THE IMPACT OF PARTICIPATION IN A COHERENT CAREER AND TECHNICAL EDUCATION COURSE SEQUENCE ON STUDENT DISCIPLINE OUTCOMES

by

NATALIE CASTRO LOPEZ

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Dedication

I dedicate this dissertation to the loves of my life, Matthew, Austin, and Dylan. Matthew, without your constant support, I would never have made it through this process. You have always encouraged me to reach my fullest potential and believed that I was stronger than I thought I was. I cannot thank you enough for your love, patience, and selflessness. Austin and Dylan, you boys were my motivation to complete this goal. I always want you to value education and hard work, which is why I constantly strive to set a positive example. I always want to make you proud of your mom and I will always work to be the best role model I can be for you.
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Abstract

THE IMPACT OF PARTICIPATION IN A COHERENT CAREER AND TECHNICAL EDUCATION COURSE SEQUENCE ON STUDENT DISCIPLINE OUTCOMES

Natalie Castro Lopez, PhD

The University of Texas at Arlington, 2017

Supervising Professor: Bradley W. Davis

Disproportionalities in school discipline exist for children of color and those in other marginalized categories. Researchers consistently discover that the disparities cannot solely be contributed to differential behavior, indicating that these students receive different treatment and disciplinary processing. Seemingly, ineffective discipline systems and practices in schools are one of many components contributing to the disproportion. Although changing the inequities in schools and in disciplinary approaches is warranted, analysis of the potential for existing programs to curtail negative student behavior and reduce disciplinary infractions such as referrals, suspensions, and expulsions in all races and groups of students is necessary.

A possible solution to the issue of ineffective discipline systems and exclusionary practices occurring in traditional high schools is involvement in CTE. CTE programs, historically referred to as vocational education programs, have been a component of education
CTE AND DISCIPLINE

for a century and have undergone a dramatic transformation since inception. Today, CTE offers students various opportunities to learn academic and technical abilities in an environment that aims to develop knowledge, training, and career skills, often times to the benefit of those wishing to transition to post-secondary education.

The present study is necessary in order to determine whether participation in a coherent CTE course sequence has an impact on student behavior and school discipline. Because disparities in school discipline and the negative effects that exclusionary discipline has on student outcomes continue to persist, an investigation into an existing program that has the potential to function as a disruptor of negative student behavior, thus minimizing some of the student discipline issues, is worthwhile. The information obtained from the investigation of this dissertation into the effects of a coherent CTE course sequence on student behavior and discipline contributes immensely to the gap in knowledge regarding the two topics. The purpose of the study, therefore, is to determine the impact that participation in a coherent sequence of CTE courses has on various student discipline outcomes, specifically referrals, detentions, and suspensions. In order to examine the potential relationship, I utilize t-tests to determine if an association exists between coherent CTE course sequence participation and the aforementioned student discipline outcomes. I find that students in a coherent sequence of CTE courses receive fewer referrals and detentions than students not enrolled in a coherent CTE course sequence. To test the strength of the association with consideration of previously established student characteristics, I utilize multiple regression. Although CTE had a statistically significant result in the t-test conducted for the first research question, the variable was not significant when considering other influential variables in the model. The implications for policy, practice, and research follow.
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Chapter One

Throughout the last couple of decades, evidence suggests that historically marginalized student groups receive disciplinary infractions, suspensions, and expulsions at a disproportionate rate in traditional high school settings (Fenning & Rose, 2007; Gregory, Skiba, & Noguera, 2010; Nicholson-Crotty, Birchmeier, & Valentine, 2009; Noltemeyer & McLoughlin, 2010; Skiba, Michael, Nardo, & Peterson, 2002; Sullivan, Klingbeil, & Norman, 2013). Researchers cannot directly link the disparity with differential behavior, but find that differential treatment and processing have an effect on the disproportion associated with a variety of student characteristics (Gregory et al., 2010; Nicholson-Crotty et al., 2009; Rocque, 2010; Skiba et al., 2011). Students who are unfairly and punitively disciplined are at risk of lowered academic success, disengagement from school, and a higher probability of dropout (Christle et al., 2005; Cornell, Gregory, & Fan, 2011; Lee, Cornell, Gregory, & Fan, 2011; Mayworm & Sharkey, 2014; Noguera, 2003). The detrimental relationship between disproportionate discipline and negative student outcomes necessitates a solution to disrupt unfair, excessive, and/or exclusionary disciplinary practices so as to encourage youth of all demographic backgrounds to remain actively involved in their education.

Background of the problem

Although disproportionalities exist across multiple dimensions of identity and group membership (e.g. gender, race, etc.) in the frequency and severity of student disciplinary consequences, researchers have yet to determine why the disparities exist. Sullivan, Klingbeil, and Norman (2013) find that differential student behavior cannot solely account for the racial disproportion in school discipline systems. In addition, Rocque (2010) also believes that discipline is disproportionately utilized beyond basic behavior differences. In other words, the
disproportion cannot be solely attributed to behavioral differences, but can be explained by a
difference in the discipline some students receive. Gregory, Skiba, and Noguera (2010) support
the idea that differential treatment by authority figures and differential processing within the
discipline management systems contribute to the overrepresentation of minorities and other
marginalized populations receiving discipline in schools. Basically, research suggests that the
disproportionality in consequences is not tied to systematic differences along lines of race,
gender, etc. in the frequency and severity of “problem” behavior exhibited by school children
(Skiba et al., 2011; Vincent, Sprague, & Tobin, 2012).

Unfortunately, awareness of the disproportion does not provide a solution for an effective
means to stifle the disparity and does not provide direction on determining efficacious policies to
implement in order to create equity in discipline systems and classrooms. Researchers have
proposed a few reasons aside from behavior differences, which offer an explanation for the
discipline disparities. First, teacher preparation programs do not necessarily address culture and
prepare pre-service teachers for the differences in views, beliefs, or priorities of their students
(Raible & Irizarry, 2010). Many programs proliferate outdated and ineffective techniques or
simply do not address culture in any form or fashion. Second, miscommunication between
students and teachers linked to a disproportion in disciplinary encounters may be attributed to the
concept of cultural mismatch (Ladson-Billings, 1999; Skiba et al., 2011). Dissonance in racial
and ethnic composition between students and teachers has the potential to create problems in the
classroom resulting in student discipline if the associated cultures are misunderstood (Rocque,
2010). Finally, a popular strategy recommended for teachers to utilize in their diverse classrooms
is a colorblind technique, which entails eschewing the acknowledgement of the race/ethnicity of
any student in a classroom with the intention of creating a universal view towards all of the
children (Allen & White-Smith, 2014). Unfortunately, misunderstandings stem from the
colorblind approach of avoiding student cultural diversity and may lead to negative behavior in
the classroom, resulting in disproportion in discipline (Allen & White-Smith, 2014; Dancy,
2014; Ladson-Billings, 1999; Raible & Irizarry, 2010; Rocque, 2010; Skiba et al., 2002; Skiba et
al., 2011). These issues, among others, provide a background for the prolonged existence of the
disproportionality present in discipline systems in education.

The presence of unresolved issues, such as pinpointing the main reasons contributing to
the disproportion or determining where within the discipline system the differences are
occurring, is accompanied by the existence of conflicting findings regarding the origin of
discipline itself. Because disciplinary actions involve students, teachers, and administrators, any
existence of bias, personal conflict, or prior knowledge has the potential to influence the
disciplinary process. Initially, policymakers implemented exclusionary discipline practices, such
as in-school suspension, out-of-school suspension, and expulsion, in order to make a statement
about gun violence when it came to student safety (Irby, 2013; Martinez, 2009). The retributive
nature of the policies transformed over time and led to the implementation of harsh disciplinary
measures for a variety of infractions including fighting, defiance, and alcohol/drug possession
(Hoffman, 2014). The transformation of the many disciplinary issues that fell under the umbrella
of exclusionary consequences had detrimental outcomes for students who were pushed out of
educational environments because of suspension and expulsion for non-gun related issues. The
original intentions of the policymakers to protect students from gun violence lost efficacy over
time by becoming broad and unfocused.

The overutilization and misuse of exclusionary practices, differential treatment and
processing, and a lack of proper training for pre-service educators in cultural diversity
contributes to the problem of excessive and disproportionate discipline in schools. This educational issue has various negative effects on students, schools, and society. For students in particular, lost academic instruction and reduced curricular exposure disrupts student progress and creates a larger academic challenge when the student eventually does return to the classroom after a disciplinary altercation (Sullivan et al., 2013). Students of color and those of low socioeconomic status are grossly overrepresented in the removal category and tragically, decreased seat time for these students only furthers existing achievement discrepancies (Skiba et al., 2014). The dismal path of exclusionary disciplinary techniques results in detrimental consequences for students, who risk losing educational opportunities and inevitably make less of a contribution to society.

Since removal as a form of discipline does not accomplish the desired impact of behavioral adjustment, exclusionary tactics do not seem to be a valuable consequence based on the recidivist rates of troubled youth (Martinez, 2009; Meiners, 2011; Rocque, 2010; Skiba et al., 2011). Not only do suspensions function as a predictor of future suspensions, but Black students specifically have four times increased likelihood for receiving suspensions than their White peers (Sullivan et al., 2013). In addition, sixty-one percent of students in the juvenile justice system start with suspension/expulsion from their academic institutions (Skiba et al., 2014). Researchers find that suspensions typically precede dropout and students that drop out are eight times as likely to become incarcerated as high school graduates (Christle, Jolivette, & Nelson, 2005). Exclusionary discipline worsens future outcomes for troubled youth in academics, self-esteem, and worthiness. The vicious cycle of recidivism resulting from abundant and harsh disciplinary measures has negative effects for the student and their academic progress, but also inhibits the possible successes these students may contribute to society. It does not seem coincidental that the
racial and socioeconomic disproportion evidenced in studies analyzing school discipline systems mirrors similar disparities in prison populations (Fenning & Rose, 2007).

Researchers explore the many issues involving school discipline such as the ambiguous nature of the disproportionality in discipline based on differences in behavior, treatment and processing; the lack of proper education in cultural diversity; and the excessive nature and abuse of exclusionary practices. Many studies even explore the effect that various school programs such as extra-curricular activities (Martinez, Coker, McMahon, Cohen, & Thapa, 2016), Advancement Via Individual Determination (AVID) programs (Huerta, Watt, & Reyes, 2013), and increased parental and community involvement have on student behavior (Ting et al., 2012). A gap in the knowledge in current literature, however, involves the lack of information on how involvement in career and technical education (CTE) can potentially disrupt excessive disciplinary interactions and disciplinary disparities. Although CTE has been a component of education for over a century, little to no research has explored how involvement in CTE relates to student behavior in the disciplinary space. Some studies explore the positive effects of CTE on academic involvement (Gentry, Peters, & Mann, 2007), increased engagement (Fletcher Jr. & Cox, 2012), graduation rates (Lim, Owen, & Nordin, 2013), and postsecondary success (Bishop & Mane, 2004). Frequent searches in multiple databases including ERIC, Google Scholar, and ProQuest do not uncover articles specifically covering the topic of the relationship between CTE participation and student discipline. Various searches using keywords such as ”CTE and student discipline,” ”vocational student discipline,” ”CTE and school discipline,” ”vocational education and school discipline” do not provide articles pertinent to the topic of interest. Due to this gap in the knowledge, pursuit of information on the topic of CTE and student discipline may provide researchers, educators, and policymakers with valuable information, particularly at a time of
rapdily changing policy landscapes in which CTE programming and funding are expeditously increasing.

**Problem Statement**

The various forms of school discipline, as administered throughout history in traditional academic environments, results in children of color receiving more frequent and severe punishment than their White counterparts. Researchers have not been able to confirm that the disciplinary infractions received by the marginalized student groups are solely based on differences in behavior. Differential processing and differential treatment seem to contribute to the overrepresentation of students of color in the disciplinary space of schools, as well. Unfortunately, many students that are unfairly or punitively disciplined in academic environments inevitably tend to be pushed out of the classroom and the school itself. Those that fall prey to differential treatment do not receive a legitimate opportunity to grow academically and to learn in the best-fitting environment. Ineffective discipline systems and/or practices in schools are one of many components contributing to the detrimental cycle known as the school-to-prison pipeline. Although changing the inequities in the educational system and in disciplinary approaches specifically is a valuable investment, analysis of the potential for existing programs to curtail negative student behavior and reduce disciplinary infractions such as referrals, suspensions, and expulsions in all races and groups of students is also necessary.

A possible solution to the issue of ineffective discipline systems and exclusionary practices occurring in traditional high schools is involvement in CTE. CTE programs, historically referred to as vocational education programs, have been a component of education for a century and have undergone a dramatic transformation in that time (Friedel, 2011). Originally, CTE was solicited as a more immediately relevant form of education, which would
allow students to develop a pertinent skill that would be required in their near future (Lynch, 2000). With time, CTE became a means for funneling impoverished, minority, and troubled students out of the traditional educational route (i.e. higher education) and into a path to develop skills for low-paying manual labor positions after high school – or, tracking (Aliaga, Kotamraju, & Stone III, 2014; Kelly & Price, 2009; Plank, DeLuca, & Estacion, 2008). With the passing of legislation fueled by a legitimate concern to invest in rewarding and valid educational opportunities, CTE has turned another corner. Today, CTE offers various students an opportunity to learn academic and technical skills in an environment that aims to develop knowledge, training, and career abilities, often times to the benefit of those wishing to transition to post-secondary education.

