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An Investigation of Career and Technical Education in Local School Districts and the Special School District of St. Louis County, Missouri

David P. Baker

University of Missouri-St. Louis, dbaker@southtechhigh.org

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An Investigation of Career and Technical Education in Local School Districts and the
Special School District of St. Louis County, Missouri

A Dissertation

July 2008

Submitted to the Faculty of
The University of Missouri - St. Louis
in partial fulfillment of
the requirements for the degree of
Doctor of Education

David P. Baker
12285247

M.Ed. University of Missouri – St. Louis
M.B.A. Fontbonne University
B.S. Missouri State University

University of Missouri – St. Louis

Committee

Carole Murphy, Ed.D – Chair
Lloyd Richardson, Ph.D
Kenneth Owen, Ed.D
William Rebore, Ph.D

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“...the really great make you feel that you, too, can become great.”
G. Maclaren

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Abstract

This investigation focuses on the perceptions of knowledge held by public high school guidance counselors in St. Louis County, Missouri regarding career and technical education (CTE), particularly North and South Technical High Schools, a division of the Special School District (SSD). At the time of this investigation 153 high school guidance counselors were identified in public high schools in St. Louis County. Each counselor was given a 35 item survey, which provided the investigator with demographic information and information regarding the counselor's perceptions in three subsets of counselor knowledge: CTE candidates, CTE reform and post-secondary opportunities, and CTE program development and instruction.

Three univariate three-factor ANOVAs were conducted in order to determine whether the factors impacted counselors' perceptions in the subsets of counselor knowledge; these three factors were region (north, south, or west), special education teacher training, and a personal connection to CTE as a student or through CTE teacher training. Chi-square tests were conducted to see if equal representation of other demographic information across these three factors existed. Because it was determined that there was unequal representation in two categories, age and gender, three-factor ANCOVAs were conducted with the original three factors and counselor knowledge subsets using age and gender as covariates. It was determined that there were no significant differences in the means of the counselors' perceptions in regard to region, special education teacher training, and a personal connection to CTE.

The three ANOVA factors were chosen based upon student population in the two CTE high schools and the region(s) each serves, association with SSD, and the affect of a

personal connection to CTE. Guidance counselors are presumably the most influential educators in determining whether students receive information and encouragement regarding CTE. It is of utmost importance to SSD and its CTE division to determine what impacts counselors' perceptions of CTE and their decisions to recommend CTE to students.

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Chapter 1

Introduction to the Investigation

Overview of Career and Technical Education Since 1900

Recently there has been indication of a resurgence of secondary career and technical education (CTE) throughout the United States. Comprehensive high schools, which have made standardized testing a primary focus as a result of reports such as *A Nation at Risk* and legislation such as No Child Left Behind (NCLB), are struggling to engage many students with traditional forms of instruction and subject matter. Automotive shops and machining technology programs are making their way back into traditional high schools while computer hardware and information systems programs are being expanded and in some cases transformed into academies. Lynch wrote, “Thus, according to federal reports, vocational education courses or programs are offered in 93 percent of the nation’s 15,200 comprehensive, grade 9-12 high schools” (2000, Abstract, para. 3). Project Lead the Way – Engineering is a nationally recognized engineering academy, which has been instituted at the secondary level. This academy focuses on preparing students to enter engineering programs by enhancing mathematics and physics courses in high school (Project Lead The Way, 2006). This trend of renewed interest in programs that provide specific skills, not necessarily beneficial to the acquisition of a bachelor’s degree, is an indicator that career and technical education is receiving renewed attention.

The beginning of the 20th Century was witness to significant discontent regarding the state of public education in the United States. The Horace Mann model, which had been the standard since the early part of the previous century, was not sufficiently

meeting the needs of an increasingly industrialized nation (Brouillette, 1999). The goal of the Mann model had been to provide a common education with common content to all students since instruction was provided with public funds; public education should teach the basic skills needed to function in a democratic society. There was more than one idea about how public education should be changed; however, the common indication was that it should extend beyond the traditional core curriculum to add instruction, which was practical and included activities that were hands-on. Even in the early 1900s much public high school education was geared toward preparation for college, so a formal system of job preparation was not readily available. Calvin Woodward of the St. Louis Manual Training School was vocal about the sincere need to create skilled labor training for a significant number of the nation's youth (Greenwood, 1983).

Other voices were more critical than Mr. Woodward's regarding their demand for the incorporation of vocational training in America's public high schools. Charles Prosser, executive secretary of the National Society for the Promotion of Industrial Education (NSPIE), and Ellen Richards, an early leader in home economics, both deemed vocational education as essential for many families across the United States. The result of their work and the movement they led was federal legislation in the form of the Smith-Hughes Act of 1917 (Greenwood, 1983). This legislation designated authority and guidelines for vocational teacher certification, funding, and an administrative structure separate from the existing structure to deal with the oversight of vocational education in individual states. Public education needed to prepare youth for jobs that were created by the industrial revolution (Swanson, 1951).

The Soviet launch of the Sputnik satellite in 1957 again prompted a refocus of America's view of public education. The launch created anxiety among Americans and sparked renewed interest in general science education and science intensive vocational education. The National Defense Education Act (NDEA) of 1958 was another boost to vocational education. Title VII of this act increased funding for vocational education, which specifically provided instruction that would contribute to national defense. The syntax in this act overrode and updated most of that in the Smith-Hughes Act of 1917 (Oklahoma Department of Career and Technical Education [ODCTE], 2007).

A 1963 study commissioned by the Department of Health, Education, and Welfare resulted in a report entitled *Education for a Changing World*. This report was critical of much of the occupational training that was out of date. This report likely influenced the National Vocational Education Act (NVEA) of the same year (ODCTE, 2007). The most significant contribution of this act still being utilized today was the money directed toward construction of area vocational schools throughout the United States. This act provided federal funding focused on building new facilities for secondary vocational instruction throughout the United States. Throughout the 1960s Area Vocational Technical Schools (AVTS) were constructed including North and South Technical High Schools in St. Louis County. Additionally, the NVEA broadened the concept of vocational education into non-traditional areas such as health profession occupations and business and office education. The act also established the concept of advisory committees to provide guidance and insight for vocational education at state and local levels (Federal Legislation and Vocational Education, 2006). Two years later the Vocational Industrial Clubs of America (VICA) was founded as a national club for

students involved in vocational education. This club promotes CTE by providing opportunities for its students to have a role in the development of existing and future programs and to engage in competitions in their chosen fields; in 1999 the name of this organization was officially changed to SkillsUSA (SkillsUSA, 2007). In 1968 numerous amendments were made to the NVEA, which broadened both the definition and the various curricula of vocational education programs.

Between 1968 and 1984 there was little movement on the national vocational education front. However, in 1984 the Carl D. Perkins Vocational and Technical Education Act was passed and there was once again a national spotlight on vocational education. This legislation was intended to create new interest and raise the standards of vocational and technical education in the United States at the secondary and post-secondary levels (Exceptional Family Member Program (EFMP), 2004). In the 2007-2008 school year the Carl D. Perkins Act was in its third reauthorization. The fourth reauthorization had been approved by Congress; however, funding was yet to be determined.

Problem Background

In the early 1970s special education advocates indicated that the special education population, those with an individualized education plan (IEP), may be well served by vocational education and insisted that students with special needs have opportunity to take full advantage of vocational education and training. Because there was less concern at this time for mainstreaming students with special needs, many vocational high schools began to see special needs populations in their buildings grow rapidly. “There is an almost irresistible tendency to consign the slow, the poor, and the difficult students as

well as those from certain ethnic groups to programs of occupational preparation” (King and Brownwell, 1966, p. 54). The reputation of technical schools as institutions with rigorous instruction was in decline. Many educators and parents did not see vocational high schools as viable for students who were average to above in academic ability. Throughout the remainder of the 1970s and into the early 1980s the reputation of vocational education continued its descent and decreases in its non-IEP student population was the result (Lynch, 2000).

In 1982 *A Nation at Risk* indicated that public education in the United States was underachieving and that there was little accountability for public school officials. In 1984 the first Carl D. Perkins Vocational and Technical Education Act I was authorized and intended to assist in providing young adults with academic and technical skills needed to succeed in a transforming economy (EFMP, 2004). This first authorization, which lasted through 1990, focused on the improvement of teachers and instruction. There was a significant special education influence evident in this first authorization.

In 1990 The Carl D. Perkins Vocational Education Act II was authorized. This authorization shifted focus to the improvement of technical and vocational programs themselves. This focus included equipment, supplies and an enhancement of facilities. This authorization also included a terminology shift from “vocational” to “applied.” Vocational and special education advocates had a diminished influence in this first reauthorization. Focus on program improvement brought renewed but tempered respect to the field. Also in the early 1990s a shift in political power at the federal level demanded accountability from public education. The Carl D. Perkins Vocational Education Act was literally the first federal funding of public CTE that held recipients

accountable for outcomes. This legislation's intent was to revitalize CTE through rigor and expectation. Whether or not this improvement is manifested to high school guidance counselors in St. Louis County, Missouri has been unclear.

The Problem

The prosperity of CTE in St. Louis County, Missouri is subject to numerous challenges including the cooperation of home schools, the selection and relevance of CTE programs and the effectiveness of instruction in CTE programs. Changes in graduation requirements including an increase in the number of core requirements may work against the effectiveness of all Missouri Area Vocational Technical Schools (AVTS). If North and South Technical High Schools are to continue to provide high quality CTE programs and attract the number of interested students needed to remain viable, they must investigate the perceptions that high school guidance counselors have of the quality and viability of their programs and what factors impact that perception.

Statement of the Problem

The purpose of this study is to evaluate what impacts the perception of knowledge of CTE in St. Louis County held by high school guidance counselors, the educators who primarily make decisions regarding student attendance in CTE programs at Special School District's (SSD) North and South Technical High Schools.

Research Questions

Question One

North Technical High School does not struggle for adequate student population; South Technical High School does struggle to maintain adequate student population. North Technical High School draws primarily from public high schools located in the north region of St. Louis County, Missouri while South Technical High School draws students primarily from the south and west regions of St. Louis County, Missouri. Therefore, does the St. Louis County, Missouri region in which a public high school counselor advises impact his or her perception of knowledge of CTE?

Question Two

North, South, and formerly West Technical High Schools make up the CTE division of the SSD of St. Louis County, Missouri; the overwhelming majority of SSD's certified staff has special education teacher training, serving students with learning, physical, emotional, and mental disabilities. Therefore, does the fact that a public high school guidance counselor possesses special education teacher training impact his or her perception of knowledge of CTE in St. Louis County, Missouri?

Question Three

CTE serves fewer students and utilizes fewer certified staff than does comprehensive education, which may impact its reputation and acceptance as mainstream. Therefore, does a personal connection with CTE as a student or through CTE teacher training impact a high school guidance counselor's perception of knowledge of CTE in St. Louis County, Missouri?

Null Research Hypotheses

H1: There is no significant difference in perception of knowledge of CTE among high school guidance counselors in the three regions of St. Louis County, Missouri: north, south, and west.

H2: There is no significant difference in perception of knowledge of CTE between high school guidance counselors in St. Louis County, Missouri who possess special education teacher training and those who do not.

H3: There is no significant difference in perception of knowledge of CTE between high school guidance counselors in St. Louis County, Missouri who have a personal connection with CTE as a student or through CTE teacher training and those who do not.

Limitations of the Investigation

The study has been limited to the following:

1. Only public high school guidance counselors will be surveyed regarding perception of knowledge of CTE in St. Louis County, Missouri.
2. Perception regarding and knowledge of CTE may have been formed/acquired due to prior experiences and information unrelated to that in St. Louis County, Missouri.

Assumptions of the Investigation

The investigation makes the following assumptions:

1. The researcher assumes that all counselors will answer questions honestly.
2. The researcher assumes that counselors surveyed will have a perception of CTE.

Importance of the Investigation

CTE has received a renewed respect and focus in the United States' education landscape. Its ability to engage students in relevant, hands-on instruction assists in the reduction of drop-out rates and steers students into effective post-secondary education. The demand for skilled labor in the United States continually increases while supply dwindles. CTE at the secondary level is key in addressing this shortage. Effective promotion and funding of CTE is essential to its success. Determining how and why educators view CTE as they do will assist those who provide this specialized instruction with knowledge that will enhance it. High school guidance counselors have the ability to persuade or dissuade students and parents to pursue CTE. Therefore, it is prudent to establish their perceptions of knowledge of current programs and post-secondary opportunities, and what factors influence perception.

