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**HIGH SCHOOL SENIORS' PERCEPTIONS OF CAREER AND TECHNICAL
EDUCATION AND FACTORS INFLUENCING THEIR DECISION TO
ATTEND AN AREA CAREER TECHNICAL CENTER**

by

David P. Gaunt

**A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Philosophy
Department of Teaching, Learning, and Leadership
Carl Woloszyk, Adviser**

**Western Michigan University
Kalamazoo, Michigan
June 2005**

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David P. Gaunt

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CHAPTER I

INTRODUCTION

Education has long taken a prominent role in workforce preparation. Chairman of the Federal Reserve, Alan Greenspan, speaking during the 2000 National Skills Summit, emphasized that “the history of education in the United States traces a path heavily influenced by the need for a workforce with the skills required to interact productively with the evolving economic structure” (Greenspan, 2000, p. 419).

The educational community has attempted to address the need for a skilled workforce through the infusion of vocational education into the secondary curriculum. Vocational education, now commonly known as Career and Technical Education (CTE), provides students with the academic and technical knowledge and skills needed to prepare for immediate entry into careers in current or emerging employment sectors, or for the continuation of their technical education at the postsecondary level. For nearly a century, CTE has been a federally funded fixture within secondary education in the United States (Hayward & Benson, 1993).

Yet according to Gray (2004), the viability of CTE programs “is once again being questioned” (p. 1). He contends that the current Bush Administration holds CTE in low regard, and without secondary CTE programs, the high school dropout rate will probably increase, work-bound students will graduate prepared only for low skill and low wage dead-end jobs, and tech prep programs specifically designed to

prepare secondary students for college-level technical training will be nonexistent. This situation is particularly disconcerting because, as Feller (1996) pointed out 8 years earlier, “there is no more room for the low-skilled, high-wage jobs of the past in a fast-paced, competitive, technological environment” (p. 24).

Buried within Gray’s (2004) comment is a most notable message, that the viability of CTE is *once again* being questioned. CTE history is replete with challenges to its importance in the curricular scheme afforded secondary students ever since its inception in the early 1900s. “Prior to 1890, the American high school was not widely attended and had only one ‘classical’ curriculum that was designed for the children of the elite” (Gray, 2002, p. 3). In the early 1900s, however, children of the working class began to attend high school in increasing numbers. These children, of lower socioeconomic status, were destined for work, not college, and the classical curriculum was deemed inappropriate for them. Thus began the differentiation of curriculum into two distinct categories: an academic program of study, and a vocational program of study. Not everyone agreed with such differentiation, and that debate still rages today.

As Gray (2004) indicates, CTE educators should be concerned about the very existence of career and technical education. Faced with the challenges of the federal *No Child Left Behind* mandates, and the emphasis upon academics and the value of a college education, CTE finds itself in a battle for federal funding, and for its very reputation. Understanding the struggles of CTE from a historical perspective can be

beneficial, and learning from that struggle can help to promote its existence in the future.

Without question, a primary concern of CTE educators is student enrollment. Unlike mathematics, English, and science, CTE programs are electives within the high school curriculum. If students choose not to *elect* CTE programs, then enrollment declines, and if that erosion continues, those affected programs are ultimately discontinued. Understanding historical CTE enrollment dynamics, and gaining a clearer picture of the recent trends in enrollment, can help to enlighten CTE educators on the task at hand with regard to promoting a strong CTE student population. Furthermore, understanding the factors that influence students as they are faced with curricular decisions in high school is paramount. Who are the people that most influence students as they consider their curricular alternatives? Are there other factors that influence students' decision-making regarding CTE? What are students' overall perceptions of CTE and who do they believe is best served by a career and technical education? Does CTE appeal to all students, or do its historical roots continue to be apparent by mostly addressing the needs of those from a lower socioeconomic background? Is there a common CTE student with regard to his or her academic standing?

In order to ensure that CTE will remain an option on the secondary curricular landscape, CTE educators must stay focused upon maintaining the level of enrollment in CTE that currently exists, and continue to seek ways to enhance enrollment. Federal and state initiatives, image and perception, and a host of other issues are

likely contributors to the overall enrollment picture in CTE. Past researchers have examined some of these issues (Beukes, 1986; Campbell, 1986; Dube, 1987; Gehrt, 1990; Herr, 1987; Huss & Banks, 2001; Jackson, 2002; Jacobs, 1975; Lam, 1982; Lejeune, 1977; O'Neill, 1985; Reynolds, 1976; Rossetti, 1989a, 1989b, 1989c, 1991; Scanlon, 1984), including: perceived program quality; the influence of teachers, counselors, friends and relatives; and a perception that one must choose between going to college or acquiring a technical skill.

Additionally, some issues may be specific to the type of CTE delivery available, whether in a comprehensive high school setting, a career technical high school, or an area career technical center. In *comprehensive high schools*, all courses are offered in a single location. The breadth of curriculum includes all coursework, from language arts, mathematics, and science, to social studies, physical education, and the arts. Career and technical education programs are a part of the overall curricular options. In *career technical high schools*, all courses are also offered in a single location, but the curriculum is narrower in concentration. All coursework is focused on career and technical education programs and accompanied by core academic components. *Area career technical centers* offer technical programs at a location separate from the high school. Core academic components, as well as physical education and the arts, are available and taken in a "home" high school. Most commonly, students spend half of their day at their home high school, and the other half of the day at an area center.

At area career technical centers in particular, where CTE programs are housed in a regional facility requiring travel from the student's home school to the center, a host of additional factors may impact enrollment. These factors include travel distance, separation from some classmates and the comforts of the home school, previous exposure to the center through facility tours and program visits, area center websites, and brochures and additional promotional materials.

Statement of the Problem

As an elective choice in the high school curriculum, CTE personnel must continually address enrollment concerns. One such concern is the *perception of CTE programs* by students and other stakeholders. Cohen and Besharov (2002) report that in many instances, CTE has had an image problem, due in part to the perception that it provides poor quality education for the worst students, and that perception directly impacts enrollment. Many others have reflected that same theme in sharing concerns about enrollment dynamics in CTE (Daggett, 2003; Lewis, 2001; Lovejoy, 1998; McLelland, 1993; O'Neill, 1985; Ries, 1997; Rossetti, 1989a; Tuttle, 1987). Over the past two decades, various initiatives have been put into practice to improve that perception. Those initiatives have included changing the name from *vocational education* to *CTE*, media blitzes conveying the importance of CTE to our nation's future, and an emphasis in marketing materials and activities upon the academic rigor implicit in CTE coursework and its potential for a smooth transition into

postsecondary education. The results of those many efforts to improve the perception of CTE need further exploration to determine their effectiveness.

Additionally, limited information exists regarding the type of student to which CTE generally appeals. Gaining a better understanding of the typical CTE student profile, with regard to his or her academic standing and socioeconomic status, can assist CTE educators in targeting specific groups of potential students, or in developing strategies to expand the scope of influence of CTE into other student populations.

For example, the National Center for Education Statistics (NCES), between 1982–1994, found that students with lower GPAs generally completed more vocational credits. More recently, Levesque and Hudson (2003) supported that finding in reporting that students from the highest academic achievement groups were less likely to be in a CTE concentration. Others, however, have reported that a broad mixture of academic performers is found in CTE (Bowden, 1998; Kerka, 2000; Langland, 1999; Ries, 2000; Vo, 1997).

With regard to socioeconomic issues, limited research has indicated that those from lower economic categories are found in CTE (Campbell, 1986; Levesque & Hudson, 2003). The living arrangements of students have been studied more extensively for all students (National Center for Education Statistics, 2002), but no specific studies on CTE students were found. Thus, it is not clear whether students in CTE reflect the general population of students with regard to their living

arrangements (living with both parents, in single parent households, with other adults, etc.) or whether they are found in greater concentrations in certain categories.

The influence of people upon student decision-making with regard to CTE has received some attention from researchers in the past, but studies comparing and contrasting various people's influence on student decision-making have been largely absent for nearly 15 years. Rossetti's (1991) study was one of the most comprehensive to look at the variety of people who tend to influence students in their decisions about CTE. Other more antiquated studies focused on specific groups of people, such as teachers, CTE staff, and friends (Beukes, 1986; Dube, 1987; Gehrt, 1990; Herr, 1987; Lejeune, 1977; Reynolds, 1976). More recent studies have focused on the influence of specific groups of people as well, such as parents (Gilbertson, 1995; Jackson, 2002), and school counselors (Huss & Banks, 2001). With changing student demographics and cultural shifts, the understanding of how student decision-making is influenced by family members, friends, and educators in today's society is an important issue. Since a contemporary study similar to the comprehensive investigation provided by Rossetti (1991) was not to be found, this study attempts to fill that void.

Furthermore, Lam (1982) identified additional school factors that have an impact on student decision-making, and other influencing factors have been identified by numerous researchers, most of which have not been studied in today's educational climate.

Lotto (1985), for instance, identified the potential impact of coordination agreements with high schools and colleges, including the opportunity for a waiver of required graduation credits at the high school level, and the articulation of credit into the postsecondary environment. High school credit waivers provide the opportunity for students to reduce required high school credits in areas such as English, mathematics, and science if they are enrolled in a CTE course that includes a heavy concentration of objectives from those disciplines. Postsecondary articulation is an agreement between CTE programs and various colleges and universities that allows students to receive college credit for successful completion of secondary CTE programs. These arrangements are coordinated between the schools based upon meeting similar coursework objectives. While Lotto (1985) believes that these initiatives will positively impact enrollment, specific research into their effect is not offered.

Other researchers identified marketing materials, brochures, visits, and tours as likely impacting enrollment, but specific data to describe their influence are not presented (Husain, 1999; Jackson, 2002; Ries, 1999).

Overall, CTE educators must understand all of those dynamics to effectively address enrollment issues, and only limited data exist to shed light on these issues. Chapter II will more clearly detail the enrollment picture in CTE, but generally speaking it has waxed and waned over the years, reflecting a mixed picture state-by-state, region-by-region, and district-by-district. While some locations report that CTE enrollments are on the increase, others are experiencing a decline, and the reasons

behind those differences are unclear. Contemporary research to clarify enrollment dynamics is largely absent.

Purpose of the Study

This study contributes to the research knowledge base by: (a) discerning a profile of CTE students with regard to their academic standing and their socioeconomic background, (b) providing a current examination of secondary students' perceptions of career and technical education, and (c) exploring the people and other factors that influence students in their decision-making about CTE enrollment. While some of the issues examined may be similar across all CTE delivery systems, factors specific to area career technical centers are examined in this study. Limited investigation has focused on this topic in the past, with one definitive study more than 15 years ago focusing only on those students who were attending CTE programs, not on the views of all high school students toward CTE (Rossetti, 1989b). According to Pearson and Champlin (2003), conducting research involving all high school students to "learn more about students' selection of courses that lead to career pathways in CTE" (p. 1) is a high priority. Thus, one goal of this study is to enhance the knowledge base via a recent and relevant investigation of both attendees and nonattendees, and draw comparisons between the two populations on various factors.

This study was conducted in the high schools in one particular intermediate school district, served by an area career technical center, in the state of Michigan.

This district was selected because of its mid-range size, as compared to other districts and area centers, of much smaller and much larger size, in the state.

Results of this investigation serve to further the understanding of CTE administrators, staff, and policymakers in area centers and provide a clear indication of the initiatives upon which to focus their attention in order to maximize enrollment potential. Furthermore, because some of the factors addressed are relevant to all CTE deliveries, CTE administrators, staff, and policymakers throughout the field can gain insight into potential factors they may wish to consider when addressing issues of CTE enrollment.

Research Questions

The first three research questions explore the profile of CTE students, and attempt to determine if there is a significant difference between students who enroll in CTE and those who do not enroll, with respect to academic and socioeconomic issues.

1. *Is there a significant difference between high school seniors enrolled in CTE, and those not enrolled, with respect to their academic standing?*

Academic standing is determined by a student's report of their typical grades, such as mostly A's, mostly A's and B's, mostly C's and D's, and so forth.

2. *Is there a significant difference between high school seniors enrolled in CTE, and those not enrolled, with respect to their social living arrangements?*

Social living arrangements are determined by a student's description of whom they live with, such as both mother and father, mother and stepfather, father only, other adults, and so forth.

3. Is there a significant difference between high school seniors enrolled in CTE, and those not enrolled, with respect to their economic situation?

Economic situation is determined by a student's account of the family's ability to buy what it needs, from having no difficulty, to having a hard time.

The fourth research question seeks to determine the perceptions of CTE held by high school seniors who are enrolled in CTE, as well as those who are not enrolled.

4. What are the perceptions of high school seniors with regard to CTE, and are those perceptions significantly different between those enrolled in CTE, and those not enrolled?

This perceptual research question seeks to determine for whom the high school seniors believe CTE is best suited, from those seeking work, joining the military, or going to college, to those who struggle academically or are discipline problems.

The fifth and sixth research questions explore the people and other factors that influence student's decisions regarding CTE enrollment.

5. Who are the people that influence students in their decision about enrolling in CTE?

Eight specific people are identified, from school personnel to family and friends, to determine those who have the most influence on student decision-making with regard to CTE.

6. What are the other factors that influence students in their decision about enrolling in CTE?

Nine specific factors are identified to determine those that have the most influence on student decision-making with regard to CTE.

Strengths and Limitations of the Study

An important strength of this study is that it focuses on a specific area career technical center, but surveyed students from each of the feeder schools, including those students who attend the area career technical center, as well as those who do not attend. By surveying both attendees and nonattendees, generalizations can be made regarding the differences between those who attend and those who do not attend, as well as provide some insight regarding the perception of CTE by each group.

A limiting factor in this study concerns the population surveyed. High school seniors were surveyed in each of the respective schools in their Government class, a one-semester requirement for seniors. Some seniors enroll in the Government class during the first semester, and others during the second semester. Therefore, not all seniors were included in the study. It is the practice of some high school counselors to enroll those seniors who are less academically motivated in the first-semester

Government course, so that in the event of failure they have the second semester to retake the required course. Consequently, less academic students may be overrepresented in the sample of respondents.

Another limiting factor in this study is the examination of a single area career technical center in Michigan. While this center may be somewhat representative of other centers statewide and nationally, certain factors may be specific to this center in terms of its image, recruitment practices, geography, and demographics that would not be representative of other centers.

Summary

This study (a) explores the profile of CTE students with regard to their academic standing and their socioeconomic background, (b) examines secondary students' perceptions of career and technical education, and (c) investigates the people and other factors that influence students in their decision-making about CTE enrollment.

Image and perception have been issues in the CTE community for a considerable time, and efforts to positively enhance that image have been undertaken. New technologies and marketing strategies, a changing society affected by legislative efforts and other economic factors, and a host of other issues, have certainly impacted the field in both positive and negative ways. This study provides a current view of the perceptions held by secondary students in the face of these many issues.

Furthermore, identifying the typical profile of students involved in CTE, as well as the factors that contribute to a student's decision-making process with regard to enrollment in a CTE program, should assist stakeholders in developing strategies to market their programs more effectively.

The related research on each of these factors is limited, and those studies that have been conducted are somewhat antiquated. This quantitative approach makes it possible to better understand the current landscape in secondary CTE in the areas that will allow stakeholders to positively address issues of enrollment.

CHAPTER II

LITERATURE REVIEW

This study explores the profile of CTE students with regard to their academic standing and their socioeconomic background, examines secondary students' perceptions of career and technical education, and identifies the people and other factors that influence students in their decision-making about CTE enrollment. Relevant literature from both a historical perspective of career and technical education, to a more specific look at enrollment trends and the dynamics that contribute to it, is summarized in this chapter.

The review is organized into two main sections: (1) the history and evolution of career and technical education, and (2) issues identified as influencing factors in CTE enrollment. The second section is further categorized into three subgroups: (a) intrapersonal reasons—attitudes, perceptions, images, motivation, career maturity and value systems; (b) immediate external reasons—the influence of others, recruitment/outreach, and school factor influences; and (c) remote external reasons—socioeconomic status and academic standing.

The History and Evolution of Career and Technical Education

Today, career and technical education (CTE) is offered in 14,100 comprehensive high schools, 250 career technical high schools, 1,100 area career

technical centers and a multitude of postsecondary programs and facilities throughout the United States (Copa, 2002). In 1998, about one fourth of high school graduates had completed three or more credits in a single vocational discipline, which is the Department of Education's definition of concentration in vocational education (Hurst & Hudson, 2001). From its modest roots at the beginning of the 20th century, when it was first introduced to address the needs of the children of working-class families who began attending school in increasing numbers, the influence of vocational education in public schools has been significant.

The federal government established its presence in the design of such educational programs with the passage of the Smith-Hughes Act in 1917, which allocated federal funds to schools for job training. More specifically, "the purpose of the act was to provide federal financial aid for vocational-technical education in public secondary schools" (Hayward & Benson, 1993, p. 6). The goal of this pivotal legislation was to firmly establish federal, state, and local educational partnerships designed to work cooperatively in financially supporting vocational-technical education in the schools.

Shortly after the passage of Smith-Hughes in 1917, which was directed at secondary-aged students, Congress passed legislation in 1918 to fund vocational education for World War I veterans. Such education was viewed as critical to our nation's well-being, and providing skill training to war veterans was deemed essential (Hayward & Benson, 1993).

In 1926 the American Vocational Association was founded, as enrollment in vocational programs nationally exceeded 850,000. With vocational education continuing to gain in popularity, the 1929 Congress increased significantly the annual appropriations for home economics and agriculture education. In 1936 the George-Deen Act authorized an annual \$12 million allotment for agriculture, home economics, and trade and industrial education, and marketing occupations were recognized for the first time, receiving an authorization of \$1.2 million. By 1941, as the United States entered World War II, Congress passed the Vocational Education for National Defense Acts to help prepare war industry workers, many of whom were women (Hayward & Benson, 1993).

In 1946, following the end of the war, the George-Barden Act replaced the George-Deen Act and authorized \$28.5 million annually for the increased development of vocational education. By 1956, with vocational education a respected component of the overall educational delivery, the Health Amendments Act added practical nursing and health occupations programs to the list of vocational programs eligible to receive federal funds. But in 1958 the tide began to turn on the significance of vocational education, as the National Defense Education Act came about in response to the Soviet launch of the first successful man-made object into orbit around the earth. The Sputnik launch shook the nation into believing we had fallen behind the Soviets in mathematics and science, and consequently focused attention on reforming the schools to address the discrepancy (Herr, 2002). This focused attention was upon the need for an expansion of academic rigor, and as significantly, upon the

importance of school counselors who were identified in the Act as the persons charged with identifying those students capable of entering higher education in the sciences.

According to Herr (2002),

The ripple effects of the National Defense Education Act had profound and positive effects on the number of school counselors, the availability of counselor education programs, the development of professional literature in school counseling, the organization of K–12 programs of school guidance, and on the commitments of State Departments of Education to increase the certification requirements for counselors . . . this legislation reaffirmed and extended the role of school counselors as part of massive efforts in school reform. (p. 226)

With school counselors firmly entrenched in our nation's secondary schools by the late 1950s, their primary task was to identify and encourage students in academic pursuits, and to steer the successful toward a college education. A change in administration at the federal level, however, and a shift in educational philosophy, changed their role somewhat in the early 1960s. In stark contrast to the goals of the National Defense Education Act, much of the legislation during the early 1960s, under the influence of President Lyndon Johnson's Great Society initiatives, focused on the need for school reform related to preparing students for the workforce, much of it through the expansion of vocational education. Thus, the inspiration for the Vocational Education Act of 1963, which focused on funding for teacher training, new buildings, and services to people, occurred. In the years that followed there was a vast expansion of programs and facilities aimed at improving the technical skills of students across the nation. Enrollment in vocational education programs soared (Hayward & Benson, 1993).

The Vocational Education Act of 1968 followed a 1967 message to Congress, during which President Johnson emphasized that “we pay too little attention to the two out of three young people who do not go on to college and the many others who do not finish” (Barton, 1994, p. 4). School counselors were now charged not just with identifying and guiding students into college, but to assist all youth with identifying a path to employment. The 1968 Act provided large sums of money to address the nation’s social and economic problems and emphasized school reform directed at assuring the nation of a strong workforce, while providing that all students, including at-risk students and those with disabilities, had equal access to vocational education programs (Hayward & Benson, 1993).