CTE in many high schools across the nation offers a larger variety of programs than at their inception over a century ago (Asunda, 2012). Students have the opportunity to supplement their academic coursework with CTE courses such as automotive (Stone III, 2005), geoscience (Ting et al., 2012), health services, (Stone III, Alfeld, & Pearson, 2008) and various others. The alternative courses offer students exposure to skills that have the potential to result in job placement after high school or prepare them to enter post-secondary training (Bishop & Mane, 2004). Recent policy has encouraged the restructuring of CTE with the intention to integrate with traditional academic coursework to provide a well-rounded academic experience for students (Aliaga et al., 2014).

The present study is necessary in order to determine whether participation in CTE has a relationship with student behavior and school discipline. The specific issue that will be addressed is determining what association exists, if any, between participation in a coherent CTE course
sequence and various forms of student discipline based on student behavior and the disciplinary consequences.

**Purpose of the study**

The purpose of the study is to determine the impact that participation in a coherent sequence of CTE courses has on various student discipline outcomes, specifically referrals, detentions, and suspensions. The research design involves a quantitative analysis of school discipline data. The dependent variables include disciplinary infractions (as captured in student conduct referrals), as well as disciplinary consequences such as detention, suspension, and expulsion. The independent variables include race, gender, socioeconomic status, special education eligibility, limited English proficiency (LEP) status, at risk status, grade point average, and level of CTE involvement. The population from which the sample is selected is in a suburban school district located within the Dallas/Fort Worth Metroplex. The state of Texas has a vastly growing job market and the opportunity for industries is overly abundant, especially in comparison to national standards (Bureau of Labor Statistics, 2017). Investigation into the vocational space in this area has the potential to be rewarding for students and businesses alike. The details of the research design are fully detailed and described in Chapter 3 of the dissertation.

**Significance of the Study**

Because disparities in school discipline and the negative effects that unfair and exclusionary discipline has on student outcomes continue to persist, the opportunity for an investigation into existing programs that have the potential to function as a disruptor of negative student behavior, thus minimizing some of the student discipline issues, is worthwhile. The information obtained from research into the effects of participation in a coherent CTE course
sequence on student behavior and discipline contributes immensely to the existing gap in the knowledge regarding the two topics.

Given newly discovered information about the relationship between CTE and student behavior/discipline, researchers, educators, and policymakers may implement and improve existing educational conditions. Educators have the opportunity to use the knowledge to make better decisions regarding student placement and involvement in CTE. Policymakers can utilize the potential relationship to deter ineffective disciplinary approaches and instead emphasize further implementation of and encourage funding for CTE and vocational programs. Researchers may apply the knowledge in their future studies to advance research into further investigation of the topic, which circulates back to informing educators and policymakers in order to execute better decisions for our future generations of students.

**Primary Research questions**

Recall that the purpose of the present study is to determine if involvement in a coherent CTE course sequence disrupts the trend of disproportionate discipline occurring in traditional classroom settings with historically marginalized populations. Accordingly, the research questions are as follows:

1) What relationship, if any, exists between coherent CTE course sequence participation and student discipline?
   a.) as measured through office referrals (write-ups)?
   b.) as measured through detention assignments?
   c.) as measured through suspensions allocated?

2) Does that possible relationship between coherent CTE course sequence participation and student discipline persist after controlling for previously established influential
variables such as race, gender, socioeconomic status, special education classification, limited English proficiency, at risk status, and grade point average?

a.) as measured through office referrals (write-ups)?
b.) as measured through detention assignments?
c.) as measured through suspensions allocated?

The purpose of the first research question is to determine the presence and nature of any relationship between student participation in a coherent CTE course sequence and disciplinary outcomes. The second research question is dependent upon the outcome of the first research question. That is to say, if a relationship between coherent CTE course sequence participation and discipline is discovered, the second research question seeks to determine the relative strength and statistical significance of that relationship in comparison to other factors known to influence the likelihood of differential disciplinary involvement. Should a relationship be found, and further, one that persists when controlling for the largest predictors of behavior, then new understandings of the relevance and efficacy of CTE is established.

**Research Design**

The summary of the quantitative methodology includes information about the participants, instrumentation, and the procedure. As previously stated, the sample is selected from a suburban school district in the North Texas region. The participants include students attending high school. No interviews or interactions, however, take place with the participants because the data regarding their disciplinary history and demographic information are already compiled. I utilize existing data from participants in this area because the metroplex boasts a diverse group of students in an area where employment opportunities are vast. The fact that the student body is heterogeneous due to the diversity in percentages of students in categories of
race, gender, socioeconomic status, special education classification, limited English proficiency, at risk status, and grade point average allows me to explore the effects of participation in a coherent CTE course sequence on a mixed population of student from diverse backgrounds that may react to the program in a variety of ways. With a more uniform group of participants, the less measurable the effects of CTE involvement become. The fact that the sample is located in an area with vast employment opportunities gives credibility to vocational programs because of the possibility for return on the investment in student time and skill development.

After the data from the sample is retrieved, the information is exported to SPSS (IBM Corp., 2013) as the instrumentation device in order to perform the necessary tests. The procedures vary based on the research question. Initially, I construct a table of various relevant student behavior infractions versus variables such as gender, race, socioeconomic status, etc. to provide a description of any disproportion within the dataset. With the first research question, I also rely on various tables: one with referrals versus the student participation in a coherent CTE course sequence (which is defined in the following section), one with detention assignments versus the student participation in a coherent CTE course sequence, and another with suspension assignments versus student participation in a coherent CTE course sequence. Further analysis of the sample requires two-sample t-tests for means to detect a possible association between participation in a coherent CTE course sequence and student discipline in order to accurately answer the first research question. The second research question stemming from the previous question requires multiple regression in order to determine if the potential relationship between student participation in a coherent CTE course sequence and student discipline persists after controlling for any variables that are found to be influential in previous research. A more in-depth description of the statistical analyses and explanation of their appropriate application in the
study are provided in Chapter 3 of the dissertation. The next section explicates any terms utilized in the study that may need clarification.

**Definition of Terms**

A few types of CTE institutions currently exist in different educational environments. The first type of CTE institution is a career academy. A career academy is a small learning community within a high school with a select subset of students and teachers. The pathways are multi-year and students have to apply for admission. Students make the choice to forego participation in extra-curricular activities in order to earn a diploma from a career academy school, which also offers certificates and postsecondary credit. The second type of CTE institution is a CTE program, which is CTE offered by a traditional high school. The CTE centers in this category are a component of a traditional high school. Students have the option to partake in any level of CTE courses depending on the room in their schedule and graduation requirements. Regardless of the level of participation in the CTE program, students graduate from the traditional high school. The specific type of institution utilized in this study is a CTE program offered by a high school.

At the time of writing, levels of CTE participation are recorded by the state of Texas via a simple coding system implemented for federal funding and accountability. The information regarding the participation category is important because the research questions directly visit the level of student involvement in CTE. The three codes for CTE are explained below (Carl D. Perkins Career and Technical Education Act, 2006):

1.) Zero means a student has no involvement in any CTE courses.

2.) One means a student is enrolled in a CTE course, but has no plans of future enrollment in any further CTE courses.
3.) Two means a student is enrolled in a CTE course or has been enrolled in a CTE course and has the intention to enroll in further CTE courses. Additionally, a student coded as a two intends to acquire two or more CTE credits in three or more courses in the same program of study.

Although the codes directly relate to federal funding, the focus of their use in this study is strictly to determine what relationship the level of involvement has on student behavior and discipline outcomes. The funding does not have any effects on the interest of the researcher.

Various types of discipline are referenced or utilized in this study. First, a referral is a disciplinary write-up of a student violation of the stated school rules or expected classroom/school behavior. Second, suspension is a temporary, mandatory requirement of absence from the classroom for more serious disciplinary infractions including fighting, drug possession, etc. In-school suspension is a monitored supervision of an isolated student outside of the classroom on the school grounds. Out-of-school suspension restricts a student from any participation or presence on school grounds for a period not to exceed three days in succession, with no limit on number of occurrences, if the administrator determines that: (1) the student’s presence in the classroom presents a danger of physical harm to the student or others; (2) the student has engaged in serious/persistent misbehavior or has violated other policies/rules outlined in the student code of conduct; or (3) the student has engaged in conduct that warrants an assignment to the Disciplinary Alternative Education Program (DAEP). Although a distinction typically exists between in-school and out-of-school suspension based on location, both types of suspension are located off of school grounds in this study.

Violations for discipline have four levels of severity:

1.) Level 1 – offenses/violations, which are typically small scale such as tardies, class
cuts, or forms of behavior handled locally on-site.

2.) Level 2 – offenses/violations that are severe enough to warrant short-term suspension assignments.

3.) Level 3 – offenses/violations that are extreme enough in nature that they require long-term suspension assignments.

4.) Level 4 – offenses/violations considered on campus felonies that result in expulsion.

The level of coded offenses contributes to the determination of the disciplinary outcome. Level one offenses are typically handled on campus with warnings, conferences, or detentions. Level two, three, and four offenses, however, are handled differently. Administrators utilize three categories of severity to monitor suspended students based on the level of their offenses described above. The categories for monitoring those students are described below:

1.) The first level is a short-term, off-campus placement of student violators who display a consistent lack of motivation to conduct themselves according to the school rules. Any infraction in the 200 level receives immediate assignment to an off-campus site and a consistent escalation of involvement in 100 level infractions leads up to assignment of an off-campus site.

2.) The second level is a long-term option (typically more than 3 day assignments) for students who have 300 level disciplinary infractions, which are handled with harsher punishment due to the severity of the behaviors.

3.) The third level, Juvenile Justice Alternative Education Program (JJAEP), provides services to youth who are expelled from public schools for serious school-related law violations, which fall into the 400 level, as well as provides an alternative site for students referred for violations of the student code of conduct while placed in District
Alternative Education Programs.

The various terms explained in the previous section are utilized throughout the study. The following section explains the organization of the chapters of the dissertation.

**Organization of Document**

In this preliminary chapter, I introduce the topic of the study I am exploring. The background of the various problems with discipline and discipline management systems in traditional high school settings necessitates the purpose of the study, which is to determine whether involvement in existing programs offered by CTE has an effect on student behavior with the possibility of minimizing disproportion within and the amount of infractions in the disciplinary space of schools. Additionally, I explicate the significance of the study for educators, policymakers, and researchers. Further, I provide an explanation of the research design, research questions, hypotheses, and a definition of the terms utilized in the study.

Chapter two of the document is the literature review. Because of the gap in the knowledge about the relationship directly between CTE and student discipline, I seek to cite major conclusions, findings, and methodological issues related to CTE and student discipline independently. I also provide a description of the theoretical framework that is utilized to view the relationship between the two components of the study. The reader will find that many areas within the two major topics have been researched but a gap still exists regarding the direct connection between student participation in a coherent CTE course sequence and student discipline.

In chapter three, I explain the methodology of the research study and include information about the details and appropriate nature of the research design. Also, I describe the participants, instrumentation, and procedure in further detail and explain how the data processing and analysis
take place. Moreover, I explicate ethical considerations regarding confidentiality of the participants and moral propriety when working with the data.

In chapter four, I detail the exact findings of the research study. I summarize the collected data and the statistical treatment of analysis. I also provide descriptive statistics and results from every test for each specific research question in this chapter.

In chapter five, I provide a discussion of the findings and recommendations for use of the information obtained. A summary of the methods and procedures is provided in addition to the overall findings from the data analysis. A discussion of the results of each research question follows the findings, as well as an exploration of the contribution the information retrieved for each research question provides.
Chapter 2

Before undergoing a proper analysis of the relationship between student participation in a coherent career and technical education (CTE) course sequence and school disciplinary infractions, it is necessary to understand the characteristics and histories of both. Separately, each of the factors is examined. First, I provide an exploration of the general history of school discipline, its transformation over the years, and the effects of specific types of disciplinary approaches. In the second section, I describe how individual characteristics of the student body (i.e. race, gender, etc.) can have a negative relationship with school discipline, leading to disproportion in its application. Next, I explicate hegemony, the theoretical framework utilized to view the issue of disproportionate discipline in schools. Finally, I conclude the chapter with an overview of the origin of CTE, the policies implemented throughout the years involving CTE, the gains in student achievement as evidenced by participation in the program, and the perceived drawbacks to participation. The analysis of the distinct components, school discipline and CTE, necessitates the investigation into their potential advantageous relationship for troubled students.

