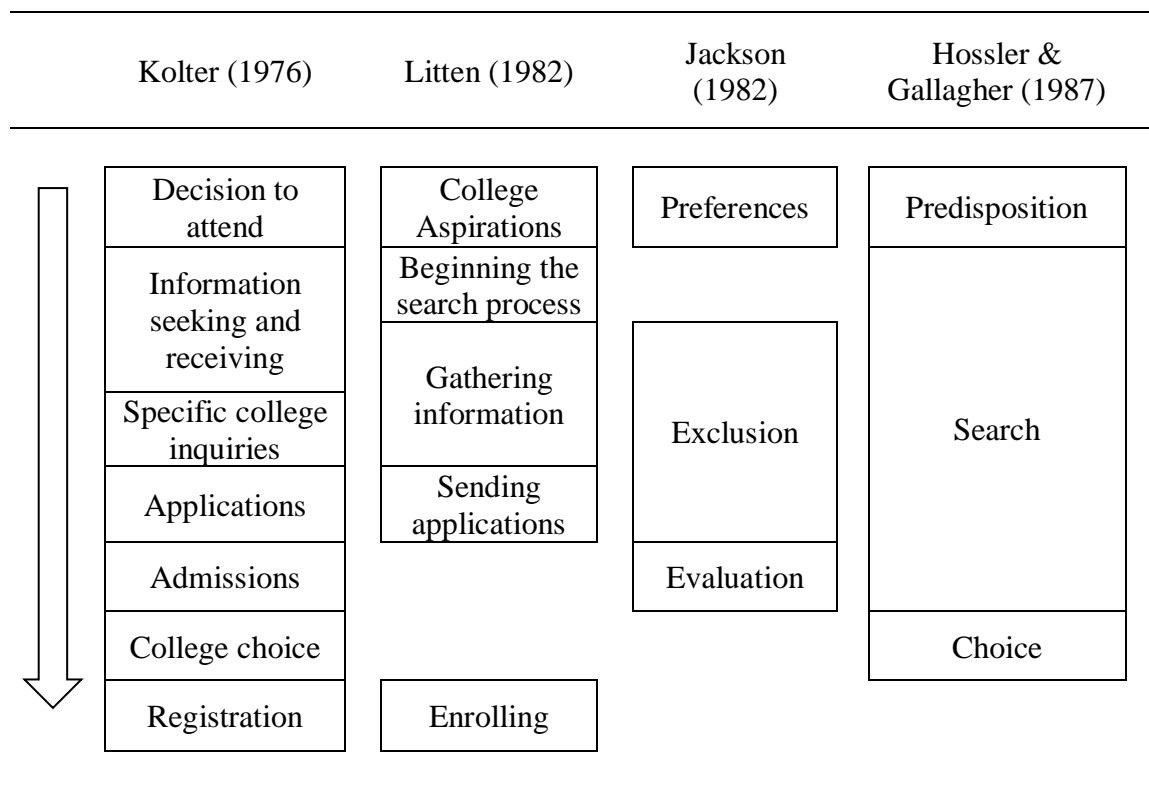


Figure 3: Models of student college choice

This study is focused on the “preferences” and “search” phases of the Jackson (1982) and Hossler and Gallagher (1987) models, respectively. It is during these stages when outside influences, primarily those of parents and academic advisors, are most influential on the choice process. Henrickson notes that regardless of the number of stages that comprise the models, there tend to be similar characteristics among them (2002).

In looking at the student choice process, the combining of multiple models of choice gives a more comprehensive lens through which to view the student decision-making process. This study will look at the choice process through the blended model presented in Figure 4. Jackson (1982) uses three stages identified as preferences, exclusion, and evaluation. Hossler & Gallagher (1987) also use three stages, but these are identified as predispositions, the search process, and choice. Both models include the initial stage (preferences and predispositions, respectively) which take into account student background characteristics, including family college legacy, and their personal aspirations for college. Jackson focuses more of his model on the search process, dividing it into the two stages of exclusion and evaluation (1982). The second stage in the Hossler and Gallagher model is a broader look at the search process (1987). In an integrated model, the stages of exclusion and evaluation can be seen as subsets of the search process. The final stage of choice is briefly addressed in Jackson’s evaluation stage but is expanded in more detail with Hossler and Gallagher’s model. In establishing a combination of these two models, the college choice process takes a more in-depth look at the search process and the choice decision. The broader stages of the choice process allow for a better sense of when the various influences of choice

can be inserted into the choice process.

In combining these two models, the framework for the study establishes that students enter the choice process with their predispositions or preferences, go through the process of searching for schools, and conclude with choosing an institution that includes both exclusion and evaluation of institutions. The combination of these two models still maintains a linear timeline for the choice process and can be seen in Figure 4. Finally, the integrated model allows us to insert the various influences of college choice into the model at the various stages where they provide the most salient influence. The integrated model incorporates each of the themes of influence including economic considerations, family influences, peer influences, career aspirations, and overall institutional characteristics.

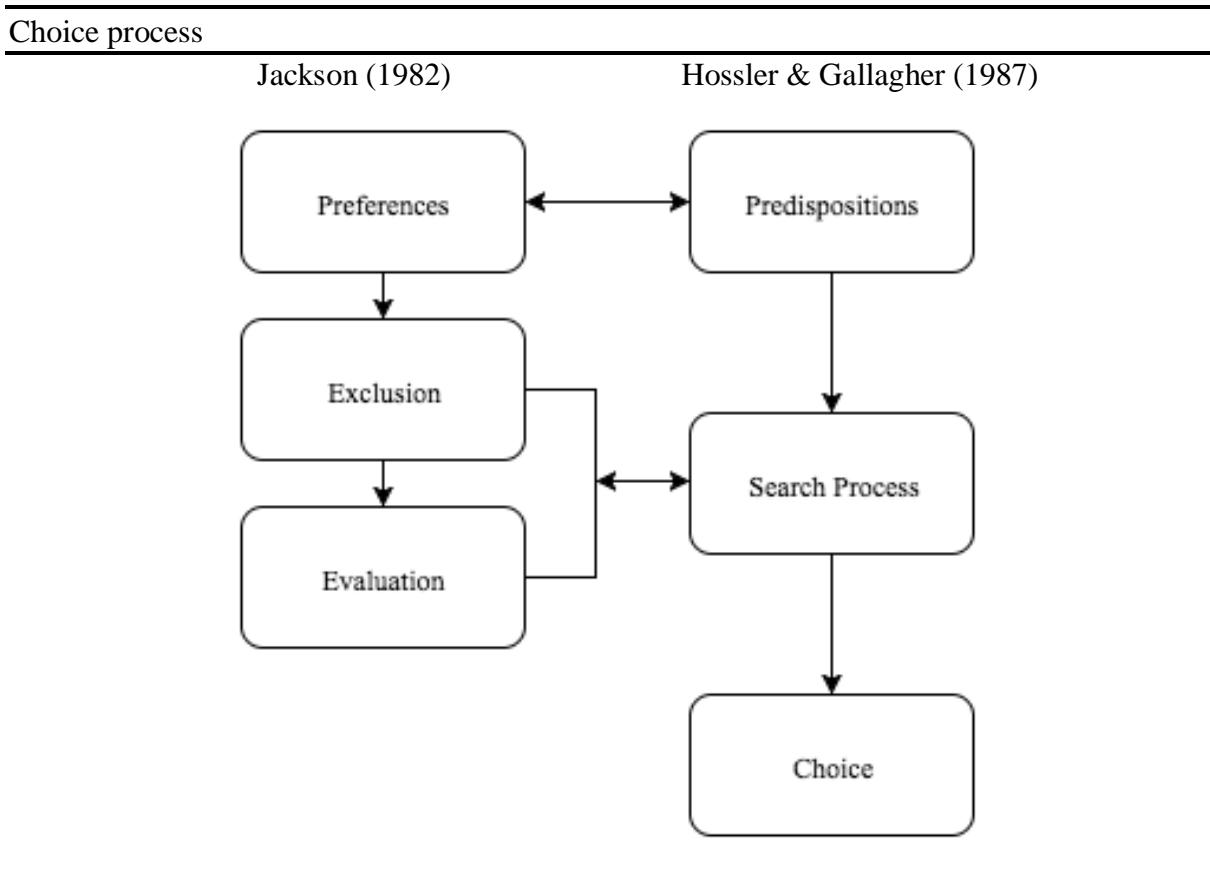


Figure 4: Combined choice model merging Jackson's three-step model (1982) and Hossler and Gallagher's three phase design (1987)

Conceptual Framework

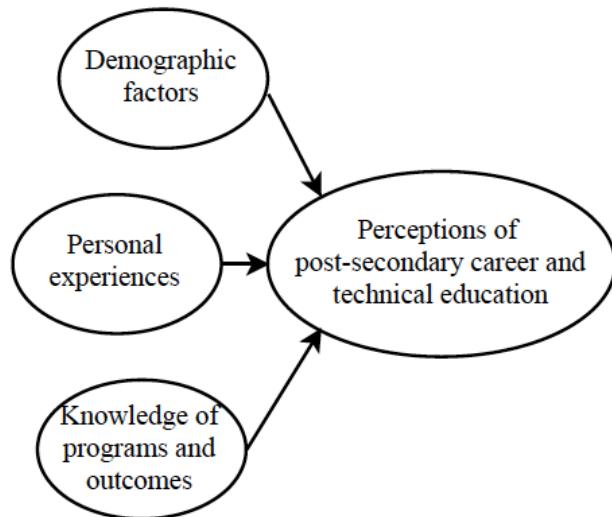


Figure 5: Conceptual Framework to describe study

Research Questions

- Q1: What are the current attitudes and perceptions among secondary counselors towards postsecondary career and technical education?
- Which groups ranked particular statements the highest versus the lowest?
 - Were there any consensus statements indicating that a viewpoint was so commonly held it can be accepted as a priori?
 - What are the major differences between groups of counselors in their perceptions and attitudes towards postsecondary career and technical education?

Q2: What are the persuasive statements that high school counselors use when advising secondary level students on postsecondary career and technical education?

Significance of the Study

The significance of the current study is multifaceted. There is little scholarly research and literature on the perceptions of postsecondary career and technical education among high school guidance counselors, therefore creating a gap in the literature regarding postsecondary career and technical education, and the perceptions of guidance counselors.

Career and technical education is an approach to education which provides students with academic, technical, and employability skills (Partnership for 21st Century Skills et al, 2010). With researchers from Georgetown University projecting that two-thirds of jobs created in the United States will require some level of industrial or workforce training by 2018 (Carnevale, Smith, & Strohl, 2010), the need to increase the number of students with the education, skills, and training to meet these demands is apparent. Responding to these demands, career and technical education programs across the country are eliminating low-level courses, single-job-training programs, and stand-alone electives and replacing them with “academically rigorous, integrated, and sequenced programs of study” that align with career opportunities and provide students with “critical thinking, collaboration, problem-solving, innovation, and teamwork skill” training to prepare them for a multitude of career growth options (Brand, Valent, & Browning, 2013, p. 2).

The current study intends to add to the body of literature a comprehensive outline and recommendations for postsecondary career and technical education programs to best

represent their programs, services, and student outcomes to key decision influencers, in this case the high school guidance counselor. Once the best interventions have been established, a follow-up study could be conducted to determine if the messages received by the counselors had changed based upon updated and targeted information.

Limitations

Limitations in the study are inclusive of several areas.

1. The Q-sort has inherent limitations in its design. The sorting method is limited in accuracy as the participants must be accurate in sorting and rating their own feelings towards the given topic.
2. Exposure to the statements presented in the Q-sort procedure itself could influence participants to view or begin to think about the topic in a different way based on the relationship of the statements to each other.
3. Because Q method is designed to extrapolate significant data from a small P set, the generalizability of any conclusions is limited to the non-representative sample.
4. The targeted P set, high school guidance counselors, are generally pressed for time and juggle multiple responsibilities that go beyond college and career advising. Because of these additional demands, many participants may not be able to dedicate as much time and attention to the completion of the sorting process as would be desired.

Delimitations

The study and literature are delimited to the following:

1. Only high school guidance counselors during the spring semester of 2016 were included.
2. Only counselors at high schools in North Carolina were contacted and invited for participation.
3. The study was influenced by the college choice models and the perception statements selected from the literature to be included in the Q-sort.

Definition of Terms

Career and Technical Education – used in this study to include career readiness training offered at two-year colleges and independent career training academies

Concourse – “A list of items serving as candidates for inclusion in the Q-sort. It can take the form of questions, statements, pictures, etc.” (Brown, 2004, p. 18)

Factor Loadings – “Each respondent’s correlation with each of the identified clusters or factors.” (Brown, 2004, p. 18)

P-set or Sample – “structured sample of respondents who are theoretically relevant to the problem under consideration” (van Exel & de Graaf, 2005, p. 6)

Q Methodology – “defines the distinctive set of psychometric and operational principles which, when combined with specialized statistical applications of correlation and factor-analysis techniques, provide researchers with a systematic and rigorously quantitative means for examining human subjectivity” (McKeown & Thomas, 1988, p.7)

Q-Set or Sample – “the collection of ‘heterogeneous items’ which the participants

will sort” (Watts & Stenner, 2005, p. 74)

Q-sort – “Each respondent’s rank ordered set of perceptions.” (Brown, 2004, p.18)

CHAPTER 2: REVIEW OF LITERATURE

The purpose of this mixed methods study is to identify the perceptions held by high school guidance counselors towards postsecondary career and technical education in the state of North Carolina. These perceptions are influenced by our country's long history of career and technical education, formerly known as vocational education (Smith, 1998). This chapter provides an overview of the literature and seeks to provide a foundation for the current study. It includes six sections and each section will provide content applicable to the current study. Section one covers the history and development of vocational education and career and technical education for historical perspective. In section two the role of the high school counselor and how it relates to the current study will be presented. Section three will cover the process of high school student college choice. Section four will discuss current perceptions of postsecondary career and technical education with information on recent studies in the field. Section five addresses current arguments on the nature of Q methodology as either a qualitative or a quantitative methodology. Finally, section six will tie these together through an examination of the effects of counselors' perceptions on students' college choices regarding postsecondary career and technical education programs.