Definition of Terms

Admissions Representative – employees of SSD, CTE division, who work in conjunction with home schools to recruit, interview, and place prospective students in CTE programs at the county's two technical high schools, North and South.

Articulation Agreement – an agreement between the CTE division of SSD and a post-secondary institution. This agreement allows students to earn post-secondary credit while in high school. Credit is transcribed after the student completes a successful semester at the institution issuing that credit.

Career and Technical Education (CTE) – provides secondary and post-secondary students with contextual learning, job-related skills, and opportunities for students to explore career options (ACTE, 2006).

Home School – any public or private high school, which participates with a local AVTS by sending its students for CTE.

Individualized Education Plan (IEP) – a specific plan that identifies deficiencies, strengths, and needs of a student and is intended to assist educators in providing appropriate placement and strategies to promote the student’s success. This plan is agreed upon by the IEP team, which likely consists of a special education teacher, subject or grade level teachers, parents, administrators, and other specialized personnel. The IEP is a legal document and is reviewed at least once each year.

Prospective Student – any student of high school age who lives in St. Louis County, Missouri and attends a public or private high school.

Region – because two technical high schools serve all of St. Louis County, Missouri, the county has been divided into three regions. The north region consists of the county area which is west of the Mississippi River or St. Louis City and north of Page Avenue. The west region consists of the county area which is west of St. Louis City between Page Avenue and Manchester Road. The west region extends into the county area west of Interstates 270, north of Dougherty Ferry Road, and south of Page Avenue. The south region consists of the county area west of the Mississippi River or St. Louis City and south of Dougherty Ferry Road.

Chapter 2

Review of Literature

CTE Past and Present

Career and Technical Education's (CTE) reputation, support and popularity cycled through the 20th Century like those of many other education movements. In the 1930s John Dewey indicated that education must be practical and relevant for students. In the late 1950s American citizens and their government wanted to assure that the United States kept pace with the Soviet Union and their ventures into space, so they demanded emphasis be placed on science and technical education. Special education advocates in the 1970s demanded inclusion for students with disabilities. The multi-sensory, hands-on approach of CTE manifested it as effective instruction for teaching students with disabilities (Gaona, 2004). The Nixon administration believed that CTE would be significant in helping to calm the civil unrest of the early 1970s. If youth could see importance and relevance in education, they would be less rebellious and focus on achieving future success (Herschbach, 2001). Because CTE integrates thinking and doing, cornerstones of the philosophy of the American middle class, it will continue to receive attention from citizens, educators, and legislators.

The best employers the world over will be looking for the most competent, most creative and most innovative people on the face of the Earth and will be willing to pay them top dollar for their services. This will be true not just for the top professionals and managers, but up and down the length and breadth of the workforce. Those countries that produce the most important new products and services can capture a premium in world markets that will enable them to pay

high wages to their citizens (New Commission on the Skills of the American Workforce, 2006 p. 7).

In 2007 CTE was supported by The Carl D. Perkins Career and Technical Education Improvement Act entering its fourth reauthorization, which demands more accountability from states and local recipients in accordance with No Child Left Behind requirements (*Career and Technical Education Advisor*, 2006). The 21st Century will be witness to continuing technological advances that will change the methods by which individuals communicate, travel, and learn. How educators prepare high school students to participate in the creation of this century is important and will require a break from the comprehensive high school model, which directs the majority of students toward a traditional bachelor's degree (Gray, 2000b). Our national interest dictates the importance of creating a new and effective model for educating most high schoolers.

Since 1980 the fastest growing group in the United States labor force has been that of "Technologist," which includes occupations such as computer technician, x-ray technician, medical lab technician, pulmonary technician, etc. These technical positions require extensive technical training, but they do not require four year bachelor degrees (Drucker, 1994). CTE has the ability and potential to provide high school students with instruction and exploration that will establish preliminary skills and a basic knowledge of what careers may be available to them in this new millennium. CTE may also be the best advocate for a system of progressive and strong community colleges throughout the United States that offer quality education at a fraction of the cost of most four-year colleges and universities (Useem, 1986).

The Carl Perkins Act and High Schools That Work

Those who already have a vested interest in CTE are clear that the most immediate challenge is public perception. CTE is too often identified with blue collar, physical labor and thought to require little mental challenge or problem solving skill. Even programs that once may have fit this profile have become sophisticated and require advanced reading and math capabilities: auto technology, welding, machining technology, etc. CTE students work with expensive and complicated equipment and are required to apply mathematical and science concepts they learn in the classroom. The Association for Career and Technical Education (ACTE) has sought to reverse this negative perception by creating partnerships with industry and post-secondary education leaders throughout the country (ACTEonline, 2007).

There has been an assumption that students from lower socio-economic backgrounds are better served by CTE than comprehensive education because it better prepares them for the careers which they will likely pursue. “Career education, with its immediate practicality and extended options, offers the best chance to make a secondary education more responsive to the economic and social needs of minorities” (National Commission on the Reform of Secondary Education, 1973, p. 55). CTE instructors took much stock in this assumption and it negatively impacted their preparation and performance in the classroom. Reform movements such as High Schools That Work (HSTW), sponsored by the Southern Regional Education Board (SREB), and the Carl Perkins Career and Technical Education Improvement Act have placed emphasis on CTE and raised expectations for it. In response to *A Nation at Risk* in 1983 most school districts across the United States increased students’ academic course loads and the

number of credits required for high school graduation. Initially this improved competency of students in college preparatory programs, but had little impact on students not on that track.

The SREB recognized that CTE must be a partner to academics if there was to be real comprehensive improvement among the majority of the high school student population; in 1985 the HSTW network was formed (Bottoms, Presson, and Johnson, 1992). SREB initiatives are supported by public monies, but also receive substantial funding from private foundations including the Carnegie Corporation, the Wachovia Foundation, and the Bill and Melinda Gates Foundation. HSTW has based its movement on ten key practices. These key practices are common sensical and although they work together, they are not interdependent, so not all have to be adopted simultaneously (Bottoms, Presson, and Han, 2007). The HSTW 2nd key practice stresses the importance of increasing rigor in CTE courses. High-level science, math, and language arts should be injected into courses that provide students with real-world work experience. The HSTW movement, in its 22nd year, has spread through much of the continental United States and continues to add middle and high school members each year.

The original Carl D. Perkins Vocational Education Act of 1984 was directed at the training of adults and high school students. Special education advocates, *A Nation at Risk*, and advances in technology were all influential in the passage of this legislation. The Carl D. Perkins Act brought renewed interest and necessary funds to CTE at both the secondary and post-secondary levels. The first Carl D. Perkins Act reauthorization of 1990 promoted the integration of academic and CTE curricula to enhance learning and career opportunities. There are several themes that are common in programs funded by

The Carl D. Perkins Act: interdisciplinary cooperation, focus on skills necessary to transition to employment or post-secondary education, developing engaging curriculum, and activity and project-based instruction (Vocational Education, 2007). The Carl D. Perkins Act was reauthorized again in 1998 and in the 2007-2008 school year was entering into its fourth reauthorization.

The Carl D. Perkins Act is key in the continued success of CTE at both the secondary and post-secondary level and in the new legislation there is indication that Congress does understand this. A new purpose to the Act reads, “Providing individuals with opportunities throughout their lifetimes to develop, in conjunction with other education and training programs, the knowledge and skills needed to keep the United States competitive” (U.S. Congress, 2006 p. 2). The United States faces tremendous social and economic challenges in this new century and CTE should be instrumental in addressing these.

Societal Needs

In a *U.S. News and World Report* editorial Mortimer Zuckerman stated, “We have to reduce inequality while expanding economic opportunity. We must have an education system that a much larger proportion of the middle class can afford. It has to equip Americans with the skills to make them mobile and give them greater economic security” (2007, p.72). A college education has become attainable for many of the young men and women in the United States, but whether it is the correct option for most of them is debatable. Will a traditional college education make one more mobile and give him or her economic security? The economy is strong according to typical indicators, but terms like “outsourcing” and “offshoring” cause middle class Americans to be concerned about

job security. In a February 2007 article in *Money* magazine Princeton's Alan Blinder suggests parents guide their children into careers that require personal contact. "An electrician cannot be offshored" (Regnier, 2007, p. 100). Research indicates that in the mid-1990s approximately one-third of Americans who held bachelors degrees were underemployed while many high-skill, high-wage technical jobs were unfilled (Gray, 2000a). Many programs at area career and technical centers promote these careers: electrical trades, machining technology, automotive technology, heating-ventilation-air conditioning and refrigeration (HVAC/R), etc.

Employers require new skills of today's workforce. Workers are asked to be creative and have the self-discipline to continue to think throughout their tenure. Most need strong reading and math skills to accompany strong interpersonal skills that allow them to be part of a team. Because so many industries have downsized their workforces, workers must have a competitive instinct; employers are also quick to remind educators that workers must be punctual, have excellent attendance, and have a positive attitude in the workplace (Lankard, 1994). The comprehensive high school focus on standardized testing and college-prep is failing to bridge the gap between academic coursework and work. Overwhelmingly employers are indicating that the "secondary school system in the United States is too oriented toward college, thereby neglecting the majority of students who will never receive a baccalaureate degree" (Bailey 1993, p. 15).

State Departments of Education and Departments of Labor and other departments associated with the economy rarely work together to create solutions that will serve both. It is rare that states seek input from business and industry or from post-secondary institutions prior to creating standards and grade level expectations (GLEs), so it is not

illogical that students are frequently unprepared for success in either college or work related or specialized training (Achieve, 2004). This lack of communication also means that any educational responses to changes in the economy and the needs of the workforce are too slow or never occur. State standards and assessment are also uncooperative with CTE and industry because workplace and industry-specific skills are not measured; “As a result, too many American youth leave high school with a diploma in hand but largely unprepared for the opportunities and challenges that await them in college and the workplace” (Achieve, 2004 p. 5). The end result is that high school curricula rarely connect with those standards and assessments (National Governors Association, 2007).

This lack of connection between education and what occurs in the world of work is not lost on students. The high school drop-out rate in the United States is rising because more young men and women fail to link classroom work and work for financial compensation. In March of 2006 John Bridgeland, John Dilulio, and Karen Morison authored a report entitled *The Silent Epidemic: Perspectives of High School Dropouts*. The report explains that students drop out of high school for a variety of reasons, but a common thread among dropouts is a lack of interest and lack of connection with what is being taught and who it is doing the teaching. “Eighty-one percent of survey respondents said that if schools provided opportunities for real-world learning (internships, service learning projects, and other opportunities), it would have improved the students’ chances of graduating from high school” (2006, p. 12). These opportunities are typically hallmarks of CTE programs. Of the nation’s high school students who do remain in high school and choose to pursue a college degree more than 40% are forced to take at least one no-credit remedial course in math or English as part of their course load. This is

indicative of a comprehensive high school model that does not account for students who are often not engaged and need to see a connection between important core subjects and their relevance to real-world experiences in order to effectively learn and retain material (Achieve, 2004).

There are signs that significant progress is being made toward the goal of combining rigorous academics and CTE. ConnectEd: The California Center for College and Career is currently piloting its program in as many as 12 high schools throughout the state. ConnectEd provides teachers and administrators with strategies that team academic and CTE teachers to create project-based, real-world experiences for students in order to consistently engage them. ConnectEd believes that combining the best of CTE with rigorous academic work will improve performance, attendance, and graduation. According to Gary Hoachlander, president of MPR Associates Inc. who is spearheading the ConnectEd effort, “We can prepare young people for college and career; it’s not an either/or choice” (The James Irvine Foundation, 2006, p. 2). Creating authentic curricula is important to improving the quality of learning at the high school level. Too many students are placed at a disadvantage when core subject material is not related to a concept about which students care and with which they connect. Learning for learning’s sake is not sufficient and does not reflect well in standardized test scores (Brendefur and Hernández, 2003).

Many high schools in suburban United States areas, including a majority of those in St. Louis County, Missouri, are larger than 2000 students. Anonymity in a large high school is common regardless of whether or not it is the desire of the student. Counselors have caseloads that often require students or parents to be assertive with requests for

assistance, and teachers have a difficult time keeping students on tasks intended to assure that required standardized test scores are achieved. Students who become disinterested in high school or who fall behind due to poor attendance or lack of structure at home easily become anonymous. CTE programs are able to provide smaller teacher to student ratios due to the nature of the programs, potential safety issues, and the need for significant individual interaction between instructors and students. Students often indicate that they desire one-on-one attention from teachers and when they receive it, their self-esteem improves and they become involved in class (Bridgeland, Dululio, and Morison, 2006).