School Discipline

Discipline management systems are a necessary component of any educational institution. In order to properly instill socially acceptable forms of behavior and to maintain order in classroom environments to assuage the learning practices of multiple students, disciplinary incidents are inevitable forms of behavior intervention (Mayworm & Sharkey, 2014). Although the intention of disciplinary interventions seeks to preserve order and to ensure the safety of all students, the process of disciplinary removal of students (i.e. suspension and expulsion in their various forms) who are misbehaving and disrupting the learning environment makes an example of the troubled youth and allegedly deters other students from engaging in the
“inappropriate” behavior (Gregory et al., 2010). Unfortunately, many problems arise with the removal of students for disciplinary purposes. To begin, exclusion from the classroom fails to respond to the unmet needs of a student who is acting out or to the factors responsible for the problematic behavior being displayed (Noguera, 2003). Additionally, the removed student is denied valuable educational opportunities and exposure to a nurturing environment that could potentially model appropriate behavioral interactions (Fenning & Rose, 2007). Finally, exclusion often feels like push out, which contributes to the marginalization of a troubled student while consistently failing to address the underlying issue (Noguera, 2003). Although the removal process intends to correct behavior, the effects associated with the disciplinary approach have negative consequences for the student involved.

Regardless of the negative repercussions for the individual student, public non-charter schools have the responsibility to educate the masses enrolled in the institution. The passage of federal legislation involving education creates enormous pressure for schools to meet federally mandated achievement criteria (Fenning & Rose, 2007). Due to the increased stress that accountability creates, teachers and administrators are more likely to remove students who appear disruptive, who cannot adhere to the norms of the classroom, or who are failing to meet academic expectations (Fenning & Rose, 2007; Noltemeyer & Mcloughlin, 2010). In addition, perceived loss of control on the teacher’s part as opposed to the threat of actual violent behavior leads to exclusionary discipline in the classroom (Pane, Rocco, Miller, & Salmon, 2014). In other words, removal more often occurs as a reaction to non-violent/non-threatening student behavior. Ostensibly, teacher and administrator bias and perception regarding the classroom climate has an effect on the implementation of disciplinary approaches with students (Fenning & Rose, 2007; Noltemeyer & Mcloughlin, 2010; Pane et al., 2014; Skiba et al., 2011).
Regardless of its misuse and associated negative consequences for students, schools continue to utilize removal as a disciplinary approach. Some researchers find that the removal technique is a contributing factor to the academic achievement gap plaguing schools (Gregory et al., 2010; Mayworm & Sharkey, 2014; Noguera, 2003). Considering the fact that underperforming students with lower self-confidence tend to act out when they become frustrated by their academic deficiencies (Miles & Stipek, 2006), removal does not seem to be the best approach to curtail their behavior. Generally, it is the students who recognize that education will not lead to admission to college or access to a promising career, who typically cause the most trouble in school (Noguera, 2003). Seemingly, the most ineffective approaches to curtail negative behavior for troubled youth are exclusion, removal, or punitive forms of discipline (Martinez, 2009). The following exploration of the evolution of disciplinary approaches in schools, however, displays the adaptation of the ineffectual exclusionary style.

**Transformation of Discipline**

Like many aspects of education, discipline management systems and approaches evolved over time. After President Reagan implemented the war on drugs during his time in office, United States Customs targeted the increasing drug problem by implementing zero tolerance policies (Martinez, 2009). By definition, zero-tolerance discipline policies aimed to universally apply punishment for specific offenses (Mayworm & Sharkey, 2014). These severe, punitive strategies aimed at deterring the entrance of illegal drugs into the United States became a popular tool for dealing with disciplinary issues in schools. The passing of the Guns Free School Act in 1994 under the Clinton administration furthered the implementation of zero tolerance disciplinary practices in schools because educators desired to make a statement about the unacceptable nature of gun violence and threats towards America’s youth (Hoffman, 2014; Irby,
2013; Martinez, 2009). Unfortunately, the castigatory intention of the policy began to encompass various non-gun related misbehaviors, which had severe detrimental effects on students who were engaging in less severe forms of conduct including fighting, defiance, alcohol/drug possession, and committing multiple offenses in one year (Hoffman, 2014). Not only did the zero tolerance policies expand into non-gun related issues, but the punishment for offenses involving guns became so stringent that students received expulsions for non-firearms such as toy guns, water pistols, and even tiny plastic accessories to action figures that are shaped like guns (Cornell et al., 2011). Clearly, the misuse and abuse of the zero tolerance policies for actual threats towards students evolved into a practice that was more detrimental to students than helpful.

In 2001, the American Bar Association posits that schools should halt the use of zero tolerance policies because they interrupt the educational progress of students in academic need (Martinez, 2009). Despite the fact that the American Psychological Association Zero Tolerance Task Force (2008) also find that there is no evidence that zero tolerance policies improve school conditions or have a positive impact on offending students (Cornell et al., 2011), schools continue to utilize the practices (Mayworm & Sharkey, 2014). Martinez (2009) asserts that the exclusionary practices stemming from the zero tolerance approach function as an escape route for administrators to shirk off the responsibility of authentically dealing with the underlying problems of troubled youth.

Suspension, expulsion, and other disciplinary actions leading to a student’s removal from school comprise the exclusionary policies currently employed by educational institutions (Noltemeyer & Mcloughlin, 2010). Cornell, Gregory, and Fan (2011) find that schools with higher rates of suspension and expulsion, however, have lower school climate ratings and have
lower levels of school-wide academic achievement. Punitive forms of discipline transform a
school from an institution that encourages students to learn and grow, into an environment built
on mistrust of students due to the constant need for surveillance of perceived law-breaking youth
issues such as academic failure, suspension, and dropout may exacerbate the risks for court
involvement among youth, regardless of the performance classification of the school itself. The
utilization of punitive forms of disciplinary practices creates a connection to criminal justice
involvement by directly mimicking forms of law enforcement approaches in school
environments and by indirectly creating a mindset amongst those targeted (Skiba et al., 2014).
The delinquency aspect created within the youth in trouble has a social effect, as well. Many kids
that are regularly suspended and/or expelled are from home environments where they cannot be
monitored during the daytime and therefore, these children have more freedom and available
time to become involved in even more delinquent activities, leading to recidivist behavior, as
opposed to correction. The following sections provide details for further analysis of the
connection between inappropriate exclusionary discipline and the negative effects.

**Negative Effects of Harsh Disciplinary Policies**

Research investigating the use of excessive, punitive, and harsh discipline consistently
shows the negative effects that such practices have on students, particularly students of color.
The disciplinary approaches have direct consequences for troubled youth, as well as effects once
the disciplined children become adults. This section explores the immediate and lasting
consequences for youth and society.

**Immediate effects.** Consistent conclusions from studies show that suspension, one of the
most commonly used forms of discipline in schools, (Fabelo et al., 2011), has academic
repercussions for students who may already be under-performing. Receiving school suspension as a punishment significantly impacts students who are not motivated to catch up on the missed instruction independently (Arcia, 2006). Gregory et al. (2010) posit that the missed academic exposure resulting from one suspension exacerbates a cycle of academic failure, disengagement, and recidivism. Carpenter and Ramirez (2007) discover that even after controlling for individual, family, and school factors, students who receive suspensions are more likely to experience academic difficulties. The academic struggle leads to further issues in school for the suspended student.

When students disengage from or are pushed out-of-school by exclusionary practices, many are set up for failure in other ways (Raible & Irizarry, 2010). Not only does suspension impede academic progress, but researchers consistently report that suspension directly correlates to dropout potential (Lee et al., 2011; Christle, Jolivette, & Nelson, 2007; Suh & Suh, 2007). Multiple studies performed on various grade levels, in different states/regions, and in diverse types of schools uncover the correlation between suspension and dropout.

Lee, Cornell, Gregory, and Fan (2011) examine the association between school suspension rates and dropout rates in a statewide sample of 289 Virginia public high schools. Cognizant of the confounding effects of previously established influential variables, the researchers control for school demographics such as racial composition, percentage of students eligible for free and reduced price meals, and urbanicity, while also controlling for school resources like per pupil expenditure. In addition, since the researchers feel that student attitudes might influence suspension rates, the researchers use the prevalence of aggressive attitudes and rejection of school rules among students as additional predictors in their hierarchical regression analysis. The researchers discover that schools with high suspension rates tend to have high
dropout rates, approximately 56% higher than schools with low suspension rates. This finding for association exists for both White and Black populations.

Christle, Jolivette, and Nelson (2007) investigate school characteristics and disciplinary practices in relation to dropout rates in 196 Kentucky high schools. The researchers use Pearson product-moment correlation coefficients to determine school level variables that display a strong relationship to dropout rates. Additionally, the researchers utilize a multivariate analysis of variance (MANOVA) to compute differences between 20 schools with high dropout rates and 20 schools with low dropout rates. They find that schools with high dropout rates have significantly higher suspension rates, a higher percentage of students from low socioeconomic backgrounds, and higher percentage of students held back in a prior grade than schools with low dropout rates.

Suh and Suh (2007) also research variables related to dropout potential in their analysis of data from the National Longitudinal Survey of Youth (NLSY97). The authors use multiple logistic regressions to discover 16 statistically significant predictors of dropout. Of those found, a previous history of suspension stands out as a predictor. In fact, the researchers find that suspensions are stronger than either grade point average (GPA) or socioeconomic status (SES) in relation to dropout. Particularly, the researchers determine that a prior history of suspension increases the student likelihood of dropping out by 78%. The detrimental relationship between suspension and student likelihood of dropping out outweighs the potential for the punishment to be utilized as a corrective disciplinary practice. The academic risk and dropout potential are direct repercussions of exclusionary discipline. In the next section, I explore the long-term negative effects of excessive, exclusionary discipline.

**Long-term negative effects.** The academic failures and dropout risk experienced by troubled youth can result in detrimental, long-term repercussions for the individual student,
which can have an effect on society as well. Exclusionary disciplinary policies have a direct association with a phenomenon entitled the school-to-prison pipeline (Christle, Jolivette, & Nelson, 2005; Nicholson-Crotty et al., 2009; Rocque, 2010; Skiba et al., 2002). The school-to-prison pipeline is a widespread pattern between educational exclusion, particularly zero-tolerance approaches, and the inevitable criminalization of youth (Wilson, 2014). Skiba, Arredondo, and Williams (2014) fully define the phenomenon:

The school-to-prison pipeline (STPP) is a construct used to describe policies and practices, especially with respect to school discipline, in the public schools and juvenile justice system that decrease the probability of school success for children and youth, and increase the probability of negative life outcomes, particularly through involvement in the juvenile justice system (p. 546)

Students of color, especially Black males, and those of lower socio-economic status are highly susceptible to entrance into the school-to-prison pipeline (Caton, 2012; Fenning & Rose, 2007). It is telling that the incarcerated population resembles the disciplined population in schools in a variety of sociodemographic categories such as race, gender, and socioeconomic status (Noguera, 2003). In the next section, I conduct a further examination of these variables.

The racial disproportion evidenced in the pipeline population cannot be fully accounted for based on differential behavior on the part of the students (Rocque, 2010). In other words, differences in behavior are not the only factor contributing to the overrepresentation of students of color receiving discipline. For example, the overly abundant assignment of out-of-school suspensions for Black students, who are not misbehaving at a rate proportional to discipline received, may contribute to racial disproportion in justice system referral rates (Nicholson-Crotty et al., 2009). Black males who are disciplined with increased frequency and severity, given less


opportunities to receive alternative, preventative disciplinary approaches, and ultimately excluded from school become less able to accomplish academic goals. This interferes with potential access to promising future employment opportunities (Noguera, 2003; Wilson, 2014). Gregory et al. (2010) assert that the criminalization of Black males in high school is a component leading towards the burgeoning prison system.

As previously discussed, exclusionary discipline leads to dropout. Students who dropout are eight times more likely to become incarcerated than those who graduate from high school (Christle et al., 2005). Although the United States constitutes 5% of the world’s population, the nation is responsible for a startling 25% of the world’s prison population (Meiners, 2011; Wilson, 2014). America’s overrepresentation in prison statistics implies the need for our nation to find a remedy to deal with the bloated rates at an earlier time in the criminalization process. Instead, 3rd- and 4th-grade reading test score data and high-school dropout rates are often used to predict space needs for state prisons (Giroux, 2009). Policymakers are clearly aware of the potential for early intervention in educational spaces due to the fact that school statistics affect prison policy.

Not only does involvement in the criminal justice system affect the individual, but repercussions exist for the family of incarcerated individuals. Children who come from a household where one parent is incarcerated have five times the likelihood of entering prison themselves than their counterparts who do not have a parent in the prison system (Wilson, 2014). This relationship displays the connection that the home environment of children with an incarcerated parent has on the child’s future wellbeing. The negative long-term effects associated with exclusionary discipline are far-reaching and bleak.

In the previous section, I explored the transformation of disciplinary approaches in
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Educational institutions, the population largely affected by the measures, and both the immediate and long-term results for the individual and the families associated. Research surrounding exclusionary policies, deepening of discipline, and the school-to-prison pipeline illuminate troubling disparities that exist within schools. In the next section, I synthesize research on individual and contextual categories that have an impact on school discipline. A clear understanding of the established connection between these variables and the likelihood of school disciplinary infractions reaffirms the necessity of the utilization of similar variables in the analysis portion of this research study.