Section One: History of Vocational Education and Career and Technical Education

Vocational education is defined as "training for a specific vocation in industry or agriculture or trade" (Webster's, 1993). As a practice, vocational education, now commonly referred to as career and technical education (CTE), dates back to early times when the ruling class felt that while there was a need for skilled tradesmen, these skills could be adequately

obtained through apprenticeships instead of formalized education. (Gordon, 2014). The goal of an apprenticeship was to become skilled enough to have value in their communities, thus ensuring secure jobs and status.

Over time, and through the influences of scholars such as Plato and Aristotle, the term “education” no longer meant learning a physical trade. This marks the beginning of the caste system, in which those who work and those who learn were considered of different statuses. Aristotle in particular believed that the educated class should be far removed from physical labor, and that those who could afford the luxury of school were gifted, with those who worked with their hands placed at a level similar to that of slaves (Smith, 1998).

Around the year 1500, Martin Luther began working towards merging vocational training into the public educational system, then in its infancy. People again began to realize that there was value in the apprentice style of learning by doing, and we started seeing this blend back into formal education (Ganss, 1910). In the 1600s, Comenius expanded on Luther’s ideas and further integrated them into his model of children’s education. Comenius believed that learning of all types and hands-on training should begin at an early age (Remko, 2004). The Pestalozzi Method was introduced in 1805. Johann Heinrich Pestalozzi was born in Zurich and championed the poor and under-privileged. The Pestalozzi Method used a series of hands on activities to involve children in training for everyday life (Krusi, 2005; Remko, 2004). This method set the tone for the next 300 years. No longer was using your hands looked at as a negative. (Smith, 1998). Students were encouraged to do hands-on activities as part of visual learning, a method which has been proven to be far more effective.

This style of learning continued through educators such as John Locke (1632-1704) and Jean-Jacques Rousseau (1712-1778) (Krusi, 2005; Remko, 2004; Smith 1998).

As the country began to define itself in the early 1800s, America saw an unprecedented societal shift. With the industrial revolution, the introduction of the steam engine, and new manufacturing techniques, America began to change from an agrarian to an industrial-based economy (Davis, 2005; Krusi, 2005). Accompanying this change in lifestyle, we saw a correspondingly dramatic change in education. An educated labor force was necessary to service the growing industrial machine. Workers needed to know not only how to operate the machinery, but also how to read, write, and solve problems independently (Davis, 2005). Society began to view that it was the public school's responsibility to provide skilled workers to the new and growing industrial community. Many believed that in order for our nation to grow and survive we needed to place a heavier emphasis on vocational education (Krusi, 2005; Maley, 1978).

A major proponent of this view was Vermont Senator, Justin Smith Morrill. As a member of the Ways and Means Committee, he sponsored the Land-Grant College Act (later known as the Morrill Act of 1862), providing public lands for agricultural colleges. In the Senate he provided funds for their survival in the Second Morrill Act of 1890 (NDSU, 2005). The grant was originally set up to establish institutions in each state that would educate people in "agriculture, home economics, mechanical arts, and other professions that were practical" at the time. The next major government intervention was the Smith-Hughes Act of 1917 (NDSU 2005). Between the years of 1900 and 1917, 38 Senate and House bills were

offered pertaining to vocational education. According to some scholars, the Smith-Hughes Act was one of the most influential for Vocational Education (Davis, 2005). The Act established vocational education as a federal program, and provided both the form and much of the substance of vocational education as we have known it over the past 100 years. Indeed, there is general agreement that the passage of the Smith-Hughes Act of 1917 is the most important single event in the history of vocational and agricultural education in America (Camp & Crunkilton, 1985, Krusi, 2005). The Morrill Act of 1862 created the technical colleges and in 1984, the Carl D. Perkins Act provided students funding to attend these vocational schools. The Workforce Investment Act of 1998 (WIA-P.L. 105–220) reformed Federal employment, adult education, and vocational rehabilitation programs to create an integrated, "one-stop" system of workforce investment and education activities for adults and youth (Davis, 2005).

The early federal funding of vocational education programs (Smith-Hughes Act of 1917) removed trade-specific training from the general education curricula, although a need remained to develop a philosophical base on which the two disciplines could grow side-by-side. Technology analysis (Wagner, 1947), human needs analysis (Maley, 1978), the Industrial Arts Curriculum Project (Lux & Ray, 1971), and social-cultural analysis (DeVore, 1980) were all attempts to establish a philosophical base for industrial arts education.

All throughout history, individuals in education, the trades, and the arts have realized the importance of working with one's hands (Camp & Crunkilton, 1985). It can be used for either future employment or as a learning tool for other subjects. The question that has

remained unanswered regards the social implications (Elfers, 2007). Should laborers be considered skilled tradesmen or placed at a level just slightly above slaves; should they always be considered blue collar or with enough skill classify as white collar; is this a negative or a positive career choice? How do we then classify the skills of painters or artists or sculptors since they use the same skill sets as carpenters and masons? It is because of this persistent question of prestige and class that the education pendulum continues to swing; we then look to our career and counseling staff, those individuals working on the front lines with our secondary school students, to help them choose their future careers and postsecondary programs (Carnevale & Desrochers, 2003).

Section Two: Role of the High School Counselor

This section will provide an overview of the role of the high school counselor in today's educational environment. Specifically, this section will describe the roles and then provide information on how these roles impact the career and technical education student, and describe how the high school counselors influence the student college choice decision.

The high school counselor. In 2006, the U. S. Department of Labor described the educational, vocational, and school counselor as an individual that is an advocate for students and responsible for promoting their academic, career, personal, and social development. Of particular interest to this research topic is the counselors' role in helping students achieve their academic and career goals. The nature of the work of the school counselor is explained as helping students evaluate their abilities, interests, talents, and personality characteristics in an effort to develop reasonable and practical career goals (Bowers, 2012). High school

counselors provide advice and direction to students about college majors, admission requirements, and financial aid. (Hugo, 2004) Accordingly, the Department of Labor's description of the responsibilities of high school counselors indicates that they are charged with a significant role in the college and career planning activities of high school students. McDonough states that within the high school, there is no other professional that is more important than the high school counselor in improving college enrollments, as individual guidance counselors have a direct impact on their students, and more importantly that the counselor is critical in constructing the school's expectations and formal planning for college (1997). The counselor creates and implements the school's organizational response to college planning and, as such, creates an organization worldview that serves to delimit the full universe of possible college choices into a smaller range of manageable considerations. The school and the counselor construct this worldview in response to their perceptions of the parents' and community's expectations for appropriate college destinations, combined with their own knowledge and experience base (Bowers, 2012; McDonough, 1997).

In a 2005 report written for the National Association for College Admission Counseling, McDonough hypothesizes that because of their vast amount of job responsibilities (from clerical to recess duties) high school counselors are prevented from performing the job they know and do best. That job is "actively supporting high school students and their families in the college choice process, as opposed to merely disseminating information," to improve students' chances for enrollment in a four-year college (p.23).

Though McDonough's research and writings are significant in regard to the contact and role that the high school counselor has in the college choice process for young adults, it must be noted that the focus is on enrollment in a four-year college. There also is a need to research and devote time and attention to those students that are best suited and interested in other opportunities for higher education such as community and technical colleges.

The high school counselor and postsecondary CTE selection. In a 2016 article, *Navigating College*, Richard Arun, summed up the challenges students face in selecting an appropriate higher education option by stating that "students moving from high school to college in the United States typically confront a bewildering set of largely unstructured options. They often lack a clear sense of what general course of study to pursue, let alone which specific classes they should take" (p. 43). It was recommended that high school counselors needed to be aware of the influence they have in providing support for the college application process (Smith & Zhang, 2011). Through the use of surveys, Smith and Zhang (2011) studied 574 students and their transition process to college. It was found that high school counselors had a significant influence on whether or not their students continued on to a postsecondary institution. Counselors must possess the knowledge and skills needed to meet the responsibility to assist students and parents with college and career information, college admissions, and guidance through the needed high school academic curriculum (Carnevale & Desrochers, 2003). By developing trusting relationships with students and their families, counselors were able to provide the information, guidance, and support necessary for students to understand the importance of developing a college and career plan for after

their high school graduation (Hugo, 2004). High schools and their respective counseling departments which provided opportunities to assist families with financial aid information and the application process, along with encouraging campus visits, were shown to significantly increase students' chances in successfully enrolling in college (Hugo, 2004; Levine & Nidiffer, 1996).

Section Three: College Choice for the High School Student

This section provides a definition and description of college choice. The three-step model of student choice by Hossler and Gallagher and the three-phase design by Jackson will be presented to describe the theoretical underpinnings of how students make their college selections.

Definition and description of college choice. College choice is simply the process through which a student goes when selecting their higher educational destination. The college choice process includes as a key component a student's college knowledge, meaning their contextual awareness of college and its associated processes and procedures (Conley, 2008). This information includes things such as what students need to know in order to apply to college, gain necessary financial aid and support, and understand how college operates as a system and culture. High school students that possess college knowledge are better equipped with the skills necessary to effectively transition to postsecondary institutions (Conley, 2008; Venezia, Kirst, & Antonio, 2003). Research suggests that college knowledge is not delivered equally in our secondary educational systems and that students that are first in their families to attend college are particularly deficient in their college knowledge, which may often lead

to feelings of frustration and discouragement (Arun, 2016; Carnevale & Desrochers, 2003; Conley, 2008).

Hossler and Gallagher Model of Student College Choice. Hossler and Gallagher (1987) established a simple, theoretical model of student college choice. The Hossler and Gallagher (1987) model (see Figure 2) has three stages in the transition to higher education for the high school student: predisposition, search, and choice.

Predisposition stage 1. The period in which the student develops the goal or desire to pursue higher education is considered to be the predisposition stage. Examples of factors included in the model are socioeconomic status, student achievement, ethnicity, parental education expectations and encouragement, and high school quality. During the predisposition stage the student seeks and relies heavily on information sources from family, mentors, and peers (Hossler, Braxton, & Coopersmith, 1989).

Search stage 2. The next phase of the process, the search stage, involves all of the strategies involved with identifying postsecondary options (gathering and processing college information and options). The search phase of the college choice process for the high school student includes the accumulation and assimilation of information necessary to establish the potential college student's list of postsecondary institutions appropriate for their career plans (Cabrera & La Nasa, 2000b). Although there are many sources of information concerning postsecondary options for high school students that include parents, family members, friends, educators, mentors, and postsecondary institutions, the high school counselor should be considered a highly influential resource during this step of the college choice process

(Borman & Schneider, 1998; Levine & Nidiffer, 1996; McDonough, 1997; Perna, 2006).

Hossler and Gallagher (1987) identify the search phase as the “one most amenable to intervention” (Hossler, Schmit, & Vesper, 1999). Equipped with accurate, reliable, and current data about all postsecondary education options, high school counselors have the potential to provide valuable counseling and information to students about their college choices during this search stage.

Choice stage 3. The third and final phase, the choice stage, concludes with the student selecting and enrolling in an institution of higher education. Hossler and Vesper (1993) found in their longitudinal study of Indiana high school students that those participants that had access to more external resources of information about postsecondary education options had a greater chance for completing their college plans. Ultimately, it is very important that high school counselors responsible for precollege guidance on the campus have an understanding of the college choice process. It is critical for these individuals to understand the factors that shape the college-decision making process and the stages the students’ journey through as they make decisions that could potentially have an impact on their careers, livelihoods, and long-term lifestyles (Hossler & Palmer, 2008).

Jackson Three-Phase Design of Student College Choice. Jackson (1982) established a slightly different model of student college choice which focused more on the exclusionary aspects of college selection than the Hossler and Gallagher model. Like the Hossler and Gallagher (1987) model, the Jackson model has three steps in the transition

process to higher education for the high school student: preferences, exclusion, and evaluation.

Preferences phase 1. In the Jackson model, the initial phase of the college choice process is the preferences phase. It is during this period that outside individuals such as family, friends, and counselors have the most influence. This is also when a student's personal aspirations and academic achievement have the most sway on the future college choice.

Exclusion phase 2. The second phase of the Jackson model is the exclusion phase. Students will begin to take into consideration economic factors such as cost of attendance, distance from home, and college placement rates that may cause an individual institution to be excluded from their list of possibilities.

Evaluation phase 3. The third and final phase, the evaluation phase, concludes with the student selecting an institution of higher education. This phase often includes the development of an informal personal rating scheme to rank institutions and make the selection decision that makes the most sense for their personal needs and goals.

Section Four: Current Perceptions of Postsecondary Career & Technical Education

This section will provide an overview of the most recent works on the perceptions of postsecondary career and technical education. More specifically, this section will discuss the importance of understanding the current perceptions, research on “prestige pressure” on high school campuses (Elfers, 2007), and recent works by the National Commission on

Community Colleges designed to highlight the works done by community and technical colleges in preparing the next generation of students and workers.

Throughout the literature, it became increasingly apparent that there is a need to better understand the current perceptions of postsecondary career and technical education among high school counselors, as they serve on the front line of the school choice decisions (McDonough, 1997). High school counselors, like anyone, generally formulate their perceptions of postsecondary career and technical education based on their own experiences, education, and exposure to various programs and are then responsible for synthesizing that information and making recommendations to their students. The high school counselor is an integral source of information and encouragement in regard to precollege guidance to both students and their families. As a former college advisor, Elfers (2007) emphasized the importance of providing students with the facts and features of two-year colleges in addition to four-year colleges. A major challenge identified on Elfer's high school campus was termed "prestige pressure" (2007). Prestige pressure led to the counselors on that campus reporting that they felt they had to be careful to keep confidential where students had applied to college because the students did not want their peers to know their choices (2007). Elfers highlights the importance of respectfully discussing two-year institutions options with high school students and being supportive and enthusiastic when students show an interest in these educational options.