With this shift in focus came an interest in collecting detailed national data to track student participation in vocational education. As a result, Congress instituted new requirements for states to include information on vocational education expenditures and student enrollments in their annual reports to Congress. This emphasis continued in 1976 with amendments to the Vocational Education Act which called for a comprehensive evaluation of vocational education in the United States. The National Assessment of Vocational Education (NAVE) was created, with the National Center for Education Statistics (NCES) charged with the responsibility of collecting and reporting the data. The first assessment showed that vocational education legislation had not been well implemented, and, as a consequence, more legislative initiatives were forthcoming (Lozada, 1999).

The Career Education Act of 1978 established the comprehensive career development concept, which viewed the individual as progressing through various planned experiences, and again implored educators in general, and school counselors in particular, to be focused on student career decision-making (Herr, 2002).

The late 1970s and early 1980s brought a significant change in focus. “Not since the Soviet launching of Sputnik in the late 1950s has the topic of educational reform figured so prominently in American public discourse” (Hunt & Staton, 1996, p. 271). Amid growing concern about deficiencies in the academic skills of the American workforce, the National Commission on Excellence in Education was appointed in 1981 with an 18-month timeline to give an account of the condition of our nation’s schools. The commission released their report in a publication entitled *A Nation at Risk* (NCEE, 1983). The report painted a dismal picture of the nation’s educational system, and focused attention on the need for more emphasis on core academic subjects. The report largely focused on the college preparation curriculum and vocational education was not addressed. States responded to the report by increasing the academic courses required for graduation from high school and for admission to state colleges and universities. Consequently, there was erosion in the enrollment in vocational education programs, not because of a lack of “quality of vocational education per se, but rather the fact that vocational education programs were elective, not required” (Herr, 2002, p. 228). As required courses increased, there was often no available room in a student’s schedule to participate in elective

coursework, particularly in vocational education where courses often met for a block of time in each school day.

Congress addressed vocational education with the authorization of the Carl D. Perkins Vocational-Technical Education Act of 1984, which sought to bring together the many federal programs governing vocational education under a single umbrella. Its authorization emphasized the need to assist states in expanding, improving, modernizing, and developing quality vocational education programs to meet the fast-paced changes and challenges in today's workplace. With the concerted emphasis on academics in the wake of *A Nation at Risk*, "this act placed more emphasis than earlier legislation on access, program improvement, cooperation between public and private sectors, advanced technology and training, and retraining and upgrading of workers" (Hayward & Benson, 1993, p. 7). The role of the school counselor loomed large in the Perkins legislation as well, focusing attention on career awareness, career planning, career decision-making, placement skills, and knowledge and understanding of local, state, and national occupational, educational and labor market needs, trends, and opportunities.

"In the late 1980s the focus in education changed from *seat time* and *quantity* of courses to the *quality* of curriculum and instruction and their results" (Goals 2000: Reforming Education to Improve Student Achievement, 1998, p. 2). Academics again took center stage, with growing concern that our youth were not achieving at acceptable levels in our schools. The attention was more locally focused, with the belief that improvement would be best effected through meeting expectations set by

parents, teachers, individual schools, and the society at large. The 1989 National Governor's Association Education Summit emphasized the more localized focus, as well as the state's role in education improvement, and reform efforts gained momentum.

Federal legislators were debating reauthorization of the Perkins Act at this same time and, echoing the outcry of concern with regard to academic achievement, the Act was reauthorized in 1990 as the Carl D. Perkins Vocational and Applied Technology Act, or Perkins II, and it "linked federal support to integrating vocational and academic education, building tech prep and developing performance standards" (Jennings, 1995, p. 25). The legislative effort to integrate academic and vocational education was further advanced by the Federal School-to-Work Opportunities Act of 1994 that provided a national framework for the infusion of career education into the nation's schools. The Act provided federal funds and specific guidelines for implementation of school-to-work initiatives, focusing on whole school reform.

The states' commitment to education, still energized by the conclusions of the Governor's Education Summit, was emboldened in March of 1994, when the Goals 2000: Educate America Act was signed into law. The act called for "the alignment of state and local curricula, the development and implementation of performance standards, the establishment of measurement tools, and increased professional development for educators" (Carter, 1998, p. 51). Goals 2000 awarded grants to participating states and districts to support communities in the development and implementation of their own standards-based education reforms. State and local

officials, educators, parents, community members, and business leaders joined together with the goal of raising the academic achievement of all students.

While secondary career and technical education suffered in 1983 with the release of “A Nation at Risk,” the 1990s “brought an enrollment resurgence thanks to the proliferation of technical careers and growing partnerships between businesses and schools” (Husain, 1999, p. 2). These partnerships, supported by School-to-Work, Goals 2000, and Perkins II, helped to once again legitimize the role of secondary career and technical education, and emphasized its harmonious existence with academic pursuits.

Legislators in the state of Michigan in 1997, with a desire to expand upon these federal efforts, created the Career Preparation System. The system was designed to support traditional academic courses by making connections between *real world* examples and the specific academic curriculum taught. “The system calls for strategies including career contextual learning which emphasizes the application of academics to the world beyond the classroom, and providing all students with career exploration, guidance opportunities, and general employability and technology skills” (Michigan Center for Career and Technical Education, 2005, ¶ 4).

The Perkins legislation was again up for reauthorization, and after 4 years of debate Congress passed, and President Clinton signed, the 1998 Carl D. Perkins Vocational and Applied Technology Education Act, or Perkins III. Another significant piece of legislation, the Workforce Investment Act (WIA) of 1998, managed by the Department of Labor, was passed that same year and focused on the

development of a quality workforce. The WIA brought forth an accountability partnership among the states, the U.S. Department of Education, and the U.S. Department of Labor. These complementary legislative initiatives enhanced the role of vocational education in the United States, and elevated its position in the workforce development arena. According to Stevens (2001),

The purpose of Perkins III is to develop more fully the academic, vocational, and technical skills of secondary students and postsecondary students who elect to enroll in vocational and technical programs. The purpose of WIA Title I is to provide workforce investment activities . . . that increase the employment, retention, and earnings of participants, and increase occupational skill attainment by participants, and, as a result, improve the quality of the workforce, reduce welfare dependency, and enhance the productivity and competitiveness of the Nation. (p. 12)

A new administration at the federal level in 2000 changed the educational landscape a bit. In January 2002, President George W. Bush signed into law the No Child Left Behind Act (NCLB) of 2001, which reauthorized the Elementary and Secondary Education Act (ESEA) of 1965. The enactment of NCLB represents the most extensive national education reform legislation in years. Now that NCLB is law, federal, state, and local officials face compliance challenges in transforming these education reform theories into a working reality for schools. The challenges have grown over time, in some measure due to states' budget woes (Daggett, 2003).

The State of Michigan's school accreditation model, Education YES!, also has a direct impact on Michigan's high schools, and in combination with NCLB, affects every educator, student, parent, and taxpayer in Michigan. According to Andrew Henry, Director of the Center for Educational Performance and Information, "the federal No Child Left Behind Act of 2001 and the Michigan Department of

Education's accreditation plan, Education YES!, are historic initiatives calling for accountability and academic excellence in every public school" (Henry, 2003, ¶ 1). With such a focus on academic excellence, the tendency has been to concentrate on core curriculum issues at the expense of elective coursework. Math, science, social studies, and language arts receive increased attention, while programs in career and technical education must justify their existence by demonstrating academic rigor in their respective disciplines.

Such has been the history of Career and Technical Education since the first federal initiative in 1917. As Miller (2002) writes,

America's attempts to revitalize education have been steeped in controversy and have resulted in the initiation of multiple reform policies over several decades. Too often schools have tried to implement what is tantamount to the reform policy *du jour*, at times focused on targeted populations and specific programs, then just as quickly refocused on whole school reform. . . . The focus of American education has been debated throughout the past century. The debate on whether the focus of schooling is to be academic, vocational, or a mixture of the two, continues today. (p. 1)

Currently an increasing emphasis on academic skills and college aspirations has again directed attention away from technical training. As one author puts it, "unfortunately policy is now moving in the wrong direction. Perpetuating the college-for-all myth, schools are de-emphasizing employers' needs, reducing vocational education, and retiring vocational teachers who have employer contacts. These are terrible losses" (Rosenbaum, 2001, p. 279).

Fully understanding the enrollment picture in career and technical education, on a state and national level, can be somewhat challenging. Part of the confusion is due to the fact that there is no consistent national system of determining secondary

vocational enrollment (Husain, 1999). While most states define secondary school as grades 9–12, others report enrollment numbers for 7–12, or 11–12. Defining a vocational program is also varied, as is identifying a vocational student. Some states will identify any student enrolled in a CTE program, while other states will count students only if they are enrolled in a CTE program for at least half of the day, or for three or more credits. Some states count students each time they take a vocational course, while others count students in a program only if they take three or more technical classes in a defined sequence. According to Norton Grubb, a leading researcher at the National Center for Research in Vocational Education (NCRVE),

It's obvious that vocational education isn't going to disappear anytime soon. But until we examine the coherence of vocational schools and programs and establish one way to count enrollment everywhere, we won't know for sure where it's up and where it's down. (Husain, 1999, p. 5)

Although reporting of national statistics is cumbersome, and analysis and comparisons can be problematic, data within particular states are often more useful. Typically a state-governed department, or office, directs CTE activities in its jurisdiction, and a much higher level of consistency in data-reporting allows for broader comparisons and, consequently, a clearer picture of enrollment dynamics. In Michigan for example, the Office of Career and Technical Preparation in the Department of Labor and Economic Growth provides oversight of CTE throughout the state. This department manages the continual development of the statewide Career Technical Education Information System (CTEIS) program to facilitate data collection and verification. Data are gathered and compiled from all CTE programs in

the state, and the system generates reports used for all aspects of program development, planning, funding, and evaluation.

The Office of Career and Technical Preparation reports trend data in the state of Michigan back to 1996. For the 5 years following, data indicated a slight increase in overall enrollment. There were 129,775 students involved in 2,698 CTE programs statewide in 1996. Although the number of CTE programs expanded to 2,735 by 1997–1998, enrollment actually declined to 119,007. In response, programs were gradually reduced to 2,700 by 2000–2001, but the enrollment trend moved gradually upward to a total of 132,398 (Michigan Department of Labor and Economic Growth, 2005).

While enrollment trends nationally and statewide provide interesting information, and may help to explain in some part a similarity of dynamics in a local district, the enrollment picture at the local level does not always mimic the larger context. CTE administrators and decision-makers in individual districts are most assuredly aware of their own enrollment picture, and likely have thoughts as to the reasons behind those dynamics. Quite often they act on those suspicions through their marketing strategies, policy decisions, and personnel activities. Developing websites, creating brochures and videos, arranging visits and tours, serving as guest speakers in local schools and at various school functions, forging credit articulation arrangements with postsecondary institutions, developing secondary academic credit waivers for particular CTE programs, and a host of other initiatives are all designed to ease, and to encourage, participation in CTE programs. Furthermore, they are all based upon a

perception that these initiatives actually have an effect on a student's decision regarding enrollment in a CTE program (Husain, 1999; Jackson, 2002; Lotto, 1985; Ries, 1999). The important question is, of course, which factors actually do influence a student's decision regarding enrollment in a CTE program? Therein lies a central issue of this study.

Issues Identified as Influencing Factors in CTE Enrollment

In a study by Lam (1982), designed to identify the factors that influence high school students in their career decision-making, three broad categories of variables were identified. The first category involves *intrapersonal reasons*, which include attitudes, perceptions, images, motivation, career maturity and value systems. The second category involves *immediate external reasons*, which include two subcategories: the influence of others (parents and other relatives, counselors, teachers, friends, and neighbors) and school factors (distance to school, separation from friends, extracurricular activities). The third category involves *remote external reasons*, namely socioeconomic status and academic standing. Socioeconomic status largely comprises a student's social circumstances (living arrangements) and family income level. Academic standing refers to the grades that a student typically receives, such as mostly A's, A's and B's, C's and D's, and so forth.

Although Lam's (1982) classification system was not intended exclusively for decision-making regarding CTE, but rather decision-making regarding career direction, Rossetti (1991) used the system to describe the barriers that influence a

student's decision not to enroll in career and technical education, in a comprehensive study of 11th grade students in five randomly selected high schools in southwestern Ohio. But while these categories constitute barriers that influence a student's decision to not enroll in vocational education, the converse of some of these barriers begins to define the factors that encourage students to enroll in CTE programs. In other words, if images and perceptions are positive, if career motivation and maturity are constructive, if the influence of others is encouraging, and if school factors are welcoming, these factors could positively influence a student's decision to attend a CTE program. Jackson (2002), in a report of exemplary students in CTE, identified other factors that positively influence a student's decision to enroll in their CTE program. These factors included a variety of recruitment efforts on the part of the CTE programs. In keeping with Lam's (1982) categories, these factors would add a third subcategory to the immediate external reasons; namely, recruitment/outreach initiatives.

For the purposes of this study, Lam's (1982) classifications will be reexamined in today's CTE environment.

Intrapersonal Reasons—Attitudes, Perceptions, and Image

Federal and state legislative initiatives can certainly affect enrollment as financial resources directly impact the expansion, or reduction, of CTE offerings. Equally important is the message that is sent to the public about the legitimacy of CTE when legislators actively support, or fail to support, CTE's role in the

educational delivery. As has been detailed in the historical perspective on career and technical education, these initiatives affect the attitudes, perceptions, and image of CTE in profound ways and have a significant impact on the enrollment picture in CTE.

While federal and state initiatives and legislative efforts may influence the emphasis placed on vocational education programs and set a tone for the importance of a technical education in our nation's high schools, many other factors may also contribute to the perceptions of vocational education. One such factor may be the image of vocational education in general. Impacted by its historical roots, the American Vocational Association (AVA), established in 1926, was concerned enough with the issue of image that it devoted three journal articles to the topic between 1987 and 1997. Many believed a change in the *vocational* moniker would shift attitudes in a more popular direction, feeling that "changing the name of the association could be the single most positive step toward improving the image of the field and the association" (Lovejoy, 1998, p. 45). A survey carried out in the summer of 1997 found that 22 out of 40 states had changed the name of their vocational education system since 1992, and in 26 of the states, the word *vocational* did not appear in the title of the division or office administering vocational education programs (Ries, 1997). By 1998, the word *vocational* was indeed removed from the association's title, and the name officially became the Association for Career and Technical Education (Lewis, 1998). This focused attention has transformed the designation of vocational education to what is now widely known as Career and Technical Education (CTE).

In a report on a series of conference calls to CTE administrators, teachers, representatives of the business and industrial community, and other parties interested in CTE, conducted by the National Dissemination Center for Career and Technical Education (NDCCTE), respondents most often mentioned the need to improve the image of CTE as one of the major issues in the year 2000 (Lewis, 2001). According to Cohen and Besharov (2002), “it is clear that CTE has an image problem, which is due both to the college-for-all myth and to the perception that it is poor quality education for the worst students” (p. 14). Consequently, CTE educators must address two fronts: the perception of the quality of education in CTE, and the belief that students must choose either a CTE track or a college track.

While the NDCCTE report indicated that image was a major CTE issue in 2000, it has been at the forefront of concern for the past few decades. With regard to the quality issue, McLelland (1993) reported that “vocational education has been, and still is, a victim of bad press” (p. 62). He posited that most people do not understand the role and purpose of vocational education, often seeing it as a *dumping ground* for underachieving students, and believed the media contributes to creating that perception.

O’Neill (1985) found that this negative image was reinforced by secondary teachers of sending schools who believed that students who attend a career technical center are not accepted by their peers. He further discovered that directors of the technical centers believed that negative attitudes toward CTE causes difficulties in recruitment and enrollment. Rossetti’s (1989a) study reported a negative impact on

enrollment due to poor image perceptions of CTE, and suggested stakeholders need to change the way people look at career and technical education.

McLelland (1993) suggested that CTE personnel need to take more active roles in building relationships with the media to portray a different image. That view was supported by Sharpe (1993), who believed that “the image of any service organization is in the hands of its providers” (p. 24). Not only should CTE administrators and staff build positive relationships with the media, but they should also seek to influence all of their stakeholders including students, parents, other educators, and the community at large.

Tuttle (1987), past president of the American Vocational Association (now the Association for Career and Technical Education), indicated that “we must have strategic plans at every level to improve the image of vocational education” (p. 11). Another author pointed out that “in this era of declining enrollment it is critical to market vocational education effectively” (Kibler, 1992, p. 19), and he suggested 30 separate tips that those in CTE can utilize. Primary among the efforts suggested is the key role that CTE teachers should play in marketing their program, from setting high standards and staying current with subject matter to connecting with a strong advisory committee and reaching out into the community at large.

Much of the research on schools that have high levels of public confidence points to the fact that marketing is the most pervasive mode of building such confidence (Catri, 1998). Certainly the amount of effort placed on marketing

initiatives, and the effectiveness of those initiatives, can have a tremendous impact on the CTE enrollment picture.

These many authors and researchers, from the past two decades, reported that marketing was a key ingredient in the survival of CTE, and many initiatives and reform efforts were implemented to do just that. According to Daggett (2003), “some wonderful success stories have emerged out of CTE’s extensive reform efforts over the last several years” (p. 3). But he also believes that this work is far from done, and that, in the face of NCLB and the emphasis upon accountability and student academic performance, “it is more essential than ever for career and technical education to be able to prove that it contributes not just to the applied workplace competency demands of business, but also to the academic proficiencies of served student populations” (p. 3).

As Cohen and Besharov (2002) indicate, CTE’s image is dependent upon getting this message to stakeholders. According to Daggett (2003), “Americans have long believed that the highest academic standards that our students will ever need to meet are those required for higher education. Parents put great pressure on schools to ‘Get my child ready for college’” (p. 2). But Daggett believes that this cultural belief of our past is not the reality of the 21st century. He indicates that America has changed, and it has changed most significantly in the workplace. “Strong academic skills and the ability to apply those skills to solve real-world predictable and unpredictable problems and situations has become a minimum requirement for the vast majority of American jobs” (Daggett, 2003, p. 3). He declares that there is little

room for the academically inept in today's contemporary workplace, and because the workplace demands those skills, CTE is indeed teaching those high-level academic skills to students.

Cohen and Besharov (2002) also indicate that the image of CTE is dependent upon debunking the college-for-all myth. This is emphasized by Gray (1996), a supporter of a revitalized CTE, who says that "the nation needs technicians, not a flock of discontented young adults who hold worthless baccalaureate degrees and have no job prospects" (p. 91). Cohen and Besharov (2002) respond that "an increasing number of college graduates are entering associate's degree or certificate programs in technical fields at community colleges with the hope of finding a better job" (p. 8). According to them, the fact is, most jobs do not require a college degree. Of the total job openings between 2000 and 2010, the Bureau of Labor Statistics projects that 70% of the jobs will require no postsecondary training whatsoever. Of the remaining 30%, 9% will require an associate's degree or postsecondary vocational award, and only 21% will require a bachelor's degree or higher (Cohen & Besharov, 2002).

Although the jobs may be less plentiful for those with bachelor's degrees or higher, the financial payoff for education is clear. This may, in part, be a factor in a student's decision to pursue a 4-year degree. According to Dohm and Wyatt (2002), the more college a person has, the higher the earnings. Boesel and Fredland (1999) report that earnings benefits and premiums for those with CTE certificates and associate degrees are lower overall than those for bachelor's degrees, but the

differential is offset by the lower costs incurred in obtaining the terminal credential. Wonacott (2003) suggests that a technical certificate or associate degree in a high-skill/high-wage occupational area, where jobs may be more plentiful, is a wiser investment for many students.

Kerka (2000) believes that efforts have been made, and must continue to be made, on the part of CTE educators to help stakeholders understand the requirements of the job market and to educate students, parents, and the community at large about job trends and the necessary preparation for transition into the world of work. She offers that secondary CTE can begin to address the uncertainty of college enrollees before the students find themselves in a college environment with no clear understanding of the connection between the job market and their individual preparation.