Previously Established Student Variables Connected to School Discipline

Although little to no research explores the relationship between CTE and student disciplinary infractions, much research exists about the variables connected to harsh, exclusionary, and punitive forms of school discipline (Christle et al., 2007; Fenning & Rose, 2007; Gregory et al., 2010; Hoffman, 2014; Irby, 2013; Krezmien, Leone, & Achilles, 2006; Lee et al., 2011; Mendez & Knoff, 2003; Noltemeyer & Mcloughlin, 2010; Sullivan et al., 2013). Scholars explore a variety of factors in order to determine whether the overrepresentation of certain groups in the school disciplinary spaces is a result of differential behavior, differential treatment, and/or differential processing. Because equity in education is of supreme importance, researchers, policymakers, and practitioners need to determine where the differences are occurring in order to make any adjustments that the school is responsible for to create a fair, just environment. In this segment of the chapter, I describe various studies involving the multitude of factors that are determined to be impactful. These established factors are the same variables utilized in the current study.
Race

The Children’s Defense Fund (1975) was the first group to bring attention to the issue of racial disproportionality in discipline with the publication of a report that determined that Black students were unfairly suspended at higher rates than White students in schools (Caton, 2012; Gregory et al., 2010; Skiba et al., 2002). Since the discovery, racial disproportion continues to surface in studies exploring school discipline (Gregory et al., 2010; Hoffman, 2014; Lee et al., 2011; Noltemeyer & Mcloughlin, 2010; Rocque, 2010; Rocque & Paternoster, 2011; Skiba et al., 2011; Vincent et al., 2012). The disproportionate overrepresentation of Black students, in particular, cannot be solely accounted for by differential behavior, however (Noltemeyer & Mcloughlin, 2010). Black students are more likely than their White counterparts to receive severe disciplinary sanctions, as opposed to alternative or proactive approaches (Fenning & Rose, 2007). Minority students, in general, have an increased likelihood of receiving exclusionary discipline, such as suspension and expulsion, at larger rates than their White counterparts (Krezmien et al., 2006; Lee et al., 2011; Skiba et al., 2011). Because racial disproportionality continues to surface in research connected to school discipline, I explore a multitude of studies that detail the relationship between race and discipline in this section.

Noltemeyer and McLoughlin (2010) perform an investigation on disciplinary disproportionality utilizing district-level data from Ohio public schools. The researchers rely on repeated measures multivariate analysis to examine disciplinary disproportionality, use of exclusionary discipline over time, and changes in disciplinary disproportionality over time. Results from the analysis confirm that Black students are overrepresented in exclusionary discipline and receive more suspensions, expulsions, and other disciplinary sanctions than their White counterparts. The researchers discover that ethnicity accounts for over 25% of the
variability in exclusionary discipline rates in their study. The information regarding racial disproportionality confirms results found in previous research.

Rocque (2010) conducts a similar investigation which focuses on racial disproportion in school discipline in Virginia. His study examines the effect of race on office referrals in 45 elementary schools, while controlling for teacher ratings of student behavior. He also utilizes a fixed effects model to remove school-level influences. His findings show that Black students are more likely to be referred to the office than any other racial group. Specifically, the odds ratio indicates that Black students have 2.47 greater odds of being referred to the office than other racial groups after controlling for individual-level behavior. This study defends the argument that student behavior and school-level factors are not sufficient to explain the racial disproportionality occurring in school disciplinary spaces.

Skiba et al. (2011) conduct another study concerning racial disproportion occurring in school discipline. The authors review the documented patterns of office discipline referrals in 364 elementary and middle schools from the 2005-2006 academic year from data reported by school personnel in the Web-based Schoolwide Information System. They perform a series of descriptive and logistic regression analyses to discover that Black students are more likely to be referred to the office than White students. The rate for Black elementary students is 2.19 times the rate of referral for White students. More alarming, the rate for Black middle school students is 3.78 times the rate of referral for White students. The results mirror the Rocque (2010) study and display that Black and Latino students are more likely to receive suspension or expulsion as a consequence for the same behavior displayed by White students. The findings continue to display the inequitable, unnecessary racial disparities prevalent in school discipline leading to racial disproportionality in school discipline data analyses.
Hoffman (2014) explores the specific effect of zero tolerance disciplinary practices on racial disparities. He performs negative binomial regression discontinuity analysis on data from a mid-sized urban district serving approximately 24,000 students to explore the effect of expanding zero tolerance disciplinary practices in the school district on the proportion of days that students are suspended. Since the percentage of days that students are suspended is considered a count variable, a negative binomial regression model is more appropriate for analysis since the ordinary least squares regression assumption for normality is not met. Interested in the expansive utilization of zero tolerance approaches to discipline, his findings show that Black students are disproportionately affected by the strategy as indicated by the disproportionately large number of Black students recommended for expulsion. Although the percentage of recommendations for expulsion for White and Latino students both increase by approximately .2%, the percentage of recommendations for expulsion for Black students increases by 2.3%. The author posits that exclusionary policies, which researchers already question, disproportionately affect the Black student body.

Rocque and Paternoster (2011) are also concerned with researching the issue of racial disproportionality in school discipline and explore racial bias in 45 elementary schools in a mid-Atlantic state. The researchers collect a plethora of information on students and teachers before performing a series of logistic regression and negative binomial regression analyses to determine whether Black elementary school students are more likely to receive disciplinary infractions after controlling for individual level factors and the difference in amount of referrals. The authors find that Black students are twice as likely to be referred to the office as children from other racial categories. After conducting further multivariate regression analysis, Rocque and Paternoster display that 25% of the variation occurs at the classroom and school level, which indicates that
behavioral differences are not the sole contributor to the racial disproportionality occurring in school discipline in the study. The results align with previous research about the presence of racial bias and disparities in school discipline.

In this segment, I explore the impact of race on school discipline. Many authors perform studies to examine the presence of racial disproportion at all levels of schooling and over a range of areas across the nation (Gregory et al., 2010; Hoffman, 2014; Lee et al., 2011; Noltemeyer & Mcloughlin, 2010; Rocque, 2010; Rocque & Paternoster, 2011; Skiba et al., 2011; Vincent et al., 2012). Race continues to persist as an influential factor in school disciplinary studies. In the following portion, I explore the effect of another variable, socioeconomic status.

**Socioeconomic Status**

Gregory et al. (2010) posit that socioeconomic status impacts disciplinary encounters because low-income students typically reside in high poverty/high crime areas where it is easier to lose motivation and may engage in behavior that results in a higher amount of disciplinary repercussions. Regardless, poverty contributes to disciplinary disproportionality in schools (Skiba et al., 2002). Schools with higher rates of low-income students have higher dropout rates (Christle et al., 2007) and higher rates of student suspension (Christle, Jolivette, & Nelson, 2004). Because socioeconomic status influences discipline rates, it is a variable worthy of investigation.

Christle, Jolivette, and Nelson (2005) conduct a study exploring data related to school characteristics and academic achievement scores in Kentucky elementary schools to identify differences between schools reporting low versus high academic achievement. The authors conduct the data collection in three stages. Stage one displays that poverty accounts for the greatest percentage of variance in a school’s academic achievement with a rate of 47%. In stage
two, the researchers utilize a MANOVA to explore suspension rates and find that middle schools with higher rates of students from low socioeconomic backgrounds, higher numbers of reported board of education and law violations, and higher retention and dropout rates also report higher rates of student suspension. Their utilization of correlation analysis in stage three discovers that five of the 12 variables for school characteristics (i.e., retention rate, percentage free-reduced lunch prices, law violation rate, suspension rate, and board violation rate) are positively correlated to dropout rate. Socioeconomic status impacts all three stages and areas of analysis in the study.

Sullivan et al. (2013) specifically seek to examine the influence of socio-demographic characteristics on students' risk of suspension. The researchers utilize archival student and school-level data for 17,837 Kindergarten through 12th-grade students in 39 schools of a Midwestern school district. They perform multilevel logistic regression and multinomial logistic regression to estimate students' risk of receiving suspensions. Results indicate that socioeconomic status, in addition to gender, race, and disability, are significantly related to suspension risk. The authors find results that support previous research about the impact of socioeconomic status on school discipline.

Noltemeyer and McLoughlin (2010) do not exclusively look at the effect of socioeconomic status on school discipline, but acknowledge the impact of the variable and therefore, hold the factor constant in the analysis. The researchers investigate the relationship between school typology and student ethnicity with exclusionary discipline. Although socioeconomic status is not the primary variable of interest to the study, the researchers control for student poverty level because of its known impact. The authors utilize data from 326 Ohio school districts to perform a MANCOVA, followed by univariate ANCOVAS. The authors find
that Black students disproportionately receive exclusionary discipline, major urban very-high-poverty schools utilize exclusionary practices most frequently, and disciplinary disproportionality exists in major urban districts with very high poverty at greater rates than in rural districts with a small student population and low poverty. Even though socioeconomic status is not the primary factor, the authors find evidence about student socioeconomic status that supports previous research and information regarding the impact the variable has on disciplinary disproportionality.

Suh, Malchow, and Suh (2014) conduct another study regarding school discipline that does not explore the impact of socioeconomic status exclusively. The researchers examine causes of the widening Black-White gap in dropout rates during the 2000s. They utilize data from two cohorts of National Longitudinal Surveys of Youth, (NLSY 79 and NLSY 97) to perform logistic regression and decomposition analysis. The authors discover that fatherless households contribute to the widening of the Black-White gap. This factor correlates to socioeconomic status because of the effect that the loss of income has on the household. The results include other factors, which is common with an exploration of socioeconomic status.

In this section, I describe various studies examining the relationship between a student’s socioeconomic status and the amount of school disciplinary sanctions a child receives. In the following section, I investigate another known influential variable, gender.

**Gender**

Males of all racial and ethnic groups are more likely than females to receive disciplinary sanctions (Gregory et al., 2010; Mendez & Knoff, 2003; Skiba & Peterson, 2000), as well as receive increased levels of exclusionary discipline (Skiba et al., 2002). In fact, research suggests that the rate of disciplinary actions for male students is two times higher than for female students
Because the issue of gender disproportionality occurs frequently in research regarding school discipline, I explore various studies that detail the relationship between gender and discipline in this section.

Skiba, Michael, Nardo, & Peterson (2002) explore the effects of gender, in addition to race and socioeconomic status, on school discipline by utilizing one year of middle-school disciplinary data from 19 different schools from an urban school district. The authors utilize data from 11,001 students to perform chi-square tests and analyses of variance that show that disparities based on gender are more intense than socioeconomic status and remain even after controlling for socioeconomic status. The authors find that boys are suspended at a significantly higher rate than girls given at least one office referral. Differences in the rate of office referrals are significant for both the main effects of gender, race, and their interaction. As with socioeconomic status, gender is typically considered amongst other variables in research studies.

Barrett, Katsiyannis, and Zhang (2010) also discover significant findings related to gender and school disciplinary infractions. The researchers examine predictors of offense severity, recidivism, and judicial disposition such as diversion, prosecution, and incarceration from data they obtained on approximately 100,000 individuals from the South Carolina Department of Juvenile Justice. Females are more likely to be prosecuted than males, particularly for less serious offenses. In the study, the researchers also find results concerning other variables. For race, they discover that Blacks are more likely to be incarcerated than Whites at first and second referrals. For age, they find that youth under age 14 are more likely to recidivate than those in older age brackets and youth prosecuted for earlier offenses are more likely to recidivate than those not prosecuted. Regarding socioeconomic status, father absence influences recidivism rates. Considering disability, special education status is also predictive of recidivism. The
authors uncover information that correlates to trends in previous research regarding the variables explored.

In this section, I explore gender and school discipline. Not only does gender affect likelihood of encounters with school discipline, it is commonly understood that the variable increases the likelihood that minority youth will come in contact with the juvenile justice system (Nicholson-Crotty et al., 2009). In the following section, I explore the influence that disability/special education status has on school discipline.

**Special education status**

Evidence of disciplinary disproportionality exists among students with disabilities (Krezmien et al., 2006; Mendez & Knoff, 2003). Students identified by a special education disability status have a higher likelihood of being suspended or expelled (Zhang, Katsiyannis, & Herbst, 2004). Special education students are the most affected by punitive discipline systems (Irby, 2013; Krezmien et al., 2006) because research shows that expulsion, suspension, and special education classification are strong predictors of inevitable future incarceration (Meiners, 2011).

Krezmien, Leone, and Achilles (2006) examine the disproportionate amount of suspensions of students with disabilities by analyzing statewide suspension data from 1995 to 2003 in Maryland. The researchers find disproportionate rates of suspensions for students with disabilities, as well as African American students and American Indian students. Although the odds ratios for students with disabilities vary by disability category, students with disabilities have higher odds ratios than students without disabilities for most discipline categories. Specifically, students with emotional and behavioral disorders have the highest odds ratios for suspensions. The results align with previous trends regarding the impact of special education
status on likelihood of school discipline.

Vincent, Tobin, and Sprague (2012) also explore the effect of disability status on school discipline. The researchers examine 2009-2010 data on exclusionary discipline practices from one state in the Pacific Northwest of the United States across students’ disability status and racial/ethnic backgrounds. The authors utilize analysis of variance to confirm that among students without a disability, Hispanic students are over-represented in all exclusionary discipline practices. Black students with and without disability are excluded for disciplinary reasons approximately twice as long as White students. The authors conclude that the results indicate that disability status, as well as race, significantly impact the amount and duration of disciplinary exclusions.