In 1992, the State Higher Education Executive Officers (SHEEO) reported on building a quality workforce and specifically emphasized the importance of the high school

counselor's role in career development. The SHEEO report also revealed that there are concerns about high school counselors' views concerning community college and technical education postsecondary options. This research disclosed that historically counselors have viewed such programs as dumping grounds for students who are academically beneath skill level or have behavior issues. They do not perceive community colleges as an option that can potentially lead to successful futures. Meanwhile, Mitkos and Bragg reported that high school counselors may lack awareness of community colleges or "they may hold perceptions of the diminished value of community colleges" (2008). The authors suggest that it is the high school counselors' lack of knowledge and understanding about community colleges that has the possibility of establishing an "unfavorable perception" of these colleges (Mitkos & Bragg, 2008).

In contrast to the SHEEO view of poor perceptions and the suggestions of Mitkos and Bragg of simple lack of awareness, Hugo's 2004 qualitative study of high school counselors in California revealed yet a third viewpoint on the issue. This study implied that the high school counselors surveyed were adamant about the mission to provide students with unbiased information about all postsecondary options (Hugo, 2004). High school counselors in the study expressed that students who eschewed a traditional four-year institution were still entitled to get the information they needed to access appropriate training options for their career paths. This leads to the assumption that choice to attend an institution other than a traditional four-year also has the likely outcome of a productive and meaningful career.

In 2007, as part of the College Board's Center for Innovative Thought, the National Commission on Community Colleges was assembled. This commission was established as a result of the recognition that two-year institutions have an indispensable and overlooked role in American life. The commission released its January 2008 report entitled "Winning the Skills Race and Strengthening America's Middle Class: An Action Agenda for Community Colleges," which summarizes obstacles and makes recommendations to highlight two-year institutions in the efforts to enrich American communities and guarantee national competitiveness. It persuasively pointed out that "the ingrained habit of ignoring the current and potential contributions of community colleges must be broken if the United States hopes to respond effectively to several significant trends reshaping national and international life" (College Board, 2008, p. 5).

Recent studies on current perceptions

Rankings, ratings, reviews, and classifications of postsecondary institutions in regard to America's "best" universities and "good" have been a contentious subject and has been described in terms of a lot of wasted ink spilled over the years in regards to rankings that may not influence students as heavily as administrators would like to think (McCormick, 2007). However, even with all the discussion of influence and rank, there has been limited attention given to the college choice process that leads to students' selection of community colleges or other postsecondary career and technical education programs (McCormick, 2007; Mitkos & Bragg, 2008). While searching for existing literature on perceptions of postsecondary career and technical education, it became immediately apparent that there is a significant gap, as

there were no studies found that focused on the perceptions of high school counselors on postsecondary career and technical education options for the general student population. Searches for such literature were conducted through multiple databases including ERIC, ProQuest, EBSCO, and JSTOR available through both the North Carolina State University library system and the University of Georgia library system, Google Scholar, and WorldCat. There have been some studies regarding the college choice process from the perspective of high achieving students, at-risk populations, and minorities, but each of these have focused primarily on the four-year colleges and universities. In 2010, the Public Policy Center at The University of Nebraska examined the public perceptions of career and technical education among the general populace of Nebraska. Key findings of this study include that the perceptions among the general public are generally positive, respondents feel that career and technical education prepares students for careers and college, and that the CTE courses are just as important as traditional academic subjects but that the students taking these courses are not as well respected as students in more traditionally academic courses (Herian, 2010). While the study in question does not look at counselors individually and instead groups them within the broader category of “educators,” it is worthy to note that the general public is less likely to state that “career and technical education courses are considered to be easy” than educators; the percentages of respondents who “disagree” or “strongly disagree” with this statement are 69.3% for educators and 33.9% for the general public. The findings do not delve into the experience level of the educators with career and technical education, but do ask the public to disclose first-hand experience with CTE courses in school. Among those

who took CTE courses, they were slightly more likely to agree that “CTE classes teach students the basic skills necessary for employment” at 85% versus 82.7% of those respondents who did not take CTE courses (Herian, 2010). Similarly, 61.9% of those respondents who had taken CTE felt that the “schools do a good job of preparing students for success in the workplace” versus 59.4% of those who did not have personal CTE experience.

Looking at the school counselors specifically, a limited scope pilot study was conducted with a small group of high school counselors in 2014 by the researcher, and a mirror study in 2015 with parents (Kandalec, 2014; 2015). The results of these two studies that implemented Q methodology indicate that while perceptions may not be as generally negative as feared, there is a distinct lack of information available to both of these key influencer groups. Among the guidance counselors, two distinct factors appeared: the “Pragmatists” and the “High Skills” groups. The Pragmatists believed that the curriculums of postsecondary career and technical education are closely aligned with workplace requirements, provide increased access to jobs following graduations, and is largely more practical than a liberal arts education. The High Skills groups felt more strongly that career and technical education teaches valuable communication and teamwork skills and leads to high demand jobs. The pilot study included an intervention where the counselors were exposed to an article focusing on the outcomes for career and technical education graduates versus graduates of traditional liberal arts programs. While the initial sort did not reveal anything shocking, the post-intervention sort and the statements that changed from one to the next were highly revealing. The Pragmatists added the statement “leads to high demand jobs”

to their highly rated column and disagreed with the “preparation for unskilled work” statement, allowing us to infer that they now understood that postsecondary career and technical education is more technically advanced and of a higher caliber than they previously believed. The High Skills group did not shift on their highest rated statements, but no longer felt as strongly that career and technical education “deters students from higher educational aspirations” or that there are “fewer options for high paying careers,” indicating that they understand that the career options for career and technical education graduates are not limited to low-skill, low-pay positions.

While this study was limited in nature and suffered from a low response rate, it is important to note that the perceptions were able to be shifted based on a single intervention of data-driven information on student outcomes. This is critical because if the high school guidance staff do not view community and technical colleges as leading to viable and successful careers, it is important that we implement professional development strategies to modify these views with training and establish plans for improved informational support to high school students and their parents. Additionally, pre-existing negative perceptions of CTE may have also played a role in the limited response rate, as one counselor responded to the invitation to participate with “I work at a college preparatory high school, so this isn’t really relevant to me or my students.” That may have been one of the more telling statements received, but could not be considered an official response in the study.

Section Five: Q Methodology: Quantitative versus Qualitative

While there has been some question on Q methodology being classified as a quantitative method versus a qualitative method, after careful examination it is the opinion of the researcher that Q methodology should most appropriately be considered a true mixed methodology. Q method uses the qualitative judgements of the researcher in defining the problem, developing the statements to be included in the concourse, and selecting participants (McKeown, 1988). Q method uses quantitative analysis through factor analytic data-reduction to develop the factor groups as well as to generate hypothesis for potential further testing. The subjective opinions expressed by the participants are then used to interpret the factor themes through qualitative analysis. “Q methodology research emphasizes the qualitative *how* and *why* people think the way they do, and is not as concerned with the quantitative *how many* people think a certain way” (Valenta, 1997, p. 502). The goal of Q methodology is to uncover different themes among perceptions and viewpoints, and is not as concerned with the numerical distribution among a larger population (Brown, 1993; McKeown, 1988).

Section Six: Effects of Counselors' Perceptions on College-Bound Students

This section will examine the effect that the secondary school counselor's perceptions will have on students seeking to pursue higher education. More specifically, this section will cover the influence a counselor may have on a student, how a counselor's awareness or lack thereof can effect a student's choice, and the importance of understanding what the current

perceptions of postsecondary career and technical education are among high school guidance counselors.

Practitioner experience and scholarly research have both shown how important the role of the school counselor is to high school students' awareness and interest in postsecondary options (Hugo, 2004, Elfer, 2007). In many ways high school counselors hold the key to students' ability to see the community college as a viable option for their future college education (Hugo, 2004). If high school counselors play an essential role to community college recruitment, then it is important to understand the values, perceptions, and considerations high school counselors hold about the community college as an institution of higher learning. Many high school students are lacking the vital information needed to make an appropriate individual college choice. This information gap results in many students who prematurely and inappropriately attend four-year institutions consequently becoming discouraged for various reasons and discontinuing their studies (Hugo, 2004). Carnevale and Desrochers (2003) theorized that the only thing that will cost more than going to college is not going to college at all. The assertion is that the demand for individuals with education and training beyond high school will only continue to increase in the future due to the complexity of skill requirements.

By looking at high school counselors' perceptions of postsecondary career and technical education – an area that is currently lacking as a focus of academic study – postsecondary career and technical educators and researchers can address the nation's pending critical workforce demand for graduates of high quality postsecondary career and

technical education programs (Brand, Valent, & Browning, 2013). If high school counselors are trained and knowledgeable about the complete range of postsecondary educational options, they can then best serve each and every high school student. The challenge then is to focus on how best to disseminate information to the counselors on options, outcomes, and the value of career and technical education. Through the analysis of the opinions and viewpoints of the pilot study respondents, it is evident that changes in perceptions, however subtle, can be made through time and exposure to the positive gains that CTE graduates are experiencing.

CHAPTER 3: METHODS

Introduction

This study utilized a Q methodological design to investigate high school guidance counselors' perceptions toward postsecondary career and technical education. The research questions for this study investigated secondary guidance counselors' perspectives on postsecondary career and technical education and sought to explore the declarative statements each counselor used in describing available career and technical education options. This chapter includes an overview of the research design, including history, purpose, and appropriateness for this study, followed by a detailed outline of the five stages of Q methodology including the development of the concourse and the q set, selecting the participants or the p-sample, creation of the instrumentation, the collection of data, and finally the data analysis and factor interpretation.

Research Design

This study used a non-experimental research design using Q Methodology with high school guidance counselors working at public high schools in North Carolina to measure their perceptions of postsecondary career and technical education. Brown (1994) has identified Q Methodology as being highly appropriate for determining perspectives on a topic, and as such it appears to be the ideal method to use for the current study.

A purposeful sample was collected. The sample size for the participants was used based on the statements selected for the Q sort concourse, as Watts and Stenner note that the recommended minimum ratio of q-sample to p-sample is 2:1 with a maximum of less than

the number of items in the q-set (2012). van Exel and de Graaf (2005) and Brown (1994) both state that it is best to have between 40 and 50 statements on the topic of interest, with the exact number varying so long as they comprehensively address the range of possible attitudes and perceptions. Given the final q-set of 43, the p-set aimed to include at minimum 24 college and career counselors.

This study focused on the following research questions:

Q1: What are the current attitudes and perceptions among secondary counselors towards postsecondary career and technical education?

- Which groups ranked particular statements the highest versus the lowest?
- Were there any consensus statements indicating that a viewpoint was so commonly held it can be accepted as a priori?
- What are the major differences between groups of counselors in their perceptions and attitudes towards postsecondary career and technical education?

Q2: What are the persuasive statements that high school counselors use when advising secondary level students on postsecondary career and technical education?

The research questions were developed with the primary goal to conceptualize the perceptions of high school counselors on postsecondary career and technical education and to develop a framework through which various interventions can be developed using focus group feedback to determine if the perceptions of the groups can be changed.

Q Methodology Background

Q methodology is a research method through which we can quantifiably measure the perceptions, attitudes, and beliefs of the participants in a study and is therefore ideal in a research project designed to measure the perceptions of high school counselors towards postsecondary career and technical education. Originally developed by William Stephenson in the 1930s, Q Methodology is an approach to measure subjectivity through a methodical approach (Brown, 1994; van Exel & de Graaf, 2005). The Q sort allows each participant to use their own judgment in the placement of the statements, and thus the data gathered is a quantifiable measurement of the individual opinions and attitudes towards a given topic. The participants are then clustered based on the similarity of sorts. As the purpose of the current study was to identify the perspectives currently held by high school counselors, the Q methodology appeared to be the ideal method.

Q Methodology

Q Methodology consists of five stages for study protocol. The first stage is the development of the concourse and the Q sample, followed by the identification of the P-set or participants. The data collection stage is called the Q sort, and then is followed by the analysis including correlations, factor analysis, and factor scores. The procedure is described in detail below.

Developing the concourse.

The first step of the Q Methodology process is the development of the concourse, which is considered representative of all possible thoughts or statements on the topic of

interest (van Exel & de Graaf, 2005). The researcher develops the concourse through thorough reviews of existing literature (van Exel & de Graaf, 2005; Watts & Stenner, 2005), conducting interviews and participant observation (van Exel & de Graaf, 2005), pilot studies (Watts & Stenner, 2005), and focus groups (Brown, 2004).

Q-Sample.

The second step consists of developing the Q sample, which are the representative selected statements from the full concourse. The goal of the Q set is to have a broad, “comprehensive, balanced, and representative set of survey items” (Brown, 2004, p. 4). It is dependent upon the researcher to select the best Q set for the study based on the available statements in the full concourse. Watts and Stenner (2005) emphasize that the research questions must be clearly defined and in the forefront as they guide the development of the Q set. The participants will be asked to read the Q sample statements in relation to the research question. Statements are then randomly assigned a number by the researcher for data entry. A partial sample Q set is shown in Figure 6.

Card Number	Attitude/Value/Perception
1	is less academically rigorous than general education
2	provides increased access to jobs following graduation
3	is more practical than a general or liberal arts education
4	is an alternate route for poor academic performers
5	provides fewer options for high paying careers
6	provides opportunities for hands on experience
7	curriculums are closely aligned with workplace requirements
8	instructors have personal work experience in their fields
9	allows students to acquire references/contacts in field
10	develops workplace ethics
11	provides affordable transferable credits
12	allows flexible scheduling
13	provides students with a head start on the world of work
14	is as beneficial as general education
15	teaches valuable math skills
16	teaches valuable science skills
17	teaches valuable technology skills
18	teaches valuable english skills
19	options/pathways are highly visible to parents
20	is preparation for largely unskilled work
21	-- good programs attract new industries to a community
22	involves manual labor and very little academic rigor
23	is "education for work" no matter the level of training
24	contributes positively to the economic health of the community
25	stimulates the creation of small business in the community
26	plays a role in reducing unemployment

Figure 6. Sample Q-set (Kandalec, 2014)

P-set.