Yet, even though the job market may not demand a postsecondary education for a successful and rewarding career, in 1998 fully 55% of high school seniors reported that they definitely intended to pursue a 4-year college degree, and an additional 23% indicated that they probably would do so (Wirt et al., 2001). A 1999 study reported that the percentage of all high school seniors who expected to enroll in college and complete at least some coursework rose from 81% in 1972 to 95% in 1992 (Boesel & Fredland, 1999). The studies also indicated that, although a high percentage report that they intend to pursue postsecondary education, and consequently complete a high school curriculum driven by that belief, only 63% of high school completers actually enrolled in college in the fall of 1999 immediately

following graduation (Wirt et al., 2001). An even more dismal statistic reports that “somewhere around half of the freshman entering four-year colleges eventually graduate” (Boesel & Fredland, 1999, p. 14).

Obviously far more high school graduates believe they are destined for college than actually go, and of those who do follow through on their intent, the success rate is poor. Additionally, the volume of college students who actually graduate still exceeds the needs of the labor force. According to Immerwahr (1999),

Half of faculty members, 60 percent of business leaders, and slightly less than half of higher education administrators and government officials surveyed by Public Agenda in 1998 agree that many young people are wasting time and money in college because they don't know what else to do. Moreover, nearly 90 percent of the entire group said they want to make trade and technical school a more appealing option for high school graduates who are not qualified for college. (p. 10)

With statistics indicating that a preponderance of students indicate a desire to pursue a college education, those in the CTE community become alarmed by the image that CTE is not for the college-bound. Consequently, “the CTE community began to shift its philosophy to incorporate a greater focus on academic skills and preparation for postsecondary education” (Cohen & Besharov, 2002, p. 16). The Perkins Acts of 1990 and 1998 placed a great deal of emphasis on program improvement, standards, and, specifically, academic achievement.

According to Ries (2000), CTE need not be seen as an alternative to college, but as a path that can lead to postsecondary education. Skills acquired in CTE programs allow a student to earn a high standard of living without postsecondary education, but can also enhance the postsecondary learning experience. “What I see

among students now is an awareness that career and technical education opens up opportunities rather than closes them. Today the students we're working with see all kinds of further education opportunities" (Ries, 2000, p. 16).

Whether or not that perception on the part of students is widespread, or simply the observation of one CTE educator, is subject to question. Yet other researchers identify with the message. According to Brown (2003), students in CTE have advantages while in high school, immediately following graduation, and in college if they choose to go.

Career and Technical Education (CTE) can benefit students directly by providing earning advantages, both before and after graduation. It can provide indirect benefits by increasing student engagement, retention, and persistence and directing them to postsecondary education and the pursuit of lifelong learning. (Brown, 2003, p. 1)

Other supporters of CTE report that an additional advantage to those who follow their CTE experience with college enrollment is often that they enter with advanced standing through articulation arrangements between the secondary and postsecondary institutions, and a clearer focus of where they're headed. Most of the students who go to college without such a clear vision of what they are pursuing try multiple majors and in the end often select the most expedient major they can identify to get their degree, and leave with job prospects largely unfulfilled (Dembicki, 1999).

With regard to the image of CTE, it is apparent that CTE educators have battled this problem on several fronts for a long time. As researchers have reported, it is imperative that they continue to advance initiatives that debunk the college-for-all myth; that they emphasize the high-level academic skills taught in CTE; and that they

relay the message that CTE need not be seen as an alternative to college, but as a path that can work in harmony with college pursuits. How much impact those initiatives, and others like it, have had upon today's students are investigated in this study.

Intrapersonal Reasons—Motivation, Career Maturity, and Value Systems

Beyond attitudes, perceptions, and the image of CTE, Lam's (1982) classifications also include a student's motivation, career maturity, and value systems among the intrapersonal reasons. The notion of career maturity was introduced by Super (1955). "Super defined career maturity as the repertoire of behaviors that help identify, choose, plan, and execute career goals, being at an average level in career development for one's age" (Rossetti, 1991, p. 1). The problem in career maturity arises when students are asked to make a career choice too soon, before they have the maturity to make a sound decision. Herr (1970) believes that students are unable to make that choice until they are seniors in high school, well after the typical 10th grader's decision regarding enrollment in a secondary CTE program must be made. Following the findings from her study on the factors that influence students not to enter into a high school vocational curriculum, Rossetti (1989a) recommended that: (a) students in high school need more exposure to career guidance and the CTE offerings available, (b) counselors need to take responsibility for assisting students in career decision-making with the support of parents, (c) personnel need to be increased in high schools to offer more guidance and counseling to students, and (d) tours of area career technical centers should be conducted for 10th grade students

as well as opportunities for other *hands-on* visits and field trips. According to Jackson (2002), seeing the programs for themselves was quite often the determining factor for students in the decision to enroll at the area center.

The Career Education Act of 1978 was an effort to assist students in the complexity of career decision-making by establishing a comprehensive system of career development. The Act viewed students as progressing through various planned experiences during their K–12 experience, and encouraged the assistance of school counselors in the process, who brought more mature thinking to student decision-making. So too, the State of Michigan's Career Preparation System, established in 1997, had similar expectations. Specifically, its goal is to provide all students with career exploration, guidance opportunities, and general employability and technology skills.

The mainstay of the Career Preparation System is Career Pathways. These are six broad groupings of careers that share similar characteristics and whose employment requirements call for many common interests, strengths, and competencies. The groupings encompass the entire spectrum of career options, providing opportunities for all students and all ability levels. Integrating Career Pathways into the school curriculum improves student attendance, retention, achievement, career decision-making, and career goal attainment. (Career Pathways, 2002)

Many school systems have adopted a strategy to assist students in effectively planning for their future by identifying and investigating a career pathway. "This strategy includes the development of an individual career plan for all students by the tenth grade" (Cohen & Besharov, 2002, p. 42). Although not mandated by Michigan law, the use of Educational Development Plans (EDPs) has been an ongoing effort in many districts to assist students in developing a plan of action that guides the learner

in accomplishing their career goals. The EDP initiative supports the mission of the Michigan Career Preparation system by focusing on career decision-making and career goal attainment. Understanding their interests and abilities, gathering information on careers that are appropriately suited to them, and developing a plan of action that is updated regularly, constitutes the process of student EDP development. This process can serve as an important element in the identification of, and ultimate pursuance of, a program in CTE. Jackson (2002), in a qualitative study of students' reasons for enrolling in a CTE program, indicated that in some instances "the deciding factor was a match between their interests and a program" (p. 2). She also identified students who were eager to enroll so that they could get a head start on their already identified postsecondary career, quoting one who states, "The thing that made me enroll in the program is that I would be able to get all my high school credits and also get college credits" (Jackson, 2002, p. 2). Gehrt (1990) also found that the exploration of various vocational opportunities is helpful in the student decision-making process and suggests a comprehensive career decision-making program needs to be in place for all students.

The present study seeks to determine the effectiveness of career decision-making initiatives in encouraging today's students to consider enrolling in a CTE program. Initiatives such as 10th grade tours, field trips, and EDPs are explored.

Immediate External Reasons—The Influence of Others

Research indicates that other people play a role in the decisions made by high school students regarding their course selection. Parents, siblings, friends, high school counselors, high school teachers, high school principals, and CTE staff have all been found to exert some influence over a high school student's decision about enrolling in CTE (Beukes, 1986; Cohen & Besharov, 2002; Dube, 1987; Gehrt, 1990; Gilbertson, 1995; Herr, 1987; Jackson, 2002; Kerka, 2000; Lejeune, 1977; Reynolds, 1976; Ries, 1997; Rossetti, 1989a, 1989b, 1989c, 1991; Vo, 1997).

The question of a parent's influence has received much attention. Some research has indicated that parents do indeed have influence with their children regarding their career pursuits, and can affect their child's decision regarding pursuance of a CTE program. In a study to determine the influencing factors on student enrollment in three Joint Vocational Schools in Ohio, it was determined that mothers/female guardians had the greatest influence over student's decisions (Rossetti, 1989b). Additionally, in a qualitative investigation of successful students in CTE, Jackson (2002) found that "all of these successful students had a parent or parents who supported their child's decision to enroll in a career and technical program" (p. 2).

Herr (1987), however, reporting on the people he identified as CTE allies, found that parents have less influence than they believe, and parents and students disagree on the amount of influence parents actually have on career selection. Gehrt

(1990) found that students have role models other than their parents who most often influence their career choice.

For those parents who do have some influence over their child's career decision-making, the image they hold of CTE will certainly affect the direction of that influence, either positively or negatively. In a study of the attitudes and perceptions held by parents toward vocational education, Gilbertson (1995) found that parents of students enrolled in vocational education courses had a significantly more positive attitude toward vocational education than parents of students who were not enrolled in vocational courses.

In many instances it is the practice of high school guidance offices to require a parent signature, or parent input, on course scheduling prior to approval.

Unfortunately, according to some researchers, parental opinion persistently regards vocational education as the path for non-college-bound students, with a narrow focus and limited opportunities (Ries, 1997; Vo, 1997). If parents are to have a positive influence on their children regarding CTE, then "changing the minds of parents whose hearts are set on college for their kids may be the hardest part" (Kerka, 2000, p. 2).

With the implementation of school-to-career programs nationwide, it is becoming clear that parents are not yet being convinced. According to Gray (1997), this is mainly due to the myths that have grown up around the economy, higher education, and the relationship between college degrees and good jobs. Unless the CTE community debunks these myths, secondary career and technical education could be in danger (Gray, 1997). "Although the data is limited, it seems that the

public supports the concept of CTE for those who are not college bound. However, most parents prefer the college option for their own children” (Cohen & Besharov, 2002, p. 20).

While the Rossetti (1989b) study found that mothers/female guardians have the greatest influence (46%) over student decision-making regarding CTE, they are followed closely by friends (44%), counselors (39%), and fathers/male guardians (38%). Teachers and other relatives were found to be in the 20% range in this study (Rossetti, 1989b).

Dube (1987) found that 89% of friends tried to discourage a student from entering into a CTE program, while only 14% tried to encourage a student’s enrollment. In stark contrast, Beukes (1986) and Reynolds (1976) found that friends had no influence on choices and decisions involving CTE enrollment, and Gehrt (1990) reported that students are not significantly influenced by their peers in selecting a career program.

Research with regard to a teacher’s influence has reported mixed results. Some have found that a teacher’s effect upon students did not influence their enrollment in CTE (Beukes, 1986; Dube, 1987), while others discovered that students sought the advice of their teachers before enrolling, and are indeed impacted by that advice (Herr, 1987; Lejeune, 1977; Rossetti, 1989b). Gehrt (1990) discovered that CTE instructors with whom students have contact are an important influence on student decision-making, although the primary influencing agent in making a career program choice is the individual himself/herself. Jackson (2002) also reported that

instructors who make a visit to the home school might indeed spark an interest and positively influence a student's decision concerning CTE enrollment.

Other researchers have found that high school counselors have some influence on student decision-making (Herr, 1987; Rossetti, 1989c). According to Huss and Banks (2001), school counselors, in particular, can be key figures in student decision-making since they "have a great deal of influence with course selection and therefore are key participants in CTE" (p. 1). Jackson (2002) also reported that students were influenced by counselors who took a special interest in their CTE enrollment. Conflicting results were reported by Reynolds (1976) and Beukes (1986), who concluded that counselors and guidance programs had little or no influence on a student's decision to enroll in a CTE program.

This study seeks to determine the people, if any, who have some influence with today's high school students as they consider their career options, and the possibility of enrolling in CTE.

Immediate External Reasons—School Factors

Lam (1982) identified school factors among the dynamics that influence high school students in their career decision-making. Specific to area career centers, school factors found to be influential by past researchers have included items such as the distance one must travel to the career center, and being away from the home school and friends.

Rossetti (1991) found that being away from the home school and friends was a significant factor that negatively impacted enrollment at the area career center. “Home school friendship is a bond that is keeping some students from enrolling” (p. 6). To promote more CTE enrollment, the author recommends promoting the center as a socially friendly place with the opportunity to meet new people, and to sponsor social events to ease the transition.

Jacobs’ (1975) research of enrollment at area career technical centers in West Virginia found that travel to another school was a prominent factor in dissuading students from enrolling in a CTE program. Likewise, Scanlon’s (1984) study supported Jacobs’ findings and concluded that busing and distance were discouraging factors for many students.

While the research is limited, other school factors often believed to impact enrollment in career technical programs, although in positive ways, include the opportunity for a waiver of high school credits, and the opportunity to obtain college credit for successful completion of CTE programs (Lotto, 1985). The National Commission on Secondary Vocational Education spoke to this issue in their 1985 report. “We need to identify and coordinate other education options with secondary vocational education. Articulation and coordination agreements are needed” (Lotto, 1985, p. 571).

The waiver of high school credits for successful completion of a CTE course is a practice that has been put in place by many career technical programs. While plans vary from district to district, and program to program, it is primarily a

recognition that academic areas of mathematics, science, and language arts are taught in many CTE programs, and therefore a waiver may be available to students with regard to their high school credit requirements in those areas. This credit-waiving arrangement can be seen as a strategy to ease the scheduling difficulties encountered by some students who want to attend a half-day CTE program, but find it difficult to manage because of the array of courses they are required and/or desire to take (Lotto, 1985).

Articulated credit is the term used when students receive college credit for successful completion of a career technical program. Agreements are forged between secondary and postsecondary institutions to afford the opportunity for receipt of college credit based upon successful completion of CTE programs. Basically, students may receive credit for competencies mastered in CTE programs that are required in specific college courses. CTE administrators often pursue these agreements to not only secure advantages for their students, but to legitimize their instruction and enhance the image of career and technical education (Lotto, 1985).

This study seeks to determine if spending time away from the home high school, travel distance to an area center, waiving of high school credit, and receiving college credit for completing a CTE program have some influence with today's high school students as they consider their career options, and the possibility of enrolling in CTE.

Immediate External Reasons—Recruitment/Outreach Initiatives

Recruitment activities are common among area career centers, particularly because their programs are an elective choice and survival depends upon a stable and reliable student population. According to Jackson (2002), most students said they learned about the CTE programs in which they were enrolled through recruiting activities from their career centers. A variety of marketing strategies are consequently used to positively impact aspiring students including visits and tours to the area center, brochures and other promotional materials, websites with pertinent information on programs and opportunities, outreach efforts by area center staff into the local schools, and the nurturing of partnerships with the business/industrial community.

To boost enrollment, one researcher reported that CTE educators use “everything from a student-produced video to cable television appearances and professionally designed brochures to spread the word about career and technical education” (Ries, 1999, p. 1). Another found that partnerships with business and industry, and credit for work-based learning, are advantageous strategies in the enrollment arena (Husain, 1999).

While most area centers engage in many, if not all, of these recruitment strategies, the literature is not replete with information regarding their actual impact on enrollment. Those recruitment/outreach initiatives stressed by one particular area career technical center are examined in this study to determine their impact on enrollment.

Remote External Reasons—Socioeconomic Status and Academic Standing

According to Kerka (2000), “opportunities for challenging careers and good salaries are changing the demographics of today’s CTE students” (p. 1). For the purposes of this study, and in keeping with Lam’s (1982) classifications, gaining an understanding of common CTE student characteristics in the areas of socioeconomic status and academic standing is a focus. In this study, socioeconomic status concentrates primarily on two issues: (a) the social environment in which the student lives, that is, the makeup of the household of residence; and (b) the family income level present in that household.

Data identifying a typical profile of CTE students, with regard to socioeconomic status, appear limited. While no research data were found identifying the household make-up of CTE students specifically, data were available on the general population of students. The National Center for Education Statistics reported on high school sophomores nationwide, indicating that students living with both parents, either biological or adoptive, comprise approximately 57% of the population. Twenty-two percent live in a single-parent household, while 17% live with their mother or father and a stepparent. Four percent were found to live in a variety of other arrangements (National Center for Education Statistics, 2002). Whether CTE students are over, or under, represented in any of these categories is a research consideration in this study.

With regard to income level, Campbell (1986) found that a higher proportion of low socioeconomic students are enrolled in CTE. Levesque and Hudson (2003), in

a study of 1998 high school graduates across the nation, also found that those identified as being in a lower economic category, identified by the National Center for Education Statistics (NCES) office as being in a poverty classification, were found in higher concentrations in CTE than their non-CTE counterparts who were members of more advantaged groups. No detailed explanation was offered as to why that dynamic exists, but conjecture includes the thought that students without the financial means to pursue more advanced postsecondary training are directed toward CTE where they may gain marketable work-related skills.

With regard to academic standing, vocational education has often been considered the track for low-achieving, non-college-bound students. But according to Ries (2000), students in the top 5% of their high school classes can be found in CTE programs. Career academies such as Harford Tech (Bowden, 1998) and Chicago Ag (Vo, 1997) are college preparatory schools with strong enrollments drawn from a broad mix of the achievement spectrum. Philadelphia's secondary technical schools have updated their curricula to appeal to the high-achieving college-bound youngster as well as the average student, while maintaining programs for special needs students (Langland, 1999). In 2000, the winners of the All-American Vocational Student Award had a median grade point average of 3.35 (Kerka, 2000).

These examples, and many others in the literature, indicate CTE's attempt to appeal to a broad mix of students, from those functioning at the lower end of the academic scale, to students with above average academic performance (Blassingame, 1999; Daggett, 2003; Gray, 2002; Miller, 2002; Seccurro & Thomas, 1998).

Levesque and Hudson (2003), however, found that although CTE attempts to appeal to a wide range of academic performers, those students from the highest academic achievement groups were less likely to be in a CTE concentration. Likewise, in data reported by the National Center for Education Statistics (NCES), between 1982–1994, students with lower GPAs generally completed more vocational credits. (National Center for Education Statistics, 2002).

With the ongoing initiatives in CTE to *raise the bar* on academic content in CTE, and to appeal to the broad mix of student ability levels, this study assesses the impact of that effort, and determines if a significant academic difference exists between non-CTE students and those students in CTE in one particular secondary setting.

Summary

Many of the issues examined in this study have been explored previously. The perceptions and images of CTE, the characteristics of students most often enrolled in CTE, and the factors that influence their enrollment, have received some attention from researchers in the past, but little can be found on these issues regarding the students of today. A contemporary look at these issues will be helpful to CTE educators and other stakeholders to determine if perceptions and the image of CTE have changed, if societal changes have affected the make-up of the CTE student population, and if cultural changes have affected the people and things that influence students in their decision-making regarding CTE. Understanding the current dynamic

with respect to these issues will assist CTE educators in fashioning strategies to maximize enrollment in today's educational environments.

CHAPTER III

METHODOLOGY

Walonick (1998) identifies three primary methods of conducting research:

(a) survey, (b) observation, and (c) experiment. Since survey data is the most common method of gathering information in the social sciences, and can identify attitudes and perceptions of respondents, it was an ideal method of data collection for this study. Additionally, surveys are cost effective, particularly when dealing with large populations; easy to administer; a familiar format to most people; less biased; easy to analyze; and less intrusive. A primary disadvantage of surveys, particularly as it pertains to this study, is the inability to probe further into particular topics. Additionally, since nearly 90% of all communication is visual, gestures and other cues are not available with written surveys (Walonick, 1998).

This study explored the profile of CTE students with regard to their academic standing and their socioeconomic background, examined secondary students' perceptions of career and technical education, and identified the people and other factors that influence students in their decision-making about CTE enrollment. Specifically, the influencing factors examined include: (a) high school counselor, (b) high school teacher, (c) high school principal, (d) mother, (e) father, (f) brother or sister, (g) friend, (h) area center staff person, (i) tour of the center, (j) another visit or field trip to the center, (k) high school career plan (EDP), (l) marketing materials,

(m) website, (n) travel distance, (o) separation from the high school, (p) the opportunity for high school credit waiver, and (q) the opportunity to receive college credit.

A description of the instrumentation, appropriateness of survey methodology, setting, participants, pilot testing, data collection, data recording, Human Subjects Institutional Review Board approval, and data analysis of the study are included in this chapter.