Vincent and Tobin (2011) also explore the effect of special education status on school discipline. The researchers examine data on exclusionary discipline from 77 schools implementing school-wide positive behavior support (SWPBS). SWPBS implementation decreases exclusionary practices in classroom settings in elementary schools and in non-classroom settings in high schools. Although the amount of exclusions decreases, students with a disability tend to be excluded from the classroom more often and for longer durations than students without a disability. Additionally, Black students remain overrepresented in exclusions, in particular long-term exclusions, regardless of the overall decrease after the implementation of SWPBS. Although the study provides insight into racial disproportion existing in school discipline, the results also confirm what previous studies display about the connection with special education status and discipline.

In this segment, I explore the impact of special education status on probability of school disciplinary sanctions. In the entirety of the preceding section, I explore the many variables that
researchers have found to impact school discipline. Although little to no research directly explores the relationship between involvement in CTE and school disciplinary infractions, the variables that researchers have explored (race, socioeconomic status, gender, and special education status) can be utilized to answer the research questions in this dissertation to fill the existing gap in the research regarding CTE and school discipline. In the proceeding section, I describe the theoretical framework I plan to utilize for my research study.

**Theoretical Framework**

Hegemony is a form of political power exercised over subaltern classes in close proximity to a socially dominant group, while supremacy is exerted over those opposing it (Thomas, 2010). This theory addresses the dominance, force, coercion, and consent displayed in school systems. Many forms of resistance resulting from lack of consent produce various levels of school discipline. The resistance may stem from refusal to align with the widely accepted normative behaviors and rejection of hierarchical curricular material. CTE is a means to provide an alternative pathway for students who may be displaying resistance to the normative expectations of dominant groups in today’s society by failing to adhere to the main college-for-all route desired for students.

In this section, I first explore the origin and conception of the theory of hegemony. Then, I explain the characteristics of hegemony and how those aspects are built into the structure of education. Third, I explicate how hegemony manifests in classrooms and discipline systems in educational institutions. Finally, I describe the applicable nature of the theory for my dissertation proposal. I utilize hegemony as the lens to view how disciplinary altercations in educational institutions arise and how involvement in a coherent CTE course sequence can reduce school disciplinary infractions and disproportion in school discipline management systems.
Origin

The concept of hegemony, although credited to Gramsci, originates years before in the works of Lenin and Marx (Litowitz, 2000; Thomas, 2010). Lenin formulates the concept to describe how the proletariat wants to influence the masses to accept and undertake their intentions as truth and priority while deterring them from their own thoughts of reform (Bates, 1975). Marx relies on the concept to explicate the formation of societal structure. His interpretation, however, transforms the basic framework of society by increasing the focus towards the economic aspect of the prolonged struggle for social class divisions (Bates, 1975). Gramsci does not agree with the overly deterministic nature of the economic focus on societal structure and hegemony. While in prison in 1926, Gramsci explores many theoretical, social, and political theories in his publication, The Prison Notebooks (Litowitz, 2000; Thomas, 2010). Among many theories and ideas are constructed and critiqued in the book, hegemony surfaces as the most critically and philosophically acclaimed contribution (Thomas, 2010).

Scholars describe hegemony as domination of one social class over another subordinate group of people through cultural and political institutions of society by way of force and consent (Krancberg, 1986; Litowitz, 2000). Gramsci explores and calibrates the concept that men are not ruled by force alone, but also by ideas. He utilizes existing vocabulary that does not have the power to truly explain the phenomenon while also under extreme censorship due to his confined status in a Fascist prison (Bates, 1975; Thomas, 2010). The conditions of his failing health, lack of educational resources due to imprisonment, and the power of the state to censor ideas affects Gramsci’s work, leaving it difficult to decipher (Thomas, 2010). Regardless of the nature of the working conditions, Gramsci’s reformulation of hegemony remains applicable to this very day.
Gramsci’s reformulation of hegemony relies on Marx’s conception of the division of the societal framework into a base and superstructures (Bates, 1975). Because Gramsci believes hegemony and society cannot be viewed with a fundamental dichotomous distinction, he complicates the configuration of the societal framework by contributing the idea of a historical bloc, which is an integral system connecting Marx’s binary aspects (Litowitz, 2000). The historical bloc conception allows Gramsci to explore how the superstructures exist in unison with the origin of the base of society, as opposed to simply being a mechanical derivation from the base (Thomas, 2010). The historical bloc comprises the structure of society, as well as its superstructures in an integral fashion (Bates, 1975). Superstructures are all the terrains and forms of society in which members of social classes recognize and comprehend the conditions of their struggle within a determinate social formation in a particular situation (Thomas, 2010).

Gramsci explicates how the historical bloc functions by providing a clarification of the elements of the integral system. Two main components comprise the historical bloc structure: civil society and political society (Buckel & Fischer-Lescano, 2009; Litowitz, 2000; Thomas, 2010). Churches, educational institutions, clubs, and media compose the civil society, the private aspect of the structure (Bates, 1975; Buckel & Fischer-Lescano, 2009). Gramsci views civil society as the ethical content of the state, which is composed of the cultural and intellectual institutions of a society (Thomas, 2010). Conversely, the economic, public elements such as the government, military, police, and judicial system constitute the political society (Bates, 1975). Gramsci explicates that hegemony, initially created within civil society, also impacts other superstructural levels of political society because political society itself and the power created within its institutions is integrally related to civil society and its social forces (Bates, 1975).

Gramsci describes the civil and political societies as interconnected spheres of domination due to
the fact that hegemony only effectively occurs through utilization of institutions and individuals within both categories (Litowitz, 2000). Gramsci’s intention in producing the concept of the integral state aims to create a dialectical unity of the moments of civil and political society because their relationship and existence remain interdependent (Thomas, 2010).

With the integral state, Gramsci attempts to analyze the mutual permeation and reinforcement of political society and civil society (Thomas, 2010). Even though Gramsci distinguishes the two separate aspects of the superstructure, he clarifies that the societies are not mutually exclusive elements and the separation is merely geographic (Litowitz, 2000; Thomas, 2010). The distinction creates a platform to trace the means of force and domination, which must occur in a counterbalanced fashion in order to be effective (Thomas, 2010). Powerful social classes subjugate weaker classes beneath them through all institutions of the civil and political societies (Krancberg, 1986). In order for hegemonic principles to continually proliferate, the dominant social group must utilize both aspects of the historical bloc to exert their influence to maintain legitimacy (Thomas, 2010). If private power is denied, then public force must be exercised to insure that supremacy is preserved and vice versa (Litowitz, 2000). For example, when lower class citizens rebel or resist “civil,” educational means of teaching the dominant ideology, then the state must utilize “political,” police forms of incarceration and abuse to reaffirm dominance over resistance. In order to maintain hegemony, the domineering social class must engage in a perpetual, insidious fight (Giroux, 1981). With the establishment of an organic connection between the two societies and proper exploitation of the relationship, the domineering social classes accomplish hegemony by maintaining the ability to usurp control absolutely (Woolcock, 1985).
Hegemony and Education

Proper utilization of state apparatuses within the civil and political societies requires force and manipulation to sustain control. Domination, after all, occurs in the state as well as in popular imagination, the education system, intellectual works, religion, and art (Litowitz, 2000). Gramsci believes that the state cannot be supreme above civil society, but must invest itself in all societal levels to inundate daily life constantly with teachings, philosophy, and beliefs in a surreptitious manner (Thomas, 2010). In order to do so, the group seeking power falsely infiltrates systems of weaker, smaller factions and reassures the lower levels that the goals of the less fortunate have validity and will receive attention once the dominant group gains more control (Bates, 1975). This is another occurrence of the integral aspect of the system of the state because the production of consent relies on a network of social relations for the integration of the subaltern classes into the development by the leading social group (Thomas, 2010). Once the dominant classes gain access to the leaders and intellectuals of lower echelons, elite intellectuals continue to further the control and power over the subordinating intellectuals by winning the subaltern individuals over and proliferating their ideologies (Bates, 1975). With time, the dominant ideologies permeate into the consciousness of the subaltern classes without sole reliance on coercion and hegemony emerges as a consensual practice with ease and acceptance by the general masses (Thomas, 2010). Hegemony is all-encompassing, dominant ideology operating in all the social, cultural, and economic dimensions of society, resulting in a worldview that maintains the cultural dominance of a particular social group over others (McDonald & Coleman, 1999).

Although political society relies on force, the consent of domination through dissemination of ideas by way of civil society involves a more efficient and fluid submission of
the lower social classes. The penetration of hegemonic principles onto the masses requires universalization whereby the dominant group manages to portray its interests as the common interests of all people and accomplishes this by bringing in alternative groups to diffuse their ideas as discussed previously (Litowitz, 2000). Hegemony must appear natural and occur in a general fashion (Krancberg, 1986; Litowitz, 2000). Because hegemony is a contradictory process, the dominant ideologies must embrace all areas of human activity including economic, political, social, and cultural in order to become generalized and natural to those being subjugated (Buckel & Fischer-Lescano, 2009; McDonald & Coleman, 1999). Lastly, hegemony requires the development of a rationality of the principles, which eventually become synonymous with common sense (Krancberg, 1986; Litowitz, 2000). Although the beliefs emerge from one dominant class, the principles become widely accepted and normative because of the imposition of the ideologies into all aspects of daily lives of the masses (Krancberg, 1986). This is how the values of the dominant trickle down to the subordinate classes and become universal, rational, and natural, eradicating most thoughts of dissension or reform (Litowitz, 2000). These aspects allow dominant principles to become so engrained in the daily interactions of the masses that the once alien beliefs are difficult to distinguish and become internalized as those of the conquered individual.

Gramsci introduces the idea that normative expectations established by social order are most effectively achieved through mass education and consent (Krancberg, 1986). The values and principles of the dominant classes disseminate superficially onto the children of subordinate members of society by way of the school system, a component of civil society. Class domination and inequality exists heavily throughout the processes and the specific purpose of everyday classroom experiences, which is to socialize younger generations as to the normative
expectations of a class-based society (Giroux, 1981). Schools focus on creating a sense of values that reinforces dominant group ideology regardless of validity or applicability for subaltern classes (Merelman, 1993). It is through the force of ideologies that many students do not value, but are forced to endure and be accountable for, which allows schooling to function as a hegemonic apparatus (Giroux, 1981).

**Manifestation**

Hegemony in education also encompasses the concepts of force and consent. Students that adhere to rules, regulations, policies, procedures, classroom expectations, dress code, and grading requirements work their way through the school system with ease, assistance, and accolades. Students who resist or deviate from the normative path encounter force and receive discipline as a means to correct behavior. When students display defiance towards the widely accepted expectations, they appear to be resisting the very principles of society. Since hegemonic principles stem from practices of daily academic experiences, the interests of the dominant inaccurately continue to represent the interests of everyone because of the ability to hide behind various legitimating forces, such as educational institutions (Giroux, 1981).

The problem with the continuous cycle of risk or reward utilized for socialization in education systems is that the constant hegemonic approach prohibits authentic social change (Merelman, 1993). Those at the lower level have two options: conform in order to achieve any type of economic advancement or resist and deal with the consequences of discipline from both types of society (McDonald & Coleman, 1999). In this scenario, the principles of those in power remain the priority and dominant forces stifle any attempts from lower social groups to resist or contribute, for that matter. For example, dominant culture ignores various forms of Black contributions to literary and intellectual institutions (Gordon, 1993). Due to the lack of
opportunity for many non-White scholars to actively engage with academics and contribute to curricular and intellectual perspectives, race continues to create issues of resistance in hegemonic educational institutions (Gordon, 1993). Since schools stifle questioning and defiance, empowerment of subordinate groups becomes contradictory to the dominant cause and public schools are not as likely to encourage and proliferate multicultural empowerment and education (Merelman, 1993). The issue of race and hegemony in education largely remains unaddressed. In fact, Caton (2012) believes that the hegemonic system implements an educational structure that continues to be in place in many schools. The structure benefits Whites and negatively affects urban schools, which are largely comprised of students of color and those from families of lower socioeconomic status. Additionally, disabled persons, students requiring special education, and non-hetero-genderual individuals consistently encounter issues with existing dominant ideologies, which marginalize and suppress them (McDonald & Coleman, 1999).

The paradoxical aspect of education is that, although Gramsci claims that intellectual and political autonomy across the subordinate social class is imperative in order for that group to gain any ground in political or social expansion, schools are the very institutions utilized to proliferate the dominant agenda and stifle resistance or change (Krancberg, 1986). Hegemony, however, is rife with contradictions and tensions that open up the possibility for counter-hegemonic struggle (Giroux, 1981). Paul Willis (1977) explores resistance to hegemony in schools in London in his literary contribution, Learning to Labour. Because students understand at an early age that the ability to mobilize beyond their socioeconomic level is far-reaching and minimal, they overtly and intentionally display blatant resistance to school, teachers, and any aspect of education. The awareness of the students of how the societal structure actually works against them encourages them to disregard the notions of meritocracy reinforced by schools.
Students in the lower social class groups fulfill the role of delinquent knowing the consequences for their future because they are already aware of what their future consists of due to their current familial status. The exploration of resistance and hegemony in Willis’ work necessitates further research into educational practices stifling and oppressing students of all non-dominant groups.