Contrary to most sampling methods, the participants (P-set) for a Q methodology study should be carefully selected as opposed to a random selection. The researcher should take care to gather a group of respondents who have a theoretical interest in the study and are well-educated about the topic of interest within their own subjective perspectives (Brown, 2004). The priority with the P-set selection is the actual individuals in the group and who they are as opposed to the total number of participants. Watts and Stenner (2005) state that the number of participants in a Q study need not be as large as those required for traditional sampling methods, as the goal is to measure the perceptions of a very specific group on the topic of interest. William Stephenson described the creation of the P-set as the researcher “seeking out individuals on the basis either of their importance or the likelihood that they will provide a perspective that differs from the perception of other participants” (1953, p. 222).

Q Sort.

The actual Q sort is the data collection step of Q Methodology. Brown (2004) describes Q sorting as the process during which the participants rank their statements based on the instructions given by the researcher. With each card in a Q set having one statement each, the P-set should be given instructions on the ranking process, including that they should be using their own subjective point of view and that there are no right or wrong rankings.

The ranking scale given in the conditions of instruction is determined by the research questions and the needs of the investigator, but it should be a continuum from negative to

positive. Figure 7 illustrates an example scoring grid in which a participant would record the card numbers following their Q-sort. Figure 8 shows a completed Q sort for an individual's responses.

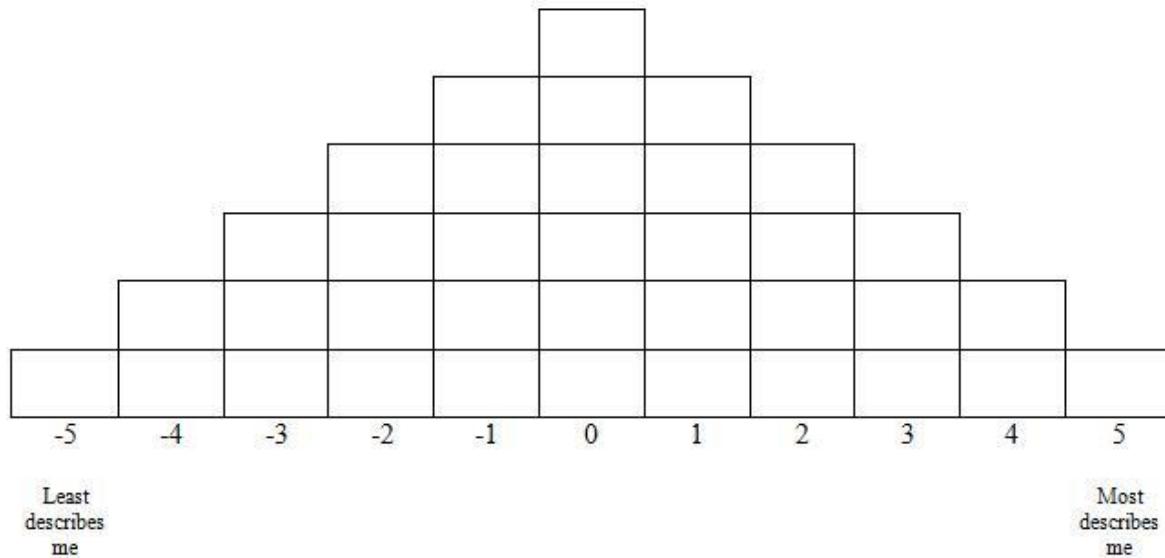


Figure 7: Sample Q sort matrix

-4	-3	-2	-1	0	+1	+2	+3	+4
2*	4	13	25*	9	11	6	1**	8
3	5	14	28	23	15	17	10	7
	12	19	29	26	16*	21**	18	
		20*	31*	27	32	33		
		24	35	30	38	34		
			39	36	22			
				37				

Figure 8: Q-sample rankings from one respondent

The rankings can be collected in either a forced distribution curve like those shown in Figures 7 and 8, or can be collected through an open distribution in which the participant is free to rank the statements into as many or as few columns as they choose. In 1971, Stephen Brown found that either the free sort or the forced technique were both equally reliable as the “factor types in Q-technique studies will be considerably more influenced by ordering preference than they will be by distribution preference” (p. 286). In 2005, Watts and Stenner also concluded that the distribution type will have little to no effect on the factors, but pointed out that the forced distribution creates less work for both the participant and the researcher when analyzing the results. Based on the design of the Qsortware data collection software, a forced distribution with rankings between -4 and +4 was used for this study.

A common condition of instruction, as suggested by van Exel and de Graaf is that the Q sort be conducted as two sorts – an initial sort to divide the cards into three piles of positive, negative, and neutral which is then followed by the final sorting into the provided matrix. van Exel and de Graaf (2005) suggest that this pre-sorting process can help the P-set to organize their thoughts in a timelier and constructive manner. Following the rankings, it is strongly suggested that follow-up interviews are conducted with the P-set in order to better understand the rankings and the reasoning behind the placements of the individual statements (van Exel & de Graaf, 2005; Watts & Stenner, 2005; Brown, 2004). The follow-up interviews represent a second valuable set of data for analysis and is discussed in the following section.

Correlation, Factor Analysis, and Factor Scores.

Each Q-sort will produce two separate, but equally valuable, sets of data. The first is the quantitative distribution of the concourse items, most commonly manifested as statements. The second is the qualitative narrative or discussion that immediately follows the sorting exercise. The purpose of the narrative data is to elicit discussion and understanding of the reasons for particular placements. While the relevance of the qualitative data is often suppressed in current uses of Q Methodology, the reasoning behind the placements of individual items can often be more analytically relevant than just the placement of each card (Brown, 1993). In Q-methodology, data analysis uses correlation and by-person factor analysis, that is, statistical analysis is not performed by variable, trait, or statement, but rather by person. People correlate to others with similar opinions based on their Q-sorts. Rather than groupings of traits such as years of teaching and counseling experience, age, or sex, Q-methodology results in the grouping of expressed opinion profiles based on the similarities and differences in which the statements are arranged by each participant (Brown, 1993).

Once the Q sorts have been completed by the entire P set, each person's rank-ordered sort of statements is transformed into an array of numerical data. In this study, for example, the two statements that were placed at the Most Like My View end of the distribution received scores of +5, the next three scores received +4, the next four scores received +3, and so on, all the way down to the two statements that were found Most Unlike My View, which received scores of -5. Statements placed in the middle of the bell-shaped curve by the subjects are assigned scores of 0. Each person's array of numerical data is then intercorrelated

with the arrays of all the others. The resulting correlation matrix shows which participants sorted the statements into similar orders. The correlation matrix is then subjected to factor analysis to obtain groupings of data arrays that are highly correlated. This determines the factors that represent clusters of participants with similar opinions. In the practice of Q-methodology, people who are associated with one factor generally have something in common that differentiates them from those who are associated with the other factors. Factor loadings show each participant's association with each of the identified opinion types. According to van Exel and de Graaf (2005), the “final factor represents a group of individual points of view that are highly correlated with each other and uncorrelated with others.” A factor loading of 0.80, for example, means that a person's statement array is highly correlated with this factor. Like other correlation coefficients, factor loadings can range from -1.00 through 0 to +1.00. The interpretation of the factor scores will depend on the research topic.

Definitions for Q Methodology terms.

Concourse – “A list of items serving as candidate for inclusion in the Q sort. It can take the form of questions, statements, pictures, etc.” (Brown, 2004, p. 18)

Condition of Instruction – instructions provided by the researcher and given to the participants on how to consider the statements, interpret the research question, and complete the Q sort procedure

Factor – “cluster of respondents whose Q sorts were statistically similar” (Brown, 2004, p. 18)

Factor Loadings – “Each respondent’s correlation with each of the identified clusters or factors.” (Brown, 2004, p. 18)

P-set or Sample – “structured sample of respondents who are theoretically relevant to the problem under consideration” (van Exel & de Graaf, 2005, p. 6)

Q Methodology – “defines the distinctive set of psychometric and operational principles which, when combined with specialized statistical applications of correlation and factor-analysis techniques, provide researchers with a systematic and rigorously quantitative means for examining human subjectivity” (McKeown & Thomas, 1988, p.7)

Q-Set or Sample – “the collection of ‘heterogeneous items’ which the participants will sort” (Watts & Stenner, 2005, p. 74)

Q-sort – “Each respondent’s rank ordered set of perceptions.” (Brown, 2004, p.18)

Q Methodology and High School Counselors

Determining the current perceptions of high school counselors from existing literature has been a challenge. As Q Method has been described as being a tool to “reveal subjective structures, attitudes, and perspectives from the standpoint of the person or persons being observed,” it is an incredibly targeted and well-suited methodology for the current study (Brown, 2004, p. 17). There is no current literature combining the use of Q Methodology and perceptions of counselors towards postsecondary career and technical education, therefore this study could develop a new perspective and framework through which to study both the current perceptions as well as new contributions to the methodology. By potentially utilizing

a second study as a follow-up post-intervention, it may be later possible to determine not only what the current perceptions of postsecondary career and technical education are among high school counselors, but also what if any effects the exposure to additional information on student outcomes may have on said perceptions. The results of such a follow-up study could provide a framework for postsecondary career and technical education program administrators to best market their programs, communicate with their local counselors, and reach the students who would benefit most from their services.

P-Set

For this study, guidance counselors employed at public secondary schools across North Carolina in the spring semester of 2016 were solicited to participate. To acquire the participants for this study, the researcher emailed a brief request to the individual counselors identified through the EDDIE database available publically from the North Carolina Department of Education. A complete report of schools was downloaded from the database, and then narrowed based on school type, program type, calendar, and grade levels offered. The initial database report returned 2,654 schools. After selecting the schools classified as “regular,” defined as a “school that offers a regular program of instruction” which includes “all of the core subject areas and does not focus primarily on career technical, special, or alternative education,” the list held 2,526. The exclusion of magnet schools, hospital programs, cooperative innovative high schools, or early college high schools dropped the list to 2,288. Narrowing the list again by including only schools on a traditional calendar, and those that offered grades 9-12 inclusively rendered a final list of 407. These remaining

schools were analyzed for inclusion based on name and details from their website, to exclude charter schools, career academies, virtual schools, and military schools, leaving a final list of 353 public secondary schools to be solicited. From the website links provided in the EDDIE report, a list of contact emails was collected for the counseling staff. Initial inquiry into the structure of the high school counseling offices indicates that each department employs an average of four full-time counseling staff with additional administrative staff in some of the larger school systems. Only individuals with the titles counselor, guidance counselor, career counselor, or college advisor were included in the list. This invitation list contained 827 names and emails. Counseling office reception and support staff were not included.

The primary contact email included an explanation of the intent of the study, the required consent information, and requested their participation with a link to the study instrument and is included in Appendix C. Based on a previous small-scale pilot study, counseling staff were slow to participate, as many were already juggling an excess of responsibilities and demands upon their time; this is particularly true during the spring semester as graduation looms. Therefore, instead of selecting a subset of counselors to approach for participation, invitations were sent to the whole population, with the expectation that a smaller subset will participate. The researchers' goal was to recruit a minimum of 20-25 participants, based on the Q-set of 43 statements. In total, 28 participants completed the q sort. Review of the completed sorts indicated that 26 sorts were completed appropriately and could be included for analysis. Of the two sorts that were discarded, one was completed in less than six minutes with no narrative data including, indicating that the participant had not

read the statements nor considered their response, and the other was a duplicate sort, where a single participant completed the survey twice. The duplicate sorts were compared, and based on the time stamp of the sorts, the initial sort was included.

Instrumentation

The QSortWare software was utilized for data collection through the website www.qsortware.net. QSortWare is a user-friendly drag-and-drop Q sorter in which the researcher has control over how statements are presented and data is collected. In addition, the site allows for the capture of demographic data, as well as for the entry of open-ended questions, further allowing for the capture of relevant and insightful information useful during the analysis and explanatory phases.

The process to create the concourse began through a search of scholarly research to determine what the current views towards postsecondary career and technical education encompass. After reviewing the literature, a total of 98 statements were determined to be applicable. Once similar themes were identified, statements were reviewed for duplicates and clarity and thus some were edited from the q set. The final concourse contained 43 statements reflective of the attitudes and perceptions towards postsecondary career and technical education and can be seen in Appendix A. Q methodology provides the opportunity to study the relationship between statements and recognizes that attitudes and perceptions are not held in a vacuum, but rather in relation to other attitudes and perceptions. The matrix of concourse statement relationships in Table 1 illustrates how the statements are related to not only

student academic and career outcomes, but also community and economic outcomes over various time frames.

Table 1: Matrix of Concourse Statements

	Academic Outcomes	Career Outcomes	Community Benefits
Current Expectations	1, 4, 8, 12, 14, 15, 16, 17, 18, 37	6, 7, 10, 21, 26, 27, 32, 33	24, 25, 40
Future Outcomes	3, 11, 14, 15, 16, 17, 18, 28, 34, 43	2, 5, 9, 13, 20, 22, 29, 30, 31, 34, 39, 41, 42	23, 24, 25
Accessibility & Visibility	19, 35, 36, 38	35, 36	

Data Collection and Analysis

Upon approval by the North Carolina State University Institutional Review Board (IRB), data were collected to determine the perceptions and attitudes held by high school counselors towards postsecondary career and technical education. The instrument used, QSortWare, had the concourse statements uploaded to the website application at www.qsortware.com. Once the concourse was finalized, demographic questions and open ended analysis questions were added. Participants were recruited through the North Carolina Department of Education's EDDIE database of school information, and for those participants

who chose to take part in the study, complete conditions of instruction and individualized links were provided.

In addition to the data provided by the sort, additional information including personal demographics, professional background information, and open-ended question responses were collected through QSortWare. This additional information was invaluable when analyzing the factor groups and identifying common themes.

Summary

The purpose of this chapter was to provide an introduction to Q Methodology as well as detail the procedures for the construction and design of this research study. The purpose of this study was to determine the current perceptions of postsecondary career and technical education among high school guidance counselors and to determine if these perceptions may be changed over time through exposure to valid information on positive student outcomes. This methodology does not require a large sample size since it has been demonstrated that a limited number of opinions, beliefs, and viewpoints exist for a given subject (Brown, 1993). The methodology employs both quantitative and qualitative methods to create a deep understanding of the participants and the underlying beliefs behind the factor loadings.