A problem continues in the first decade of the 21st Century as parents and comprehensive high school educators still impress upon students the need to obtain a bachelor's degree. A bachelor's degree is expensive and cannot guarantee what it did prior to the recession that took place in the 1980s. "Too many college graduates receive degrees but have nowhere to go upon graduation" (Gaul, 2005 p. 34).

Not All Students Should Pursue a Bachelor's Degree

Our economy is now truly global and our public education system is key to ensuring that we will be competitive in the future. "The long-term opportunities and challenges that the flattening of the world puts before the United States are profound. Therefore, our ability to get by doing things the way we've been doing them ... will not suffice any more" (Friedman 2005, p. 5). High school dropout rates in the United States are incredibly high with large urban school districts leading the way. A high school dropout is less likely to take personal responsibility for his or her own career development, which is essential in our economy (Kerka, 1993). The traditional high school method of educating teens is not working for many and CTE may be a solution for

the many teens who are disconnected, bored, and see little relevance in the subject matter and the method in which it is presented. CTE is expensive and requires a lower teacher to student ratio than has become acceptable in public high school classrooms.

In 2008 NCLB is up for reauthorization and Americans must decide if this nation is committed to ensuring the success of all students. If they are, they must be willing to commit the resources to do so (Tough, 2006).

Often students lack focus as they proceed through high school and simply move with the flow of other students. This includes the idea that success in later life can only be achieved with a traditional college education. Unfortunately, this lack of focus, accompanied by poor study habits and lack of self-discipline, typically results in failure in college. Educators at the secondary level must teach students to take charge of their future employability. Students will likely have to reinvent their professional selves at least once during the course of their working lives; it is the responsibility of education to provide students with opportunities to achieve some type of employment security (Herr & Gray, 1998).

More than half of high school students lack academic skills needed to achieve success in a four year degree program (Gray, 2000a). Few of the barriers to higher education that have existed still remain. Scholarships, a multitude of student loan options and open admissions policies make it seem reasonable that high school graduates should go on to a four-year college to pursue a bachelor's degree; college matriculation rates have benefited from this reasoning. However, as college enrollment has increased, so has the college drop-out rate and the number of remedial college courses necessary. Most college graduates take much longer than the traditional four years to complete a

bachelor's degree and as many as half who enter will not persist to graduation (Gray, 2000a). This begs the question; Why isn't CTE thriving?

CTE's Mistakes

There is much terminology associated with CTE and the confusion that surrounds this multitude of terminology is detrimental to image and effectiveness; the marketing of CTE is a process of association and the association is too often negative. CTE, as to which it is now commonly referred, has been called or identified by a number of other terms: vocational education, career education, school-to-work, apprenticeships, trade school, tech prep, and industrial arts education. This is not a complete list, but it does indicate a likelihood for confusion and possibly a lack of focus. "You 'burn' your way into the mind by narrowing the focus to a single word or concept" (Ries and Trout, 1993, p. 27). This confusion in terminology is a symptom of CTE's lack of focus throughout the 20th century; as a result, it did not reach its full potential. The American Vocational Association has detailed the problem of image for CTE in numerous journal articles since the late 1980s; the misconceptions and negativity are consistent. Parents and students do indicate that they have heard of CTE or one of its pseudonyms; they also indicate that they are unclear of its purpose and importance (Catri, 1998).

School officials, guidance counselors and principals specifically, see CTE as a path only for students who are not going to college. "Increasing the number of college admissions is the unquestioned priority of the nation, its states, and local school boards as well" (Gray, 2000a, p. 3). This group also has the idea that CTE is not rigorous, does not engage students in critical thinking and does not ask them to engage in the late stages of Bloom's Taxonomy, which is simply not true (Guskey, 2006). CTE has suffered from

low enrollment during the last twenty-five years due to fewer numbers of students available and to perception. With the continued importance of standardized testing and federal and state government objectives students have been pushed toward better academic performance and pursuing a four-year college degree. Already negative attitudes about the rigor of CTE, which are prevalent among so many home school officials, have been fostered by these developments (Naylor, 1987).

Much of this criticism and negative perception has been deserved because CTE educators have not kept pace with changing technology and in many cases have not been concerned with appearance and reputation. Administrators and instructors in CTE have not made the necessary effort to reach out to comprehensive high school educators. They have not embraced partnerships with sending schools and they have not done enough to make academic subject matter a high priority in CTE programs. This lack of partnership may be most noticeable with counselors, which has likely impacted their knowledge of CTE and their willingness to direct students toward it.

Conclusion

At the start of the 20th century John Dewey saw the necessity of a pragmatic approach to education; education should be practical and relative. Workers in the 20th century needed to become problem solvers who were able to engage in teamwork. Contributing to the growth of industry and establishing oneself as a contributing member of society was essential to self-worth (1938). In the 21st century workers must continue to problem solve at a very high level and to engage in teamwork. They must also be able to continually educate themselves and to re-invent themselves as necessary to stay competitive in markets that can literally change daily.

The major controversy seems to focus on educational retrenchment and the re-emphasis upon the traditional academic subjects. “Historically, this sort of modification often follows a pattern in which retrenchment of one group eventually leads to a new solution promulgated by another group” (Baker, Boser, and Householder, 1992, p. 5). Hands-on and academic instruction should co-exist; one makes the other more effective and beneficial. When instructional activities are practical and can be applied to real-world projects, they are effective. A kinesthetic approach to instruction is more effective than an approach grounded in lecture or reading and note-taking alone (Reid, 1988). The onset of complete investment in standardized testing has increased the focus on academic performance and the thought that all students should pursue a college education. High school guidance counselors are the most influential high school personnel regarding students choosing or not choosing to participate in versatile CTE programs.

For years educators have seen the statistics about the increased wages of those who have a college degree over those who do not possess one. If students are going to college, it is only logical that each pursues a college preparatory track while in high school. Unfortunately, this plan does not serve the majority of students because the majority will never receive a baccalaureate degree (Bailey, 1993). Where does CTE fit into this plan? The idea of integrating academics and CTE was conceived in the 1970s and has regained popularity. The blending of academics into career and technical classes will provide students with practical application and assist them in understanding the relevance of courses that may otherwise escape them.

The Institute of Education Sciences (IES) is set to sponsor a curricular competition held by the Mathematica Policy Research of Princeton, N.J. in an attempt to promote creative ideas of mathematics integration into career and technical courses (*Career and Technical Education Advisor*, 2006). The latest reauthorization of the Carl D. Perkins Career and Technical Education Improvement Act does address the rigor of CTE courses and IES hopes that creative and integrative curriculum will be a positive response to this. Unfortunately, school administrators and counselors often indicate that time in CTE will be detrimental to academic coursework and standardized assessment even if the CTE courses are rigorous. Therefore, it is the responsibility of CTE to establish relationships, counteract negative perceptions and myths, and ultimately to determine what factors actually impact high school educators', counselors in particular, perceptions of knowledge regarding CTE.

Chapter 3

Methodology

Overview

This investigation examined the perceptions of knowledge of career and technical education (CTE) held by high school guidance counselors in St. Louis County, Missouri in three subsets: CTE candidates, CTE reform and post-secondary opportunities, and CTE program development and instruction. The investigation focused on the relationship of these dependent variables and three factors (region, special education teacher training, and a personal connection with CTE as a student or through CTE teacher training) to determine if these factors significantly impact guidance counselors' perceptions of knowledge of CTE.

Rationale

The intent of this investigation was to explore perception of knowledge of the competency and viability of CTE in the Special School District (SSD) of St. Louis County, Missouri. According to Richard Carver, SSD Chief Financial Officer, the CTE Division of SSD represents approximately 6% of total SSD staff and approximately 7.5% of yearly expenditures. In the 2006-2007 school year SSD spent approximately \$279,384,000 on personnel related expenses and \$47,147,000 on non-personnel related expenses; \$17,285,000 and \$7,269,000 are dedicated to the CTE division respectively; these ratios have been consistent since the 2002-2003 school year (Personal communication, November 28, 2007). SSD had particular interest in investigating and analyzing the understanding and perception that high school guidance counselors in St. Louis County, Missouri have regarding their CTE division and its two technical high

schools, North and South, due to the expense of the programs and a desire to maintain high enrollment at both schools.

High school guidance counselors are integral in determining whether or not a prospective student attends North or South Technical High School. Often it is a guidance counselor who determines if a student receives information about the existence of the technical high schools, if a student completes an application, and finally if a student makes contact with an admissions representative. Therefore, it is important to begin to determine what factors influence high school guidance counselors' perceptions of CTE.

North and South Technical High Schools are both members of the High Schools That Work (HSTW) network, a high school reform movement sponsored by the Southern Regional Education Board (SREB). Curriculum in all duplicated programs is shared along with business and post-secondary education advisory councils. SSD completes performance based evaluations on all teacher level staff and a mentoring program for all first through third year teachers is in place. Each year the CTE Division completes a Program Performance Review, which includes a variety of student data and survey results from students, parents, and program advisory council members.

The investigator is an employee of SSD's CTE Division and had access to the district's Auto Data System®, which was utilized to conduct the counselor survey. The researcher supervises four admissions representatives who work closely with high school guidance counselors.

Survey of Counselors

An original survey was developed to solicit personal information along with perceptions of knowledge of CTE. The survey was created by the investigator (the principal of South Technical High School), the director of the CTE division of SSD, an admissions representative for the CTE division of SSD, and the director of training and workforce development for the Carpenter's District Council of Greater St. Louis and Vicinity in order to ensure face and content validity. Ideas for survey questions were derived from a similar study conducted by Gina M. Mateka: *The Perceived Impact of Vocational Career Academies on Comprehensive High Schools in the State of New Jersey*. Although this study surveyed both principals and counselors, the intent was to determine their knowledge and opinions of CTE and how cooperation with an Area Career and Technical Center affects cooperating high schools (2001). A copy of the survey instrument utilized for this investigation is located in Appendix B.

Each guidance counselor working in a public high school in St. Louis County, Missouri was sent an e-mail link in order to complete the survey. A disclosure letter, located in Appendix A, was part of this e-mail; this explained that the survey was voluntary and anonymous. Guidance counselors were asked to complete the survey via SSD's Auto Data System®. Two follow-up e-mails of request were sent to improve the return rate.

To provide for anonymity counselors were asked to identify themselves only by St. Louis County region: north, central, west, and south. These regions were determined to ensure ease in survey completion. Prior to data analysis the central region was combined with the west region; there were two reasons for this combination. 1) Several

of the schools located in the determined central region are relatively small and in turn have small counseling staffs; combining the two regions created a larger sample size for a single region, the west region. 2) West Technical High School was opened in order to draw from what was deemed the Central/West Corridor. This corridor included schools listed on the counselor survey as located in the west and central regions. Because a majority of the schools in these two regions represent the same demographic, the combination was logical. Additionally, question numbers seven and eight were combined to represent a personal connection with CTE whether as a student or through CTE teacher training.

The final draft of the survey instrument included a total of 35 items; there was an opportunity for counselors to write original comments about the technical high schools. The first nine items were used to determine the guidance counselors' gender, age range, if the guidance counselor received formal training as a special educator, and if the guidance counselor had personal experience with CTE as a student or educator. The next 23 questions required responses on a five-point Likert-type scale. The final three questions were dichotomous requiring a yes or no response. Questions 10 through 32 were stratified into three subsets listed in Table 3.1. Statistical Package for the Social Sciences (SPSS®) 16.0 software was utilized for all descriptive statistics and analyses. Significance was set at the .05 level. All Institutional Review Board (IRB) requirements and guidelines were observed.

Table 3.1 – ANOVA Subsets

<i>Subsets</i>	<i>Statements Regarding</i>	<i>Survey Question Number</i>
1	CTE Candidates	16, 28, 29, 30, 31, 32
2	CTE Reform and Post-Secondary Opportunities	11, 12, 13, 17, 20, 24, 25
3	CTE Program Development and Instruction	14, 18, 19, 22, 23, 26, 27

Procedure

The research design for this study was causal-comparative. Three univariate three-factor (3 x 2 x 2) analyses of variance (ANOVA) were used to determine whether the counselors surveyed differed significantly on the independent variables determined. The first factor of analysis was region (north, west or south). The second factor of analysis was possession of training as a special education teacher (yes or no). The third factor of analysis was personal connection with CTE as a student or through receipt of CTE teacher training (yes or no). The dependent variables consisted of the three subsets listed in Table 1. All means and interactions were tested for statistical significance. A Cronbach Coefficient Alpha correlation was conducted to determine the reliability of each of the subsets; the coefficient correlation of each subset was above .60, the acceptable minimum for experimental research (Reliability Analysis, 2008). It is unlikely that a reliable factor analysis could have been completed in regard to this survey if the coefficient correlation or corresponding Spearman Brown prophesy formula adjustment had not yielded a satisfactory result due to a small population size (Tabachnick & Fidell, 2007). Because multiple ANOVAs were conducted using the same independent variables, a Bonferroni correction was utilized to reduce the likelihood

of a Type 1 Error. A test for homogeneity of independent variances was completed within each ANOVA.