**Application**

In the current dissertation research topic, I have interest in the presence of disparities in school discipline in traditional classrooms and CTE environments. Other researchers find disproportion in school discipline based on race (Krezmien et al., 2006; Nicholson-Crotty et al., 2009; Noltemeyer & Mcloughlin, 2010; Rocque, 2010; Skiba et al., 2011), gender (Barrett, Katsiyannis, & Zhang, 2010; Gregory et al., 2010; Skiba et al., 2002), socioeconomic status (Christle et al., 2005; Suh, Malchow, & Suh, 2014), and special education classification (Krezmien et al., 2006; Vincent et al., 2012). I seek to determine whether a relationship exists between school discipline and student participation in a coherent CTE course sequence. I plan to determine if the possible relationship persists after controlling for the aforementioned variables in the study.

The reason I apply hegemony as the theoretical framework for this research study is because of the connection between schools with societal expectations and the resistance that potentially stems from the inability to adhere to normative goals. Typical hegemonic forms of discipline, exclusion, and force utilized to control students who do not or cannot conform do not have positive results for students, schools, or society, as displayed by the school-to-prison pipeline, dropout rates, and prison statistics. Hegemony is an important concept in educational theory because it exposes the political nature of schooling and points to the possibility of alternative forms of pedagogy (Giroux, 1981). CTE serves as a proactive alternative to
traditional classroom approaches and curriculum, which may cause students to rebel/resist due to the lack of application in the student’s immediate life. Although schools have a history of abuse of vocational education for tracking of minorities, special education qualifiers, and disruptive students in the past, vocational education has evolved into a more academically rigorous and effectively monitored program. The educational system most likely will not change dramatically in the near future, but giving students a choice to find value in their education (even if it is not the normative path) can be a means to disrupt some of the exclusionary discipline that occurs with resistance to misunderstood dominant ideology.

The application of hegemony to the situation is logical because the normative, college-for-all perspective is ineffective for a majority of students. Understanding the effect that this rationale is exerting from the top down and how it is potentially contributing to the detriment of our society and future generations is imperative to disrupt disparities occurring in education. Schools should not just be mechanisms of civil society propagating agendas of dominant social forces onto the masses. The presence of hegemony in societal structures has shaped ideology and lived habits for centuries. Awareness of the process and the institutions that encourage hegemonic practices gives researchers an opportunity to explore avenues of social change and justice for historically marginalized students.

In the previous section, I explore the origins of hegemony and describe the process by which the theory continues to thrive. I also explicate how hegemony abuses educational systems and manifests in daily experiences of teachers and students. Lastly, I explain how the theory of hegemony is applied to the interests of the researcher regarding CTE as an alternative pathway instead of the traditional normative route of postsecondary education. In the following section, I provide deeper clarification and information about CTE and provide an explanation for the
rationale that involvement in a coherent CTE course sequence has the potential to curtail student disciplinary infractions based on the positive results gained by CTE students, as indicated by previous research.

**Career and Technical Education**

Career and technical education (CTE) is an emerging program offered in educational institutions across the country. Although CTE originated over 100 years ago, the enduring nature of the program results from years of transformations and necessity. In this section, I explore the literature detailing various components of CTE. First, I detail the origin and the evolution of CTE programs in schools. Second, I explicate the multitude of policies enacted in the past pertaining to CTE. Third, I discuss negative effects resulting from alternate factors and undesirable outcomes found from student involvement in CTE. Fourth, I detail the plethora of positive effects student involvement in CTE displays for the individual students, schools, and society in general. The existing research involving CTE covers all these areas, but not the relationship to discipline, which is the gap in the literature my research study serves to fill.

**Origin and Evolution**

CTE is a program offered as a component of the education system for over 100 years (Bishop & Mane, 2004; Miller, 1984; Wonacott, 2003). The idea to create a subsection of existing schools specifically designed to develop technical and work-related skills arose out of a practical need to create a labor-force equipped for the majority of jobs available for the common adult (Bishop & Mane, 2004). The typical family in the early part of the 20th century did not need the formal educational skills of the liberal school curriculum. With continual requests by families of students, schools decided to implement a new program tailored to developing the skills and trade abilities necessitated by jobs currently saturating the economic state of the nation.
CTE AND DISCIPLINE

(Bishop & Mane, 2004). CTE began with basic programs including agriculture and trade for young men and homemaking for young ladies (Friedel, 2011). As industries developed and changed, the programs offered by CTE subsections of schools transformed along with the economic shifts to ensure that students were educated with the skills required to meet the growing needs of the labor-market (Bishop & Mane, 2004). The sections of CTE continued to grow and transform as time and technology progressed.

Although CTE originated as a practical means to equip students with career skills, the transformation of the curriculum had negative repercussions. Schools unfortunately began to abuse the CTE programs as a tracking mechanism for lower socioeconomic status and minority students (Aliaga et al., 2014; Bishop & Mane, 2004; Kelly & Price, 2009). Elite, rich, White students were ushered into traditional classrooms that taught the college-bound curriculum, while the impoverished, minority students were funneled into the workforce track (Bishop & Mane, 2004). Because CTE programs became a means to track populations that were viewed as inferior, the possibility for students to progress above and beyond their family’s current socioeconomic status diminished (Aliaga et al., 2014). The agenda to stifle social mobility was not covert. A popular educational perspective encouraged by David Snedden, the Commissioner of Education for Massachusetts, regarding this cycle posited that students with academic deficiencies need to accept their role in the social structure and make their energy available to serve the economic demands of American society without thought or regard to their own financial future and wellbeing (Hyslop-Margison, 2000). Regardless of the initial intentions encouraging the origin of CTE programs, social stratification inevitably ensued.

Along with the realization regarding the detrimental nature of CTE on student choice and future success due to tracking emerged the belief that traditional academic skills took precedence
over vocational skills for the changing workplace (Lewis, 1998). The release of *A Nation at Risk* in 1983 instilled fear about America’s ability to remain internationally competitive because of the mediocrity currently allowed by students in educational institutions (Bishop & Mane, 2004; Plank, 2001). The general masses developed the belief that students were not academically prepared in school to be truly effective in evolving industrial markets. This loss of faith in the potential of the future generation’s capabilities led to newly implemented federal demands for graduation requirements that encouraged emphasis on traditional academic course-taking (Plank, 2001). The rise in academic standards increased expectations of teachers and students, which led to a decrease in CTE enrollment (Bishop & Mane, 2004). The aftermath of the national perspective and graduation requirements stifled CTE involvement (Kelly & Price, 2009).

The transformation in technology after the Reagan report briefly contributed to the concern surrounding involvement in CTE programs, as well. The growth of computers and technological changes in existing markets generated a change in industrial needs (Plank, 2001). However, this shift created a demand for workers with new skill sets in a variety of industries that CTE could supply (Bishop & Mane, 2004). The college-for-all approach did not correlate to market employment opportunities and the vision for renovated vocational education as a method that could potentially supply students with the newly required skills gained credence (Asunda, 2012). Regardless of this reality, the U.S. Census Bureau in 2009 reported that only 10.5% of 15 to 24 year olds were enrolled full time in a two-year college and only 1% were enrolled in a post-secondary vocational school, while 30% were enrolled full time in a four-year college, which was in contradiction to labor market needs at the time (Manley & Price, 2011).

The newly emerged necessity for technically trained workers paired with concern for academic rigor in education and equity in opportunities for all American students has led to
drastic changes in CTE from its inception in the early 1900’s. Today, CTE programs have requirements to meet academic standards similar to traditional classroom expectations (Aliaga et al., 2014). Although the rigor demanded in the 1990’s created accountability measures stemming from fear of falling behind the rest of the world economically, the current focus for CTE programs prioritizes preparation for post-secondary education and a career after high school (Fletcher Jr. & Cox, 2012). Similar logic responsible for producing the transformation in CTE is evident in legislation and policy, as well. In the following section, I explicate the multitude of policies implemented over the last century pertaining to CTE and its evolution.

**Funding and Policy**

Although CTE programs exist to prepare students for the future by enriching their domestic effectiveness in an expanding labor market, educators simultaneously aim to utilize CTE to socialize youth to train them to become ready for industrial economy (Hyslop-Margison, 2000). The programs and policies enacted by the federal government since the inception of CTE in schools mirrors the transformation CTE programs have undergone over the last century to achieve economic and educational goals.

The first form of legislation enacted by lawmakers pinpointing CTE was the Smith Hughes Act of 1917, which started federal funding for CTE in schools with a $1.7 million allowance and state approval of programs (Threeton, 2007). Because the states were responsible for setting up their own vocational high schools, the programs lacked cohesion nationally and many high schools did not build it into their academic structure appropriately (Friedel, 2011). Regardless of some areas of concern, policymakers made funds available for teacher salaries; professional development of agriculture, trade, and homemaking; and bolstered support for various activities created by the federal board for vocational education with the passing of the
Smith-Hughes Act of 1917 (Hyslop-Margison, 2000). Unnecessary separation within CTE such as separate funding, distinct boards, segregation of the vocational curriculum, isolation of vocational education students, sequestered teacher training and professional development, and dispersed student organizations, which ended up being reformed in future legislation, occurred following the passing of the Smith-Hughes Act (Friedel, 2011). The Smith Hughes Act was the starting point of legislation, but future lawmakers created various acts that progressed and improved CTE further.

Shortly after the passing of the Smith-Hughes Act, policymakers designated another $1 million to CTE and proliferated the vocational educational programs to include agriculture and home economics with the passing of the George-Reed Act of 1929 (Friedel, 2011). CTE programs continued to grow into further areas of interest with the implementation of the George-Deen Act in 1936. Lawmakers designated $14 million towards CTE and allowed trade, business and marketing occupations to be in the vocational education umbrella (Friedel, 2011). In 1946, legislators gave home economics an independent status and started recognition of vocational student organizations (VSO’s), including Future Farmers of America, with the implementation of the George-Reed Act of 1929 (Friedel, 2011). With the enactment of the various George policy acts, policymakers strengthened CTE by propagating programs within the category.

Over time, lawmakers continued to strengthen and promulgate CTE through federal policies. With the enactment of the Vocational Act of 1963, lawmakers broadened the definition of CTE, resulting in a wider variety of programs available for federal funding (Hyslop-Margison, 2000). Not only did the legislators widen the programs within the category, but they focused on creating programs that reached multiple types of students, seeking more involvement from students who struggled academically, socioeconomically, or those whom suffered from some
other handicap (Friedel, 2011). Unfortunately, the intention to provide opportunity for a larger range of students resulted in the tracking discussed previously.

Although policymakers amended the Vocational Education Act in 1968 and 1976 with hopes of creating more equity, legislators eventually completely replaced the act (Threeton, 2007). Policymakers supplanted the Vocational Education Act with The Carl D. Perkins Act of 1984 with the intention to more adequately address the needs of the American economy and ensure special populations equal access to the range of vocational education programs (Friedel, 2011). The increasing numbers of special education students enrolling in vocational classes stemming from the equity focus of the act occurred concurrently with a decrease in the enrollment of general education students (Wonacott, 2003). Shortly after the first Perkins Act, policymakers passed the Perkins II revision in 1990 (Friedel, 2011). Lawmakers concentrated the revisions on international competition and academic readiness designed to strengthen the workforce (Threeton, 2007). The concern of jobs being outsourced to other countries because of lack of readiness of American students encouraged legislators to make the Perkins decision for vocational education to align with a 2+2 idea that the last two years of high school and first two years of postsecondary education lead to an associate degree or certificate (Friedel, 2011). Under Perkins II, lawmakers stated that programs needed to improve both academic and occupational skills to ready all segments of the student population for the technologically advanced workforce students will encounter after high school (Lynch, 2000).

The policy development occurring alongside the realization that education needed to adapt to the shifting labor-market required action that affected both schools and industries. Policymakers designed the School to Work Opportunities Act (STWOA) of 1994 to assuage both parties by addressing skills shortages in various industries through partnerships between
companies and schools (Friedel, 2011). President Clinton invested $1.6 billion of federal funds into the program to ensure efficacy and support (Lakes, 2007). The STWOA of 1994 was another piece of legislation aimed at integrating academics, work-based programs, structured training, work guidance, and work-based learning activities into CTE (Threeton, 2007). Unfortunately, many advocates of the No Child Left Behind Act claimed that with the new educational standards, there was no time or money for non-academic programs like CTE and they tried to squelch Clinton’s plan (Lakes, 2007). With policy and federal funding, however, CTE remained an active program in education.

The time and money invested into CTE was not squandered, but was focused on the shift towards improved liability. In 1998, the government passed the Carl D. Perkins Act III, which repealed the Smith Hughes act of 1917, and enacted an accountability system for CTE programs in all states requiring educators to report on their standards and progress (Friedel, 2011). The continually developing goal of vocational education based on the policies involved development and integration of academic, vocational, and technical skills in order to prepare students for the workforce and postsecondary educational endeavors (Lynch, 2000; Threeton, 2007). Stone III (2004) eloquently described the how the transformation of policies intended to link CTE and traditional education:

The Carl D. Perkins Vocational and applied Technology Education Act of 1984 revisions in 1990 (Perkins II) and 1998 (Perkins III) reflected a philosophical shift in the goal of vocational education (or CTE), from a narrow focus on occupational preparation for special populations to a more academically rigorous program that prepared students for participation in industry as well as for postsecondary education. (p. 53)
The policies that the government created constantly transformed to develop objectives to accomplish the ultimate goal of preparing students for their postsecondary goals.