CHAPTER 4: FINDINGS

The chapter presents the results from the data analysis of the Q sorts to answer the research questions proposed. Twenty-six counselors employed in public high schools in North Carolina completed the Q sort to determine their current perceptions and attitudes towards postsecondary career and technical education. Participants sorted a concourse of 43 statements based on the current literature on career and technical education and the perceptions thereof. An introduction to the Q methodology process was provided in Chapter 3, the procedures of which were followed in the conducting of this study.

The purpose of the Q methodology study was to understand the current perceptions of postsecondary career and technical education among high school counselors in North Carolina. This chapter will present the data collected to answer the following research questions:

Q1: What are the current attitudes and perceptions among secondary counselors towards postsecondary career and technical education?

- Which groups ranked particular statements the highest versus the lowest?
- Were there any consensus statements indicating that a viewpoint was so commonly held it can be accepted as a priori?
- What are the major differences between groups of counselors in their perceptions and attitudes towards postsecondary career and technical education?

Q2: What are the persuasive statements that high school counselors use when advising secondary level students on postsecondary career and technical education?

To find these answers, college and career counselors working at the secondary level in North Carolina were asked to complete a Q sort and answer follow-up narrative questions. The Q sort had the participants sort the concourse items based on their perception of career and technical education options at the postsecondary level. During the narrative questions, they were asked to provide information on their personal experiences with career and technical education, any experiences their family members may have had, and how they would describe the postsecondary career and technical education offerings to a student who expressed an interest in pursuing higher education.

This chapter will include the pre-data analysis, a description of participant demographic information gathered from the pre-sort screening, correlations between sorts, an examination of participant demographics, factor analysis details including the highest and lowest ranked items in each group, a list of consensus statements or those which are commonly ranked between each group, factor arrays, and factor interpretation.

Overview of Analysis

Q methodology is used to group individuals by their common perceptions and then identify the themes that emerge from these groupings. In addition, because Q sorts are based on a participants' individual judgement or perception, the process allows the participant to conceptualize their perceptions on a topic in a rank order that must fit into a forced distribution. Once the factors were extracted, themes were developed based on the statements

which ranked high and low for each group. In this study, high school counselors working in North Carolina expressed their perceptions towards postsecondary career and technical education. The counselors sorted statements representing a broad array of viewpoints on postsecondary career and technical education into a forced distribution ranging from “most like my viewpoints” to “least like my viewpoints.”

QSortWare was the online instrument used to collect the Q sort data. Created by Dr. Alessio Prennedu, QSortWare is designed to specifically collect Q sorts in a way as similar to the traditional in-person card sorts that the methodology developed. After the data was collected and the instrument was closed, the data was entered into PQMethod analysis software and SPSS. SPSS was used to calculate descriptive statistics, one-way ANOVA, and frequencies. The PQMethod statistical analysis software was used to develop the resulting factor analysis and correlation matrix to demonstrate the differences and similarities between the counselors’ sorts. This information was then used to group the counselors’ qualitative responses for emergent themes.

Correlation Matrix

The R statistical analysis and SPSS software programs were both used to analyze the data. The first step in both packages is to calculate a correlation matrix, which demonstrates how similar each participant’s sort is or is not to other participants’ sorts. The correlation matrix “allows us to ascertain the degree of agreement, or disagreement, between the entire set of item rankings produced by any two persons” (Watts & Stenner, 2012, p. 22). There were five original unrotated factors identified via SPSS, but two had no significant loadings.

A centroid factor analysis was then performed with four factors, but one had no significant loading. A centroid factor analysis was then performed with three factors, which provided three factors with significant loadings. A varimax rotation with seven iterations was included in the factor analysis for this study. Watts and Stenner (2012) stated that “varimax is an excellent means of revealing a subject matter from viewpoints that everybody might recognize and consider to be of importance” (P. 126). For this study, the matrix is 26 x 26 to represent the number of participants ($n = 26$). Correlation matrices display correlation coefficients between -1.00 and +1.00. A +1.00 correlation means that an individual participant's responses are identical to another participant's sort, while a -1.00 would indicate that the two sorts are the exact opposite of one another. The highest correlation matrix value is seen with Participant 1 (53-year-old male, M.Ed. in school counseling, three sons who have completed career and technical education programs) and Participant 8 (49-year-old female, M.S. in school counseling, no reported experience with career and technical education), who have a correlation matrix value of .82. One would generally expect these two participants to have similar sorts and to fall into the same factor, which they do not. While their sorts were very similar, Participant 1 loaded highly on two components, loading at .594 on Factor One and .533 on Factor Two. As a result of the dual loadings, this participant was then excluded from further analysis. Alternately, Participants 3 (37-year-old female, unspecified Masters degree, no reported experience with career and technical education) and 19 (28-year-old male, Masters in Education, and only reported having professional experience with career and technical education) have a correlation matrix value

of -.17, which is a low correlation. These participants are loaded distinctly in separate factors, and did not have similar answers to their narrative questions or demographics. There were no two sorts exactly the same nor perfectly opposite in this study. Table 2 provides a truncated view of the initial correlation matrix, with the full matrix in Appendix B.

Table 2: Correlation Matrix between sorts (truncated)

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10
P01	-									
P02	0.58	-								
P03	0.60	0.41	-							
P04	0.41	0.32	0.34	-						
P05	0.22	0.24	0.11	0.11	-					
P06	0.70	0.54	0.49	0.38	0.26	-				
P07	0.55	0.62	0.44	0.32	0.19	0.69	-			
P08	0.82	0.47	0.52	0.33	0.24	0.58	0.54	-		
P09	0.42	0.44	0.45	0.31	-0.05	0.36	0.34	0.31	-	
P10	0.56	0.51	0.38	0.12	0.32	0.54	0.56	0.48	0.33	-

Factor Analysis and Eigen Values

The next step in Q methodology is to perform a factor analysis. Initial factor analysis in SPSS revealed five un-rotated factors with Eigen values higher than 1.0. Looking at these factors further, it is revealed that three of these factors contain but a single participant. Q analysis groups participants as opposed to R analysis, which groups survey items (McKeown, 1988). The factor loadings enable researchers to examine the q sorts of groups of participants who loaded significantly on the same factor (Watts, 2012). Consideration of the factors

revealed that four of the themes could be combined into two, and re-analysis was done with a forced three factor outcome. This is further illustrated through an examination of the scree-plot of Eigen values for each component. In figure 9 below, the y-axis represents the Eigen values and the x-axis represents the factors.

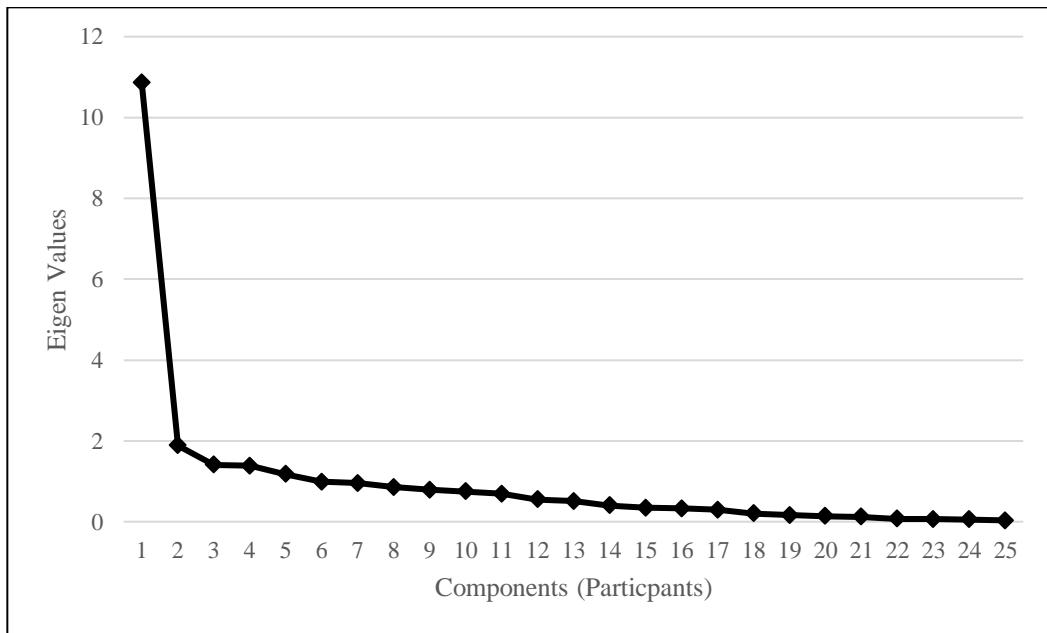


Figure 9: Scree plot of Eigen values

The curve represents the point at which consider the number of factors that explain the data. Generally speaking, an Eigen value below one is commonly considered the point at which variance is no longer adequately explained (Watts & Stenner, 2012). In this study, there are five factors with Eigen values above 1.0, but as previously discussed, the loadings of those components was not adequate to explain the distinctions, and a forced three-factor

solution was used. The first factor has an Eigen value of 10.87; the second has a value of 1.89; the third factor has an Eigen value of 1.41. Upon analysis of the strength of the sorts, the largest amount of variance is explained after factor one (43.5%), with factors one through three explaining 56.7%.

Factor Loadings

The criteria for statistical significance of factor loadings is based on the magnitude of the correlation of each component to the others in the same factor group. A loading of +.30 is the minimum consideration level for significance; +.40 is more important, and a loading of +.50 is a practically significant correlation (Mertler, 2002). The initial loadings of each participant into their factor groups is presented in Table 3, with loadings of less than +.30 removed for clarity. Because the purpose of Q methodology is to determine unique viewpoints, high loadings across multiple factors are considered confounding statements and are typically not used in the construction of the factor arrays because they are a reflection of at least two factors, which can increase the correlation between factors and make the resulting factor arrays less distinct (Armatas, 2014). A benefit of using the qmethod analytical library in R is the loadings chart, which is shown in Table 4.

Table 3: Factor loadings

	Factor One	Factor Two	Factor Three
P17	.8145	.3030	.0409
P09	.7529	.0044	.0502
P03	.6638	.4170	-.0868
P23	.6004	.1888	.0209
P18	.6000	.2188	.4572
P15	.5970	.2485	.2879
P01	.5816	.5594	.2657
P08	.5784	.4366	.2792
P20	.5388	.2909	.4423
P02	.5279	.3927	.4429
P12	.4905	.5361	.2635
P26	.4846	.5336	.3213
P07	.4513	.4982	.2764
P13	.0574	.7760	.3453
P11	.4184	.7436	-.2141
P16	.3969	.6499	-.0722
P25	.2282	.6375	.3308
P06	.4006	.6023	.2599
P21	.2514	.5569	.0200
P04	.3282	.5205	-.1224
P05	-.2940	.5192	.4297
P22	.3375	.4847	.2481
P24	.4244	.4847	.4045
P19	-.0694	-.0273	.6956
P14	.1804	.0285	.6809
P10	.3698	.3490	.5642

Table 4: Flagged factor loadings

	Factor One	Factor Two	Factor Three
P01	False	False	False
P02	False	False	False
P03	TRUE	False	False
P04	False	TRUE	False
P05	False	False	False
P06	False	TRUE	False
P07	False	False	False
P08	TRUE	False	False
P09	TRUE	False	False
P10	False	False	TRUE
P11	False	TRUE	False
P12	False	False	False
P13	False	TRUE	False
P14	False	False	TRUE
P15	TRUE	False	False
P16	False	TRUE	False
P17	TRUE	False	False
P18	TRUE	False	False
P19	False	False	TRUE
P20	TRUE	False	False
P21	False	TRUE	False
P22	False	TRUE	False
P23	TRUE	False	False
P24	False	False	False
P25	False	TRUE	False
P26	False	False	False

These three factor themes, Career and Technical Education Experienced (individuals with extensive personal CTE experience), Career and Technical Education Spectators (those with professional experience, and Career and Technical Education Conflicted (those with little experience and somewhat negative views) were further explained by the factor arrays in combination with the participants' open-ended qualitative responses.

Factor Arrays

Factor arrays are useful in the interpretation of q sort data in that they combine each sort from a given factor in order to present the viewpoints in a statement related format. In essence, factor arrays can be seen as a q-sort representative of the combined factor members. In this study, high school counselors were asked to sort the concourse statements in regards to their perceptions of postsecondary career and technical education on a forced distribution from -4 (least like their viewpoint) to +4 (most like their viewpoint).

The factor themes were derived from a combination of the distinguishing statements in the array shown in Table 7 (indicated by bold type) and the narrative responses given by the participants upon the completion of their sorts. Consensus statements, which will also be discussed in the next section, are statements in which there is little or no discernable difference between the factor groups. For the purposes of this study, those are statements falling within a +/- .50 difference between groups in the factor array. These statements are indicated in Table 5 with italicized type.