Instrumentation

A 29-question survey was designed to gather information from a group of currently enrolled seniors in the public high schools that send students to a particular area career technical center in the northwest region of Michigan's lower peninsula. According to Isaac and Michael (1982), the survey method was appropriate for this study because it was (a) systematic—carefully planned and executed, (b) representative of the population under study, (c) objective, and (d) quantifiable—yielding data that could be expressed numerically.

The survey contained four distinct sections. Section I gathered information on a student's gender, academic grades, living arrangements, and family income situation, and also determined if they currently attended the career technical center. Section II contained six questions that addressed a student's image of the career technical center. These image questions were particularly focused on their perceptions of the purpose of the career technical center, as well as the type of students they

believed best suited for enrollment there. Section III focused on the *people* who may have influenced a student's decision regarding enrolling, or not enrolling, in the career technical center. Section IV focused on an array of *other factors*, largely identified in the literature review, which may have influenced a student's decision regarding enrolling, or not enrolling, in the career technical center.

Aside from Section I, where respondents simply checked boxes identifying their personal information, Sections II through IV utilized a 5-point Likert scale for gathering data. Section II, concerning a student's perceptions on particular items, used a Likert scale ranging from *Strongly Disagree* to *Strongly Agree*. Sections II and III sought responses regarding people and other factors that influenced students, reported on a Likert scale ranging from *Not at all* to *A lot*. A copy of the survey can be found in Appendix B.

Setting

Career and technical education is delivered in many ways throughout the state of Michigan, from comprehensive and career technical high schools to area career technical centers. The setting for this study is an area career technical center, typical in many respects to other centers throughout the state. While some are located in highly populated urban areas offering 20–30 CTE programs and serving 1,200 or more students, and others are in remote rural areas offering 6–8 CTE programs and serving a population of 200–300, this somewhat rural location, offering 13 programs

and serving 550 students, was selected as a representative facility of an average-sized center.

The Wexford Missaukee Intermediate School District (WMISD) is a district in the northwest region of the lower peninsula of Michigan. Wexford and Missaukee counties, as well as portions of five other counties, comprise the 1,500 square mile district. The city of Cadillac contains a population of approximately 10,000 residents and is surrounded by several small communities. Seven public school districts are within the WMISD boundaries and receive its services. As is true of all intermediate school district (ISD) and regional educational service agency (RESA) deliveries in Michigan, their primary purpose is to provide educational opportunities to students in a wider geographic area, programs that would be cost prohibitive for individual districts to provide on their own due to limited student populations and/or equipment needs. The stated mission of the WMISD is to “provide high quality educational and support services requested by its constituent local districts whereby each district can more effectively meet the educational needs of its students and citizens” (Wexford Missaukee Intermediate School District, 2005, ¶ 4). The WMISD provides general education, special education, and career and technical education services from its central location in Cadillac, and in outreach efforts into the constituent districts.

The Wexford Missaukee Area Career Technical Center (WMACTC), a part of the WMISD delivery, is located in Cadillac, Michigan and has been serving students in the district since 1971. In the 2004–2005 school year approximately 550 students from the local districts were enrolled in one of the 13 programs available at the

center. These programs include: Agriscience and Natural Resources; Allied Health Technology; Automotive Service; Building Trades; Business Services Technology; Computers and Electronic Systems Integration; Cosmetology; Heavy Equipment Mechanics; Hospitality, Retailing and Entrepreneurship; Machining and CAD/CAM; Metal Fabrication and Welding; Robotics and Automation; and Small Engines.

The majority of students begin at the center during their junior year with plans to complete a 2-year program of study by the end of their senior year. A small number of sophomore students are in attendance each year as well, as are tuition-paying adults from throughout the region.

A concerted effort is made by staff at WMACTC to actively recruit students. These recruitment efforts include: the development of brochures, creation of a website, organization of visits and tours of the center by sophomore students from the local high schools, collaboration through meetings and visits with local high school personnel on issues ranging from credit waiver and articulation opportunities to new program development, and letters sent to the homes of prospective students. Other incidental efforts include timely newspaper articles and WMISD newsletter insertions regarding the center. These recruitment efforts, therefore, identify the perceived factors that WMACTC staff believe may have an influence on a student's decision to attend the Center. Furthermore, these and other staff efforts are designed to portray CTE in a positive light and enhance the image and perception of CTE and the area center in particular. It is these factors that are investigated in this study, along with the people who influence students in their decision about enrolling in CTE.

Participants

The population for the survey is comprised of seniors from each of the seven public high schools in the WMISD. Those schools include Cadillac High School, Lake City High School, Manton High School, Marion High School, McBain High School, Mesick High School, and Pine River High School. The researcher made a verbal presentation, about the purpose and intent of the study, to the superintendents in each of the local districts, and to the principals in each of the local high schools. Included in the presentation was information about the protocol to be followed in the study. A letter of approval to conduct the study was obtained from each superintendent and principal. A copy of one of the approval letters can be found in Appendix F as an example.

With regard to the participants in the study, specifically, respondents were those who were present in their required Government class on the particular day selected by the Government teacher for survey administration. Because Government is a one-semester class, not all seniors were enrolled in the required class at the time of the study. Furthermore, due to absenteeism, not all of the seniors enrolled in the class were present on the particular day chosen. Therefore, this is not considered a census study. Overall, 451 students responded to the survey.

Pilot Testing

Prior to surveying the seniors in the local schools, a pilot study was conducted to ascertain the length of time required for the survey, as well as its ease of

completion. The researcher in this study gave the survey to 16 randomly selected high school juniors in one of the local schools. Students were provided with pencils, and the survey was distributed along with the student cover letter. No verbal explanation as to the survey's purpose was given, other than to suggest that the researcher needed their assistance in determining student opinions and perceptions about career and technical education. It was found that the survey took a minimum of 5 minutes, and a maximum of 8 minutes, to complete. No questions were asked of the researcher. Following completion of the survey students were asked their impressions, particularly the clarity of the instrument. Most said it was easy to follow; no one indicated that it was confusing. However, when the completed surveys were reviewed, it was found that two students had completed Parts III and IV incorrectly, by filling out both sides of the survey, rather than the portion that pertained to their individual circumstance (either a CTE student, or not a CTE student.)

To assure that students would complete the survey correctly, a script was developed to be used by the teacher facilitators in administration of the survey. To determine the effectiveness of the administration script, a second pilot study was conducted.

The survey was given to another 14 randomly selected high school juniors in one of the local schools by the researcher in this study. Students were provided with pencils, and the survey was distributed along with the student cover letter. The cover letter describes the purpose and intent of the survey. The researcher, acting as the survey facilitator, utilized the prepared script in the administration of the survey. The

script specifically addressed Parts III and IV, the sections previously shown to be problematic. All 14 students reported no difficulty with the survey, and no errors in completion were found. A copy of the student cover letter and teacher script can be found in Appendices D and E, respectively.

Data Collection

A teacher in each high school Government class, acting as a facilitator, was provided with a cover letter describing the purpose of the survey and thanking them for their participation, an administration script, and enough surveys to accommodate students enrolled in their Government class. A copy of the teacher cover letter can be found in Appendix C.

Teachers were instructed to administer the surveys, on a day of their choosing within a 2-week timeframe, to the seniors present in their class on the particular day selected. The teachers distributed the surveys along with the student cover letter. The teacher read the prepared script aloud to the students prior to beginning the survey. Students were reminded not to put their name anywhere on the survey. The surveys were not coded in any way, thus the responses were completely anonymous. Students were further instructed that they could choose not to answer any question by simply leaving it blank, and could also choose not to participate at all. Students completed the survey in less than 10 minutes. When all students were finished with the survey, the teacher collected them, placed them in an envelope, and returned them to the researcher in this study.

Data Recording

Immediately upon receipt of the surveys, the data were input into an electronic database and the file stored on a rewritable CD. Cone and Foster (2001) suggest that it is advisable to minimize the number of steps between receiving the raw data and actually inputting the data into the computer. After verification by Dr. Carl Woloszyk, Professor Emeritus of the Department of Teaching, Learning, and Leadership, that all hard copy was included in the database, the hard copy was destroyed. An original CD of the data will be maintained for a minimum of 3 years in University archives through the Department of Teaching, Learning and Leadership, and a backup copy will be maintained for a like amount of time by the researcher in this study.

Human Subjects Institutional Review Board

Western Michigan University's Human Subjects Institutional Review Board (HSIRB) approved the procedures, protocol, and methodology for this study on October 13, 2004. Copies of the HSIRB approval letter can be found in Appendix A.

Data Analysis

This study explored the profile of CTE students with regard to their academic standing and their socioeconomic background, examined students' perceptions of career and technical education, and identified the people and other factors that influence students in their decision-making about CTE enrollment.

Through the use of a 29-question survey, data were collected and analyzed to provide insight into six specific research questions. The questions are categorized into the following three groups: (a) the profile of CTE students on academic and socioeconomic issues, (b) the image and perception of CTE by secondary students, and (c) the factors that influence students regarding CTE enrollment. The specific research questions addressed within those three groups are as follows:

1. Is there a significant difference between high school seniors enrolled in CTE, and those not enrolled, with respect to their academic standing?
2. Is there a significant difference between high school seniors enrolled in CTE, and those not enrolled, with respect to their social living arrangements?
3. Is there a significant difference between high school seniors enrolled in CTE, and those not enrolled, with respect to their economic situation?
4. What are the perceptions of high school seniors with regard to CTE, and are those perceptions significantly different between those enrolled in CTE, and those not enrolled?
5. Who are the people that influence students in their decision about enrolling in CTE?
6. What are the other factors that influence students in their decision about enrolling in CTE?

The first three research questions attempt to identify a profile of a typical CTE student with respect to his or her academic standing, social living arrangements, and economic situation. The intent of the investigation was to determine if a CTE student

appeared significantly different on these characteristics from students not enrolled in CTE.

Research Question 1: *Is there a significant difference between high school seniors enrolled in CTE, and those not enrolled, with respect to their academic standing?*

Survey question Part I, question #5, distinguished between those students enrolled in CTE, and those students not enrolled. This allowed for an analysis of the differences between the two groups of students on Part I question #3, which identified a student's self-reported academic performance. Students were asked, "What grades do you usually get?" They could respond along an 8-point scale, from *Mostly A's*, to *Mostly A's and B's*, *Mostly B's*, *Mostly B's and C's*, *Mostly C's*, *Mostly C's and D's*, *Mostly D's*, and *Mostly D's and F's*. Descriptive statistics were calculated for those students enrolled in CTE, and those students not enrolled, and reported as percentages in each category.

Further analysis was carried out to determine if there was a statistical difference, at the .05 level of significance, between the academic standing of CTE students and those not enrolled in CTE, by comparing the mean rank scores. A nonparametric test, the Mann-Whitney test, was utilized for this purpose. This measure was selected because these particular data in the study are ordinal, and therefore do not meet the assumptions necessary to perform a parametric test such as a *t* test or an analysis of variance, both of which require data to be at least interval. A table of descriptive statistics was used to display the results.

Research Question 2: *Is there a significant difference between high school seniors enrolled in CTE, and those not enrolled, with respect to their social living arrangements?*

Survey question Part I, question #5, distinguished between those students enrolled in CTE, and those students not enrolled. This allowed for an analysis of the differences between the two groups of students on Part I question #2, which identified a student's social living arrangements. Students were asked, "With whom do you live?" They could respond on an 8-item nominal scale, with responses including: (a) Both your mother and your father, (b) Your mother and a stepfather, (c) Your father and a stepmother, (d) With father only, (e) With mother only, (f) Your mother some of the time and your father some of the time, (g) With other relatives, and (h) With other adults. Descriptive statistics were calculated for those students enrolled in CTE, and those students not enrolled, and reported as percentages in each nominal category.

Further analysis was carried out to determine if there was a statistical difference, at the .05 level of significance, between profiles of the social living arrangements of CTE students and those not enrolled in CTE. A chi-square (χ^2) test of homogeneity was utilized for this purpose. This nonparametric measure was selected because the data being compared are categorical data. The chi-square test of homogeneity is the appropriate statistical test for determining whether statistical differences exist between the profiles of two or more populations on an array of categorical variables. A table of descriptive statistics was used to display the results.

Research Question 3: *Is there a significant difference between high school seniors enrolled in CTE, and those not enrolled, with respect to their economic situation?*

Survey question Part I, question #5, distinguished between those students enrolled in CTE, and those students not enrolled. This question allowed for an analysis of the differences between the two groups of students on Part I question #4, which identified a student's economic situation. Students were asked, "For most of the time in your family, which of the following statements best describes your family situation?" The students could respond on a 4-item nominal scale, with responses including: (a) Your family has a hard time getting enough money for food, clothing, and basic living costs; (b) Your family has just enough money for food, clothing, and basic living costs; (c) Your family has a few problems buying what your family needs; and (d) Your family has no problems buying what your family needs and is able to buy special things. Descriptive statistics were calculated for those students enrolled in CTE, and those students not enrolled, and reported as percentages in each nominal category.

Further analysis was carried out to determine if there was a statistical difference, at the .05 level of significance, between the economic situation of CTE students and those not enrolled in CTE. A Mann–Whitney test was utilized for this purpose. A table of descriptive statistics was used to display the results.

The fourth research question attempts to identify the image and perception of CTE by high school seniors. As identified in the literature review, the improvement of

CTE's image has been identified as a major need for the past two decades. The intent of the investigation was to determine if the current image of CTE, held by secondary students, is still negative, or if initiatives on the part of the CTE community have shifted opinions in a more positive direction. Further, the investigation attempts to determine if that image is significantly different between students enrolled in CTE and students not enrolled.

Research Question #4: *What are the perceptions of high school seniors with regard to CTE, and are those perceptions significantly different between those enrolled in CTE, and those not enrolled?*

The issue of perception is explored in Part II of the survey. Six questions were presented in this section to indicate a student's perception of the Career Technical Center. Students were asked to identify for whom they believed the Career Technical Center was designed to serve. The categories were identified as follows: (a) those who plan to go to work immediately after high school, (b) those who plan to join the military immediately after high school, (c) those who plan to go to college immediately after high school, (d) those who struggle academically, (e) those who are discipline problems, and (f) those of all ability levels. To each category students responded on a 5-point Likert scale, from *Strongly Disagree* (1) to *Strongly Agree* (4). They could also respond that they *Don't Know* (5).

Survey questions 4, 5 and 6, in particular, provide information on the image of the Career Technical Center. A *Strongly Agree* and *Agree* response to survey question 6 would represent a positive image of the Career Technical Center. That is,

if students perceive that the Career Technical Center is designed for students of all ability levels that would indicate a positive image of the Career Technical Center. Conversely, a *Strongly Disagree* and *Disagree* response to that question would indicate a negative image. For questions 4 and 5 the direction is opposite. A *Strongly Agree* and *Agree* response would represent a negative image of the Career Technical Center and a *Strongly Disagree* and *Disagree* response to those questions would indicate a positive image. That is, if students strongly agree and agree that the Career Technical Center is designed for students who struggle academically, and who are discipline problems, that would indicate a negative image. Descriptive statistics were calculated for those students enrolled in CTE, and those students not enrolled, and reported as percentages of those who *Strongly Agree* and *Agree* in each category.

Further analysis was carried out to determine if there was a statistically significant difference between the perception of CTE of those who enroll, and those who do not enroll in CTE. A series of *t* tests were conducted, at the .05 level of significance, to determine if there was a statistically significant difference between CTE and non-CTE students in each of the categories. A table of descriptive statistics was used to display the results. Further, since the categories may be interrelated, and consequently differences in one may account for differences in another, a discriminant function analysis (DFA) was conducted. DFA accounts for the complicating effect of one variable upon another, and allows the researcher to strip out the intercorrelations and better determine the truly significant effects (Fisher, 1936). Essentially, *t* tests treat the categories as if they are completely independent, while DFA considers the

categories in combination. The DFA was conducted using a significance level of .05. A table of descriptive statistics was used to display the results.

The final two research questions attempt to identify the people and other factors that influence students regarding their decision to enroll, or not to enroll, in CTE.

Research Question #5: *Who are the people that influence students in their decision about enrolling in CTE?*

Part III of the survey asks students to identify the extent to which eight different people either encouraged their attendance at the Career Technical Center if they were a CTE student, or discouraged their attendance if they were not. The people identified were the high school counselor, a high school teacher, the high school principal, their mother, their father, their brother or sister, a friend, and an area center staff person. For each person, the student responded on a 5-point Likert scale which included: (a) *Unsure*; (b) *Not at all*; (c) *Not that much*; (d) *A little*; and (e) *A lot*. They could also respond that they *Do not have*, with regard to a mother, father, or sibling.

Descriptive statistics were calculated, based upon those who were influenced *A little* or *A lot*, and reported as percentages in each category for those students who were enrolled at the Career Technical Center. This analysis identified the level of influence of each group of people regarding students' attendance at the Career Technical Center. Likewise, descriptive statistics were calculated, based upon those who were influenced *A little* or *A lot*, and reported as percentages in each category

for those students who were discouraged from attending the Career Technical Center. This analysis identified the level of influence of each group of people regarding students' decisions not to attend the Career Technical Center.

Research Question #6: *What are the other factors that influence students in their decision about enrolling in CTE?*

Part IV of the survey asks students to identify the extent to which nine different factors either encouraged their attendance at the Career Technical Center if they were a CTE student, or discouraged their attendance if they were not. The factors identified were a 10th grade tour of the CTC, another field trip to the CTC, a high school career plan (EDP), marketing materials such as brochures and videos, the CTC website, time spent traveling to the CTC, spending half of the day away from the high school, receiving a waiver of high school credit for completing a CTC program, and receiving college credit for completing a CTC program. For each factor, the student responded on a 5-point Likert scale which included: (a) *Unsure*; (b) *Not at all*; (c) *Not that much*; (d) *A little*; and (e) *A lot*. Students could also respond that they *Didn't attend*, with regard to the 10th grade tour and field trip; *Don't have one*, with regard to an EDP; *Didn't see any*, with regard to marketing materials; and *Didn't see it*, with regard to the CTC website.

Descriptive statistics were calculated, based upon those who were influenced *A little* or *A lot*, and reported as percentages in each category for those students who were enrolled at the Career Technical Center. This analysis identified the level of influence of each factor regarding students' attendance at the Career Technical

Center. Likewise, descriptive statistics were calculated, based upon those who were influenced *A little* or *A lot*, and reported as percentages in each category for those students who were discouraged from attending the Career Technical Center. This analysis identified the level of influence of each factor regarding students' decisions not to attend the Career Technical Center.

Summary

This chapter explained the methods and procedures used to analyze the data collected in examining secondary students' perceptions of career and technical education, exploring the profile of CTE students with regard to their academic standing and their socioeconomic background, and identifying the people and other factors that influence students in their decision-making about CTE enrollment. Table 1 summarizes the data analysis methods used for the research questions. Chapter IV will present the results obtained using those methods.

Table 1

Data Analysis for the Research Questions

Research Question	Description	Data Analysis
Q1: Academic profile	Identification of academic performance of high school seniors, and comparisons between CTE and non-CTE students	Descriptive statistics of data segmented by group and Mann–Whitney test to test for significant differences between the groups
Q2: Living arrangements	Identification of living arrangements of high school seniors, and comparisons between CTE and non-CTE students	Descriptive statistics of data segmented by group and a χ^2 test of homogeneity
Q3: Economic situation	Identification of economic situation of high school seniors, and comparisons between CTE and non-CTE students	Descriptive statistics of data segmented by group and Mann–Whitney test to test for significant differences between the groups
Q4: Perceptions	Perceptions of high school seniors regarding purpose of CTE, and comparisons between CTE and non-CTE students	Descriptive statistics of data segmented by group and discriminant function analysis (DFA)
Q5: Influential people	Identification of most influential people in encouraging and discouraging CTE enrollment	Descriptive statistics of data segmented by group
Q6: Influential factors	Identification of most influential factors in encouraging and discouraging CTE enrollment	Descriptive statistics of data segmented by group

CHAPTER IV

DATA ANALYSIS RESULTS

The purpose of this study was to discern the profile of CTE students with regard to their academic standing and their socioeconomic background, provide a current examination of secondary students' perceptions of career and technical education, and explore the people and other factors that influence students about enrolling in CTE programs. Results of this investigation can serve to further the understanding of CTE administrators, staff, and policymakers in area centers, and in the CTE field in general, so that appropriate factors can be employed to maximize enrollment.