Next, three one-way ANOVAs were conducted using questions 33, 34, and 35 as the factors for each respectively. Subset 1, subset 2, and subset 3 were utilized as dependent variables in each of the three ANOVAs. All means and interactions were tested for statistical significance.

While there may be turnover in guidance counselor positions in specific high schools throughout the county from year to year, there is no reason to believe that there is significant change in perception of knowledge of CTE due to possible turnover.

Chapter 4

Results

Design

The purpose of the investigation was to measure the perceptions of knowledge of career and technical education (CTE) in St. Louis County, Missouri and the Special School District (SSD) held by public high school guidance counselors. This investigation utilized three univariate three-factor analyses of variance (ANOVA). The first factor consisted of three regions: south, west, and north. The second factor, training as a special education teacher, consisted of two levels: yes or no. The third factor, exposure to CTE as a student or through CTE teacher training consisted of two levels: yes or no. The dependent variable in each analysis of variance was a subset representing one of three categories of CTE knowledge in St. Louis County, Missouri: CTE candidates, CTE reform and post-secondary opportunities, and CTE program development and instruction.

All public high school guidance counselors in St. Louis County, Missouri were provided the survey through SSD's Auto Data® system. At the time the survey was administered there were 153 public high school counselors identified in 23 St. Louis County, Missouri school districts; this number is subject to change from year to year dependent upon student population and caseload. The survey consisted of nine demographic questions and 26 questions regarding each counselor's perception of knowledge regarding CTE in St. Louis County, Missouri and SSD. Questions 10 through 32 were based on a five-point Likert Scale while questions 33, 34, and 35 required only yes/no responses.

Questions 10, 15, and 21 were removed from analysis due to the Cronbach Coefficient Alpha score. Subset 1 attained a Cronbach Alpha score of .62 with a Spearman Brown adjustment of .77. Subset 2 attained a Cronbach Alpha score of .78 with a Spearman Brown adjustment of .88. Subset 3 attained a Cronbach Alpha score of .66 with a Spearman Brown adjustment of .80. The driving principle behind the establishment of the subsets was interpretability of the factor. Regardless of the combinations of questions 10, 15, and 21 into any of the established subsets, the Cronbach Alpha scores were significantly reduced.

Table 4.1 – Descriptive Statistics - ANOVA (Subset 1 - Candidates)

Dependent Variable: Subset 1 – Means and Standard Deviations							
<i>Region</i>	<i>CTE Connection</i>	<i>SPED Training</i>					
		Yes			No		
		<u>N</u>	<u>Mean</u>	<u>Sd</u>	<u>N</u>	<u>Mean</u>	<u>Sd</u>
North	Yes	2	2.50	1.18	4	3.25	.69
	No	3	3.39	.35	9	3.20	.47
South	Yes	1	3.17	-	3	2.72	.35
	No	3	2.78	.10	11	3.24	.35
West	Yes	-	-	-	4	3.71	1.12
	No	3	3.44	.19	17	3.52	.69

Table 4.2 – Data Analysis – ANOVA (Subset 1 – Candidates)

Tests of Between-Subjects Effects					
Dependent Variable: Subset 1 - Candidates					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4.807 ^a	10	.481	1.319	.247
Intercept	282.486	1	282.486	775.011	.000
Region	1.689	2	.844	2.317	.109
combcte	.120	1	.120	.329	.569
SpedTeach	.109	1	.109	.300	.586
Region * combcte	.540	2	.270	.741	.482
Region * SpedTeach	.107	2	.053	.147	.864
combcte * SpedTeach	.000	1	.000	.001	.980
Region * combcte * SpedTeach	1.152	1	1.152	3.161	.082
Error	17.860	49	.364		
Total	671.631	60			
<u>Corrected Total</u>	<u>22.668</u>	<u>59</u>			

a. R Squared = .212 (Adjusted R Squared = .051)

Results

There were no significant main effects and no significant interaction effects observed based upon $p < .05$. Refer to table 4.2.

Item analysis of the survey revealed that counselors do believe that parents are open to the idea of their students attending North or South Technical High School, which makes those students potential CTE candidates. However, according to counselors, it is difficult for students in advanced placement courses or honors courses to attend due to scheduling conflicts. 39.3 % of participants responded agreed with statement number 16. 47.5 % of participants disagreed with statement number 28. 32.8 % of participants disagreed with statement number 29. 37.7 % of participants responded disagreed with statement number 30. 52.2 % of participants agreed with statement number 31. 73.8 % of participants agreed with statement number 32.

Table 4.3 – Descriptive Statistics – ANOVA (Subset 2 – Reform and Post-Sec. Oppor.)

Dependent Variable: Subset 2 – Means and Standard Deviations							
<i>Region</i>	<i>CTE Connection</i>	<i>SPED Training</i>					
		Yes			No		
		<u>N</u>	<u>Mean</u>	<u>Sd</u>	<u>N</u>	<u>Mean</u>	<u>Sd</u>
North	Yes	2	4.00	-	4	4.21	.36
	No	3	3.50	.80	9	3.90	.45
South	Yes	1	4.00	-	3	4.33	.58
	No	3	3.81	.73	11	3.94	.45
West	Yes	-	-	-	4	3.90	.71
	No	3	3.90	.80	17	3.90	.51

Table 4.4 – Data Analysis – ANOVA (Subset 2 – Reform and Post-Sec. Oppor.)

Tests of Between-Subjects Effects					
Dependent Variable: Subset 2 – Reform/Post Sec.					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.354 ^a	10	.135	.522	.866
Intercept	430.701	1	430.701	1661.545	.000
Region	.108	2	.054	.209	.812
combcte	.394	1	.394	1.520	.223
SpedTeach	.208	1	.208	.804	.374
Region * combcte	.310	2	.155	.598	.554
Region * SpedTeach	.099	2	.049	.191	.827
combcte * SpedTeach	.005	1	.005	.019	.891
Region * combcte * SpedTeach	.029	1	.029	.114	.737
Error	12.702	49	.259		
Total	935.592	60			
<u>Corrected Total</u>	<u>14.056</u>	<u>59</u>			

a. R Squared = .096 (Adjusted R Squared = -.088)

Results

There were no significant main effects and no significant interaction effects observed based upon $p < .05$. Refer to Table 4.4.

Item analysis of the survey revealed that most counselors believe that North and South Technical High Schools offer challenging programs that lead to good post-secondary opportunities. However, the analysis also revealed that most have little knowledge of the Carl Perkins Act that is intended to improve programs and opportunities in CTE. 50.8 % of the participants agreed with statement number 11. 47.5 % of the participants had no opinion regarding statement number 12. 47.5 % of participants agreed with statement number 13. 42.6 % of participants had no opinion regarding statement number 17. 52.5 % of participants agreed with statement number 20. 55.7 % of participants agreed with statement number 24. 55.7 % of participants agreed with statement number 25.

Table 4.5 – Descriptive Statistics – ANOVA (Subset 3 – Program Dev. and Instruction)

Dependent Variable: Subset 3 – Means and Standard Deviations							
<i>Region</i>	<i>CTE Connection</i>	<i>SPED Training</i>					
		Yes			No		
		<u>N</u>	<u>Mean</u>	<u>Sd</u>	<u>N</u>	<u>Mean</u>	<u>Sd</u>
North	Yes	2	3.80	.51	4	4.20	.60
	No	3	4.00	.16	9	4.05	.49
South	Yes	1	4.00	-	3	4.14	.25
	No	3	3.90	.86	11	4.06	.39
West	Yes	-	-	-	4	3.92	.49
	No	3	4.14	.38	17	3.93	.41

Table 4.6 – Data Analysis – ANOVA (Subset 3 – Program Dev. and Instruction)

Tests of Between-Subjects Effects					
Dependent Variable: Subset 3 – Program Dev./ Instr.					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.574 ^a	10	.057	.281	.983
Intercept	444.099	1	444.099	2171.949	.000
Region	.006	2	.003	.015	.985
combcte	.003	1	.003	.017	.897
SpedTeach	.082	1	.082	.403	.528
Region * combcte	.045	2	.023	.110	.896
Region * SpedTeach	.223	2	.111	.545	.583
combcte * SpedTeach	.018	1	.018	.087	.769
Region * combcte * SpedTeach	.043	1	.043	.209	.650
Error	10.019	49	.204		
Total	973.071	60			
<u>Corrected Total</u>	<u>10.593</u>	<u>59</u>			
a. R Squared = .054 (Adjusted R Squared = -.139)					

Results

There were no significant main effects and no significant interaction effects observed based upon $p < .05$. Refer to Table 4.6.

Item analysis of the survey revealed that most counselors perceive North and South Technical High Schools to have viable programs and good instruction. They also perceive that they should participate in the process to determine what programs should be implemented and which programs should be deleted. 65.6 % of the participants agreed with statement number 14. 62.3 % of the participants agreed with statement number 18. 32.8 % of the participants agreed with statement number 19. 59 % of the participants agreed with statement number 22. 63.9 % of participants strongly agreed with statement number 23. 45.9 % of participants agreed with statement number 26. 42.6 % of participants agreed with statement number 27.

Discussion

All ANOVAs were run utilizing the means of the individual counselor's responses to each subset. No outcome in any of the three individual ANOVAs indicated a significant interaction or main effect. Chi-square tests were run utilizing the independent variables (region, special education teacher training, and personal connection to CTE as a student or through CTE teacher training) and the remainder of the demographic questions (years as a counselor in the region, years as a counselor in the St. Louis area, age group, gender, and times visiting one of the two technical high schools in the past five years) to determine if there were significant differences in frequency distributions across the three independent variables.

Table 4.7– Chi-Square Test – Region/Counseling Time in Region

Crosstab					
Count		Region			Total
		South	North	West	
CounselTime	1-5 yr	9	8	6	23
	6-10 yr	6	4	9	19
	11-15 yr	0	3	2	5
	ovr 15 yr	3	3	8	14
	Total	18	18	25	61

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.424 ^a	6	.283
Likelihood Ratio	8.649	6	.194
Linear-by-Linear Association	3.007	1	.083
N of Valid Cases	61		

a. 5 cells (41.7%) have expected count less than 5. The minimum expected count is 1.48.

Table 4.8 – Special Ed. Teacher Training/Counseling Time in Region

Crosstab				
Count		SPED		
		Yes	No	Total
CounselTime	1-5 yr	3	20	23
	6-10 yr	3	16	19
	11-15 yr	2	3	5
	ovr 15 yr	4	9	13
	Total	12	48	60

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.098 ^a	3	.377
Likelihood Ratio	2.884	3	.410
Linear-by-Linear	2.270	1	.132
Association			
N of Valid Cases	60		

a. 5 cells (62.5%) have expected count less than 5. The minimum expected count is 1.00.

Table 4.10 – Chi-Square Test - CTE Connection/Counseling Time in Region

Crosstab				
Count		CTE Connection		
		yes	no	Total
CounselTime	1-5 yr	9	14	23
	6-10 yr	3	15	1
	11-15 yr	1	4	5
	ovr 15 yr	1	13	14
	Total	14	46	60

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.738 ^a	3	.125
Likelihood Ratio	5.974	3	.113
Linear-by-Linear Association	4.636	1	.031
N of Valid Cases	60		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 1.17.

Table 4.11 – Chi-Square Test – Region/Counseling Time in St. Louis

Crosstab					
Count		Region			
		South	North	West	Total
CounTmST	1-5 yr	9	7	5	21
L	6-10 yr	5	5	8	18
	11-15 yr	1	3	4	8
	ovr 15 yr	3	3	8	14
	Total	18	18	25	61

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.600 ^a	6	.469
Likelihood Ratio	5.871	6	.438
Linear-by-Linear Association	3.659	1	.056
N of Valid Cases	61		

a. 5 cells (41.7%) have expected count less than 5. The minimum expected count is 2.36.

Table 4.12 – Chi-Square Test – Special Ed. Teacher Train/Counseling Time in St. Louis

Crosstab				
Count		SPED		
		Yes	No	Total
CounTmST	1-5 yr	2	19	21
L	6-10 yr	5	13	18
	11-15 yr	2	6	8
	ovr 15 yr	3	10	13
	Total	12	48	60

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.323 ^a	3	.508
Likelihood Ratio	2.527	3	.470
Linear-by-Linear	.909	1	.340
Association			
N of Valid Cases	60		
a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 1.60.			