Table 5: Factor Arrays

Number	Statement	Factor One	Factor Two	Factor Three
Q01	Is less academically rigorous than general education	-2	-2	0
Q02	Provides increased access to jobs following graduation	4	0	2
Q03	Is more practical than a general or liberal arts education	2	-1	0
Q04	Is an alternate route for poor academic performers	-4	-2	3
Q05	Provides fewer options for high paying careers	-4	-2	-3
Q06	Provides opportunities for hands on experience	3	4	4
Q07	Curriculums are closely aligned with workplace requirements	4	-1	0
Q08	Instructors have personal work experience in their fields	3	0	4
Q09	Allows students to acquire references/contacts in field	2	1	3
Q10	Develops workplace ethics	2	3	0
Q11	Provides affordable transferable credits	-2	1	0
Q12	Allows flexible scheduling	-1	-1	-2
Q13	Provides students with a head start on the world of work	1	2	3
Q14	Is as beneficial as general education	3	4	1
Q15	Teaches valuable math skills	1	3	-2
Q16	Teaches valuable science skills	1	0	-3
Q17	Teaches valuable technology skills	2	2	2
Q18	Teaches valuable English skills	0	-1	-4

Table 5 continued

Q19	Options/pathways are highly visible to parents	0	-1	-4
Q20	Is preparation for largely unskilled work	-3	-4	-2
Q21	Involves manual labor and very little academic rigor	-3	-3	-1
Q22	Is "education for work" no matter the level of training	1	1	-1
Q23	Contributes positively to the economic health of the community	1	2	2
Q24	Stimulates the creation of small business in the community	0	-1	-2
Q25	Plays a role in reducing unemployment	1	1	1
Q26	Teaches communication and teamwork skills	0	1	1
Q27	Provides access to modern equipment, procedures and tools	0	2	0
Q28	Enables students to continue with university studies afterwards	0	0	-1
Q29	Leads to well-paid career track positions	0	-1	1
Q30	Leads to jobs which are not well regarded in society	-2	-2	-1
Q31	Leads to jobs which are highly demanded in the job market	-1	0	-1
Q32	Provides a broad basis of transferrable skills	-1	2	1
Q33	Encourages student engagement in professional organizations	0	1	2
Q34	Prepares students to be career and college ready	2	0	-2
Q35	Provides equal opportunities regardless of gender	0	0	2
Q36	Provides equal opportunities regardless of race	-1	1	1
Q37	Has a need to raise course standards	-1	-3	0

Table 5 continued

Q38	Is accessible to students	-1	3	0
Q39	Leads to unsophisticated career aspirations	-3	-4	-1
Q40	Tends to favor lower socioeconomic status individuals	-2	-2	0
Q41	Offers opportunities for advancement	1	0	1
Q42	Provides a good lifestyle and standard of living	-1	0	-1
Q43	Deters students from seeking higher educational attainment	-2	-3	-3

Consensus Statements

Q methodology uses quantitative data from the statement sorts to identify the factors, but then must rely on the qualitative statements to interpret those factors and identify the themes within. Statements that are ranked similarly across all factors are considered to be consensus statements, while statements that are rated much higher or lower on one factor versus another is considered a distinguishing statement. Analyzing the consensus and distinguishing statements allows the researcher to add depth to the understanding of a factor's nature.

For the analysis of this research, consensus statements were identified through R. There was only one statement ranked unanimously by all factors, Statement 25 (*Career and technical education plays a role in reducing unemployment*). Other consensus statements include Statement 13 (*Career and technical education provides students with a head start on the world of work*), Statement 28 (*Career and technical education enables students to continue with university studies afterwards*), Statement 29 (*Career and technical education*

leads to well-paid, career-track positions), Statement 30 (Career and technical education leads to jobs which are not well regarded in society), Statement 35 (Career and technical education provides equal opportunities regardless of gender), Statement 41 (Career and technical education offers opportunities for advancement) and Statement 43 (Career and technical education deters students from seeking higher educational attainment). A comparison of how each factor group rated these statements can be seen in Table 6. Distinguishing statements for each factor will be discussed in the next sections.

Table 6: Consensus statements

Number	Statement	Factor One	Factor Two	Factor Three
Q13	Provides students with a head start on the world of work	1	2	3
Q25	Plays a role in reducing unemployment	1	1	1
Q28	Enables students to continue with university studies afterwards	0	0	-1
Q29	Leads to well-paid career track positions	0	-1	1
Q30	Leads to jobs which are not well regarded in society	-2	-2	-1
Q35	Provides equal opportunities regardless of gender	0	0	2
Q41	Offers opportunities for advancement	1	0	1
Q43	Deters students from seeking higher educational attainment	-2	-3	-3

Distinguishing Statements

Statements that are ranked higher or lower by a given factor in comparison to the other factor groups are considered distinguishing statements. Analyzing the distinguishing statements allows the researcher to add depth to the understanding of a factor's underlying components and comprises the largest part of the qualitative aspects of Q methodology. Factor One, Career and Technical Education Experienced, scored nine distinguishing statements; Factor Two, termed Career and Technical Education Spectators, scored thirteen distinguishing statements; and Factor Three, the Stereotypical Vocational Education Stigma, had twenty distinguishing statements.

Factor One: Career and Technical Education Experienced

A total of eight participants loaded significantly on Factor One after analyses. This accounts for 44.4% of the final P-set, and 23% of the variance. This data suggests that a large proportion of the participating high school counselors share a similar viewpoint towards postsecondary career and technical education. Table 7 identifies the distinguishing statements in this group, and shows that this group feels strongly that career and technical education is rigorous for all students and valuable in preparation for employment. The two statements that the group as a whole ranked as "most like my viewpoint," Statement 2 (*Career and technical education provides increased access to jobs following graduation*) and Statement 7 (*Career and technical education curriculums are closely aligned with workplace requirements*) have statement Z-scores of 2.49 and 1.69, respectively. This group was deemed Career and Technical Education Experienced based on their narrative statements. Each stated in their

own words that career and technical education courses were valuable in that they provide career exploration and hands-on experience, and that they had both personal and professional experience with career and technical education in their own lives. Most significantly, these respondents report significant personal and professional experience with career and technical education, with one stating that she is involved with agriculture through a home-based farming operation.

Table 7: Distinguishing statements for Career and Technical Education Experienced group

Number	Statement	Factor One	Factor Two	Factor Three
Q02	Provides increased access to jobs following graduation	4	0	2
Q03	Is more practical than a general or liberal arts education	2	-1	0
Q04	Is an alternate route for poor academic performers	-4	-2	3
Q07	Curriculums are closely aligned with workplace requirements	4	-1	0
Q08	Instructors have personal work experience in their fields	3	0	4
Q14	Is as beneficial as general education	3	4	1
Q15	Teaches valuable math skills	1	3	-2
Q19	Options/pathways are highly visible to parents	0	-1	-4
Q32	Provides a broad basis of transferrable skills	-1	2	1

Figure 10 is a model sort for Factor One and shows the highest and lowest placed cards for the group. These statements provide insight into how the participants view postsecondary career and technical education offerings. While the placement of the statements is important for the factor grouping process, the narrative data provided is equally valuable in the analysis of the factor themes.

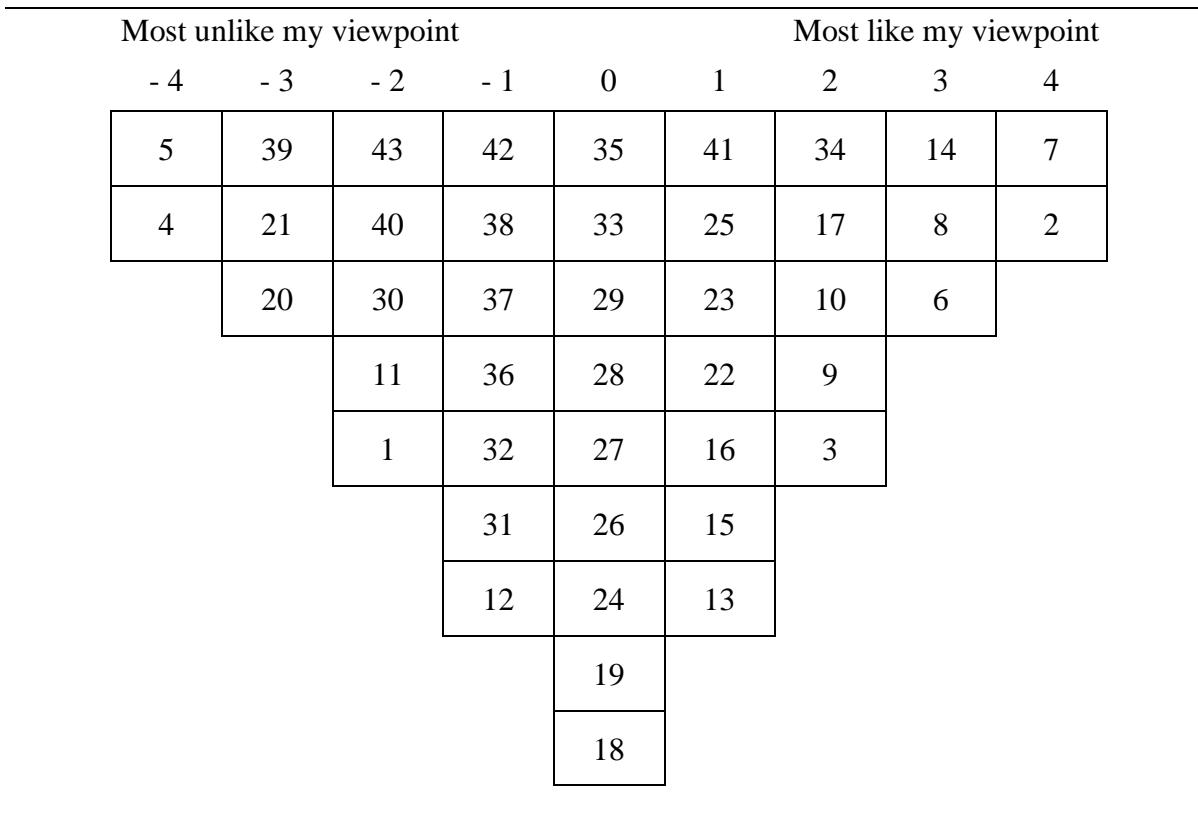


Figure 10: Model sort for Factor One

The individuals loading significantly on the first factor are all females with the title of High School Counselor and each have a Masters in Counseling. Narrative statements given in

response to the question *How would you describe postsecondary career and technical education to a student who expressed an interest?* included “they are classes that prepare you for the future, let you learn about different careers through hands-on experience, and develop you as a person,” “Hands-on tools to be successful in the workplace,” and “it’s a good hands-on learning elective.” These respondents make it clear that they view career and technical education as interactive and valuable, though limited to technical career skills.

Factor Two: Career and Technical Education Spectators

Table 9 highlights the distinguishing statements for the second factor group, deemed the “Career and Technical Education Spectators.” These statements show a hands-off view of postsecondary career and technical education, indicating that this group feels that career and technical education provides accessible, valuable skills and encourages engagement with career organizations. This group contains 44.4% of the participants after and accounts for 22% of the variance in the factors. It is primarily female School Counselors with a much more diverse educational background, including one male with a Masters in Divinity and one individual with a Bachelor’s degree. While the narrative responses, including “If you need assisting exploring career options, the CTE program will offer you some skills to begin your thinking process” and “CTE classes help you in two ways: you learn what you may or may not want to do as a career and you can learn skills that will help you move forward in the career you choose” may be indicative of counselors answering the question “What would you say to a student interested in pursuing a career and technical education program of study?” in regards to secondary courses, it also provides insight for the underlying assumptions and

attitudes towards postsecondary career and technical education: that they're a valuable option, but they aren't necessarily recommended as a first choice.

Table 8: Distinguishing statements for Career and Technical Education Spectator group

Number	Statement	Factor One	Factor Two	Factor Three
Q02	Provides increased access to jobs following graduation	4	0	2
Q04	Is an alternate route for poor academic performers	-4	-2	3
Q07	Curriculums are closely aligned with workplace requirements	4	-1	0
Q08	Instructors have personal work experience in their fields	3	0	4
Q14	Is as beneficial as general education	3	4	1
Q15	Teaches valuable math skills	1	3	-2
Q19	Options/pathways are highly visible to parents	0	-1	-4
Q22	Is "education for work" no matter the level of training	1	1	-1
Q31	Leads to jobs which are highly demanded in the job market	-1	0	-1
Q32	Provides a broad basis of transferrable skills	-1	2	1
Q37	Has a need to raise course standards	-1	-3	0
Q38	Is accessible to students	-1	3	0
Q42	Provides a good lifestyle and standard of living	-1	0	-1

Figure 11 illustrates a model sort for Factor Two and shows the highest and lowest placed cards for the group. As previously stated, these statements provide insight into how the participants view postsecondary career and technical education offerings. While the placement of the statements is important for the factor grouping process, the narrative data provided is equally valuable in the analysis of the factor themes.

Most unlike my viewpoint					Most like my viewpoint			
- 4	- 3	- 2	- 1	0	1	2	3	4
39	43	40	29	42	36	32	38	14
20	37	30	24	41	33	27	15	6
	21	5	19	35	26	23	10	
		4	18	34	25	17		
		1	12	31	22	13		
			7	28	11			
			3	16	9			
				8				
				2				

Figure 11: Model sort for Factor Two

Factor Three: Career and Technical Education Conflicted

Factor Three is the smallest factor and represents the stereotypical view of career and technical education in that it is generally an option for those students who are not performing well in their academic programs. This factor is the smallest factor with three participants and accounts for 12% of the variance in the groups. Of note in the narrative responses was that this group would “have liked to see more differentiation between the ideal career and technical education programs and the career and technical education programs that [he] actually sees in practice.” When asked about personal experience with career and technical education, it was limited to professional exposure through working in a high school. The narrative statements given in response to the question *How would you describe postsecondary career and technical education to a student who expressed an interest?* include that it is “more hands-on, application-based curricula that focuses on specific fields of work but which also teach broadly transferable workplace skills.” The statement given seems to be in contradiction of the sorted statements however, in that Statement 4 “*Postsecondary career and technical education is an alternate route for poor academic performers*” and Statement 21 “*Postsecondary career and technical education involves manual labor and very little academic rigor*” much more highly than the other two factors, as seen in the distinguishing statement array as seen in Table 9.

Table 9: Distinguishing statements for Career and Technical Education Conflicted group

Number	Statement	Factor One	Factor Two	Factor Three
Q01	Is less academically rigorous than general education	-2	-2	0
Q02	Provides increased access to jobs following graduation	4	0	2
Q04	Is an alternate route for poor academic performers	-4	-2	3
Q06	Provides opportunities for hands on experience	3	4	4
Q07	Curriculums are closely aligned with workplace requirements	4	-1	0
Q08	Instructors have personal work experience in their fields	3	0	4
Q09	Allows students to acquire references/contacts in field	2	1	3
Q10	Develops workplace ethics	2	3	0
Q14	Is as beneficial as general education	3	4	1
Q15	Teaches valuable math skills	1	3	-2
Q16	Teaches valuable science skills	1	0	-3
Q18	Teaches valuable English skills	0	-1	-4
Q19	Options/pathways are highly visible to parents	0	-1	-4
Q20	Is preparation for largely unskilled work	-3	-4	-2
Q21	Involves manual labor and very little academic rigor	-3	-3	-1
Q24	Stimulates the creation of small business in the community	0	-1	-2
Q32	Provides a broad basis of transferrable skills	-1	2	1
Q34	Prepares students to be career and college ready	2	0	-2
Q39	Leads to unsophisticated career aspirations	-3	-4	-1
Q40	Tends to favor lower socioeconomic status individuals	-2	-2	0

Figure 12 represents the model sort for Factor Three.