The Profile of CTE Students on Academic and Socioeconomic Issues

Research Question 1 Results: *Is there a significant difference between high school seniors enrolled in CTE, and those not enrolled, with respect to their academic standing?*

Question #3 in Part I of the survey identified self-reported academic performance. Students were asked, "What grades do you usually get?" Students responded along an 8-point scale, ranging from *Mostly A's*, *Mostly A's and B's*, *Mostly B's*, *Mostly B's and C's*, *Mostly C's*, *Mostly C's and D's*, *Mostly D's*, to

Mostly D's and F's. A total of 451 students responded to this question, 126 of whom were CTE students, and 325 who were not CTE students.

Frequencies and percentages were calculated for non-CTE and CTE students in each grade classification. In the *A's* classification, 26.5% of the non-CTE group, and 9.5% of the CTE group were represented. In the *A's and B's* classification, 42.2% of the non-CTE group, and 33.3% of the CTE group were represented. In the *B's* classification, 10.8% of the non-CTE group, and 14.3% of the CTE group were represented. Twice the percentage was represented by the CTE group in the *B's and C's* classification, at 27%, as compared to 13.5% for the non-CTE group. As the grade classifications become lower, the greater percentage is most often found in the CTE group, except in the *D's* classification where 0.9% of the non-CTE group is represented, as compared to 0.8% of the CTE group.

Additionally, the median point was calculated for the non-CTE and CTE groups. The median is the point below which half the scores lie. For the non-CTE group the median point occurs in the *A's & B's* grade classification. The median point for the CTE group occurs in the *B's* grade classification.

Table 2 shows the frequencies and percentages of student academic grades for non-CTE and CTE students.

A comparison of non-CTE and CTE student academic grades is presented in Figure 1.

Table 2

Frequencies and Percentages of Student Academic Grades for Non-CTE and CTE Students

Grades	Non-CTE Students		CTE Students	
	Frequency	Percentage	Frequency	Percentage
A's	86	26.5	12	9.5
A's & B's	137	Median 42.2	42	33.3
B's	35	10.8	18	Median 14.3
B's & C's	44	13.5	34	27.0
C's	6	1.8	11	8.7
C's & D's	12	3.7	5	4.0
D's	3	0.9	1	0.8
D's & F's	2	0.6	3	2.4
Total	325	100.0	126	100.0
Median	163		63	

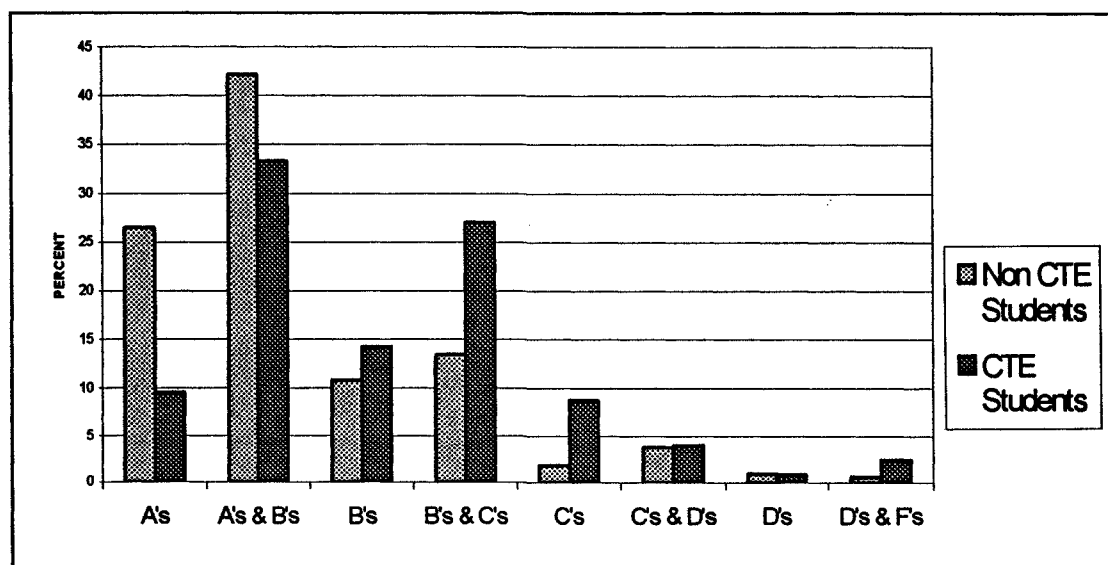


Figure 1. Comparison of Non-CTE and CTE Student Academic Grades.

Further analysis was conducted to determine if there was a statistically significant difference, at the .05 level of significance, between the academic standing of CTE students and those not enrolled in CTE. A nonparametric test, the Mann–Whitney test, was utilized to compare the mean rank scores between the groups. This measure was selected because these particular data in the study are ordinal and, therefore, do not meet the assumptions necessary to perform a parametric test such as a *t* test or an analysis of variance, both of which require data to be at least interval. The grade classifications contain ordered response categories, but the intervals between the categories are not necessarily equal. The Mann–Whitney test ranks all of the data, and then calculates and compares the mean rank score for each group. The Mann–Whitney test indicated that there was a significant difference ($p < .0001$) between non-CTE and CTE students with respect to this difference. The grades of non-CTE students are higher overall than those of CTE students by approximately one grade classification. Non-CTE and CTE student mean rank scores of academic grades are shown in Table 3.

Table 3

Non-CTE and CTE Student Mean Rank Scores of Academic Grades

	<i>N</i>	Mean Rank
Non-CTE Students	325	205.70
CTE Students	126	278.36

Research Question 2 Results: *Is there a significant difference between high school seniors enrolled in CTE, and those not enrolled, with respect to their social living arrangements?*

Question #2 in Part I identified a student's social living arrangements.

Students were asked, "With whom do you live?" Responses were on an 8-item nominal scale, and included: (a) Both your mother and your father, (b) Your mother and a stepfather, (c) Your father and a stepmother, (d) With father only, (e) With mother only, (f) Your mother some of the time and your father some of the time, (g) With other relatives, and (h) With other adults. A total of 451 students responded to this question, 126 of whom were CTE students, and 325 who were not CTE students.

Frequencies and percentages were calculated for non-CTE and CTE students in each social living arrangement classification. In the *Mother and Father* classification, 57.0% of the non-CTE group, and 38.9% of the CTE group were represented. In the *Mother and Stepfather* classification, 12.6% of the non-CTE group, and 19.8% of the CTE group were represented. Only 3% separated the groups in the *Mother Only* classification, at 12.0% for the non-CTE group and 15.0% for the CTE group. The other classifications were much closer between the groups, within 1.3%, except in the *Other Adult* classification. In that classification only 1.9% of the non-CTE group were represented, as opposed to 9.5% of the CTE group.

Table 4 shows the frequencies and percentages of the social living arrangements for non-CTE and CTE students.

Table 4

Frequencies and Percentages of Social Living Arrangements for Non-CTE and CTE Students

Student Social Living Arrangement	Non-CTE Students		CTE Students	
	Frequency	Percentage	Frequency	Percentage
Mother & Father	185	57.0	49	38.9
Mother & Stepfather	41	12.6	25	19.8
Father & Stepmother	16	4.9	6	4.8
Father Only	12	3.7	6	4.8
Mother Only	39	12.0	19	15.0
Mother Some & Father Some	14	4.3	6	4.8
Other Relatives	12	3.7	3	2.4
Other Adults	6	1.8	12	9.5

Figure 2 shows a comparison of the social living arrangements of non-CTE and CTE students.

Further analysis was conducted to determine if there was a statistically significant difference, at the .05 level of significance, between the profiles of the social living arrangements of CTE students and those not enrolled in CTE programs. A chi-square test of homogeneity was utilized for this purpose. This nonparametric measure was selected because the data being compared are categorical data and, thus, cannot be compared using parametric tests. The chi-square test of homogeneity is the

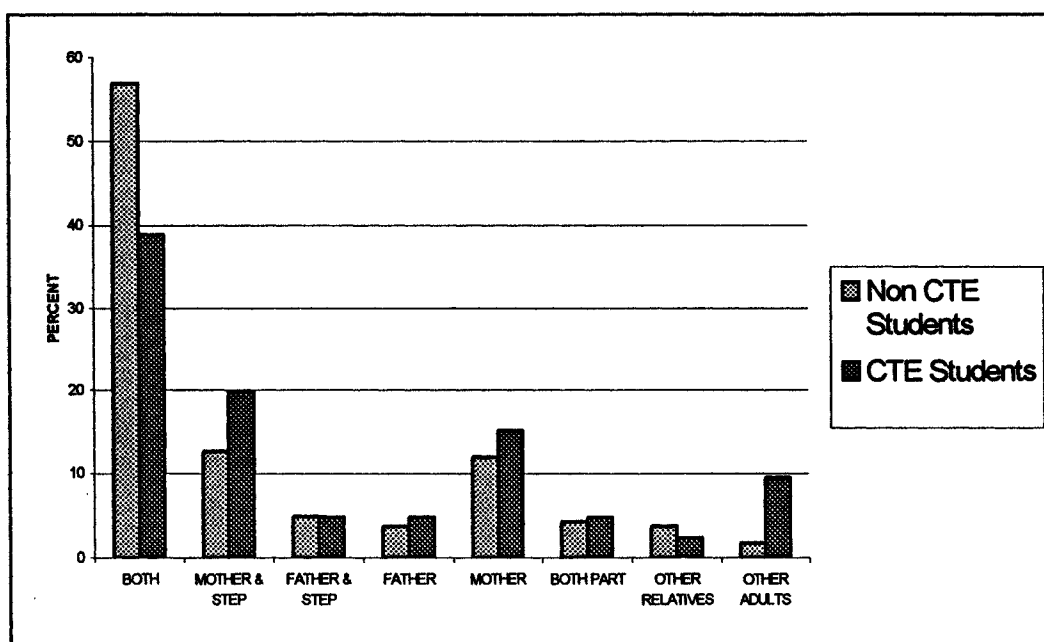


Figure 2. Comparison of Non-CTE and CTE Social Living Arrangements.

appropriate statistical test for determining whether statistical differences exist between the profiles of two or more populations on an array of categorical variables.

Analysis of the results indicates there is a statistically significant difference between CTE and non-CTE students with regard to their social living arrangements, with $\chi^2 = 23.788$. The probability of obtaining a chi-square this large or larger by chance alone is .001.

Research Question 3 Results: *Is there a significant difference between high school seniors enrolled in CTE, and those not enrolled, with respect to their economic situation?*

Part I question #4, identified a student's family economic situation. Students were asked, "For most of the time in your family, which of the following statements

best describes your family situation?” The students responded on a 4-item nominal scale, with choices including: (a) Your family has a hard time getting enough money for food, clothing, and basic living costs; (b) Your family has just enough money for food, clothing, and basic living costs; (c) Your family has a few problems buying what your family needs; and (d) Your family has no problems buying what your family needs and is able to buy special things. A total of 447 students responded to this question, 125 of whom were CTE students, and 322 who were non-CTE students. Frequencies and percentages were calculated for non-CTE and CTE students in each economic situation classification. In the *No Financial Problems* classification, 48.5% of the non-CTE group, and 42.4% of the CTE group were represented. In the *Few Financial Problems* classification, 30.4% of the non-CTE group, and 24.8% of the CTE group were represented. In the *Just Enough to Get By* classification, 17.4% of the non-CTE group, and 24.8% of the CTE group were represented. In the *Hard Time Getting By* classification, 3.7% of the non-CTE group, and 8.0% of the CTE group were represented.

Additionally, the median point was calculated for the non-CTE and CTE groups. The median is the point below which half the scores lie. The position of the medians of the two groups makes it clear that both non-CTE and CTE medians fall into the top part of the second class—*Few Financial Problems*. However, the data show that percentage-wise, in the categories *No Financial Problems* and *Few Financial Problems*, non-CTE students have about a 6% advantage, and this difference is mirrored in the *Just Enough to Get By* and *Hard Time Getting By*

categories for CTE students. The data show that CTE students are slightly more disadvantaged financially.

Table 5 shows the frequencies and percentages of the student economic situation for non-CTE and CTE students.

Table 5

Frequencies and Percentages of Student Economic Situation for Non-CTE and CTE Students

Economic Situation	Non-CTE Students		CTE Students	
	Frequency	Percentage	Frequency	Percentage
No Financial Problems	156	48.5	53	42.4
Few Financial Problems	98	Median 30.4	31	Median 24.8
Just Enough to Get By	56	17.4	31	24.8
Hard Time Getting By	12	3.7	10	8.0
Total	322	100.0	125	100.0
Median	161		62	

Figure 3 shows a comparison of non-CTE and CTE student economic situations.

Further analysis was conducted to determine if there was a statistically significant difference, at the .05 level of significance, between the economic situation

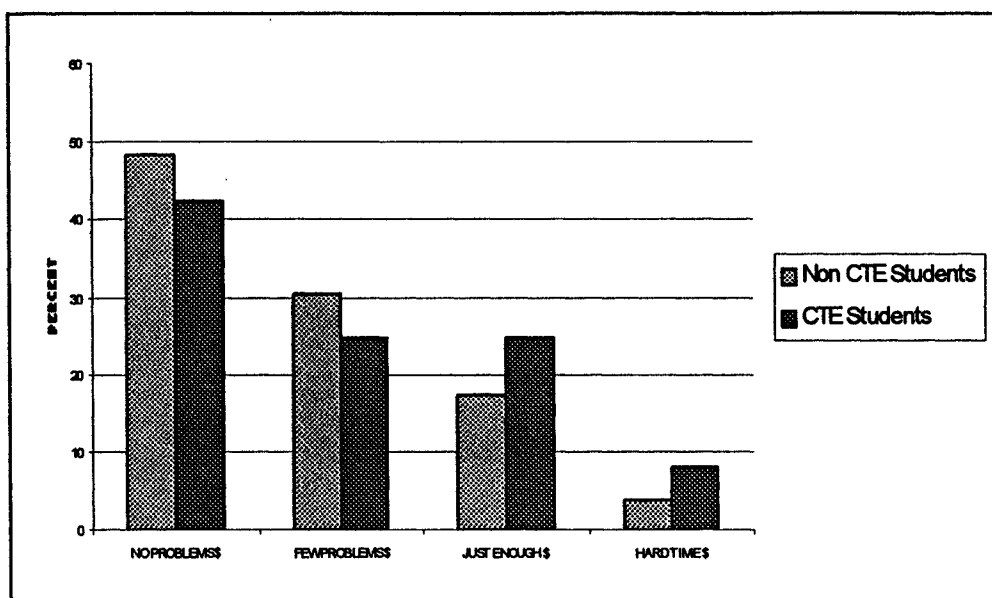


Figure 3. Comparison of Non-CTE and CTE Economic Situation.

of CTE students and those not enrolled in CTE. The nonparametric Mann–Whitney test was utilized to compare the mean rank scores between the groups. This measure was selected because the economic classifications in the study consist of ordinal data that do not meet the assumptions necessary to perform a parametric test such as a t test or an analysis of variance, both of which require data to be at least interval data. The economic classifications contain ordered response categories, but the intervals between the categories are not necessarily equal. The Mann–Whitney test ranks all of the data, and then calculates and compares the mean rank score for each group.

The Mann–Whitney test indicated that there was a significant difference ($p < .047$) between non-CTE and CTE students with respect to their economic situation. The financial situation of non-CTE students was slightly better overall than that of CTE students.

Mean rank scores of the economic situation of non-CTE and CTE students are shown in Table 6.

Table 6

Mean Rank Scores of Economic Situation for Non-CTE and CTE Students

	<i>N</i>	Mean Rank
Non-CTE Students	322	231.04
CTE Students	125	205.87

The Image and Perception of CTE by High School Seniors

Research Question 4 Results: *What are the perceptions of high school seniors with regard to CTE, and are those perceptions significantly different between those enrolled in CTE, and those not enrolled?*

Six questions were presented in Part II of the survey to indicate a student's perception of the Career Technical Center. High school seniors were asked to identify the student groups they believed the Career Technical Center was designed to serve. The categories were identified as follows: (a) those who plan to go to work immediately after high school, (b) those who plan to join the military immediately after high school, (c) those who plan to go to college immediately after high school, (d) those who struggle academically, (e) those who are discipline problems, and (f) those of all ability levels. To each category students responded on a 5-point Likert

scale, from *Strongly Disagree* (1) to *Strongly Agree* (4). Students could also have responded, *Don't Know* (5).

The perceptions of non-CTE and CTE students are similar with regard to:

(a) the Career Technical Center is designed for those who plan to go to work immediately after high school, (b) the Career Technical Center is designed for those who struggle academically, and (c) the Career Technical Center is designed for students of all ability levels.

With regard to the perception that the Career Technical Center is designed for students who plan to go to work immediately after high school, this was *Agreed* and *Strongly Agreed* to by 81.7% of the non-CTE students, and 82.4% of the CTE students—less than a 1% difference between the two groups. Only 1.3% separated the perception to which both groups *Agreed* and *Strongly Agreed* that the Career Technical Center is designed for students who struggle academically, with non-CTE students at 38.1% and CTE students at 36.8%. Similarly, only 1.4% separates the perception to which both groups *Agreed* and *Strongly Agreed* that the Career Technical Center is designed for students of all ability levels. In fact, 78% of non-CTE students *Agreed* and *Strongly Agreed* that the Career Technical Center was for students of all ability levels, and 76.6% of CTE students felt the same.

Greater differences in perception were found in the other three categories.

With regard to the perception that the Career Technical Center is designed for students who are discipline problems, this was *Agreed* and *Strongly Agreed* to by 16.5% of the non-CTE students, and 20.0% of the CTE students—a difference

between the groups of 3.5%. Over 10% separated the groups with regard to the perception that the Career Technical Center is designed for students who plan to join the military. This was *Agreed* and *Strongly Agreed* to by 18.3% of the non-CTE students, and 28.8% of the CTE students. The greatest difference between the groups occurred in the perception that the Career Technical Center is designed for students who plan to go to college. Just over half of the non-CTE students, 51%, *Agreed* and *Strongly Agreed* with this, and 82.4% of the CTE students *Agreed* and *Strongly Agreed*—a difference between the two groups of 31.4%.

Table 7 shows the frequencies and percentages of non-CTE and CTE students who agreed and strongly agreed with each category.

Figure 4 shows a comparison of the perceptions of non-CTE and CTE students.

Additional analysis was conducted to determine if there was a statistically significant difference regarding the perception of CTE between those students enrolled in CTE and those not enrolled in CTE. Means and standard deviations were calculated for each category. A discriminant function analysis (DFA) was conducted, because it addresses the interrelationships between the variables/responses, and allows the researcher to account for the correlations that exist between the questions and more precisely determine which effects are truly significant. Since the perception categories in this study are interrelated, a DFA was utilized to consider the categories in combination. The DFA was conducted using a significance level of .05.