Table 4.13 – Chi-Square Test – CTE Connection/Counseling Time in St. Louis

Crosstab				
Count		CTE Connection		
		yes	no	Total
CounTmST L	1-5 yr	8	13	21
	6-10 yr	2	15	17
	11-15 yr	3	5	8
	ovr 15 yr	1	13	14
	Total	14	46	60

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.779 ^a	3	.079
Likelihood Ratio	7.177	3	.066
Linear-by-Linear Association	2.858	1	.091
N of Valid Cases	60		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 1.87.

Table 4.14 – Chi-Square Test – Region/Age Range

Crosstab					
Count		Region			Total
		South	North	West	
Age	25-35 yr	10	4	1	15
	36-45 yr	2	4	7	13
	46-56 yr	4	7	10	21
	ovr 56 yr	2	2	7	11
	Total	18	17	25	60

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.953 ^a	6	.014
Likelihood Ratio	16.862	6	.010
Linear-by-Linear Association	9.582	1	.002
N of Valid Cases	60		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is 3.12.

Table 4.15 – Chi-Square Test – Special Ed. Teacher Training/Age Range

Crosstab				
Count		SPED		
		Yes	No	Total
Age	25-35 yr	2	13	15
	36-45 yr	1	12	13
	46-56 yr	7	14	21
	ovr 56 yr	2	8	10
	Total	12	47	59

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.927 ^a	3	.269
Likelihood Ratio	4.025	3	.259
Linear-by-Linear	1.295	1	.255
Association			
N of Valid Cases	59		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 2.03.

Table 4.16 – Chi Square Test – CTE Connection/Age Range

Crosstab				
Count		CTE Connection		
		yes	no	Total
Age	25-35 yr	3	12	15
	36-45 yr	3	10	13
	46-56 yr	6	14	20
	ovr 56 yr	2	9	11
	Total	14	45	59

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.740 ^a	3	.864
Likelihood Ratio	.733	3	.865
Linear-by-Linear Association	.029	1	.866
N of Valid Cases	59		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 2.61.

Table 4.17 – Chi-Square Test – Region/Gender

Crosstab					
Count		Region			
		South	North	West	Total
Gender	male	3	3	9	15
	female	15	15	16	46
	Total	18	18	25	61

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.974 ^a	2	.226
Likelihood Ratio	2.939	2	.230
Linear-by-Linear Association	1.817	1	.178
N of Valid Cases	61		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 4.43.

Table 4.18 – Chi Square Test – Special Ed. Teacher Training/Gender

Crosstab				
Count		SPED		
		Yes	No	Total
Gender	male	0	15	15
	female	12	33	45
	Total	12	48	60

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2- sided)	Exact Sig. (1- sided)
Pearson Chi-Square	5.000 ^a	1	.025		
Continuity Correction ^b	3.472	1	.062		
Likelihood Ratio	7.856	1	.005		
Fisher's Exact Test				.027	.021
Linear-by-Linear Association	4.917	1	.027		
N of Valid Cases	60				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.00.

b. Computed only for a 2x2 table

Table 4.19 – Chi-Square Test – CTE Connection/Gender

Crosstab				
Count		CTE Connection		
		yes	no	Total
Gender	male	4	11	15
	female	10	35	45
	Total	14	46	60

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2- sided)	Exact Sig. (1- sided)
Pearson Chi-Square	.124 ^a	1	.724		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.122	1	.727		
Fisher's Exact Test				.734	.487
Linear-by-Linear Association	.122	1	.727		
N of Valid Cases	60				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.50.
 b. Computed only for a 2x2 table

Table 4.20 – Chi-Square Test – Region/Number of Visits

		Crosstab			
Count		Region			
		South	North	West	Total
Visits	0-1 time	3	5	8	16
	2-5 times	13	10	12	35
	more than 5 times	2	3	5	10
	Total	18	18	25	61

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.552 ^a	4	.635
Likelihood Ratio	2.621	4	.623
Linear-by-Linear Association	.108	1	.743
N of Valid Cases	61		

Expected count less than 5. The minimum expected count is 2.95.

Table 4.21 – Chi Square Test – Special Ed. Teacher Training/Number of Visits

Crosstab				
Count		SPED		
		Yes	No	Total
Visits	0-1 time	3	13	16
	2-5 times	6	29	35
	more than 5 times	3	6	9
	Total	12	48	60

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.194 ^a	2	.550
Likelihood Ratio	1.078	2	.583
Linear-by-Linear Association	.498	1	.480
N of Valid Cases	60		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.80.

Table 4.22 – Chi Square Test – CTE Connection/Number of Visits

Crosstab				
Count		CTE Connection		
		yes	no	Total
Visits	0-1 time	2	14	16
	2-5 times	10	24	34
	more than 5 times	2	8	10
	Total	14	46	60

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.814 ^a	2	.404
Likelihood Ratio	1.934	2	.380
Linear-by-Linear Association	.424	1	.515
N of Valid Cases	60		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 2.33.

Results

The chi-square tests revealed that there was unequal representation of age across regions. There was a significant difference in the ratio of counselors under 35 years of age in the south region. The chi-square tests also revealed that no male counselors who completed the survey had special education teacher training. That is, the 15 counselors who indicated they received special education teacher training were females. Based on these results ANCOVAs were conducted utilizing the same independent and dependent variables with both age and gender utilized as co-variates together and separately. These ANCOVAs revealed no significant interaction or main effects. Data analysis of these ANCOVAs are found in Appendix C.

Table 4.23 – One-Way ANOVA – Statement 33

<i>Dependent Variables: Statement 33</i>						
Statement 33						
Subset	Yes			No		
	N	Mean	Sd	N	Mean	Sd
1	26	3.17	.42	35	3.36	.73
2	26	4.12	.51	35	3.80	.46
3	26	4.13	.46	35	3.93	.40

Table 4.24 – Data Analysis – One-Way ANOVA – Statement 33

ANOVA						
		Sum of	df	Mean	F	Sig.
		Squares		Square		
NewSubCandidates	Between	.540	1	.540	1.402	.241
	Groups					
	Within Groups	22.739	59	.385		
	Total	23.280	60			
NewSubProgInst	Between	1.446	1	1.446	6.199	.016
	Groups					
	Within Groups	13.759	59	.233		
	Total	15.205	60			
NewSubPostandDe v	Between	.585	1	.585	3.221	.078
	Groups					
	Within Groups	10.722	59	.182		
	Total	11.307	60			

Results

Statement 33 dealt with counselors' awareness that North and South Technical High Schools belong to the High Schools That Work school improvement movement, which is intended to improve instruction. There were no significant differences in the means for subsets 1 and 3. However, the mean of subset 2 for those who responded "yes" was 4.12, which was significantly different from the mean of those who responded "no," 3.80. Therefore, whether or not a counselor was aware that North and South Technical High Schools belong to the High Schools That Work school improvement movement impacted responses to the survey statements in subset 2.

Table 4.25 – One-Way ANOVA – Statement 34

<i>Dependent Variables: Statement 34</i>						
Statement 34						
Subset	Yes			No		
	<u>N</u>	<u>Mean</u>	<u>Sd</u>	<u>N</u>	<u>Mean</u>	<u>Sd</u>
1	44	3.30	.63	17	3.23	.61
2	44	4.10	.48	17	3.61	.42
3	44	4.08	.45	17	3.86	.35

Table 4.26 – Data Analysis – One-Way ANOVA – Statement 34

ANOVA						
		Sum of	df	Mean	F	Sig.
		Squares		Square		
NewSubCandidates	Between	.060	1	.060	.152	.698
	Groups					
	Within Groups	23.220	59	.394		
	Total	23.280	60			
NewSubProgInst	Between	2.464	1	2.464	11.409	.001
	Groups					
	Within Groups	12.741	59	.216		
	Total	15.205	60			
NewSubPostandDe v	Between	.597	1	.597	3.290	.075
	Groups					
	Within Groups	10.710	59	.182		
	Total	11.307	60			

Results

Statement 34 dealt with counselors' familiarity with the articulation agreements that North and South Technical High Schools have with the St. Louis Community College and other post-secondary institutions. There were no significant differences in the means for subsets 1 and 3. However, the mean of subset 2 for those who responded "yes" was 4.10, which was significantly different from the mean of those who responded "no," 3.61. Therefore, whether or not a counselor was familiar with articulation agreements impacted responses to the survey statements in subset 2.

Table 4.27 – One-Way ANOVA – Statement 35

<i>Dependent Variables: Statement 35</i>						
Statement 35						
Subset	Yes			No		
	<u>N</u>	<u>Mean</u>	<u>Sd</u>	<u>N</u>	<u>Mean</u>	<u>Sd</u>
1	58	3.30	.63	3	3.22	.38
2	58	4.00	.47	3	3.05	.38
3	58	4.02	.44	3	3.94	.17

Table 4.28 – Data Analysis – One-Way ANOVA – Statement 35

ANOVA						
		Sum of	df	Mean	F	Sig.
		Squares		Square		
NewSubCandidates	Between	.009	1	.009	.023	.880
	Groups					
	Within Groups	23.270	59	.394		
	Total	23.280	60			
NewSubProgInst	Between	2.494	1	2.494	11.579	.001
	Groups					
	Within Groups	12.711	59	.215		
	Total	15.205	60			
NewSubPostandDe v	Between	.018	1	.018	.092	.763
	Groups					
	Within Groups	11.289	59	.191		
	Total	11.307	60			

Results

Statement 35 dealt with counselors' willingness to recommend either North or South Technical High School to a college-prep student if attending would not interfere with the ability to meet college entrance requirements. There were no significant differences in the means for subsets 1 and 3. However, the mean of subset 2 for those who responded "yes" was 4.00, which was significantly different from the mean of those who responded "no," 3.05. Therefore, whether or not a counselor would recommend CTE to a college-prep student impacted responses to the survey statements in subset 2.

Chapter 5

Limitations, Findings, and Implications

Discussion

This investigation was conducted so that the investigator, the principal of South Technical High School, as part of the career and technical education (CTE) division of Special School District (SSD) would gain knowledge of how public high school guidance counselors perceive their knowledge of CTE in St. Louis County, Missouri as part of SSD. This was based on the region where counselors advise, whether they possess special education teacher training, and whether they have a personal connection with CTE as a student or through training as a CTE teacher. It is believed that guidance counselors are the most influential of all educators in a comprehensive high school as it pertains to student exposure to all scholarly choice including CTE.

The majority of counselors indicated on statement number 32 of the survey instrument that they believe there are more students in their schools who should be attending North or South Technical High School. If the counselors were sincere in their responses to this statement, it is important that this belief be investigated to determine how to make it come to fruition. CTE often carries the stigma of being suitable only for those who cannot or do not succeed in the comprehensive high school setting. In St. Louis County, Missouri there seems to be an underlying assumption that students will pursue a four-year degree upon graduation from high school, which might be hindered by participation in CTE while in high school. This assumption seems to exist regardless of an individual student's success or motivation during high school. "The supreme

benchmark of the effectiveness of local school systems is the number of their teens who go on to college, not academic achievement or workplace readiness” (Gray, 2000a, p. 3).

Assumptions and Limitations

This investigation was concerned with the perceptions of knowledge of public high school counselors in St. Louis County, Missouri. Although this was believed to be a worthwhile endeavor, it did present a sample size problem. At the time of this investigation there were 153 guidance counselors identified in this total population and the investigator made attempts to include each counselor. 62 of the counselors (41%) did respond and the regions from which they responded were equally represented. However, this response from an initially small population may have effected statistical data (Tabachnick & Fidell, 2007).

North Technical High School, which serves all of north St. Louis County, Missouri, consistently maintains a student population of approximately 95% capacity based upon a maximum student population of 1200. South Technical High School, which serves all of south and west St. Louis County consistently struggles to maintain 75% capacity based upon a maximum student population of 1200 (SIS Data® – Appendix F). Therefore, it was assumed that there were significant differences in perceptions of knowledge of CTE among counselors in the north region and those in the south and west regions.

Approximately 93% of SSDs certified personnel have special education teacher training and serve students with learning, physical, emotional, and mental disabilities. Often, at times erroneously, special education teachers see CTE as an option for students with disabilities because of a multi-sensory approach or because they feel these students

should learn a trade or skill in order to become employable adults (Gaona, 2004).

Therefore, it was assumed that there would be significant differences in perceptions of knowledge of CTE between counselors with and without special education teacher training.