Most unlike my viewpoint					Most like my viewpoint			
- 4	- 3	- 2	- 1	0	1	2	3	4
19	43	34	42	40	41	35	13	8
18	16	24	39	38	36	33	9	6
	5	20	31	37	32	23	4	
		15	30	27	29	17		
		12	28	11	26	2		
			22	10	25			
			21	7	14			
				3				
				1				

Figure 12: Q sort from Factor Three

Participant Demographics

The purpose of the sort was to determine the perceptions held by high school counselors employed in public high schools in North Carolina towards postsecondary career and technical education. In this study, 26 participants completed the Q sort and follow up demographic and narrative questions.

The qualitative component of Q methodology arises from the 13 narrative statements provided by the participants, allowing the researcher to gain a deeper understanding of the underlying influences for the unique viewpoints. These questions are outlined in Table 10. Additional statements that should be added in future studies to provide a broader understanding are discussed in Chapter 5.

Table 10: Demographic and narrative questions

Question Number	Demographic and narrative questions
1	Gender
2	Ethnicity
3	Age
4	What is your official job title?
5	Briefly describe your educational background.
6	Were there any cards you had difficulty placing? Why?
7	Why did you place your “most like your viewpoint” statement where you did?
8	Why did you place your “least like your viewpoint” statement where you did?
9	What has had the greatest impact on how you sorted your statements?
10	Is there a statement or two you would have liked to see?
11	Do you have any personal, professional, or family experiences with career and technical education?
12	In your words, briefly describe career and technical education at the postsecondary level as you would to a student who has expressed an interest.

The majority of respondents were female (n=23) representing 88.5% of the p-set as illustrated in Table 12. The ages for all participants ranged from 23-64, with the average age being 43.92 ($sd = 11.58$). The sampled population was relatively homogenous in terms of official job title, with 88.5% (n=23) reporting that they were either “counselor” or “high school counselor,” one reporting that they were a “career advisor” and two reporting that they were “CTE coordinators.” The most varied of the categorical data collected was that of “please describe your experience with career and technical education programs,” with 42.3% (n=11) reporting having personal experience, either themselves or their own children, five individuals (19.2%) reporting only professional experience through having students enrolled at the secondary level or touring local programs as part of professional development activities, and a surprising 38.5% (n=10) reporting having no experience with career and technical education programs. In relationship to the factors, which will be described in more detail in the next section, taking into account demographic and narrative nuances, a full 100% of the individuals in Factor One, the Valuable Elective group, reporting that they had personal experience with career and technical education, and the sole member of Factor Three, the Career and Technical Education Conflicted group, reporting that they had no experience in any form with career and technical education.

Table 11: Participant demographics

	Overall		Factor One		Factor Two		Factor Three	
	f	%	f	%	f	%	f	%
Gender								
Male	3	11.5%	0	0.0%	1	12.5%	1	33.3%
Female	23	88.5%	8	100%	7	87.5%	2	66.7%
Race/Ethnicity								
White	22	84.6%	7	87.5%	6	75.0%	2	66.7%
Black	3	11.5%	1	12.5%	2	25.0%	0	0.0%
Asian	1	3.8%	0	0.0%	0	0.0%	1	33.3%
Age								
20-29	3	11.5%	0	0.0%	1	12.5%	1	33.3%
30-39	8	30.8%	5	62.5%	1	12.5%	1	33.3%
40-49	7	26.9%	2	25.0%	2	25.0%	1	33.3%
50-59	5	19.2%	0	0.0%	3	37.5%	0	0.0%
60+	3	11.5%	1	12.5%	0	0.0%	0	0.0%
Job Title								
Counselor	23	88.5%	8	100%	7	87.5%	3	100%
Career Advisor	1	3.8%	0	0.0%	1	12.5%	0	0.0%
CTE Coordinator	2	7.7%	0	0.0%	0	0.0%	0	0.0%
Highest Degree								
Bachelors	1	3.8%	0	0.0%	1	12.5%	0	0.0%
Masters	23	88.5%	8	100%	7	87.5%	3	100%
Doctorate	2	7.7%	0	0.0%	0	0.0%	0	0.0%
CTE Experience								
Personal	11	42.3%	6	75.0%	3	37.5%	0	0.0%
Professional only	5	19.2%	2	25.0%	3	37.5%	2	66.6%
None stated	10	38.5%	0	0.0%	2	25.0%	1	33.3%

Summary

In Chapter 4, the data collected from the 26 high school counselors employed in public schools in North Carolina was analyzed, resulting in nine participants in the final analyses. Two sources of data were used to develop the conclusions. First, Q sorts were completed by the counselors and a factor analysis was performed to provide the statistical data. Next, post-sort narrative data was used to further explore the counselors' perceptions of postsecondary career and technical education. Three factors emerged.

Factor One, “Career and Technical Education Experienced,” can be expressed as those participants who feel that postsecondary career and technical education provides accessible, valuable workplace and academic skills and encourages engagement with career organizations. This group illustrates a positive viewpoint of career and technical education, and through analysis of the narrative and demographic information, it can be inferred that more personal experience with career and technical education, as well as the opportunity to work closely with it in a professional context, leads to better and more accurate views of the options these programs hold for students.

Factor Two, “Career and Technical Education Spectators,” can best be described as individuals who view career and technical education as a valuable addition to a rigorous academic schedule, but not a standalone program of study. The emphasis is on hands-on learning and career exploration instead of preparation for future work.

The third factor, deemed “Career and Technical Education Conflicted,” feels that postsecondary career and technical education is a route for students who are not at level in

their academic courses and provides a “fall back” option. The participant who factored into this group has no personal experience with career and technical education, and has not been employed as a counselor for more than two years. It is possible that these views are the result of a simple lack of exposure to the programs and student outcomes.

Based on these findings, the participants in this study have somewhat similar views towards postsecondary career and technical education with some minor key differences. These minor differences are explained through the analyses of their narrative responses and the distinguishing statements. In Chapter 5, I will discuss the implications of this research, as well as recommendations for future studies.

CHAPTER 5: DISCUSSION AND IMPLICATIONS

This study sought to conceptualize the current state of thinking among high school counseling staff in regards to postsecondary career and technical education by asking them to rank statements representing various perceptions as they felt it best applied to their viewpoints. Few studies have been done focusing on the views of postsecondary career and technical education for the general student population. Studies have been conducted in regards to career and technical education options for high performing students, students of minority and lower socioeconomic backgrounds, and students with special needs. The combination of the lack of research on perceptions among the high school guidance counselors, who have a significant influence on the student choice process, provides a gap for the current research to be added.

This study examined the opinions of current high school counselors in North Carolina towards postsecondary career and technical education and sought to answer the following research questions:

Q1: What are the current attitudes and perceptions among secondary counselors towards postsecondary career and technical education?

- Which groups ranked particular statements the highest versus the lowest?
- Were there any consensus statements indicating that a viewpoint was so commonly held it can be accepted as a priori?

- What are the major differences between groups of counselors in their perceptions and attitudes towards postsecondary career and technical education?

Q2: What are the persuasive statements that high school counselors use when advising secondary level students on postsecondary career and technical education?

The results can be used by postsecondary career and technical education providers in developing and providing clearer messages on program options and student outcomes to high school counselors, targeting the gaps in their understanding. The current study provides a foundation by which postsecondary career and technical education program administrators can view their current messages and communicate with their local constituencies.

The study began by consulting the literature relevant to postsecondary career and technical education and specifically, the views of these programs among various groups of individuals, as well as researching the current roles and responsibilities of high school counselors. This literature was reviewed for declarative statements and implied perceptions to begin developing the study concourse. The final set of statements used included 43 declarative statements regarding postsecondary career and technical education and represents a breadth of opinions, viewpoints, and perceptions of the programs and outcomes.

Q methodology was used for this study as it was designed to measure the perceptions, attitudes, and viewpoints of a target population. Chapter 3 further discussed the method, justification of the method, research design and data collection processes, and analysis and

interpretation of the data. The software packages used for the study (QSortWare, PQMethod, and SPSS) were described as well.

An analysis of the results was detailed in Chapter 4. The analysis included correlation data, factor scores, as well as distinguishing statements for each factor. In addition, post-sort comments were examined to develop a deeper understanding of the underlying assumptions and beliefs present in each of the factor groups. Three factors, grouped together by the similarity of their sorts, were identified including Career and Technical Education Experienced, Career and Technical Education Spectators, and the Career and Technical Education Conflicted.

Finally, the final chapter explores the implications for current practice based on the factor themes and narrative statements. In addition, suggestions for future research will be presented in relation to both the subject of the current study and proposals for the methodology.

Limitations

The current study was designed to explore the opinions of high school counselors towards postsecondary career and technical education. The study focused exclusively on counselors employed in public schools in the state of North Carolina. As a result, the results may not be generalized to all high school counselors nor all states. Recruitment of a wider participant base may have resulted in larger factor loadings or different emergent themes.

High school counselors are often burdened with extensive workloads beyond advising and course scheduling. This may have hindered response rates, given that completion of the

survey instrument is not a part of their already extensive job duties. In addition, the timing of the study, with data collection taking place during the summer months, may have further reduced participant response given that many school districts in North Carolina only employ their counselors on ten-month contracts. Participants were recruited through their school-provided email addresses, of which many were set to auto-reply with an active date past the end of the study timeframe.

Based on some of the narrative responses, the instrument used to collect the data may have been a limitation in and of itself. Direct responses included that participants disliked the forced distribution aspect, were unable to access the instrument on their tablets, and that they had completed the survey, but did not save it at the end in which case their responses were discarded by the software. Future studies should make the instructions clear on the accessing and procedures required within the software wireframe. In addition, through the remote collection process, many of the narrative responses were somewhat limited in their usefulness, as the opportunity for the researcher to ask additional clarifying questions was unavailable.

Implications

Although this study generates many additional questions for future exploration, it also contributes to the current bodies of literature in several areas. The results of this study have implications for postsecondary career and technical education program developers, administrators, and marketers, as well as for secondary level counselors, parents, and students. It is important to note that the results of this study are not universal and cannot be

generalized across states or other populations. There will be as many different perceptions and reasons behind those beliefs as there are individuals to query.

Perhaps the most exciting part of this study's contributions is found in its practical application. As noted in Hugo's 2004 study of secondary counselors in California, counselors view providing their students with complete and unbiased information as a critically important aspect of their job duties. Ideally, improving the messages that postsecondary career and technical education providers are sending should be a priority, as the factor groups with slightly negative tones to their overall viewpoints are also the ones who claim little or no personal experience with or knowledge of postsecondary career and technical education programs. Increased exposure through marketing and professional development opportunities for counselors could have wide impact on both the perceptions of these programs and their outcomes, as well as the enrollment levels and choices among postsecondary bound students. There are now national advertising campaigns working towards destigmatizing career and technical education, such as the MikeRoweWorks Foundation, whose focus is on "training for jobs that actually exist."

An additional educational policy suggestion would be requiring that secondary level counselors and principals have some work experience in career and technical education, however limited it may be. This could be achieved through summer internships or shadowing with major partners in their regional service areas. By providing stipends through grant funding and/or continuing education credits for time on the jobsites, these counselors and principals would gain valuable experience and first-hand knowledge of the positive work

being done in career and technical education fields. Career and technical education encompasses such a broad range of fields that finding willing host sites would not be an insurmountable task. By removing the barriers to information and the negative stigma contributing to the “prestige pressure” noted in Chapter 2, we open additional avenues for student success at the postsecondary level and in the world of work.

Recommendations for Further Study

The significance of postsecondary career and technical education programs in the United States has been highlighted by recent lawmaker decisions to expand funding and job training opportunities (U.S. Department of Labor, 2012). The \$500 million community college grant shows a recognition and desire on the national stage to prepare students for careers in the areas of science, technology, engineering, and mathematics (STEM) occupations (USDOL, 2012). Given this impetus, it is the belief of the researcher that the perceptions of career and technical education is an area that warrants significant further research. In addition to expanding the scope of the current study to include a broader range of participants, it would also be helpful to collect additional qualitative data to determine the underlying assumptions and causation for the current perceptions. Additional follow-up information to be collected includes data on the location of the school (rural, urban, or suburban), the size of the student body as a whole and the size of the individual counselor’s caseload, current career and technical education program offerings at the secondary level, and the estimated distance to the nearest community or technical college. It is suspected,

given the information collected in this current study, that familiarity with the programs is a key indicator of either negative or “status quo” perceptions.

Another key to the efficacy of future studies would include a delineation between the types of career and technical education programs. While it is helpful to expand the definitions of career and technical education – should not all professional preparation programs, including law and medicine, be included, given that career and technical education is defined as “education in preparation of a career or trade” (Webster, 1993)? – it is equally important to study the distinctions between the programs. Viewpoints of machine tool technology or mechanics programs will likely be vastly different from the perceptions of medical assisting or radiology. From a 2016 research study on labor market outcomes for secondary level career and technical education graduates, Ben Dalton states that:

CTE, however, is not a uniform set of experiences at the secondary level. Foremost, CTE includes a wide variety of technical and vocational subjects whose educational and career pathways, as well as labor market prospects, are substantially different. Subjects as cutting edge as computer and information sciences and as traditional as transportation or manufacturing are included under the aegis of CTE. In addition, even within CTE fields of study, a variety of state and locally defined programs of study allow students to build an educational experience composed of various technical subjects, required academic classes, and practical or experiential learning experience that may or may not connect to significant local employment sectors, industries, or employers. The combination of fields of study, varying programs, and

linkages to subsequent educational and employment opportunities yields a topic of study that is much more diffuse and complex

Dalton's research on labor market outcomes also provides four useful categories to distinguish between the different program areas in career and technical education. Each secondary career and technical education course can be classified into one of twelve fields of study. Using a quadrant system, they have these classified career and technical education fields of study as white collar and service versus blue collar and industry, and then by high-skill or professional versus low-skill or repetitive. The classification quadrant is provided in Figure 13.