With the most recent policy enacted involving vocational education, policymakers amended the prior Perkins policy. Lawmakers enacted the Carl D. Perkins Act of 2006, also referred to as Perkins IV, which echoed the preceding Perkins acts by continuing the call for more academic accountability within vocational education programs (Threeton, 2007). Although the Bush administration wanted to dump CTE funding in place of grants for students seeking higher education opportunities, the federal government renewed the Perkins act and revamped CTE (Lakes, 2007). Under Perkins IV, legislators stipulated the continued evolution of CTE, involvement of academics, and the integration between high school and postsecondary education by demanding increased rigor, student achievement through standards and assessment, alignment of high school with postsecondary curriculum, and increased accountability (Friedel, 2011). The policies detailed above display the transformation of the economy, society, and education.

With the constant changes that the nation experienced, societal institutions and the executed programs endured adjustments accordingly. In 2005, the National Association of Manufacturers posited that the shortage of qualified workers resulted from schools inadequately preparing them in math and science, reading comprehension, and basic employability skills (Stone, 2005). This information makes it imperative for policymakers and educators to encourage the growth of CTE to reach these market demands. Instead of decreased funds or shallow objectives, policymakers must strive to address these industrial issues with appropriate legislation, funding, and involvement. In the following section, I address the negative effects of policy and events on CTE, as well as discuss the negative aspects of involvement that previous researchers have discovered.
Drawbacks

Like many programs in education, external forces in society affect CTE. In this section, I explain the detrimental effects of other variables on CTE resulting in negative outcomes for the program and detail negative aspects grounded in CTE involvement as indicated by previous research.

In general, a negative perception encompasses CTE programs. Because CTE focuses on workforce preparation, it is believed to be less academically rigorous and is perceived as a less prestigious program to join by students, which reduces enrollment statistics (Plank et al., 2008). The perception that CTE appeals to less academically capable students is preyed upon by politicians in order to remove funding for CTE programs such as work-based internships and apprenticeships, cooperative education, and field-based placements (Lakes, 2007). This initiative, accompanied by a variety of other reasons, causes Perkins funds to decrease (Manley, 2012). The monies still available, however, focus on non-vocational issues such as academic integration, instead of being utilized for pertinent items such as teacher education grants, CTE professional development, and program equipment (Manley & Price Jr., 2011). The perception of CTE is not the only detrimental component affecting the program.

A second external issue includes high stakes testing, state-mandated assessments, and evaluations, which have depleted funds from many school programs, CTE being one of them (Manley & Price Jr., 2011). In addition to reduced funds, students do not have the course availability in their schedules with the increased seat time requirements in core academic classes (Blowe & Price, 2012). The previously detailed Perkins policies are designed to integrate increased academics into vocational education. However, combining traditional curriculum with CTE also has its drawbacks, such as less time for core subjects and a need for increased
communication between core teachers and CTE instructors, which is difficult to coordinate (Plank, 2001).

Third, the coding system utilized to categorize student’s involvement in CTE has a negative effect on the program. Aliaga, Kotamraju, and Stone III (2014) find that the dichotomous coding system utilized for educational statistics is inaccurate because it does not take into account the level of involvement in CTE classes. Recent methods code students into an academic track or an exclusively vocational path. In actuality, the authors find eight different categories to differentiate student involvement in CTE, which could drastically change educational data reports. Although these issues arise from outward sources, the negative effects impact CTE programs.

Involvement in CTE has its own set of negative aspects, which cannot necessarily be linked to external sources. First, some researchers state that CTE students do not see improvement in test scores and are not adequately prepared for postsecondary education (Fletcher Jr. & Cox, 2012). Kelly and Price (2009) believe that the disproportion contributing to the educational achievement gap is due to the reduced opportunity to learn in the academic classroom, not enrollment in CTE. The Manpower Demonstration Research Corporation performs a study involving this area, though, and discovers that the career academy design does not improve test scores for urban youth, but does lead the young male participants to better labor market outcomes (Fletcher Jr. & Cox, 2012). Plank (2001) posits that even if CTE enrollment results in a slight reduction in academic test scores, the positive effect involvement has on dropout rates is worth the consideration by policymakers, educators, and students. More research is necessary, however, to make a more concrete determination regarding the effect of CTE participation on test scores.
Second, concern surrounds the authentic readiness of CTE students for postsecondary education and the workforce. In previous years, the Bush administration reported that NAVE data showed that 39% of students were not prepared for workforce after high school and encouraged more academic rigor in the classrooms to encourage college for all as opposed to technical training (Lakes, 2007). Non-Bush administrators analyzed the same data, however, and found positive trends for workforce preparation through CTE involvement (Lakes, 2007). The studies encompassing the issue of workforce readiness display mixed results and require more analysis.

Third, CTE programs attract socioeconomically disadvantaged students, which indicates an obligation to seek diversity among the students (Aliaga et al., 2014). In the past, socioeconomically disadvantaged and minority students with lower educational expectations and future aspirations comprised the general population of CTE students (Kelly & Price, 2009). Fletcher Jr. and Cox (2012) find an opposing result in their study on career academies in a Southeastern state. Their research discloses that although career academies were originally designed for at-risk youth to stay in school, paradoxically they begin to attract academically robust students. This leaves less space for at-risk and minority students who stand to gain the most from CTE involvement and for whom the programs were originally designed (Fletcher Jr. & Cox, 2012). Although the issue of lack of diversity in CTE programs, centers, and academies unravels in some studies, opinions surrounding the matter disagree. The few negative aspects of CTE involvement and the adverse effects on CTE programs are outnumbered by the positive attributes exposed in students involved in CTE, which are further explained in the following section.
Strengths

Although involvement in CTE has its drawbacks, the positive gains seem to outweigh the negative shortcomings. The constructive results of CTE involvement have a ripple effect that extends beyond the individual student. In this section, I explicate the variety of fortunate outcomes for the individual student, the school, and society.

For the Individual. A variety of studies have shown various positive outcomes stemming from enrollment in CTE. First, research shows that improving academic engagement within CTE is a top priority amongst policymakers. Plank, Deluca, and Estacion (2008) explain that educators and lawmakers have increased emphasis on improving academic commitment in CTE programs in the last 15 years. This is a development from the past vocational education programs, of which the sole purpose aimed to equip students for the workforce without any emphasis on academics (Plank et al., 2008). In their study, Kelly and Price (2009) discover five characteristics within CTE programs that offer an alternative, optimistic schooling experience for students who have struggled in a traditional classroom environment and may have become disengaged. The five elements include choice, career focus, experiential learning, multidimensional performance criteria, and mentoring relationships (Kelly & Price, 2009). The effects these themes have on academic engagement emerge from a similar qualitative study regarding career academies. Fletcher Jr. and Cox (2012) explicate how Blacks, Hispanics, and low socioeconomic status students continue to fall short of their peers academically due to a variety of factors related to their family, community, and educational institution. These conditions have required educators and policymakers to create alternatives to traditional education, such as career academies, which may encourage students to find meaning in their learning and increase student engagement. The increased student engagement found in their
study did in fact lead to lower dropout rates and less absenteeism. Plank et al. (2008) declare that when students do not feel successful academically, disengagement and negative self-esteem can arise, which pushes students out of educational environments because they did not like feeling inadequate. Encouraging and achieving academic engagement is imperative for attaining equity for all types of students.

Moreover, student involvement in CTE results in an increased attachment to school. Plank et al. (2008) perform a quantitative study utilizing data from the National Longitudinal Survey of Youth 1997 to investigate the relationship between dropout rates and involvement in CTE. The researchers find that a balanced mix of core and CTE classes strengthens a student’s attachment to school and their motivation in their classes (Plank et al., 2008). A qualitative examination of CTE involvement displays similar results. Martin, Tummons, Ball, & Bird (2014) explore the affective skill development of secondary students enrolled in a CTE veterinary program and find that the students do not want to miss school because they want to work with the animals. The students develop an attachment to their program as well as their school because of their CTE involvement, in addition to learning how to understand dispositions and emotions, learning life lessons about loss and grief, eliciting healthy emotional responses, and preparing for postsecondary goals (Martin et al., 2014). In another study, Bishop and Mane (2004) utilize 1988 National Longitudinal Educational Survey data to determine annual earnings based on wage rates and time employed in relation to classes taken in high school. They find positive effects for enrollment in both CTE non-computer and computer classes on income, but discover no effect for enrollment in introductory and personal interest CTE courses. The findings lead them to conclude that offering students the opportunity for potential career classes in secondary school increases school attendance rates for 15-19 year olds and boosts future labor market
outcomes. Therefore, the increased attachment to school has an advantageous compounding effect.

Furthermore, the increased connection to school has a positive impact on test scores and grades (Gentry et al., 2007). Stone III (2004) examines data from the National Center for Educational Statistics, the National Longitudinal Survey of Youth 1997, and the What Makes It Work Longitudinal study and detects that changes in policy and reform of CTE causes students to take more advanced and higher levels of math classes than in the 1980s. The researchers discover that career academies and pathways improve math attainment. Not all studies utilize such large datasets to examine engagement/attachment to school and positive gains in test scores/achievement. In a smaller study, Ting et al. (2012) examine a CTE program at a single institution, which teaches students about geoscience in their environment including transportation, global positioning systems, and human interaction/effect on natural resources. The program also incorporates parent involvement and analysis of family heroes and mentors. The researchers evaluate the impact the program has on science achievement, interest in science, and satisfaction with the program. The findings from pre- and post-tests display significant differences in science test scores after the program in year two and three, but not in year one. A majority percentage of the students state increased interest in science, interest in taking more science classes in school, and confirm a desire to pursue a career in the field of science (Ting et al., 2012). The longstanding effect on the students parallels the effect on test scores in the study.

Researchers conducting a different study also utilize a small sample to examine the effects on math achievement, scores, and skills. Stone, Alfeld, and Pearson (2008) use applied learning and curriculum integration to enhance math learning in contextual aspects of CTE. Students have to be able to authentically learn the mathematic concepts because employers are
requiring them to carry those critical skills outside the classroom and use them in their everyday work and career requirements. Their model pairs secondary CTE teachers with high school math teachers as equal partners. The math teachers teach basic skills and assist the CTE instructors with recognizing how to highlight and incorporate acknowledgement of the math skills in the CTE lesson or class. The researches use four CTE programs in the study: business and marketing, automotive technical, health and information technical, and agriculture. The partners develop curriculum in professional development opportunities. To analyze results, randomly selected students take pre- and post-tests created from Accuplacer and McGraw Hill National math tests. In addition, the participants perform a skills test to ensure they are concurrently learning the CTE skills they are required to know along with the math infusion. The pre- and post-tests result in statistically significant outcomes for two of the three tests. The information discovered by the researchers in this study provides further confirmation regarding CTE involvement and academic improvement.

The positive effects of CTE involvement do not solely apply to academics and school-related success for students, however. Development of CTE programs stipulates an integration of traditional and vocational education, which bridges the gap between academic requirements and useful application of learned skills in future employment opportunities (Plank et al., 2008). Gentry, Peters, and Mann (2007) perform a qualitative study of a mix of talented/gifted and regular students who attend a CTE center for half the day and a traditional high school for the remaining half to understand the perceptions of the student body in both settings. The researchers find that the students state more motivation and interest in their CTE center because they find relevance in the material and envision a practical application of the curriculum in their future career endeavors. They also enjoy the maturity level the CTE setting extracts from the students.
who attend, the hands-on experiences in the classrooms, and the visual-spatial learning activities
(Gentry et al., 2007).

The researchers’ findings from the two previously detailed studies also support the
linkage between curriculum and practical application. The aforementioned study performed by
Martin et al., (2014), which examines students in a CTE veterinarian program, results in positive,
pertinent, transferrable skills developed in the participating students. The students display a
deeper understanding of dispositions and emotions when working with others, which is a skill
they need in any future job or career. The students also come to a realistic determination of their
future aspirations in the veterinary field. In a similar qualitative study previously detailed,
Fletcher Jr. and Cox (2012) also produce the finding regarding relevance to postsecondary
employment. Students determine that their CTE classes prepare them for the next level, provide
them tasks they enjoy, afford them a sense of community/family, help them better understand
their field, allow them to truly explore their interests to see if they long to pursue a career in the
future, and create an unrealized connection with topics from core classes through the CTE
applications. The outcomes reported by the researchers from both quantitative and qualitative
studies display the positive gains of student involvement in CTE.