Students often come to North or South Technical High School because a relative or family friend participated in CTE and reported a positive experience; in interviews and on survey cards CTE students often indicate that they were made aware of the technical high schools by someone who had a personal connection with CTE. Therefore, it was assumed that there would be a significant difference in the perceptions of knowledge of CTE between counselors who had a personal connection with CTE and those who did not.

The survey tool utilized in this investigation was created with the assistance of individuals who have knowledge of CTE and of the investigation participants. The survey did have face validity, but a pilot study was not conducted to more scientifically determine the validity of survey statements. In case of further investigation it is suggested that final survey items be developed based on face validity and also be subjected to a pilot study. Lack of a pilot study may have contributed to no incidences of main or interaction effects in the ANOVAs conducted.

This investigation utilized a short survey; the Cronbach Alpha correlation coefficient and Spearman-Brown prophesy formula adjustment indicated that the instrument did have internal validity. If these results are utilized in future investigations, performance of a factor analysis on questions 10 through 35 could be done to determine if the survey subgroups should be modified. However, survey length and population size

both present practical problems in conducting a factor analysis (Tabachnick & Fidell, 2007). A longer, more involved survey may yield more legitimate results, but this decision would likely mean fewer responses to the survey creating other deficiencies.

The chi-square results revealed that the voluntary sample was such that it did not have an adequate representation of males with special education teacher training. In any future investigation this should be taken into consideration.

Survey statements 33, 34, and 35 were similar in context to statements 10-32. However, they were dichotomous and did not follow the Likert Scale model used in the first 23 survey statements. Due to this discrepancy in the survey construction these three statements were not incorporated into the three counselor knowledge subsets. Because they were part of the survey, three one-way ANOVAs were conducted using statements 33, 34, and 35 as independent variables and the three counselor knowledge subsets as dependent variables. These ANOVAs did yield a result that is a basis for future investigation into counselors' perceptions of CTE.

The results of these one-way ANOVAs denote that counselors who responded "yes" to familiarity with the High Schools That Work reform movement, to knowledge of CTE's articulation agreements with post-secondary institutions, or to college bound students being viable candidates for CTE did have a significantly higher mean on counselor knowledge subset 2, CTE reform and post-secondary opportunities, than those who responded "no" to these statements. It is then plausible that factors influencing counselors may be less likely demographic and more likely related to information about CTE and North and South Technical High Schools with which they are provided.

Findings and Conclusions

Three research questions were presented in the introductory chapter of this investigation. The first questioned whether region impacts a high school guidance counselor's perception of knowledge of CTE in St. Louis County, Missouri and the SSD. The results of the three-factor univariate ANOVAs completed in this investigation did not yield results (no significant main effect or interaction effect) that indicated there is significant difference in the means of the three subsets (CTE candidates, CTE Programs and Instruction, and CTE Program Development and Post-Secondary Opportunities) in regard to counselor region. Therefore, Null Hypothesis number one could not be rejected: There is no significant difference in perception of knowledge of CTE among public high school guidance counselors in the three regions in St. Louis County, Missouri.

The second questioned whether possession of training as a special education teacher impacts a high school guidance counselor's perception of knowledge of CTE in St. Louis County, Missouri. The results of the three-factor univariate ANOVAs completed in this investigation did not yield results (no significant main effect or interaction effect) that indicated there is a significant difference in the means of the three subsets (CTE Candidates, CTE Programs and Instruction, and CTE Program Development and Post-Secondary Opportunities) in regard to a counselor's possession of special education teacher training. Therefore, Null Hypothesis number two could not be rejected: There is no significant difference in perception of knowledge of CTE between high school guidance counselors in St. Louis County, Missouri who possess special education teacher training and those who do not.

The third questioned whether personal experience with CTE as a student or through CTE teacher training impacts a high school guidance counselor's perception of knowledge of CTE. The results of the three-factor univariate ANOVAs completed in this investigation did not yield results (no significant main effect or interaction effect) that indicated there is a significant difference in the means of the three subsets (CTE Candidates, CTE Programs and Instruction, and CTE Program Development and Post-Secondary Opportunities) in regard to personal connection with CTE. Therefore, Null Hypothesis number three could not be rejected: There is no significant difference in perception of knowledge of CTE between high school guidance counselors in St. Louis County, Missouri who have a personal connection with CTE as a student or through CTE teacher training and those who do not.

It was somewhat surprising that not one of the three factors was observed to have an impact on counselor's perceptions. However, this can be a commencement for further investigation to determine what does impact counselors' perceptions. It seems that surveys of this type are often more inviting to individuals who have a positive attitude toward the subject of the survey than those who are neutral, dismissive, or even negative toward the subject. The letter that accompanied the survey indicated that the results would be used to assist SSD in bettering its programs. Counselors who feel CTE does not and should not serve their student population may not have completed the survey.

Practical Implications

The important role that CTE plays in our educational system should be made more evident to educators, parents, boards of education and lawmakers. Many students who languish in high school maintaining between a 1.00 and a 2.50 grade point average,

regardless of the socio-economic status of the region surrounding the high school that they attend, can and must do better. The cooperation between comprehensive high schools and CTE centers can help to ensure that students reach their maximum potential and that they have a feasible plan for education and/or career after high school.

Just like a savvy politician, you can use your time in high school to set up a “campaign” that will help you achieve your future career goals. This campaign includes increasing your awareness of the work world, developing job-search skills, creating a career portfolio, and considering whether you want or need to go to college (Bolles and Christen, 2006, p. 55).

Because counselors are instrumental in the promotion of CTE, their perceptions regarding, their advocacy of, and their biases about students participating in non-college preparatory courses must be continually explored. This investigation indicated that region, special education teacher training, and a personal connection with CTE as a student or through CTE teacher training does not have a significant impact on how high school guidance counselors perceive their knowledge of CTE in St. Louis County, Missouri. Further investigation should attempt to determine what factors do significantly impact their perceptions of CTE and in turn their willingness to promote it.

For the purposes of this investigation the frequency of responses were not of ultimate importance; instead it was the determination of whether the three chosen factors impacted those responses. The frequency distributions (Appendix C) that were a result of this survey will be compiled and analyzed by a marketing and admissions task force that was initiated in the fall of 2007 to study the effectiveness of marketing strategies and admissions policies and procedures practiced by the CTE division of SSD. These

distributions and this investigation will be presented to the Superintendent and the Director of CTE of the SSD for their edification.

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Appendix A



Primary Investigator:

David P. Baker, Principal
South Technical High School
12721 West Watson
Sunset Hills, MO 63127
314-989-7490
dbaker@southtechhigh.org

Public High School Guidance Counselors of St. Louis County, Missouri:

I am conducting an investigation in conjunction with the University of Missouri-St. Louis and the Special School District of St. Louis County, Technical Education Division in order to fulfill the requirements for the degree of Doctor of Education. High school guidance counselors are essential to student success at both the secondary and post-secondary levels, and this questionnaire was developed to help us better understand your perception of Career and Technical Education's role in creating opportunities for students. Insight into your knowledge of North and/or South Technical High School(s) will assist us in development of a strategic plan to serve St. Louis County effectively. Please, respond to questions based upon your personal knowledge of either or both schools.

Confidentiality: All data received during the course of this investigation will be securely stored and no names will appear on questionnaires, therefore, there will be no connections made to questionnaire completers during the investigation and/or reporting of data.

Completion of this questionnaire is strictly voluntary and you may choose not answer any specific question(s). Completion of this questionnaire will be the extent of your participation in this investigation. Completing the questionnaire and submitting it to the investigator indicates your willingness to have your responses utilized in this investigation. If you choose not to complete the questionnaire, simply delete it from your e-mail inbox. Contact the primary investigator with questions.

Please, click on the link below to complete the 35 question online survey; the survey should take fewer than 7 minutes to complete. Thank you.

<http://www.expertscan.autodata.com/Default.aspx?webid=45822A87-13FC-4225-A60D-07F328F0D039>

Appendix B

Counselor Questionnaire

Demographics

1. In which region are you a St. Louis County, Missouri Public School District guidance counselor? *(See list below.)*

- South Central North West

South
Affton
Bayless
Hancock Place
Kirkwood
Lindbergh
Mehlville
Webster Groves

Central
Brentwood
Clayton
Maplewood
Ladue
University City
Wellston

North
Ferg-Flor
Hazelwood
Jennings
Normandy
Pattouville
Ritenour
Riverview Gardens

West
Parkway
Rockwood
Valley Park

2. How long have you been a counselor in this region?

- 1-5 years 6-10 years 11-15 years Over 15 years

3. How long have you been a counselor in St. Louis County, Missouri?

- 1-5 years 6-10 years 11-15 years Over 15 years

4. What is your age?

- Under 25 years 25-35 years 36-45 years 46-56 years Over 56 years

5. What is your gender?

- Male Female

6. Have you had training as a special education teacher?

- Yes No

7. Have you had training as a career and technical education teacher?

- Yes No

8. Were you ever a student in a career and technical education program?

- Yes No

9. How many times have you visited North / South Technical High School in the past five years?

- 0-1 times 2-5 times more than 5 times

Please rate your agreement with the following items based on your knowledge of North or South Technical High School.

Response Definition: SD=Strongly Disagree D=Disagree N=No Opinion A=Agree SA=Strongly Agree					
	SD	D	N	A	SA
10. Career and technical education's purpose is to prepare non-college bound students for work after high school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. North / South Technical High School offers challenging programs that are appropriate for the students at my high school who currently participate in college preparatory courses.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. The Carl D. Perkins Career and Technical Education Improvement Act has been successful in supporting improvements to the facilities which house North / South Technical High School.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. North / South Technical High School works closely with my high school to ensure that their programs are a positive complement to our academic program(s).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. North / South Technical High School offers effective programs for students who receive special education services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Counselor Questionnaire

Response Definition: SD=Strongly Disagree D=Disagree N=No Opinion A=Agree SA=Strongly Agree	SD	D	N	A	SA
15. Because North / South Technical High School is part of Special School District its student body population has a high percentage of students with disabilities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Students at my high school who participate in Advanced Placement or other honors courses cannot attend North / South Technical High School due to scheduling conflicts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. The fourth reauthorization of the Carl D. Perkins Career and Technical Education Improvement Act emphasizes integration of academics with career and technical education. This emphasis will benefit the students who attend North / South Technical High School when they take end-of-course assessments at my high school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. North / South Technical High School offer different scheduling choices for students. This is appropriate due to the different needs of the home high schools that each technical high school serves.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. North / South Technical High School provides most students an internship opportunity in their senior year. This is a valuable experience regardless of a student's post-secondary plans.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. North / South Technical High School works with the St. Louis Community College and other post-secondary institutions to provide college credit through their high school programs. This opportunity is attractive to potential students and their parents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. North / South Technical High School is conveniently located near the home high schools it serves and students are able to attend without significant academic time loss.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. North / South Technical High School has a high quality faculty that consistently delivers high quality instruction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Career and technical education is valuable as it provides students with the opportunity to experience a technical field without financial commitment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. I am confident that the programs offered at North / South Technical High School have been researched to ensure that they have pathways to effective post-secondary programs and to career opportunities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. The counseling department at North / South Technical High School is an extension of my high school's counseling department and they effectively assist shared students with post-secondary and career planning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. North / South Technical High School should promote programs to 8th graders so that students will have an understanding and appreciation of their offerings prior to completing four-year high school plans.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. Counselors from sending schools should be participants in determining what programs should be implemented and what programs should be deleted from North / South Technical High School.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. Parents at my high school are not open to the idea of their students attending North / South Technical High School because this means forfeiture of academic and/or extra-curricular opportunities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. Parents at my high school are not open to the idea of their students attending North / South Technical High School due to negative perceptions of career and technical education.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. Because North / South Technical High School is part of Special School District parents, students, and teachers have the impression that the programs offered there are designed to assist students who have a disability.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31. Programs such as Project Lead The Way - Engineering and the new Project Lead the Way - Biomedical are academically rigorous technical programs and a strong alternative to similar programs at North / South Technical High School.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Counselor Questionnaire

Response Definition: SD=Strongly Disagree D=Disagree N=No Opinion A=Agree SA=Strongly Agree

- SD D N A SA
32. There are more students from my high school who are appropriate for career and technical education who should be attending North / South Technical High School.
33. I am aware that North / South Technical High School belongs to the High Schools That Work school improvement movement, which is intended to have a direct improvement on quality of instruction in that school.
 Yes No
34. I am familiar with the articulation agreements that North / South Technical High School has with the St. Louis Community College and other post-secondary institutions throughout Missouri and the Mid-West.
 Yes No
35. I have or would recommend North or South Tech to a college-prep student interested in a CTE program if attending did not or would not interfere with his or her ability to meet all college entrance requirements.
 Yes No
36. If you have any comments/suggestions regarding North / South Tech career and technical education, please write them in the box below. *(Click in the box and type your response.)*