	White collar/service	Blue collar/industry
High-skill/ Professional	Business Communications & Design Computer & Information Sciences Health Sciences	Construction & Architecture Engineering technology Manufacturing
Low-skill/ Routine	Consumer & Culinary Services Marketing Public Services	Agriculture & Natural Resources Repair & Transportation

Figure 13: Career and technical program classifications

Finally, examining the marketing messages and community relationships of postsecondary institutions identified as having negative branding or reputations but who can

legitimately claim positive outcomes and skilled graduates can help identify the disconnect between perceived and actual outcomes. Does it come down to public representation of the administration, the hands-on wiliness of the faculty and staff to be involved in the community, the work ethics and skill sets of the graduates, negative messages from competitors, some combination of all of the above, or something completely outside of these factors? Getting to the heart of the perception problem is the best way to understand and ultimately change those public messages.

Recommendations for Future Q Studies

The current study had a couple of challenges which should be addressed before individuals consider using Q methodology, particularly in regards to online data collection. While completing the data collection online through the QSortWare software offered convenience and increased the geographical area for study respondents, there were some technical and user-error issues that arose, slowing down the data collection and requiring the rewriting of the conditions of instruction. Some participants indicated that they had trouble accessing the survey instrument, while others claimed to have completed the survey, but their responses were not saved. Because only a tiny fraction of those who were invited to participate reached out for technical assistance, it is unclear how many surveys were started and then abandoned because of technical difficulties. The majority of respondents had no prior knowledge of Q methodology or the procedure involved, which may have also contributed to the low-response/potentially high-abandonment rate. Moving forward, more

complete instructions on the completion of the survey, including step by step details on the forced distribution process and screen shots should be provided.

Experimentally, it would be valuable to also pull those statements identified as distinguishing statements and create a shorter, easier to navigate statement set. Through time and trial, this could be developed into a standalone instrument to gauge relationships between secondary school staff and their local postsecondary institutions, and ultimately adapted and developed for additional perception measuring applications.

Summary

Q methodology was used in the current study to explore the perceptions and attitudes held by high school counselors in North Carolina towards postsecondary career and technical education. Twenty-eight participants volunteered to complete the study, and twenty-six of those responses were used in the data analysis. They were asked to sort and rank 43 statements in regards to their views on postsecondary career and technical education and then complete twelve narrative post-sort questions to gather further information on their demographic characteristics and allow them to further elaborate on their viewpoints. Analysis of the sorted statements indicated that three factors were present, and were themed as Career and Technical Education Experienced, Career and Technical Education Spectators, and Career and Technical Education Conflicted. Some statements were sorted similarly between groups, but each factor group had distinctive statements highlighting the differences.

The current study reveals viewpoints held by high school counselors towards postsecondary career and technical education, which in turn will influence student choice

towards those educational options. As discussed in Chapters 1 and 2, the high school counselor is a key decision influencer on the student college choice process. Program administrators, admissions staff, and marketing teams at postsecondary career and technical education providers can use this information in tailoring their message to high school students and the counselors who serve them.

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APPENDICES

Appendix A: Concourse Statements

Concourse Statements

- 1 Career and technical education is less academically rigorous than general education
- 2 Career and technical education provides increased access to jobs following graduation
- 3 Career and technical education is more practical than a general or liberal arts education
- 4 Career and technical education is an alternate route for poor academic performers
- 5 Career and technical education provides fewer options for high paying careers
- 6 Career and technical education provides opportunities for hands on experience
- 7 Career and technical education curriculums are closely aligned with workplace requirements
- 8 Career and technical education instructors have personal work experience in their fields
- 9 Career and technical education allows students to acquire references/contacts in field
- 10 Career and technical education develops workplace ethics
- 11 Career and technical education provides affordable transferable credits
- 12 Career and technical education allows flexible scheduling
- 13 Career and technical education provides students with a head start on the world of work
- 14 Career and technical education is as beneficial as general education
- 15 Career and technical education teaches valuable math skills
- 16 Career and technical education teaches valuable science skills
- 17 Career and technical education teaches valuable technology skills
- 18 Career and technical education teaches valuable english skills
- 19 Career and technical education options/pathways are highly visible to parents

- 20 Career and technical education is preparation for largely unskilled work
- 21 Career and technical education -- good programs attract new industries to a community
- 22 Career and technical education involves manual labor and very little academic rigor
- 23 Career and technical education is "education for work" no matter the level of training
- 24 Career and technical education contributes positively to the economic health of the community
- 25 Career and technical education stimulates the creation of small business in the community
- 26 Career and technical education plays a role in reducing unemployment
- 27 Career and technical education teaches communication and teamwork skills
- 28 Career and technical education provides access to modern equipment, procedures and tools
- 29 Career and technical education enables students to continue with university studies afterwards
- 30 Career and technical education provides opportunities for international education/study abroad
- 31 Career and technical education leads to well paid career track positions
- 32 Career and technical education leads to jobs which are not well regarded in society
- 33 Career and technical education leads to jobs which are highly demanded in the job market
- 34 Career and technical education provides a broad basis of transferrable skills
- 35 Career and technical education encourages student engagement in professional organizations
- 36 Career and technical education is valued by family/support network
- 37 Career and technical education prepares students to be career and college ready
- 38 Career and technical education provides equal opportunities regardless of gender

- 39 Career and technical education provides equal opportunities regardless of race
- 40 Career and technical education has a need to raise course standards
- 41 Career and technical education provides better guidance
- 42 Career and technical education is accessible to students
- 43 Career and technical education leads to unsophisticated career aspirations
- 44 Career and technical education tends to favor lower socioeconomic status individuals
- 45 Career and technical education offers opportunities for advancement
- 46 Career and technical education provides a good lifestyle and standard of living
- 47 Career and technical education deters students from seeking higher educational attainment

Appendix B: Correlation Matrix

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26
P01	-																									
P02	0.58	-																								
P03	0.60	0.41	-																							
P04	0.41	0.32	0.34	-																						
P05	0.22	0.24	0.11	0.11	-																					
P06	0.70	0.54	0.49	0.38	0.26	-																				
P07	0.55	0.62	0.44	0.32	0.19	0.69	-																			
P08	0.82	0.47	0.52	0.33	0.24	0.58	0.54	-																		
P09	0.42	0.44	0.45	0.31	-0.05	0.36	0.34	0.31	-																	
P10	0.56	0.51	0.38	0.12	0.32	0.54	0.56	0.48	0.33	-																
P11	0.52	0.45	0.61	0.48	0.23	0.47	0.38	0.51	0.33	0.30	-															
P12	0.67	0.64	0.37	0.48	0.26	0.60	0.47	0.59	0.45	0.47	0.58	-														
P13	0.53	0.44	0.38	0.36	0.46	0.60	0.55	0.44	0.08	0.55	0.48	0.42	-													
P14	0.26	0.24	0.13	-0.02	0.19	0.39	0.19	0.26	0.18	0.33	-0.03	0.20	0.27	-												
P15	0.59	0.45	0.36	0.31	0.06	0.55	0.39	0.58	0.49	0.57	0.35	0.51	0.42	0.33	-											
P16	0.50	0.41	0.51	0.37	0.06	0.45	0.41	0.39	0.32	0.29	0.73	0.47	0.51	0.23	0.49	-										
P17	0.62	0.58	0.68	0.32	-0.04	0.43	0.49	0.59	0.57	0.45	0.56	0.52	0.33	0.17	0.47	0.49	-									
P18	0.54	0.56	0.63	0.32	0.19	0.39	0.43	0.59	0.33	0.48	0.38	0.37	0.43	0.44	0.47	0.30	0.62	-								
P19	0.04	0.33	-0.17	0.01	0.29	-0.02	0.06	0.11	0.02	0.25	-0.11	0.27	0.08	0.31	0.06	0.00	-0.03	0.23	-							
P20	0.61	0.65	0.43	0.32	0.20	0.36	0.53	0.54	0.40	0.59	0.32	0.54	0.41	0.24	0.51	0.38	0.56	0.55	0.23	-						
P21	0.45	0.43	0.36	0.29	0.29	0.39	0.39	0.33	0.24	0.27	0.45	0.44	0.29	-0.04	0.26	0.48	0.45	0.16	0.27	0.33	-					
P22	0.42	0.41	0.47	0.44	0.14	0.44	0.40	0.42	0.22	0.36	0.47	0.40	0.42	0.46	0.24	0.53	0.53	0.46	0.27	0.38	0.36	-				
P23	0.32	0.36	0.44	0.27	0.03	0.36	0.44	0.53	0.26	0.28	0.42	0.47	0.11	0.17	0.35	0.29	0.54	0.42	0.07	0.24	0.32	0.34	-			
P24	0.68	0.67	0.47	0.36	0.21	0.51	0.51	0.57	0.34	0.37	0.47	0.52	0.55	0.34	0.33	0.43	0.47	0.66	0.24	0.47	0.34	0.37	0.24	-		
P25	0.58	0.42	0.34	0.28	0.26	0.51	0.46	0.50	0.08	0.56	0.48	0.54	0.63	0.40	0.38	0.49	0.47	0.45	-0.02	0.49	0.26	0.56	0.27	0.51	-	
P26	0.69	0.66	0.41	0.43	0.20	0.55	0.62	0.49	0.47	0.49	0.51	0.70	0.52	0.26	0.46	0.50	0.49	0.47	0.22	0.51	0.47	0.35	0.37	0.77	0.49	

Appendix C: Survey Recruitment

NC STATE

Katherine Kandalec <krkandal@ncsu.edu>

A short survey - your participation is requested

Katherine Kandalec <krkandal@ncsu.edu>
To: Katherine Kandalec <kkandalec@ncsu.edu>

Thu, Jul 7, 2016 at 12:19 PM

NC STATE UNIVERSITY

You are invited to participate in a brief **research study** on the perceptions of career and technical education. The results of this study will aim to improve the current lines of communication between the community/technical college level and those individuals who work directly with high school students. You have been identified as an eligible participant based on your role working with students who are determining their postsecondary educational options.

This study is being conducted by Katherine R. Kandalec, a doctoral student at North Carolina State University, under the supervision of Dr. James E. Bartlett II, Associate Professor of Leadership, Policy and Adult Higher Education at North Carolina State University.

Your participation in this study will require you to complete a ranking of statements encompassing the many opinions held by high school counseling staff towards postsecondary vocational/career and technical education followed by the completion of a brief questionnaire. It is estimated that this study should take approximately 20 to 35 minutes to complete. It would be greatly appreciated if your responses could be **completed no later than July 22, 2016**.

The research team will do everything possible to ensure your privacy. Your final statement sorts and questionnaire responses will be kept in strict confidence. Your identity will not be revealed in any publication that may follow this study. In addition, the survey software will NOT retain any data from participants who choose to not complete the entire survey. Should you withdraw your consent to participate at any time during the survey, please close the browser window and your responses will be discarded.

Please email me at kkandalec@ncsu.edu or call me at **704-248-2680** with any questions or concerns that you may have. In addition, please feel free to contact my research supervisor, Dr. James E. Bartlett, II at james_bartlett@ncsu.edu.

Thank you so much for agreeing to take part in this **research study**.

Sincerely,

Katherine R. Kandalec

Appendix D: Sorted Z Scores for each statement by factor

Statement	Factor One	Statement	Factor Two	Statement	Factor Three
2	2.489685777	14	1.88693845	6	2.68544467
7	1.668834758	6	1.43231146	8	2.1154299
6	1.635932289	38	1.41709777	4	1.85277758
8	1.269986946	10	1.21569202	9	1.51491635
14	1.20930486	15	1.11642392	13	1.24137594
17	1.13177171	32	1.10380206	2	1.12478016
10	1.064345413	17	1.0389579	23	0.65611178
3	0.984392787	23	0.84944265	17	0.48391777
9	0.714012321	13	0.75562435	33	0.46866838
34	0.682093555	27	0.72234213	35	0.45445701
13	0.630672938	22	0.70125362	32	0.40870885
15	0.577454739	36	0.68055357	41	0.36399871
25	0.529931934	26	0.67815392	26	0.34874932
16	0.488736032	9	0.6663275	25	0.33349994
41	0.241105552	33	0.62660603	29	0.32261184
23	0.165018057	11	0.46883402	36	0.29315109
22	0.150350074	25	0.44588642	14	0.26265232
28	0.126014827	34	0.41735524	27	0.24740293
27	0.043409868	16	0.3907212	11	0.23215354
18	0.027686333	31	0.30721594	37	0.11659578
26	0.017143275	42	0.28278177	7	0.05995953
24	-0.004411473	2	0.22404526	1	0.03049878
33	-0.039877666	8	0.17129127	10	-0.03049878
29	-0.09869785	28	0.15802419	38	-0.08609701
35	-0.112897826	35	0.05500325	3	-0.14605653
19	-0.141596592	41	-0.05066281	40	-0.17655531
38	-0.142707133	12	-0.1759702	21	-0.20601606
36	-0.186523168	24	-0.17695265	39	-0.22126545
31	-0.188140168	18	-0.26669033	22	-0.33349994
42	-0.250174609	29	-0.2799324	28	-0.33786123
37	-0.276929589	7	-0.61808545	31	-0.36399871
32	-0.309660465	3	-0.70946437	42	-0.41959694
12	-0.345429088	19	-1.00558515	30	-0.46866838
11	-0.35322423	4	-1.03203829	20	-0.6299743

30	-0.851592154	30	-1.05530133	34	-0.68661056
43	-1.156739178	1	-1.18266184	12	-0.83266709
1	-1.207089281	5	-1.21668493	24	-0.86316587
40	-1.52637495	40	-1.34845352	15	-1.26751342
20	-1.585633908	37	-1.47149093	43	-1.36885981
21	-1.612337867	43	-1.59670317	16	-1.51491635
39	-1.753201634	21	-1.79224643	5	-1.69583296
4	-1.764287642	20	-1.88673708	19	-1.86802697
5	-1.940357572	39	-1.94702504	18	-2.10018051