Table 7

Frequencies and Percentages of Perceptions of Non-CTE and CTE Students Who Agreed and Strongly Agreed

The Career Technical Center is designed for students:	Non-CTE Students			CTE Students		
	N	Frequency	Percentage	N	Frequency	Percentage
who plan to go to work immediately after high school.	306	250	81.7	125	103	82.4
who plan to join the military immediately after high school.	305	56	18.3	125	36	28.8
who plan to go to college immediately after high school.	304	155	51.0	125	103	82.4
who struggle academically.	305	116	38.1	125	46	36.8
who are discipline problems.	304	50	16.5	125	25	20.0
of all ability levels.	305	238	78.0	124	95	76.6

Results of the DFA indicate that three categories, among the six, account for the difference in perceptions between the CTE and non-CTE groups. Those categories include the perceptions that the Career Technical Center is designed: (a) for students who are discipline problems, with the F statistic significant at the critical α level of .05, $F(1, 425) = 10.847, p = .001$; (b) for students who plan to go

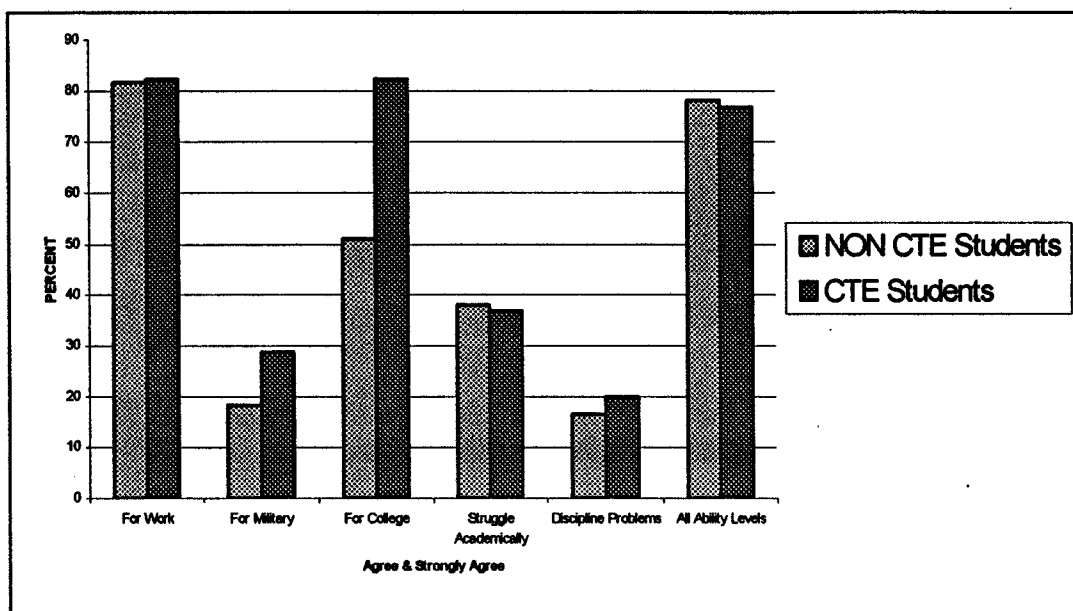


Figure 4. Comparison of the Perceptions of Non-CTE and CTE Students.

to college immediately after high school, with the F statistic significant at the critical α level of .05, $F(2, 424) = 11.417, p = .000$; and (c) for students who plan to join the military immediately after high school, with the F statistic significant at the critical α level of .05, $F(3, 423) = 9.747, p = .000$.

The other three categories are not significantly different between non-CTE and CTE students. Those categories include the perceptions that the Career Technical Center is designed: (a) for students who plan to go to work immediately after high school, (b) for students who struggle academically, and (c) for students of all ability levels.

Table 8 shows the means and standard deviations of perception categories for non-CTE and CTE students.

Table 8

Means and Standard Deviations of Perception Categories for Non-CTE and CTE Students

	Non-CTE Students		CTE Students	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
The Career Technical Center is designed for students:				
who plan to go to work immediately after high school.	3.2614	.79976	3.2400	.79717
who plan to join the military immediately after high school.	3.3440	1.31463	2.3840	1.06849
who plan to go to college immediately after high school.	3.0559	1.12876	3.3440	.78395
who struggle academically.	2.800	1.13671	2.4320	1.05751
who are discipline problems.	2.5296	1.30211	2.0880	1.14311
of all ability levels.	3.4820	.87763	3.4194	.90254

Table 9 shows the stepwise statistics for the discriminant function analysis.

**The People and Other Factors That Influence
Students Regarding CTE Enrollment**

Research Question 5 Results: *Who are the people that influence students in their decision about enrolling in CTE?*

Part III of the survey asked students to identify the extent to which eight different people either encouraged their attendance at the Career Technical Center if

Table 9

Stepwise Statistics for the Discriminant Function Analysis

The Career Technical Center is designed for students:	Statistic	df1	df2	Significance
who are discipline problems.	10.847	1	425	.001
who plan to go to college immediately after high school.	11.417	2	424	.000
who plan to join the military immediately after high school.	9.747	3	423	.000

the respondent was a CTE student, or discouraged attendance if the respondent was not. The different categories of people included: (a) the high school counselor, (b) a high school teacher, (c) the high school principal, (d) their mother, (e) their father, (f) their brother or sister, (g) a friend, and (h) an area center staff person. For each person, the student responded on a 5-point Likert scale which ranged from (a) *Unsure*, (b) *Not at all*, (c) *Not that much*, (d) *A little*, to (e) *A lot*. Students could also respond *Do not have* with regard to a mother, father, or sibling. Results of this question are reported separately for non-CTE and CTE students.

Analysis of the data indicates that CTE students are most influenced to enroll at the Career Technical Center by their friends, with over 70% indicating this to be true. Mother (61.9%), father (57.7%), and CTC staff (52.4%) follow. Slightly below half of the respondents were influenced by the high school counselor (49.2%), followed by sibling (31.7%), and high school teacher (29.4%). The high school principal had the least influence at 18.2%.

Table 10 shows the frequencies and percentages of people who influenced CTE students to attend the Career Technical Center *A little* or *A lot*.

Table 10

Frequencies and Percentages of People Who Influenced CTE Students to Attend a Little or a Lot

	A Little		A Lot		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Friends <i>N</i> = 126	47	37.3	42	33.3	89	70.6
Mother <i>N</i> = 126	37	29.4	41	32.5	78	61.9
Father <i>N</i> = 126	39	31.7	32	26.0	71	57.7
CTC Staff <i>N</i> = 126	30	23.8	36	28.6	66	52.4
Counselor <i>N</i> = 126	35	27.8	27	21.4	62	49.2
Sibling <i>N</i> = 126	25	19.8	15	11.9	40	31.7
HS Teacher <i>N</i> = 126	30	23.8	7	5.6	37	29.4
Principal <i>N</i> = 126	13	10.3	10	7.9	23	18.2

A graphical representation of the percentage of CTE students responding *A little* or *A lot* to the influence each category of people had on the student to attend,

was ordered from the greatest percentage to the least percentage. Figure 5 shows the people influence on CTE students to attend CTE.

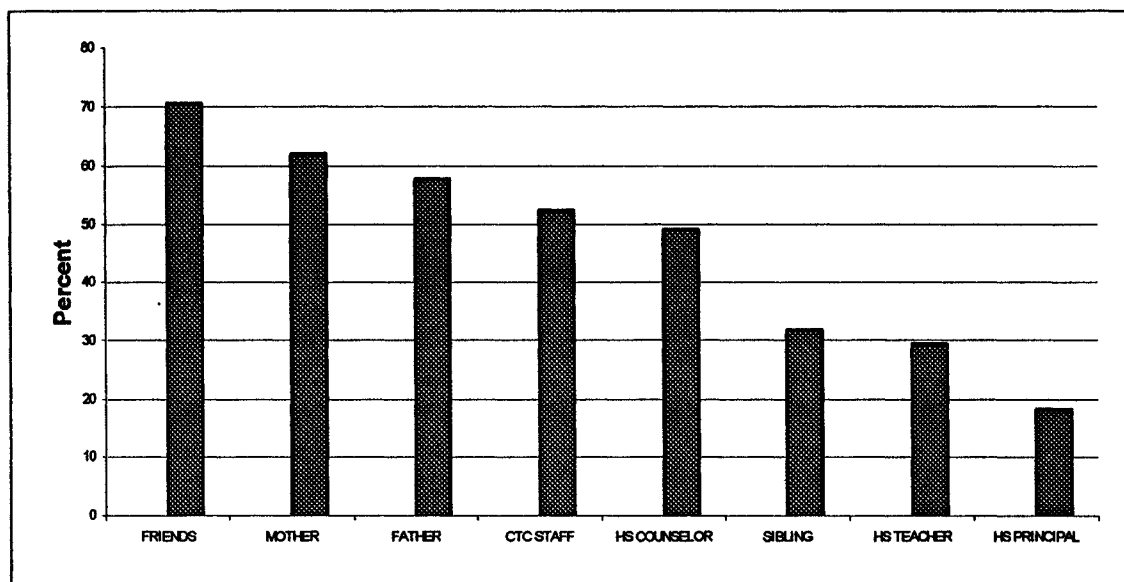


Figure 5. People Influence on CTE Students to Attend CTE.

Further analysis of the data indicates that non-CTE students are encouraged not to enroll at the Career Technical Center by a relatively small percentage of people. The population with the greatest influence in that regard is friends, but only 29.2% of the respondents indicated that friends encouraged students to not attend the Center. Friends were followed by fathers (18.5%) and mothers (18.3%). Sibling (12.7%), high school teacher (12.3%), high school counselor (10.2%), and CTC staff (9.8%), followed. The high school principal had the least influence in encouraging non-CTE students to not enroll at the Career Technical Center, at 5.2%.

Table 11 shows the frequencies and percentages of people who influenced non-CTE students to not attend the Career Technical Center *A little* or *A lot*.

Table 11

Frequencies and Percentages of People Who Influenced Non-CTE Students to Not Attend a Little or a Lot

	A Little		A Lot		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Friends <i>N</i> = 325	67	20.6	28	8.6	95	29.2
Father <i>N</i> = 324	34	10.5	26	8.0	60	18.5
Mother <i>N</i> = 324	30	9.3	29	9.0	59	18.3
Sibling <i>N</i> = 323	25	7.7	16	5.0	41	12.7
HS Teacher <i>N</i> = 325	34	10.5	6	1.8	40	12.3
Counselor <i>N</i> = 325	24	7.4	9	2.8	33	10.2
CTC Staff <i>N</i> = 325	13	4.0	19	5.8	32	9.8
Principal <i>N</i> = 324	13	4.0	4	1.2	17	5.2

A graphical representation of the percentage of non-CTE students responding *A little* or *A lot* to the influence each category of people had on the student to not attend, ordered from the greatest percentage to the least percentage, was prepared. Figure 6 shows the people influence on non-CTE students.

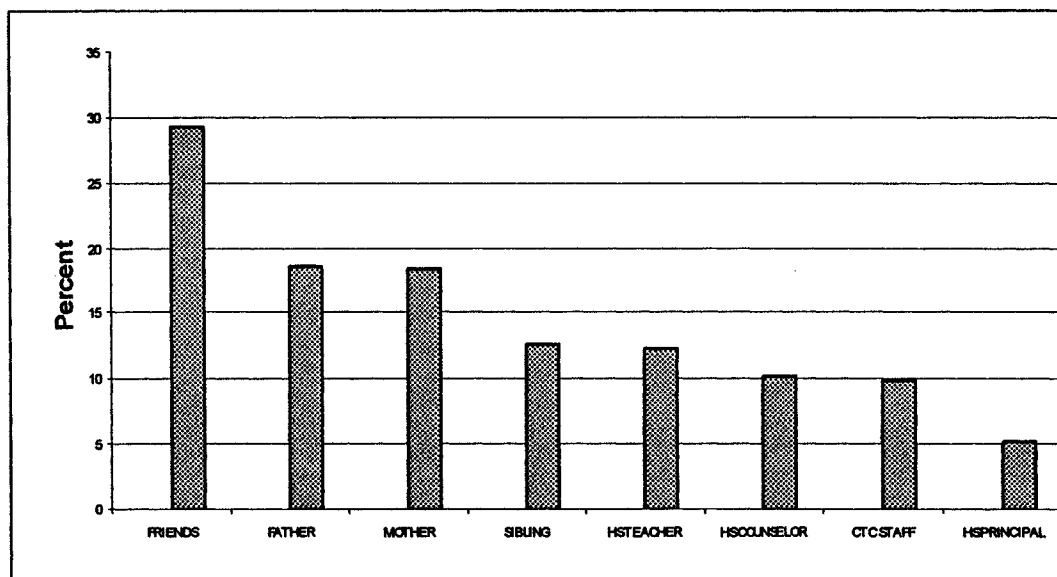


Figure 6. People Influence on Non-CTE Students to Not Attend.

Research Question 6 Results: *What are the other factors that influence students in their decision about enrolling in CTE?*

Part IV of the survey asked students to identify the extent that nine different factors either encouraged attendance at the Career Technical Center if the respondent was a CTE student or, discouraged attendance, if the respondent was not. The different factors included the following: (a) a 10th grade tour of the CTC, (b) another field trip to the CTC, (c) a high school career plan (EDP), (d) marketing materials

such as brochures and videos, (e) the CTC website, (f) time spent traveling to the CTC, (g) spending half of the day away from the high school, (h) receiving a waiver of high school credit for completing a CTC program, and (i) receiving college credit for completing a CTC program. For each factor, the student responded on a 5-point Likert scale which ranged from: (a) *Unsure*, (b) *Not at all*, (c) *Not that much*, (d) *A little*, to (e) *A lot*. Students could also respond *Didn't attend*, with regard to the 10th grade tour and field trip; *Don't have one*, with regard to an EDP; *Didn't see any*, with regard to marketing materials; and *Didn't see it*, with regard to the CTC website. Results of this question are reported separately for non-CTE and CTE students.

Analysis of the data indicates that CTE students are most influenced to enroll at the Career Technical Center by the opportunity to spend half of the day away from the high school. This factor was significant for 78.4% of the CTE respondents. This factor was followed by 73.4% of the CTE respondents who indicated that a waiver of high school credit influenced their decision to attend the Career Technical Center *A little* or *A lot*. The 10th grade tour was a significant factor for 67.4% of the CTE respondents, followed by the opportunity to receive college credit (64.8%) and another field trip to the Career Technical Center (60.4%). There was a significant drop-off in influence of the next factor, the EDP, at only 38.4%, followed by the time spent traveling to the Career Technical Center (34.7%) and marketing materials (21.7%). Only 6.4% of the CTE respondents were influenced by the website.

Table 12 shows the frequencies and percentages of other factors that influenced CTE students to attend the Career Technical Center *A little* or *A lot*.

Table 12

Frequencies and Percentages of Other Factors That Influenced CTE Students to Attend a Little or a Lot

	A Little		A Lot		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Half Day Away <i>N</i> = 125	39	31.2	59	47.2	98	78.4
HS Credit Waiver <i>N</i> = 125	38	30.4	54	43.2	92	73.6
10th Grade Tour <i>N</i> = 126	43	34.1	42	33.3	84	67.4
College Credit <i>N</i> = 125	28	22.4	53	42.4	81	64.8
Field Trip <i>N</i> = 126	39	31.0	37	29.4	78	60.4
EDP <i>N</i> = 125	36	28.8	12	9.6	48	38.4
Travel <i>N</i> = 124	31	25.0	12	9.7	43	34.7
Marketing Materials <i>N</i> = 124	22	17.7	5	4.0	27	21.7
Website <i>N</i> = 126	6	4.8	2	1.6	8	6.4

A graphical representation of the percentage of CTE students responding *A little* or *A lot* to the influence that each factor had on the student to not attend, ordered from the greatest percentage to the least percentage was prepared. Figure 7 shows the other factor influence on CTE students to attend CTE.

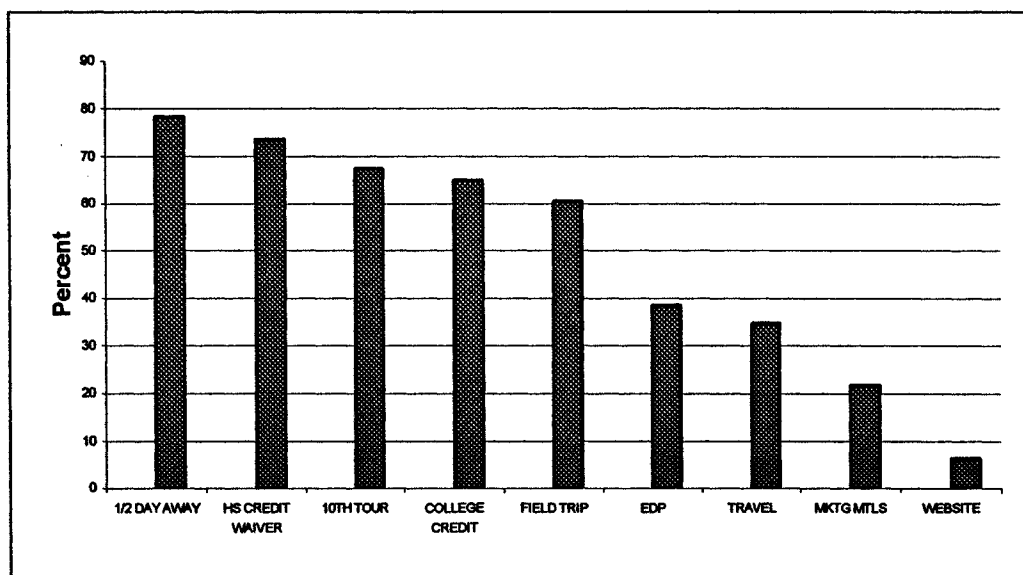


Figure 7. Other Factor Influence on CTE Students to Attend CTE.

Further analysis of the data indicates that non-CTE students are most influenced to not enroll at the Career Technical Center by the fact that students will spend half of the day away from the high school. Although this factor was the most significant, it affected only 28.8% of the non-CTE respondents. Half of the day away from the high school was followed by 20.8% of the non-CTE respondents who indicated that the EDP influenced their decision to not attend the Career Technical Center *A little* or *A lot*. The 10th grade tour was the next highest factor at 18.8%,

followed by a field trip (13.9%), a waiver of high school credit (11.8%), and college credit (10.8%). Time spent traveling to the Center influenced 8.1% of the non-CTE respondents to not attend the Center, and the same percentage was true for the influence of marketing materials. The Career Technical Center's website was reported by only 3.4% of the non-CTE respondents as being a factor which influenced them to not attend the Center.

Table 13 shows the other factors that influenced non-CTE students to not attend the Career Technical Center *A little* or *A lot*.

A graphical representation of the percentage of non-CTE students responding *A little* or *A lot* to the influence that each factor had on the student to not attend, ordered from the greatest percentage to the least percentage, was prepared. Figure 8 shows the other factor influence on non-CTE students to not attend CTE.

Summary

The results and summaries of the findings were reported in this chapter. Chapter V will restate the research problems and report the implications of the results, as well as make recommendations for future study.

Table 13

Other Factors That Influenced Non-CTE Students a Little or a Lot

	A Little		A Lot		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Half Day Away <i>N</i> = 323	53	16.4	40	12.4	93	28.8
EDP <i>N</i> = 322	44	13.7	23	7.1	67	20.8
10th Grade Tour <i>N</i> = 325	48	14.8	13	4.0	61	18.8
Field Trip <i>N</i> = 324	34	10.5	11	3.4	45	13.9
HS Credit Waiver <i>N</i> = 323	29	9.0	9	2.8	38	11.8
College Credit <i>N</i> = 324	25	7.7	10	3.1	35	10.8
Travel <i>N</i> = 321	18	5.6	8	2.5	26	8.1
Marketing Materials <i>N</i> = 322	21	6.5	5	1.6	26	8.1
Website <i>N</i> = 319	8	2.5	3	0.9	11	3.4

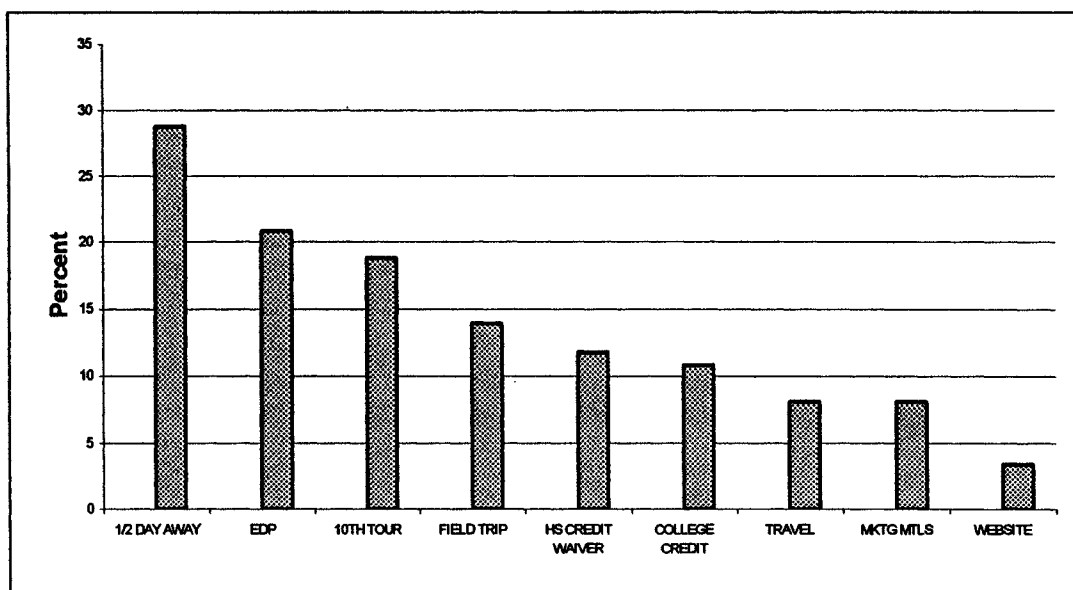


Figure 8. Other Factor Influence on Non-CTE Students to Not Attend CTE.