Appendix C

ANCOVAs with each subset

Age/Gender

Age

Gender

ANCOVA – Subset 1 – Age and Gender as co-variates

<i>Region</i>	<i>CTE Connection</i>	<i>SPED</i>					
		Yes			No		
		<u>N</u>	<u>Mean</u>	<u>Sd</u>	<u>N</u>	<u>Mean</u>	<u>Sd</u>
North	Yes	2	2.50	1.17	3	3.40	.35
	No	4	3.25	.69	8	3.20	.49
South	Yes	1	3.17	-	3	2.78	.10
	No	3	2.72	.35	10	3.27	.36
West	Yes	-	-	-	3	3.44	.19
	No	4	3.71	1.12	17	3.52	.70

Data Analysis – ANCOVA – Subset 1 – Age and gender as co-variates

Tests of Between-Subjects Effects					
Dependent Variable: NewSubCandidates					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5.175 ^a	12	.431	1.118	.370
Intercept	16.139	1	16.139	41.824	.000
Age	.323	1	.323	.837	.365
Gender	.007	1	.007	.018	.893
Region	1.299	2	.650	1.684	.197
SpedTeach	.128	1	.128	.331	.568
combcte	.094	1	.094	.244	.624
Region * SpedTeach	.205	2	.102	.265	.768
Region * combcte	.607	2	.303	.786	.462
SpedTeach * combcte	.006	1	.006	.016	.900
Region * SpedTeach * combcte	1.279	1	1.279	3.315	.075
Error	17.365	45	.386		
Total	650.381	58			
<u>Corrected Total</u>	22.539	57			

a. R Squared = .230 (Adjusted R Squared = .024)

ANCOVA – Subset 1 – Age as co-variate

<i>Region</i>	<i>CTE Connection</i>	<i>SPED</i>					
		Yes			No		
		<u>N</u>	<u>Mean</u>	<u>Sd</u>	<u>N</u>	<u>Mean</u>	<u>Sd</u>
North	Yes	2	2.50	1.18	3	3.39	.35
	No	4	3.25	.69	8	3.17	.49
South	Yes	1	3.17	-	3	2.78	.10
	No	3	2.72	.35	10	3.27	.36
West	Yes	-	-	-	3	3.44	.19
	No	4	3.71	1.12	17	3.52	.69

Data Analysis – ANCOVA – Subset 1 – Age as co-variate

Tests of Between-Subjects Effects					
Dependent Variable: NewSubCandidates					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5.168 ^a	11	.470	1.244	.287
Intercept	27.335	1	27.335	72.383	.000
Age	.325	1	.325	.860	.358
Region	1.312	2	.656	1.737	.187
SpedTeach	.155	1	.155	.411	.525
combcte	.094	1	.094	.250	.620
Region * SpedTeach	.198	2	.099	.262	.771
Region * combcte	.614	2	.307	.812	.450
SpedTeach * combcte	.004	1	.004	.012	.914
Region * SpedTeach * combcte	1.286	1	1.286	3.406	.071
Error	17.372	46	.378		
Total	650.381	58			
<u>Corrected Total</u>	22.539	57			

a. R Squared = .229 (Adjusted R Squared = .045)

ANCOVA – Subset 1 – Gender as co-variate

<i>Region</i>	<i>CTE Connection</i>	<i>SPED</i>					
		Yes			No		
		<u>N</u>	<u>Mean</u>	<u>Sd</u>	<u>N</u>	<u>Mean</u>	<u>Sd</u>
North	Yes	2	2.50	1.18	3	3.39	.35
	No	4	3.25	.69	9	3.20	.47
South	Yes	1	3.17	-	3	2.78	.10
	No	3	2.72	-	10	3.27	.36
West	Yes	-	-	-	3	3.44	.19
	No	4	3.71	1.12	17	3.52	.69

Data Analysis – ANCOVA – Subset 1 – Gender as co-variate

Tests of Between-Subjects Effects					
Dependent Variable: NewSubCandidates					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4.799 ^a	11	.436	1.153	.345
Intercept	23.769	1	23.769	62.816	.000
Gender	.011	1	.011	.030	.863
Region	1.665	2	.832	2.200	.122
SpedTeach	.126	1	.126	.334	.566
combcte	.125	1	.125	.330	.569
Region * SpedTeach	.099	2	.050	.131	.877
Region * combcte	.493	2	.246	.651	.526
SpedTeach * combcte	.000	1	.000	.000	.985
Region * SpedTeach * combcte	1.188	1	1.188	3.139	.083
Error	17.784	47	.378		
Total	662.631	59			
<u>Corrected Total</u>	22.583	58			

a. R Squared = .212 (Adjusted R Squared = .028)

ANCOVA – Subset 2 – Age and Gender as co-variates

<i>Region</i>	<i>CTE Connection</i>	<i>SPED</i>					
		Yes			No		
		<u>N</u>	<u>Mean</u>	<u>Sd</u>	<u>N</u>	<u>Mean</u>	<u>Sd</u>
North	Yes	2	4.0	.00	3	3.57	.80
	No	4	4.21	.36	8	3.98	.34
South	Yes	1	4.00	-	3	3.81	.73
	No	3	4.33	.58	10	4.01	.34
West	Yes	-	-	-	3	3.90	.08
	No	4	3.86	.71	17	3.87	.51

Data Analysis – ANCOVA – Subset 2 – Age and gender as co-variates

Tests of Between-Subjects Effects					
Dependent Variable: NewSubProgInst					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.895 ^a	12	.158	.682	.759
Intercept	24.631	1	24.631	106.439	.000
Age	.441	1	.441	1.905	.174
Gender	.002	1	.002	.008	.928
Region	.351	2	.175	.758	.475
SpedTeach	.333	1	.333	1.441	.236
combcte	.349	1	.349	1.510	.226
Region * SpedTeach	.372	2	.186	.803	.454
Region * combcte	.126	2	.063	.272	.763
SpedTeach * combcte	.025	1	.025	.108	.744
Region * SpedTeach * combcte	.021	1	.021	.090	.766
Error	10.413	45	.231		
Total	917.592	58			
<u>Corrected Total</u>	12.308	57			

a. R Squared = .154 (Adjusted R Squared = -.072)

ANCOVA – Subset 2 – Age as co-variate

<i>Region</i>	<i>CTE Connection</i>	<i>SPED</i>					
		Yes			No		
		<u>N</u>	<u>Mean</u>	<u>Sd</u>	<u>N</u>	<u>Mean</u>	<u>Sd</u>
North	Yes	2	4.00	.00	3	3.57	.80
	No	4	4.21	.36	8	3.98	.37
South	Yes	1	4.00	-	3	3.81	.73
	No	3	4.33	.58	10	4.03	.34
West	Yes	-	-	-	3	3.90	.08
	No	4	3.86	.71	17	3.87	.51

Data Analysis – ANCOVA – Subset 2 – Age as co-variate

Tests of Between-Subjects Effects					
Dependent Variable: NewSubProglInst					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.893 ^a	11	.172	.760	.676
Intercept	42.391	1	42.391	187.223	.000
Age	.467	1	.467	2.063	.158
Region	.350	2	.175	.773	.468
SpedTeach	.373	1	.373	1.649	.206
combcte	.349	1	.349	1.542	.221
Region * SpedTeach	.377	2	.189	.833	.441
Region * combcte	.139	2	.070	.308	.737
SpedTeach * combcte	.024	1	.024	.104	.749
Region * SpedTeach * combcte	.020	1	.020	.090	.766
Error	10.415	46	.226		
Total	917.592	58			
<u>Corrected Total</u>	12.308	57			

a. R Squared = .154 (Adjusted R Squared = -.049)

ANCOVA – Subset 2 – Gender as co-variate

<i>Region</i>	<i>CTE Connection</i>	<i>SPED</i>					
		Yes			No		
		<u>N</u>	<u>Mean</u>	<u>Sd</u>	<u>N</u>	<u>Mean</u>	<u>Sd</u>
North	Yes	2	4.00	.00	3	3.57	.80
	No	4	4.21	.36	9	3.87	.45
South	Yes	1	4.00	-	3	3.81	.73
	No	3	4.33	.58	10	4.03	.34
West	Yes	-	-	-	3	3.90	.08
	No	4	3.86	.71	17	3.87	.51

Data Analysis – ANCOVA – Subset 2 – Gender as co-variate

Tests of Between-Subjects Effects					
Dependent Variable: NewSubProglnt					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.474 ^a	11	.134	.537	.868
Intercept	36.351	1	36.351	145.743	.000
Gender	.017	1	.017	.069	.793
Region	.147	2	.074	.295	.746
SpedTeach	.258	1	.258	1.033	.315
combcte	.354	1	.354	1.418	.240
Region * SpedTeach	.124	2	.062	.249	.781
Region * combcte	.275	2	.137	.551	.580
SpedTeach * combcte	.001	1	.001	.003	.954
Region * SpedTeach * combcte	.012	1	.012	.049	.826
Error	11.723	47	.249		
Total	926.592	59			
<u>Corrected Total</u>	13.197	58			

a. R Squared = .112 (Adjusted R Squared = -.096)

ANCOVA – Subset 3 – Age and Gender as co-variates

<i>Region</i>	<i>CTE Connection</i>	<i>SPED</i>					
		Yes			No		
		<u>N</u>	<u>Mean</u>	<u>Sd</u>	<u>N</u>	<u>Mean</u>	<u>Sd</u>
North	Yes	2	3.79	.51	3	4.00	.17
	No	4	4.18	.60	8	4.10	.50
South	Yes	1	4.00	-	3	3.86	.86
	No	3	4.14	.25	10	4.09	.40
West	Yes	-	-	-	3	4.14	.38
	No	4	3.93	.49	17	3.93	.41

Data Analysis – ANCOVA – Subset 3 – Age and gender as co-variates

Tests of Between-Subjects Effects					
Dependent					
Variable: NewSubPostandDev					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.219 ^a	12	.102	.494	.908
Intercept	22.665	1	22.665	110.190	.000
Age	.211	1	.211	1.027	.316
Gender	.188	1	.188	.915	.344
Region	.065	2	.032	.157	.855
SpedTeach	.237	1	.237	1.155	.288
combcte	.005	1	.005	.023	.879
Region * SpedTeach	.318	2	.159	.773	.468
Region * combcte	.090	2	.045	.219	.805
SpedTeach * combcte	.004	1	.004	.019	.892
Region * SpedTeach * combcte	.058	1	.058	.284	.597
Error	9.256	45	.206		
Total	944.580	58			
<u>Corrected Total</u>	10.475	57			

a. R Squared = .116 (Adjusted R Squared = -.119)

ANCOVA – Subset 3 – Age as co-variate

<i>Region</i>	<i>CTE Connection</i>	<i>SPED</i>					
		Yes			No		
		<u>N</u>	<u>Mean</u>	<u>Sd</u>	<u>N</u>	<u>Mean</u>	<u>Sd</u>
North	Yes	2	3.80	.51	3	4.00	.16
	No	4	4.18	.60	8	4.10	.50
South	Yes	1	4.00	-	3	3.86	.86
	No	3	4.14	.25	10	4.10	.40
West	Yes	-	-	-	3	4.14	.38
	No	4	3.93	.49	17	3.93	.41

Data Analysis – ANCOVA – Subset 3 – Age as co-variate

Tests of Between-Subjects Effects					
Dependent					
Variable: NewSubPostandDev					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.031 ^a	11	.094	.456	.920
Intercept	44.293	1	44.293	215.731	.000
Age	.388	1	.388	1.888	.176
Region	.099	2	.050	.242	.786
SpedTeach	.149	1	.149	.726	.399
combcte	.005	1	.005	.025	.876
Region * SpedTeach	.448	2	.224	1.091	.345
Region * combcte	.089	2	.045	.217	.806
SpedTeach * combcte	8.169E-6	1	8.169E-6	.000	.995
Region * SpedTeach * combcte	.052	1	.052	.254	.617
Error	9.444	46	.205		
Total	944.580	58			
Corrected Total	10.475	57			

a. R Squared = .098 (Adjusted R Squared = -.117)

ANCOVA – Subset 3 – Gender as co-variate

<i>Region</i>	<i>CTE Connection</i>	<i>SPED</i>					
		Yes			No		
		<u>N</u>	<u>Mean</u>	<u>Sd</u>	<u>N</u>	<u>Mean</u>	<u>Sd</u>
North	Yes	2	3.79	.51	3	3.95	.17
	No	4	4.18	.60	9	4.05	.49
South	Yes	1	4.00	-	3	3.86	.86
	No	3	4.14	.25	10	4.10	.40
West	Yes	-	-	-	3	4.14	.38
	No	4	3.93	.49	17	3.93	.41