CHAPTER V

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This chapter contains a summary of the study of high school seniors' perceptions of CTE and factors influencing their decision to attend an area career technical center. Implications of the findings and recommendations for further research are included as well. Some conclusions from this study are consistent with previously cited research about the people and other factors that influence students in their decisions regarding CTE enrollment, while other conclusions provide contrasting results from previous research. The study adds to available research by providing a more contemporary view of some issues, particularly the perception of CTE by high school seniors, and offers a new look at other issues. Also included in the study is information on the type of student enrolled in CTE, with regard to socioeconomic status and academic standing.

As an elective choice in the high school curriculum, CTE personnel must continually address enrollment concerns. Pearson and Champlin (2003) emphasize that conducting research at the secondary level to "learn more about students' selection of courses that lead to career pathways in CTE" (p. 1) is a high priority. The purpose of this study was to address that priority.

To learn more about students' selection of courses that lead to career pathways in CTE, it is advantageous to gain an understanding of three primary items:

(a) the typical profile of students who choose to enroll in a CTE program, (b) the perceptions of students concerning CTE, and (c) the people and other factors that may impact students' decisions regarding enrollment in CTE.

Typical CTE Student Profile: Results and Implications

Understanding the type of students who typically enroll in career and technical education can assist CTE educators and other stakeholders in targeting specific groups of potential students and in developing strategies to expand the scope of influence of CTE into other student populations.

Lam's (1982) study identified the factors that influence high school students in their career decision-making, including *remote external reasons*, as a category. Reasons in this category included socioeconomic status and academic standing. Socioeconomic status largely comprised a student's social circumstances (living arrangements) and family income level. Academic standing refers to the grades that a student typically receives.

Typical Grades

In reference to typical grades obtained by non-CTE and CTE students, results from this investigation indicated that the median non-CTE grade is in the *A's and B's* classification and the median CTE grade is in the *B's* classification. The grades of non-CTE students are higher overall than those of CTE students by approximately one grade classification. The Mann-Whitney test indicated that there was a significant

difference ($p < .0001$) between non-CTE and CTE students with respect to academic grades.

This finding is consistent with previous research by Levesque and Hudson (2003) that indicated that students from the highest academic achievement groups were less likely to be in a CTE concentration. Other researchers also identified that students who perform lower academically were more likely to concentrate in CTE (National Center for Education Statistics, 2002; Stone, 2002).

Typical Social Living Arrangements

Another area of focus was to see if there was a difference between non-CTE and CTE students in reference to their social living arrangements. No previous research was found identifying the household make-up of CTE students specifically, although data were available on the general population of students. The National Center for Education Statistics (NCES) reported on high school sophomores nationwide, indicating that students living with both parents, either biological or adoptive, comprise approximately 57% of the population. Twenty-two percent live in a single-parent household, while 17% live with their mother or father and a stepparent. Four percent were found to live in a variety of other arrangements (National Center for Education Statistics, 2002).

Although the categories in the present study were not defined exactly the same as those in the NCES study, they were very similar. While NCES reports that 57% of all students live with both parents, this study found the identical percentage

for non-CTE students (57%), while CTE students, in contrast, live with their mother and father in only 38.9% of the cases. The NCES study reports that 22% of all students live in a single-parent household. In this study a single-parent household would be the combined categories of *Mother Only*, *Father Only*, and *Mother Some and Father Some*. For non-CTE students this combined percentage is 20%, and for CTE students, 24.7%. NCES reports that 17% of all students live with their mother or father and a stepparent, while this study found a similar result for non-CTE (17.5%), but a higher level for CTE students (24.6%). Finally, the NCES study reports that 4% were found to live in a variety of other arrangements, and the present study identified *Other Relatives* and *Other Adults* in combination as accommodating 5.5% of the non-CTE students, and 11.9% of the CTE students.

Overall, the present study closely mirrors the NCES study when comparing the non-CTE group of high school seniors to the NCES group of all high school sophomores. The CTE group, however, is quite dissimilar, particularly in the *Mother and Father* category, and the *Other Relatives* and *Other Adults* category.

A comparison of the present study to the NCES study on student living arrangements is shown in Table 14.

Analysis of the results indicated there is a statistically significant difference between CTE and non-CTE students with regard to their social living arrangements, with $\chi^2 = 23.788$. The probability of obtaining a chi-square this large or larger by chance alone is .001. To summarize, CTE students live with both parents less often

Table 14

Comparison of Present Study to NCES Study on Student Living Arrangements

NCES Study	Present Study	
High School Sophomores	Non-CTE	CTE
Both Parents 57%	Mother & Father 57.0%	38.9%
Single Parent 22%	Mother Only, Father Only, Mother Some & Father Some 20.0%	24.6%
Mother or Father & a Stepparent 17%	Mother & Stepfather and Father & Stepmother 17.5%	24.6%
Other Arrangements 4%	Other Relatives and Other Adults 5.5%	11.9%

than non-CTE students, and are more commonly found in living arrangements without either parent present.

Typical Economic Situation

The last area of interest within the student profile was to see if there were differences between non-CTE and CTE students in reference to their economic situation, and the Mann–Whitney test indicated there was indeed a significant difference ($p < .047$). The economic situation of non-CTE students was slightly better

overall than that of CTE students. Stated conversely, CTE students are more disadvantaged financially.

Results support what has been previously found in the research regarding the economic status of CTE students. Campbell (1986) found that a higher proportion of students from low socioeconomic backgrounds are enrolled in CTE. Levesque and Hudson (2003) also found that those identified as being in a lower economic category, were found in higher concentrations in CTE than their non-CTE counterparts who were members of more advantaged groups.

Implications of the CTE Student Profile

In summary, the typical profile of CTE students with respect to socioeconomic status and academic standing would identify a CTE student as performing somewhat lower academically; living less often with both parents while more commonly residing without either parent present; and being more economically disadvantaged than their non-CTE counterparts.

With this knowledge, CTE stakeholders have two options available to them with regard to recruitment and enrollment strategies. Stakeholders may (a) specifically target students who represent the profile, expecting that they represent those most likely to ultimately enroll in CTE; or (b) seek to actively pursue those students who are more academically and economically advantaged and who more commonly disregard CTE as a viable option.

Armed with information regarding the people and other factors that most strongly influence students in their decisions concerning CTE, stakeholders can target these groups more effectively.

Students' Perceptions Regarding CTE: Results and Implications

Image and perception have been issues in the CTE community for a considerable time. The literature on this topic is extensive over the past several decades, and a typical discussion about the future of CTE often elicits discussion of the public's perception of its viability. Cohen and Besharov (2002) report that in many instances, CTE has had an image problem that directly impacts enrollment. Rossetti's (1989a) study reported a negative impact on enrollment due to poor image perceptions of CTE and suggested stakeholders need to change the way people look at career and technical education. Although somewhat dated, O'Neill (1985) found that negative attitudes toward CTE cause difficulties in recruitment and enrollment.

Knowing that so much attention has been paid to the issue of image, and being aware that efforts have been made nationally, regionally, and locally to address the concerns of CTE opponents, the examination of the perceptions of high school seniors regarding CTE provided some of the most intriguing data in this study.

In reference to student perceptions of CTE, six questions were asked of these 451 high school seniors. Students were asked to identify whom the Career Technical Center was designed to serve. The categories were identified as follows: (a) those who plan to go to work immediately after high school, (b) those who plan to join the

military immediately after high school, (c) those who plan to go to college immediately after high school, (d) those who struggle academically, (e) those who are discipline problems, and (f) those of all ability levels.

While these questions identified the perceptions of high school seniors with regard to the purpose of the Career Technical Center, that is, for whom it is designed to serve, it also reveals information regarding the image of the Center. Questions 4, 5, and 6, in particular, address the image issue.

Question 6 is particularly significant in terms of a general perception of the Career Technical Center. If students *Strongly Agree* and *Agree* that the Career Technical Center is for students of all ability levels, that would indicate a positive image of the Career Technical Center, while the converse of that response would imply a negative image. For questions 4 and 5 the direction is opposite. A *Strongly Agree* and *Agree* response would represent a negative image of the Career Technical Center and a *Strongly Disagree* and *Disagree* response to those questions would indicate a positive image. That is, if students *Strongly Agree* and *Agree* that the Career Technical Center is designed for students who struggle academically and who are discipline problems, that would indicate a negative image.

The data show that the Career Technical Center has a positive image with high school seniors, given that nearly 80% of both CTE and non-CTE students who responded believe the Center is designed for students of all ability levels. Furthermore, less than 40% believe that the Center is for those who struggle

academically, and less than 20% believe that it is for those who are discipline problems.

Interestingly, there is a statistically significant difference in perception between non-CTE and CTE students on some of these measures. Results indicate that three categories account for the difference in perceptions between the CTE and non-CTE groups. Those categories include the perceptions that the Career Technical Center is designed for students (a) who are discipline problems, (b) who plan to go to college immediately after high school, and (c) who plan to join the military immediately after high school.

A greater percentage of CTE students than non-CTE students believe that the Career Technical Center is designed for students who are discipline problems.

Although there is a statistically significant difference, only 20% of the CTE students believe this statement to be the Center's purpose, and 16.5% of the non-CTE students believe in this purpose.

With regard to the perception that the Career Technical Center is designed for students who plan to go to college, 82.4% of the CTE students and 51% of the non-CTE students perceive this to be the Center's purpose. With this statistically significant difference, it is clear that CTE students are most likely made aware while in their CTE programs of a direct connection between their skill training at the Center and the transition to college. Those who do not attend the Center are not quite as familiar with this connection.

The other category, in which there is a statistically significant difference in perception between CTE and non-CTE students, is in regard to the military issue. CTE students responded, in 28.8% of the cases, that the Center is designed for students who plan to join the military, while only 18.3% of the non-CTE students perceived this to be true. Again, CTE students are most likely made aware, while in their CTE programs, of the connection between their skill training and the link to military careers, and consequently report that the Career Technical Center is designed for students who plan to join the military immediately after high school. Non-CTE students are not as familiar with this link.

Perhaps more significant than the categories in which CTE and non-CTE students responded significantly differently, are the areas in which each group responded similarly. This agreement is especially noteworthy in two categories. First, 81.7% of the non-CTE students and 82.4% of the CTE students believe the Career Technical Center is designed *for students who plan to go to work immediately after high school*. The connection between CTE and the workforce is evident on the part of both groups.

Second, and perhaps even more noteworthy, is the similarity in responses of the CTE and non-CTE groups with regard to the ability level issue. Non-CTE students responded slightly more strongly, at 78%, as compared to 76.6% of the CTE students, that the Career Technical Center is designed *for students of all ability levels*.

Overall, although there were differences in perception between CTE and non-CTE students regarding the Career Technical Center, a general observation of the results indicates that both groups perceive the Center favorably. While more CTE students than non-CTE students perceive the Career Technical Center as an avenue to college, both groups identify strongly with the CTE connection to the workplace. Even more significantly, both groups strongly perceive that the Career Technical Center addresses the needs of students from all ability levels.

For CTE educators and stakeholders, these findings are encouraging. As McLelland suggested in 1993, CTE personnel must take more active roles in portraying a different and more positive image of CTE. Much effort has been put into improving the image of CTE, from the initial name change from vocational education, to the persistent message that CTE is for students of all ability levels. Efforts to portray CTE as a path not only to the workforce, but to college as well, have been ongoing and purposeful. Apparently there has been some success in that regard, as evidenced by the data found in this study.

People and Other Factors Impacting CTE Decisions: Results and Implications

Several studies have concentrated on the influence of people with regard to student decision-making concerning their career and curriculum choices. Some studies have concentrated only on CTE students, and others on non-CTE students. Far less has been researched with regard to the other factors that may influence student decision-making about CTE. Factors such as the travel distance to an area

center, and separation from the home school friends and environment, have received some attention. Other factors, such as recruitment activities and marketing strategies, EDPs, and area center visits and field trips, are mentioned in the literature as influencing factors, but have not been extensively researched to determine their impact. This study attempted to look at those factors.

People Influence

The literature has reported mixed results with regard to the most influential people on student decision-making regarding CTE. This study of high school seniors sought a contemporary look at the people who influence CTE students to attend an area career technical center, and to identify those who influence non-CTE students to not attend an area center.

Findings are consistent with some previously cited research, particularly the Rossetti (1989b) study, which found that parents and friends had the most influence over student decision-making. Jackson (2002) also found parents to be key influencers in student decision-making regarding CTE. Although the distinction between mother and father, and the influence of friends versus that of the parents may be in a slightly different order than previous research showed, it is evident that these groups have the most influence over students in decision-making about CTE. On the other hand, the findings are in conflict with other studies that found friends and parents to be of little or no influence (Beukes, 1986; Dube, 1987; Gehrt, 1990; Herr, 1987; Reynolds, 1976).

High school counselors received mixed results from previous research regarding the level of influence over students in their decision-making about CTE. Herr (1987), Huss and Banks (2001), Jackson (2002), and Rossetti (1989c) reported that counselors are key influencers on student decision-making regarding CTE, while Reynolds (1976) and Beukes (1986) found counselors had little impact on a student's decision to enroll in a CTE program. This study found that high school counselors do have some influence in encouraging CTE students to attend the Career Technical Center (49.2%), but in only 10.2% of the cases did they encourage non-CTE students not to attend.

This study was consistent with the findings of Herr (1987), Lejeune, (1977), and Rossetti (1989b), which also found that high school teachers have some influence on student decision-making with regard to CTE. Approximately 30% of the CTE students in the present study indicated that teachers had some influence on their decision to attend the Career Technical Center. This conclusion is in contrast to the findings of Beukes (1986) and Dube (1987), who found little to no influence on the part of teachers.

Previous studies by Gehrt (1990) and Jackson (2002), which found that CTE personnel had an influence on student decision-making with regard to CTE, were duplicated in this study. For CTE students, Career Technical Center staff influenced 52.4% of the students to attend the Center.

As a general overall observation, non-CTE students do not report any people as being strong influencers to not attend the Career Technical Center. Friends were

reported to be the greatest influencers to not attend, but this result was reported in less than 30% of the cases. Fathers and mothers were the next most influential people to encourage students not to attend the Career Technical Center, both at approximately 18%. All other groups were factors in influencing students to not attend the Career Technical Center in less than 13% of the cases, to a low of 5.2%.

Another general overall observation is that CTE students are indeed influenced by others to attend the Career Technical Center. Over 70% reported that they were influenced by friends to attend the Career Technical Center, and mothers (61.9%) and fathers (57.7%) also influenced CTE students to attend. Staff at the Career Technical Center and high school counselors influenced approximately half of the students to attend. Siblings and high school teachers were reported to be influential with approximately 30% of the CTE students. The high school principal, at 18.2%, was reported as the least influential person in influencing students to attend the Career Technical Center.

Influence of Other Factors

Other factors may have as much, or more, influence upon student decision-making regarding CTE as people do, although little research has been conducted to identify those factors. Factors that have received some attention include: (a) the distance a student must travel to attend an area career technical center, and (b) the issue of separation from the home school.

Data from this study were consistent with those found by Rossetti (1991), which reported that students who did not attend an area career technical center were influenced by the necessity of being away from the home school for a part of the day. In this study, 28.8% of non-CTE students reported that they were influenced to not attend the Career Technical Center because of that issue. While the percentage is not overly high, it is the strongest reported factor in encouraging non-CTE students to not attend the Center. Interestingly, however, this finding was also the strongest reported factor in encouraging CTE students to attend the Center. Spending half of the day away from the high school was a significant factor in encouraging 78.4% to attend the Career Technical Center.

The distance, or time spent traveling, to an area center is another factor that has been previously researched. Jacobs (1975) found that travel to another school was indeed a factor that influenced nonattendance in a CTE program, and Scanlon (1984) concluded that busing and distance were also discouraging factors for many students. Data from this study did not strongly support the previous research. Only 8.1% of non-CTE students reported that time spent traveling to the Center influenced them to not attend, while slightly more than a third of the CTE students reported that it influenced their decision to attend the Center.

Some of the other factors researched in this study have been mentioned in the literature as likely having an influence on students regarding enrollment in CTE, but research to identify the effectiveness of the factors appears nonexistent. These factors include tours and field trips to the area center, educational development plans (EDPs),

marketing materials, websites, high school credit waivers, and articulated college credit.

The Wexford-Missaukee Area Career Technical Center has these recruitment initiatives in place, and these efforts were studied to determine the level of influence on CTE students to attend the career technical center, as well as the level of influence on non-CTE students in encouraging them not to attend the Center.

While the opportunity to spend half of the day away from the high school was the most influential factor for CTE students, the second most influential factor reported by CTE students was the waiver of high school credits. Fully 73.6% of the CTE students reported the waiver of high school credits as an influential factor. However, it is questionable whether the students totally understood this survey question. High school credit waiver is an opportunity for CTE students to waive a science credit requirement, for example, if students are enrolled in a CTE course that includes many science objectives. Likewise, a student enrolled in a CTE program with strong elements of math and/or English curriculum may have the opportunity to waive required high school credits in those areas. Waiving of credit simply means that students may take less than the required number of math, science, or English credits at the high school. It does not mean that actual credit is received; rather a waiver allows students to take courses in other disciplines to meet total graduation credit requirements. It is highly likely that students, in responding to this question, did not fully understand the definition of high school credit waiver. Students may have been

responding to the fact that typically students in an area career technical center receive 3 to 4 credits per year for a single CTE course (because it is a half-day program).

The third most influential factor in encouraging students to attend the Career Technical Center, for CTE students, was the 10th grade tour. Over 67% of the CTE students responded that the 10th grade tour was an influential factor. Likewise, over 60% reported that a field trip to the Career Technical Center influenced their decision to attend, and it is possible that students did not clearly distinguish between the 10th grade tour and another field trip. Regardless, it is evident that the opportunity to see the Center firsthand was a significant factor in influencing students to attend the Center.

In terms of degree of influence, positioned between the 10th grade tour and the field trip, was the college credit factor. Nearly 65% of the CTE students responded that the opportunity to receive college credit for successfully completing a CTE program was an influential factor in their decision to attend the Center. The EDP, at 38.4%, and marketing materials at 21.7%, had far less impact, although EDPs and marketing materials cannot be ignored as insignificant. Only 6.4% of the CTE respondents were affected by the area center website.

As previously indicated, non-CTE students also indicated that spending half of the day away from the high school was the most influential factor in encouraging them not to attend the Career Technical Center at 28.8%, and this factor was followed by their EDP, at nearly 21%. All other factors were less than 20%, to a low

of 3.4%, in terms of being influencing factors in encouraging them not to attend the Center.

Implications of Influencing People and Other Factors

Data in this study found that the most influential people upon a student regarding a decision to enroll, or not to enroll, in CTE are friends and parents. To increase the likelihood of strong enrollment, CTE educators and stakeholders must take their recruitment messages directly to these individuals.