Data Analysis – ANCOVA – Subset 3 – Gender as co-variate

Tests of Between-Subjects Effects					
Dependent					
Variable:NewSubPostandDev					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.949 ^a	11	.086	.422	.939
Intercept	32.226	1	32.226	157.545	.000
Gender	.347	1	.347	1.698	.199
Region	.008	2	.004	.019	.981
SpedTeach	.205	1	.205	1.003	.322
combcte	.004	1	.004	.017	.896
Region * SpedTeach	.164	2	.082	.400	.672
Region * combcte	.079	2	.039	.192	.826
SpedTeach * combcte	.032	1	.032	.155	.695
Region * SpedTeach * combcte	.062	1	.062	.302	.586
Error	9.614	47	.205		
Total	958.376	59			
Corrected Total	10.563	58			

a. R Squared = .090 (Adjusted R Squared = -.123)

Appendix D

Frequency Tables

		<i>Region</i>			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	South	18	29.5	29.5	29.5
	North	18	29.5	29.5	59.0
	West	25	41.0	41.0	100.0
	Total	61	100.0	100.0	

		<i>CounselTime</i>			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 yr	23	37.7	37.7	37.7
	6-10 yr	19	31.1	31.1	68.9
	11-15 yr	5	8.2	8.2	77.0
	over 15 yr	14	23.0	23.0	100.0
	Total	61	100.0	100.0	

		<i>CounTmSTL</i>			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 yr	21	34.4	34.4	34.4
	6-10 yr	18	29.5	29.5	63.9
	11-15 yr	8	13.1	13.1	77.0
	over 15 yr	14	23.0	23.0	100.0
	Total	61	100.0	100.0	

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	25-35 yr	15	24.6	25.0	25.0
	36-45 yr	13	21.3	21.7	46.7
	46-56 yr	21	34.4	35.0	81.7
	over 56 yr	11	18.0	18.3	100.0
	Total	60	98.4	100.0	
Missing	System	1	1.6		
Total		61	100.0		

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	15	24.6	24.6	24.6
	female	46	75.4	75.4	100.0
	Total	61	100.0	100.0	

SPED					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	12	19.7	20.0	20.0
	No	48	78.7	80.0	100.0
	Total	60	98.4	100.0	
Missing	System	1	1.6		
Total		61	100.0		

CTE Connection

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	14	23.0	23.3	23.3
	no	46	75.4	76.7	100.0
	Total	60	98.4	100.0	
Missing	System	1	1.6		
Total		61	100.0		

Visits

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-1 time	16	26.2	26.2	26.2
	2-5 times	35	57.4	57.4	83.6
	more than 5 times	10	16.4	16.4	100.0
	Total	61	100.0	100.0	

Item 10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	8.2	8.2	8.2
	2	21	34.4	34.4	42.6
	3	1	1.6	1.6	44.3
	4	23	37.7	37.7	82.0
	5	11	18.0	18.0	100.0
Total		61	100.0	100.0	

Item 11					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.6	1.6	1.6
	2	5	8.2	8.2	9.8
	3	7	11.5	11.5	21.3
	4	31	50.8	50.8	72.1
	5	17	27.9	27.9	100.0
	Total	61	100.0	100.0	

Item 12					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	35	57.4	57.4	57.4
	4	21	34.4	34.4	91.8
	5	5	8.2	8.2	100.0
	Total	61	100.0	100.0	

Item 13					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	3	4.9	4.9	4.9
	3	5	8.2	8.2	13.1
	4	29	47.5	47.5	60.7
	5	24	39.3	39.3	100.0
	Total	61	100.0	100.0	

Item 14

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.6	1.6	1.6
	2	5	8.2	8.2	9.8
	3	5	8.2	8.2	18.0
	4	40	65.6	65.6	83.6
	5	10	16.4	16.4	100.0
	Total	61	100.0	100.0	

Item 15

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	13.1	13.1	13.1
	2	27	44.3	44.3	57.4
	3	23	37.7	37.7	95.1
	4	3	4.9	4.9	100.0
	Total	61	100.0	100.0	

Item 16

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	8.2	8.2	8.2
	2	21	34.4	34.4	42.6
	3	4	6.6	6.6	49.2
	4	24	39.3	39.3	88.5
	5	7	11.5	11.5	100.0
	Total	61	100.0	100.0	

Item 17

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	4	6.6	6.6	6.6
	3	26	42.6	42.6	49.2
	4	24	39.3	39.3	88.5
	5	7	11.5	11.5	100.0
	Total	61	100.0	100.0	

Item 18

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	4	6.6	6.7	6.7
	3	8	13.1	13.3	20.0
	4	38	62.3	63.3	83.3
	5	10	16.4	16.7	100.0
	Total	60	98.4	100.0	
Missing	System	1	1.6		
	Total	61	100.0		

Item 19

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	10	16.4	16.9	16.9
	4	29	47.5	49.2	66.1
	5	20	32.8	33.9	100.0
	Total	59	96.7	100.0	
Missing	System	2	3.3		
	Total	61	100.0		

Item 20					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.6	1.6	1.6
	3	7	11.5	11.5	13.1
	4	32	52.5	52.5	65.6
	5	21	34.4	34.4	100.0
	Total	61	100.0	100.0	

Item 21					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.6	1.6	1.6
	1	1	1.6	1.6	3.3
	2	13	21.3	21.3	24.6
	3	2	3.3	3.3	27.9
	4	30	49.2	49.2	77.0
	5	14	23.0	23.0	100.0
	Total	61	100.0	100.0	

Item 22					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.6	1.6	1.6
	3	14	23.0	23.0	24.6
	4	36	59.0	59.0	83.6
	5	10	16.4	16.4	100.0
	Total	61	100.0	100.0	

Item 23					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	22	36.1	36.1	36.1
	5	39	63.9	63.9	100.0
	Total	61	100.0	100.0	

Item 24					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	4	6.6	6.6	6.6
	4	34	55.7	55.7	62.3
	5	23	37.7	37.7	100.0
	Total	61	100.0	100.0	

Item 25					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.6	1.6	1.6
	2	4	6.6	6.6	8.2
	3	11	18.0	18.0	26.2
	4	34	55.7	55.7	82.0
	5	11	18.0	18.0	100.0
	Total	61	100.0	100.0	

Item 26

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.6	1.6	1.6
	2	5	8.2	8.2	9.8
	3	5	8.2	8.2	18.0
	4	28	45.9	45.9	63.9
	5	22	36.1	36.1	100.0
	Total	61	100.0	100.0	

Item 27

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	6	9.8	10.0	10.0
	3	20	32.8	33.3	43.3
	4	26	42.6	43.3	86.7
	5	8	13.1	13.3	100.0
	Total	60	98.4	100.0	
Missing	System	1	1.6		
Total		61	100.0		

Item 28

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	3	4.9	4.9	4.9
	2	29	47.5	47.5	52.5
	3	8	13.1	13.1	65.6
	4	14	23.0	23.0	88.5
	5	7	11.5	11.5	100.0
	Total	61	100.0	100.0	

Item 29

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	4	6.6	6.6	6.6
	2	20	32.8	32.8	39.3
	3	8	13.1	13.1	52.5
	4	19	31.1	31.1	83.6
	5	10	16.4	16.4	100.0
	Total	61	100.0	100.0	

Item 30

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	13.1	13.1	13.1
	2	23	37.7	37.7	50.8
	3	14	23.0	23.0	73.8
	4	13	21.3	21.3	95.1
	5	3	4.9	4.9	100.0
	Total	61	100.0	100.0	

Item 31

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	8	13.1	13.3	13.3
	3	12	19.7	20.0	33.3
	4	32	52.5	53.3	86.7
	5	8	13.1	13.3	100.0
	Total	60	98.4	100.0	
Missing	System	1	1.6		
Total		61	100.0		

Item 32					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.6	1.6	1.6
	2	1	1.6	1.6	3.3
	3	2	3.3	3.3	6.6
	4	45	73.8	73.8	80.3
	5	12	19.7	19.7	100.0
	Total	61	100.0	100.0	

Item 33					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	26	42.6	42.6	42.6
	No	35	57.4	57.4	100.0
	Total	61	100.0	100.0	

Item 34					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	44	72.1	72.1	72.1
	No	17	27.9	27.9	100.0
	Total	61	100.0	100.0	

Item 35					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	58	95.1	95.1	95.1
	No	3	4.9	4.9	100.0
	Total	61	100.0	100.0	

Appendix E

Due to extended travel time and the increased number of credits required to graduate, many of our kids cannot participate in the tech school programs because they lose one credit each year. The program offerings are an invaluable resource that I wish more kids could access.

I am very concerned with the ability of my students to attend the tech schools because it is near impossible to earn 24 credits in four years and participate in the tech programs. I have 5 students interested in attending their sophomore year but have advised them to wait until their junior year because of this reason. This credit situation must be rectified or there will be no students attending from Clayton High School. I support and believe the programs and benefits of attending the tech schools is amazing and regret the fact that so few of my students will be able to attend.

I think the tech school counselor assigned to our school should have regular hours at each home school -- say, for 1.5 hours every three weeks -- to answer questions for current or prospective students, parents, teachers, etc..

I am a long advocate of voc. education and former com. college adm. in the area of voc. ed. I want more for N and S County Tech but their "old" politics get in the way of success. In addition, everyone wants to attract the best and the brightest these days. There is a large population of underachieving kids that need to be served and a program tied to sending high schools would serve us all well. N. and S Co Tech need to understand that the new state wide graduation req. limit their time with students. Sophomore year is no longer viable and some 1 year programs would be very desirable. The perception from my students is that the vocational aspect of tech is exemplary, but the academic focus is somewhat deficient.

One of the questions said that tech is an alternative for non-college bound students. I do agree, but there was no where to indicate that I also believe it is an alternative for college bound students as well.

Our entire educational system needs to put much more emphasis and funding into technical and career ed. programs rather than the "one-size-fits-all" approach we currently fail at. I am a very strong supporter of career and technical education. The tech schools have undergone a major positive shift in focus and quality over the past 25 years. Keep up the good work!

Transportation is always an issue--as well as different spring break and final exam days. First, I am a fan; I worked at West Tech when with SSD. There are several problems: you can not and do not accept anywhere near the # of students who both qualify and would benefit from your programs. What is the point of promoting them when you turn so many students down; kids attending tech part time are indeed limited in the elective

and advanced courses they can take here due to time/schedule limitations. For example, they can not fit foreign language into their day; for you to pretend otherwise is disingenuous. Finally, you are not appropriate for kids in honors and AP classes - if you begin targeting them to make your own numbers and data look great, you do a grave disservice to the kids who truly need your program for career preparation. While I understand that students can attend college coming through your program, you need to be either a technical preparation high school or a college prep program. The need for the first is great; we already provide the latter. Focus on what you really do and do it well.

Appendix F

Program Participants
Technical High Schools
2006-07

Program Name	North	South	Total
Auto Collision Repair	26	32	58
Automotive Technology	64	71	135
Bricklaying and Masonry	0	20	20
Broadcast Captioning	7	12	19
Carpentry	30	31	61
Commercial Art	30	21	51
Computer Information Systems	29	8	37
Cosmetology	73	71	144
Culinary Arts	47	0	47
Dental Assistant	0	28	28
Diesel Technology	14	0	14
Domestic Preparedness & Security	4	8	12
Early Childhood Careers	47	34	81
Electrical Trades	34	27	61
Electronics and Robotics	7	15	22
Emergency Medical Technician	12	13	25
Engineering Drawing and CAD	27	15	42
Fashion Design (2007-08)	0	0	0
Financial Services	24	0	24
Firefighting	13	18	31
Floor Layers Middle Apprenticeship	0	10	10
General Construction Trades	33	35	68
Health Services	123	77	200
Heating, Ventilation, Air Conditioning	30	22	52
Horticulture	0	11	11
Interior Design (2007-08)	0	0	0
Laboratory Technologies	0	16	16
Law Enforcement	18	13	31
Machining Technology	13	18	31
Motorcycle/Outdoor Power Equipment	14	0	14
Network Administration	25	15	40
Plumbing	21	0	21
Printing Technology	21	13	34
Technical Education Exploration	291	179	470
Travel and Tourism	23	5	28
Veterinary Assistant	27	31	58
Welding	15	20	35
Totals	1142	889	2031