Social ties are strong. CTE students are most influenced by friends, many of whom are likely enrolled at the area center. Non-CTE students are reluctant to leave friends behind and spend half of the day away from them at the area center. Rossetti (1991) indicated that area centers should promote themselves as socially friendly places with the opportunity to meet new people, and should also sponsor social events to ease the transition. Making new friends eases the separation from old ones. Results from this study support that suggestion.

Strategies specifically addressing parents should be a high priority for CTE educators and stakeholders. Whether it is letters home to parents of potential students inviting them to open houses and other events, or material sent to them explaining the benefits of a career and technical education—both financially and academically, the influence of parents is significant and must be addressed if enrollment in CTE is to flourish.

High school counselors remain a significant part of the enrollment landscape, and positive relationships with counselors, and with other high school personnel, can be beneficial. Further, while data in this study indicate that CTE staff have a significant impact on enrollment, having positive relationships with educator colleagues in the local high school, and encouraging colleagues to interact with students in that environment, may significantly enhance enrollment. Jackson (2002) indicated that these are strategies used by many area centers and, although she did not report on their effectiveness, this study seems to indicate a positive result.

The opportunity for students to see the area center firsthand is an important factor in influencing their decision regarding attendance at the center. In this study, the 10th grade tour, where all sophomore students visit the center, is a strongly influential factor in assisting students in making a decision about enrollment. Other field trips and firsthand experiences can be just as significant.

Finally, the opportunity to receive college credit is a key influential factor as students consider attending the center. Expansion of these arrangements with colleges may prove fruitful in enhancing CTE enrollment. Obtaining college credit for CTE programs legitimizes the breadth and depth of the curriculum taught, and gives students a distinct advantage when transitioning to the college level. Knowing that parents are a significant influential factor in student decision-making regarding CTE, emphasizing this theme with parents may be a particularly productive strategy from both an academic and a financial standpoint.

Recommendations for Future Studies

As a result of this study, the following recommendations are offered:

1. Further research should be conducted in area centers of both smaller and larger size, and in rural, urban, and suburban settings. This study was conducted at one moderately sized area career technical center, located in a rural area of northern Michigan. While typical in many respects to other centers throughout the state, many of the results from this study could be specific to this center. Among other things, its image among constituents, recruitment practices, and the area's demographics may affect each of the items under study, and they may, or may not, be similar to, or representative of, other area centers.

2. Further research should be conducted at comprehensive high schools as well as career and technical high schools, with regard to the issues that affect all CTE deliveries. Since this study involved an area center specifically, some issues are specific to that type of delivery. The issue of image and perception should be explored, as well as identification of a typical student profile, and the factors and people that influence students in their decision-making regarding enrollment in CTE.

3. Future studies should take a look at the gap in academic performance, between non-CTE and CTE students, to see if a trend is identifiable. Previous research has identified a difference in the academic performance of CTE and non-CTE students, but the extent of that difference was not reported. In the past few years CTE educators have made a concerted effort to appeal to a broader mix of students, from those functioning at the lower end of the academic scale, to students performing

at above average academic levels (Blassingame, 1999; Daggett, 2003; Gray, 2002; Langland, 1999; Miller, 2002; Seccurro & Thomas, 1998). This study found a statistically significant difference in the academic standing of CTE students versus non-CTE students, with CTE students performing one grade classification below non-CTE students. It is not certain whether the gap in academic performance has narrowed over time, or widened.

4. Since data from this study identified the influence of parents on student decision-making regarding CTE, a deeper understanding of parents' backgrounds and perceptions could prove beneficial. Do parents who are products of a CTE education themselves influence their children differently regarding their decision about CTE than those who have no CTE experience? Do parents with post-high-school educations influence their children differently regarding their decision about CTE than those parents without education beyond high school? What are parents' perceptions of CTE?

5. Further research should be conducted in which *all* seniors have an opportunity to respond to the survey instrument, or a method should be used which ensures that no particular segment of the population is overrepresented. The population surveyed in this study included high school seniors in each of the constituent districts that send students to the area center. The class chosen for conducting the survey was the Government class, the only required senior-level course. Some seniors enroll in the Government class during the first semester, and others during the second semester. Therefore, not all seniors were included in the

study. It is the practice of some high school counselors to enroll those seniors who are less academically motivated in the first-semester Government course, so that in the event of failure they have the second semester to retake the required course. Consequently, less academic students may be overrepresented in the sample of respondents.

6. Conducting a study in which multiple methods are used would allow the opportunity to clarify issues that may be difficult to grasp on an independent survey. The chosen research method in this study, which was a survey-generated quantitative study, could be improved with a triangulation approach to data gathering. Introducing a qualitative method, with the opportunity to probe student responses more deeply, would add to the richness of the data. While Walonick (1998) identifies surveys as being incapable of probing for more detail and explicit information, surveys are advantageous in eliminating an interviewer's bias.

7. The question regarding the influence of *receiving a waiver of high school credit for completing a CTC program* needs more clarification. As mentioned in the conclusion, it is possible that students did not fully comprehend the meaning of *credit waiver*. A more complete definition of this term could be included in the Teacher Script and clarified during survey administration, or probed more extensively in a qualitative enhancement of the study.

8. Future studies should simply state *a visit to the center* in the survey, rather than exploring the *10th grade tour* and *a field trip* to the Career Technical Center. As mentioned in the conclusion, it is quite possible that students did not clearly

distinguish between the 10th grade tour and a field trip, but it was apparent that a firsthand look at the Center was an influential factor.

9. Future studies should attempt to have students respond to the *same* question regarding each influencing factor or person, so that a richer data analysis may be conducted. The questions that were asked of respondents with regard to the people and other factors that influenced their decision about CTE were different in this study. CTE students were asked if each person or factor encouraged them *to attend* the Career Technical Center. Non-CTE students were asked if each person or factor encouraged them *not to attend* the Career Technical Center. Because the questions are essentially different, it is statistically impossible to compare the measures directly.

10. Conducting a study in which open-ended questions are asked, with regard to the reasons students choose not to attend a CTE program, will more clearly identify the issues that dissuade students from enrolling.

Closing Thoughts

To ensure that CTE will remain an option on the secondary curricular landscape, CTE educators must continually seek ways to maintain and enhance enrollment. This study provides a roadmap in that pursuit.

Knowing that the typical CTE student performs somewhat lower academically (although by only one grade classification), lives less often with both parents while more commonly residing without either parent present, and is more economically

disadvantaged, allows CTE personnel to target students of similar backgrounds, and more aggressively create strategies to recruit the atypical student.

Clearly, CTE personnel must promote the area center as a socially friendly place with the opportunity to meet new people and sponsor social events to ease the transition for those choosing to enroll. Targeting the parents of potential students is also a key recruitment strategy, as is maintaining positive relationships with local high school counselors.

Other strategies critical to the recruitment process involve making certain that students have opportunities to visit the area center to see it for themselves, and stressing the advantages that students have in being in a facility away from their home high school. Emphasizing the opportunity for accumulating high school credit, and the potential to earn college credit, are also key recruitment strategies.

The topic of CTE's image has dominated the CTE landscape for many years, and the most encouraging knowledge to be gleaned from this study involves the perception of high school seniors with regard to CTE. Results from this study indicate that students view CTE as meeting the needs of students from all ability levels, and that fact alone presents a positive sign for the future of career and technical education. Knowing that mothers and fathers are key influencers in student decision-making, when today's students become tomorrow's parents, CTE will have found an army of allies.

Appendix A
Human Subjects Institutional Review Board
Letter of Approval

WESTERN MICHIGAN UNIVERSITY



Human Subjects Institutional Review Board

Date: October 27, 2004

To: Carl Woloszyk, Principal Investigator
David Gaunt, Student Investigator for dissertation

From: Amy Naugle, Ph.D., Interim Chair

A handwritten signature in black ink, appearing to read "Amy Naugle", is written over the printed name.

Re: HSIRB Project Number: 04-10-08

This letter will serve as confirmation that your research project entitled "Factors Influencing A Secondary Student's Decision to Attend an Area Career Technical Center" has been approved under the **expedited** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: October 27, 2005

Walwood Hall, Kalamazoo, MI 49008-5456
PHONE: (269) 387-8293 FAX: (269) 387-8276

Appendix B
Survey of Influencing Factors and Perceptions

Survey of Influencing Factors and Perceptions Wexford-Missaukee Area Career Technical Center

Please respond to the following questions to the best of your ability. Do not put your name anywhere on the form so that your responses remain completely anonymous. You may choose not to answer any question by simply leaving it blank. The survey should take less than 10 minutes to complete.

The survey is divided into four sections:

- I. *Student information*
- II. *Perceptions of the Career Technical Center*
- III. *People who influenced you*
- IV. *Other factors that influenced you*

Please complete all four sections of the survey by checking the most appropriate box and/or circling the appropriate item.

Part I. *Student information.* Place a check mark next to the most appropriate response.

1. What is your gender?

- ☐ Male ☐ Female

2. With whom do you live? (*select only one*)

- | | |
|---|--|
| <input type="checkbox"/> Both your mother and your father | <input type="checkbox"/> Your mother some of the time and your father some of the time |
| <input type="checkbox"/> Your mother and a stepfather | <input type="checkbox"/> With other relatives |
| <input type="checkbox"/> Your father and a stepmother | <input type="checkbox"/> With other adults |
| <input type="checkbox"/> With father only | |
| <input type="checkbox"/> With mother only | |

3. What grades do you usually get? (*select only one*)

- | | |
|---|---|
| <input type="checkbox"/> Mostly A's | <input type="checkbox"/> Mostly C's |
| <input type="checkbox"/> Mostly A's and B's | <input type="checkbox"/> Mostly C's and D's |
| <input type="checkbox"/> Mostly B's | <input type="checkbox"/> Mostly D's |
| <input type="checkbox"/> Mostly B's and C's | <input type="checkbox"/> Mostly D's and F's |

4. For most of the time in your family, which of the following statements best describes your family situation? (select only one)

- ☐ Your family has a hard time getting enough money for food, clothing, and basic living costs
- ☐ Your family has just enough money for food, clothing, and basic living costs
- ☐ Your family has a few problems buying what your family needs
- ☐ Your family has no problems buying what your family needs and is able to buy special things

5. Are you currently a student at the Career Technical Center?

- ☐ Yes
- ☐ No (if No, skip question #6)

6. If you are currently enrolled at the Career Technical Center, place a check mark next to the program you are in. (select only one)

Business, Management, Marketing, and Technology Pathway

- ☐ Business Services Technology
- ☐ Hospitality, Retailing and Entrepreneurship

Engineering/Manufacturing and Industrial Technology Pathway

- ☐ Automotive Service
- ☐ Building Trades
- ☐ Electronics
- ☐ Heavy Equipment Mechanics
- ☐ Machine Trades
- ☐ Robotics and Automation
- ☐ Small Engines
- ☐ Welding and Metal Fabrication

Health Sciences Pathway

- ☐ Allied Health Technology

Human Services Pathway

- ☐ Cosmetology

Natural Resources and Agriscience Pathway

- ☐ Agriscience and Natural Resources

Part II. Perceptions of the Career Technical Center. To what extent do you agree or disagree with the following 6 statements. Circle the appropriate number.

I believe that the Career Technical Center is designed to serve students:	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Know
(1) who plan to go to work immediately after high school.	1	2	3	4	5
(2) who plan to join the military immediately after high school.	1	2	3	4	5
(3) who plan to go to college immediately after high school.	1	2	3	4	5
(4) who struggle academically.	1	2	3	4	5
(5) who are discipline problems.	1	2	3	4	5
(6) of all ability levels.	1	2	3	4	5

Part III. People who influenced you. To what extent did the following 8 people either encourage or discourage you to attend, or not to attend, the Career Technical Center. Complete the left side if you **do not** attend; complete the right side if you **do** attend. Circle the appropriate response.

Complete this side if you do not attend the Career Technical Center						Possible Influential People	Complete this side if you do attend the Career Technical Center					
How much did each encourage you NOT to attend?							How much did each encourage you to attend?					
	Unsure	Not at all	Not that much	A little	A lot	(1) High school counselor		Unsure	Not at all	Not that much	A little	A lot
	Unsure	Not at all	Not that much	A little	A lot	(2) Any high school teachers		Unsure	Not at all	Not that much	A little	A lot
	Unsure	Not at all	Not that much	A little	A lot	(3) High school principal		Unsure	Not at all	Not that much	A little	A lot
Do Not Have	Unsure	Not at all	Not that much	A little	A lot	(4) Mother / female guardian	Do Not Have	Unsure	Not at all	Not that much	A little	A lot
Do Not Have	Unsure	Not at all	Not that much	A little	A lot	(5) Father / male guardian	Do Not Have	Unsure	Not at all	Not that much	A little	A lot
Do Not Have	Unsure	Not at all	Not that much	A little	A lot	(6) Brother or sister	Do Not Have	Unsure	Not at all	Not that much	A little	A lot
	Unsure	Not at all	Not that much	A little	A lot	(7) Friends		Unsure	Not at all	Not that much	A little	A lot
	Unsure	Not at all	Not that much	A little	A lot	(8) Career Tech Center staff person		Unsure	Not at all	Not that much	A little	A lot

Part IV. Other factors that influenced you. To what extent did the following 9 factors encourage or discourage you to attend, or not to attend, the Career Technical Center. Complete the **left side** if you **do not** attend, complete the **right side** if you **do** attend. Circle the appropriate response.

Complete this side if you <u>do not</u> attend the Career Technical Center						Possible Influential Factors	Complete this side if you <u>do attend</u> the Career Technical Center					
How much did each encourage you <u>NOT</u> to attend?							How much did each encourage you to attend?					
Didn't attend	Unsure	Not at all	Not that much	A little	A lot		Didn't attend	Unsure	Not at all	Not that much	A little	A lot
						(1) 10 th grade tour						
						(2) Field trip to CTC						
						(3) High school career plan (EDP)						
						(4) Marketing materials (brochures, videos)						
						(5) CTC website						
						(6) Time spent traveling to the CTC						
						(7) Spending half of your day away from the high school						
						(8) Receiving a waiver of high school credit for completing a CTC program						
						(9) Receiving college credit for completing a CTC program						

Thank you for taking the time and effort to respond to this survey. Your input will allow the Career Technical Center to better meet the needs of area students.

Appendix C
Teacher Cover Letter

October 11, 2004

Dear High School Government Teacher:

Your high school seniors are invited to participate in a research project entitled *Factors Influencing a Secondary Student's Decision to Attend an Area Career Technical Center*, and your assistance is desired. Dr. Carl Woloszyk, Professor Emeritus of the Department of Family and Consumer Sciences at Western Michigan University, and David Gaunt, a doctoral student and Career and Technical Education administrator, are conducting the study. David Gaunt will be using this information as the basis for his dissertation.

This survey consists of 29 questions that solicit information from high school seniors regarding their perceptions of Career and Technical Education in general, and the Wexford-Missaukee Area Career Technical Center in particular. The surveys are not coded in any way, thus the responses will be completely anonymous. Students will not put their name anywhere on the form. The survey should take less than 10 minutes to complete. Students may choose not to answer any question by simply leaving it blank. Students may also choose not to participate at all, and you may either return the blank survey or discard it. There is no penalty for non-participation. The results will only be reported in aggregate form, which will ensure that it will not be possible to identify any individual participant by reading the report.

It is important that your 12th graders complete only one survey. Please direct the administration of the surveys in such a way as to assure that no duplication is possible. It is required that administration be conducted on a single day to the students present in the required senior-level Government courses. Included in this mailing is a script to be followed when administering the survey to the seniors. Selection of the date for administration of the survey must be between October 11, 2004 and October 22, 2004. I will send an e-mail reminder on October 18, 2004 to those who have not yet administered the surveys.

Thank you for your assistance with this survey. Once completed, please return all surveys by October 25, 2004, in the stamped, self-addressed envelope enclosed.

Sincerely,

David Gaunt, Student Services Administrator
Wexford-Missaukee Area Career Technical Center

Appendix D
Student Cover Letter

October 11, 2004

Dear High School Senior:

You are invited to participate in a research project entitled *Factors Influencing a Secondary Student's Decision to Attend an Area Career Technical Center*. Dr. Carl Woloszyk, Professor Emeritus of the Department of Family and Consumer Sciences at Western Michigan University, and David Gaunt, a doctoral student and Career and Technical Education administrator, are conducting the study. David Gaunt will be using this information as the basis for his dissertation.

This survey consists of 29 questions that solicit information from high school seniors regarding their perceptions of Career and Technical Education in general, and the Wexford-Missaukee Area Career Technical Center in particular. The surveys are not coded in any way, thus the responses will be completely anonymous. Do not put your name anywhere on the form. The survey should take less than 10 minutes to complete. You may choose not to answer any question by simply leaving it blank. You may also choose not to participate at all, and may either return the blank survey or discard it. There is no penalty for non-participation. The results will only be reported in aggregate form, which will ensure that it will not be possible to identify any individual participant by reading the report. Return of the completed surveys indicates that you are also agreeing that the responses can be used in statistical calculations for the research being conducted.

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board (HSIRB), as indicated by the stamped date and signature of the board chair in the upper right corner. Do not participate in this study if the stamped date is more than one year old.

If you have any questions regarding the survey, please contact either Dr. Carl Woloszyk at (269) 771-9912 or David Gaunt at (231) 876-2202. You may also contact the chair of the Human Subjects Institutional Review Board (HSIRB) at (269) 387-8293 or the Vice President for Research at (269) 387-8298 if questions or problems arise during the course of the study.

Thank you for your assistance with this survey.

Sincerely,

Carl Woloszyk, Ph.D.
Professor Emeritus
Western Michigan University

David Gaunt
Doctoral Student
Western Michigan University

Appendix E
Teacher Script

Script for administration of the Survey of Influencing Factors and Perceptions

Please distribute the student cover letter to all seniors present in the government class. Once all students have the letter, read the following script aloud:

You are invited to participate in a research project entitled *Factors Influencing a Secondary Student's Decision to Attend an Area Career Technical Center*. Dr. Carl Woloszyk, Professor Emeritus of the Department of Family and Consumer Sciences at Western Michigan University, and David Gaunt, a doctoral student and administrator at the Wexford-Missaukee Area Career Technical Center, are conducting the study. David Gaunt will be using this information as the basis for his dissertation.

This survey consists of 29 questions that solicit information from high school seniors regarding their perceptions of Career and Technical Education in general, and the Wexford-Missaukee Area Career Technical Center in particular. The surveys are not coded in any way, thus the responses will be completely anonymous. Do not put your name anywhere on the form. The survey should take less than 10 minutes to complete. You may choose not to answer any question by simply leaving it blank. You may also choose not to participate at all, and may either return the blank survey or discard it. There is no penalty for non-participation. The results will only be reported in aggregate form, which will ensure that it will not be possible to identify any individual participant by reading the report. Return of the completed surveys indicates that you are also agreeing that the responses can be used in statistical calculations for the research being conducted.

I will now distribute the surveys.

Distribute the survey to all students present and provide pencils as necessary (included in your packet). Once all students have the materials, read the following script aloud:

The format of the survey is either check box selection, or multiple choice. Please turn for a moment to Parts III and IV.

Show an example survey and point to the sections.

Notice that the directions indicate that if you are not attending the Career Technical Center that you are to complete the left side of the tables. If you are attending the Career Technical Center you are to complete the right side of the table.

Please complete the survey on your own, providing thoughtful responses to each question. When you are completed, please wait quietly until all surveys are collected.

Thank you for your assistance with this survey.

Appendix F
Superintendent/Principal Approval Letter


Cadillac High School

400 Linden St.
Cadillac, Michigan 49601-1799
(231) 876-5800
Fax (231) 876-5821

September 29, 2004

I hereby grant approval to David Gaunt to facilitate administration of the *Survey of Influencing Factors and Perceptions*, to high school seniors in their Government class, during the Fall 2004 school year. I understand that responses will be completely anonymous and that students may choose not to answer any question, or may choose not to participate at all, without penalty.

Sincerely,


Bill Chilman, Principal
Cadillac High School


Paul Liabenow, Superintendent
Cadillac Area Public Schools



HOME OF THE VIKINGS

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