Additionally, enrollment in CTE increases options available to students in their academic
choices while in school, which impacts their future employment opportunities and their work
readiness. Currently, technology is the key variable creating the current shortage of skilled
workers in areas like automotive repair, nursing, and janitorial services, which require the skills
developed in CTE programs as opposed to a college classroom (Stone, 2004). In addition, our
nation’s demand for welders, science technicians, maintenance and repair technicians, heavy
vehicle and mobile equipment technicians, green energy technicians, and engineer/drafting
technicians is increasing (Manley, 2012). College enrollment numbers are in contradiction to actual labor market needs, which makes the college-for-all initiative especially paradoxical (Stone, 2004). Increasing the number of students with CTE experience provides a remedy for the shortage of skilled workers and technicians, which provides incentive for students to enroll.

The option to choose classes that directly apply to a future career proliferates work readiness in CTE students. One of the original intentions of CTE aims at socializing youth to train them to become ready for industrial positions and sort them into economic markets (Hyslop-Margison, 2000). Stone (2005) posits that involvement in CTE introduces students to the workplace while also developing generalizable skills necessary for future economic success and provides a context to enhance academic skills, which are transferable to workplace and postsecondary conditions. Since involvement in CTE generates work-readiness, students receive economic gains in the future. Currently, students actualize the CTE goal of preparedness and socialization by viewing work readiness as applicable in their immediate future, which increases motivation and reduces dropout potential for the individual (Plank, 2001). Quantitative studies from the National Longitudinal datasets of the 1970’s and 1980’s show higher immediate wages and less unemployment time for students who participate in some form of vocational education (Bishop & Mane, 2004). Employers also see benefits of the worker’s emotional maturity in a workplace setting. Monahan (2003) performs a study in which he conducts tests on a sample of 48 students in the Denton county area. Twenty-four of the students are general education and the other twenty-four are special education CTE students. Employers rate the problem behavior and social skills of the special education students better than their teachers in traditional classroom settings. The special education students in CTE scored equally with general students in work
readiness (Monahan, 2003), indicating equity in the CTE program. Although the benefits of CTE involvement reward the student, the effect extends to the school also.

**For the School.** Providing CTE as an option in education has multiple rewards for schools. First, CTE is an educational option that provides enhancement for all types of learning (Manley & Price Jr., 2011). Research shows that disengagement and lack of interest leads to a decline in math scores/ability (Stone, Alfeld, & Pearson, 2008). Because many students fail to see the relevance in the mathematical skills they are learning in school, Stone et al. (2008) posit that the solution involves enhancing CTE courses with math related curriculum that is relevant and rigorous instead of requiring more of the same math by requiring courses the students already disdain. CTE is an opportunity for students to be exposed to different teaching methods through use of hands-on experiences. An individual student’s learning style affects how they absorb information and getting each student to know their style is very important for their success, which occurs through varied experiences, such as CTE (Threeton, 2007).

Second, studies show that involvement in CTE reduces dropout rates. Attempts at combining CTE skill sets with traditional academic competence is a recent push in education. Theoretically, Plank (2001) thinks that this combination has the potential to reach students who are unsure of their future plans. Relevance of the academic curriculum integrated into the vocational classroom may increase student motivation and attachment to the high school environment, deterring negative behavior and dropout (Plank, 2001). In actuality, countries that offer CTE have higher rates of student enrollment in school and lower dropout rates (Bishop & Mane, 2004). Gentry, Peters, and Mann (2008) find that enrollment in CTE reduces dropout rates in America. Locally, Maxwell (2013) details the success of Pharr-San Juan-Alamo Independent School District in Texas in reducing the dropout rates of their high school students by 90% from
2006 – 2012 by offering dual-credit CTE courses. However, Manley and Price Jr. (2011) suggest that a mid-range of CTE exposure ensures improvement in dropout rates because exclusive involvement in CTE does not produce statistically significant improvement in their study. This may be because students who are on the verge of dropping out end up doing so once they further develop work readiness skills that can earn them income as opposed to “wasting time” finishing out their schooling. Although results are mixed regarding the levels, all the researchers find some form of reduction in drop out.

Coupled with reduced dropout rates is another positive component of CTE for the school, increased graduation rates. Lim, Owen, and Nordin (2013) analyze the impact of various CTE courses on graduation rates in Mississippi in the 2007 - 2008 school year with a cohort of 15,470 secondary students. The researchers find that enrollment in at least one CTE course increases the likelihood of graduation. Additionally, both gender and race have a statistically significant impact on the graduation rates. Bloom and Unterman (2014) explicate how the increasing demand for skills and international competitiveness is concerning when looking at the graduation rates of students in high schools in the New York area. At the time of the study, 36.5% of Black students and 34.1% of Mexican students fail to graduate high school after four years. These numbers are alarming, but their study shows that student involvement in CTE provides an opportunity to alleviate this problem. The researchers evaluate the statistics on 12,130 random students from a multitude of newly created small high schools of choice in New York and discover a 9.5% increase in graduation rates overall for the general population, which is largely comprised of minority and economically disadvantaged students. This increase in graduation rates improves attractiveness of schools and the programs they offer.
Another positive component of CTE for schools is the newly changing positive perception occurring over time. The perception that CTE is a dumping ground for poor, minority, or academically inferior students is improving, helped by the fact that CTE enrollment is increasing and approximately 60% of CTE students successfully enter postsecondary educational institutions (Gentry et al., 2007). Also, with the new initiative to integrate rigorous and worthwhile science, technology, engineering, and math (STEM) activities into CTE, CTE programs will continue to gain positive credibility (Asunda, 2012). The students interviewed by Gentry, Peters, and Mann (2007) for their qualitative analysis of CTE perceptions of gifted and general students state an overwhelming positive preference of their CTE classes as opposed to their regular classes. The students feel that the expectations of maturity for students at CTE centers create a less obnoxious presence on the CTE campus. The mature culture may support the hypothesis that CTE involvement diminishes negative disciplinary experiences of students. Because of the many positive benefits stemming from involvement in CTE programs, the view towards participation in CTE is positively changing nationwide (Lim et al., 2013). The benefits experienced extend beyond the individual student and the school systems, however. The following section outlines the perks that enrollment in CTE has on society.

**For Society.** Involvement in CTE is not only good for the individual and the school, but has compounding benefits for society. The earliest argument of educators and policymakers in defense of CTE posits that participation prepares students for enhancing their domestic competitiveness in an emerging market economy (Hyslop-Margison, 2000). The basic primary benefit from this argument still surfaces today because students are more capable of meeting labor market needs, which helps our nation’s economic standing, due to their involvement in CTE (Manley and Price Jr., 2011). In addition, involvement in CTE potentially serves as an
intervention for disruptive, destructive behavioral development in students. In today’s society, youth have frequently displayed issues in schools with authority and discipline due to a variety of reasons. Martin et al. (2014) find in their study that affective skill development is important in order for youth to learn how to cope and deal with their problems and become productive members of society. The researchers discover that student involvement in CTE encourages that process. The self-control and awareness developed by enrolling in some of the programs extends beyond basic school discipline, though. Enrollment in CTE has been linked to a reduction in recidivism rates for inmates who have stumbled down a troubled path. Gordon and Weldon (2003) find in their study that the vocational inmates from Huttonsville Correctional Center in West Virginia have an 8.75% recidivism rate, the mixed general education diploma (GED) and vocational inmates have a 6.71% recidivism rate, while the regular non-educated inmates have a 26% recidivism rate. The researchers also display that of the inmates who received a GED, less than 4% are re-incarcerated compared to the national average of 65%. The results of this study lead correctional officers to believe that general education and CTE are the most worthwhile activities for inmates who seek a dramatic change from the bleak statistics plaguing prison recidivism rates. Rehabilitating incarcerated youth and adults is a worthwhile cause for tax-paying purposes and continuing moral development in society.

Students who are involved in CTE accomplish more than just the development of skills. CTE participation creates a mindset in individuals useful to society. John Dewey, an early activist and advocate for education, believes CTE should be part of a larger, comprehensive education available for anyone and everyone because of the benefits the involvement provides for the individual to contribute to society (Hyslop-Margison, 2000). Dewey mentions a need to discard the dichotomous nature of education as either academic or vocational because the
acquisition of knowledge is not accomplished solely by book learning or labor preparation (Wonacott, 2003). Dewey also posits that vocational education should be designed to meet student needs not capitalist demands, which gives students a means to exceed beyond existing, inequitable social structures and constraints by becoming good democratic citizens (Hyslop-Margison, 2000). Vocational educators, who take the approach to teaching outlined by Dewey, have the opportunity to build moral values in students along with career and life skills (Hyslop-Margison, 2000). CTE is a program that can encourage and build good citizenry through education (Stone, 2005).

The positive outcomes experienced by students in CTE programs necessitate hegemony as my selection for the theoretical basis of the study. Because student resistance to dominant ideology is inevitable based on the theoretical perspective, traditional classroom environments are bound to be locations where students display their dissatisfaction with overarching beliefs. Instead of allowing students to engage in behavior that is likely to result in discipline due to their disinterest in traditional school approaches, encouraging involvement in CTE would provide an ideal means to channel their energy into non-traditional programs. Based on the hegemonic design of schools, the fact that students in CTE programs have accomplished various academic and postsecondary successes leads me to believe that investment of time into CTE programs would be an appropriate disruption of the typical disciplinary trends occurring in schools.

In this section, I explore the origin and evolution of CTE, the policies involving CTE, the negative aspects of enrollment, and the positive benefits obtained by multiple benefactors. The investigation into the variety of factors involving CTE is imperative in order to obtain background information regarding one of the two main factors associated with the focus of the
research study, which is to determine whether a relationship between a coherent CTE course sequence and student discipline exists.

Before undergoing a proper analysis of the possible association between involvement in a coherent CTE course sequence and student discipline, it is necessary to understand the many aspects of the two separate entities. In this chapter, I provided an exploration of the general history of school discipline, its transformation over the years, and the effects of specific types of disciplinary approaches. In the second section, I described how individual characteristics of the student body can have a negative influence on school discipline, leading to disproportion in its application. Next, I explicated the theoretical framework utilized to view the issue of disproportionate discipline in schools. Finally, I concluded the chapter with an overview of the origin of CTE, the policies implemented throughout the years involving CTE, the gains in student achievement as evidenced by participation in the program, and the perceived drawbacks to participation. The review of the distinct components, school discipline and CTE, necessitates further investigation into their potential advantageous relationship. Since a gap in the knowledge exists in this space, the information obtained about the association can provide policymakers, educators, and researchers with options for troubled youth, suitable disciplinary approaches, and appropriate educational investments.

In the next chapter, I provide an in-depth explanation of the methodology associated with the exploration into the relationship between a coherent CTE course sequence and school discipline. The chapter includes a depiction of the research design, the data retrieval process, selection and justification of statistical analyses, and an explanation of the data processing within the chosen methodology.
Chapter 3

In this chapter, I explain the methodology that I utilize for the research study investigating the relationship between involvement in a coherent career and technical education (CTE) course sequence and student disciplinary infractions. First, I begin with a description of the appropriateness of the research design. Then, I describe the details of the research design including the research questions, hypotheses, significance levels, setting, participants, instrumentation, and the data set. Finally, I explicate the process of the retrieval of the data, the precise method of how the data is processed and analyzed, and the steps involved in the methodology for each proposed research question.

Justification of the Research Design

In this research study, I explored the relationship between involvement in a coherent CTE course sequence and student disciplinary infractions by utilizing existing student data. Since little to no previous research exists regarding the association, the study provided insight into the potential relationship. A quantitative approach to the exploration allowed me to utilize numerical data from a large population to make connections between CTE and student behavior. Because the sample in the study consisted of approximately 2500 students, a quantitative analysis was more efficient than a qualitative approach consisting of lengthy interviews. In addition, a quantitative analysis was more practical because the student data had already been compiled and existed in numerical format, thus making a statistical analysis easy to conduct. I analyzed the data by focusing on establishing correlations between variables without any interaction, manipulation, or interference by the researcher. Because I did not manipulate or control the participants or the environment by any means, the study cannot determine cause and effect with any certainty.
Due to the quantitative approach, I was able to explore the existing data descriptively so as to make determinations about the relationship I was seeking to investigate. The student data I utilized had been collected by the appointed administrators of the school district, compiled in a structured instrument, and was available for manipulation and analysis. The results of the analysis were based on a significantly acceptable sample size that was representative of the overall population in the area. The research study was designed with high reliability that allows for comfortable and easy replication by other researchers seeking to explore a similar relationship. All aspects of the study were carefully designed before the data was collected or manipulated. The research questions were clearly stated with a previously defined null and alternate hypothesis, which required objective solutions. The research study has the potential to be used for generalization of concepts to a wider population and to predict future results regarding the relationship under investigation. In the following section, I describe the research design in more depth including the research questions, dependent variables, independent variables, and the hypotheses.

**Research Design**

The research design involved a quantitative analysis of existing student discipline data collected from a school located in a suburban school district. The research questions for the study are listed below.

**Research Questions**

Since the purpose of my research study was to determine if involvement in career and technical education disrupts the trend of disproportionate discipline occurring in traditional classroom settings with historically marginalized populations, the research questions for this study are as follows:
1) What relationship, if any, exists between coherent CTE course sequence participation and student discipline?
   a.) as measured through office referrals (write-ups)?
   b.) as measured through detention assignments?
   c.) as measured through suspensions allocated?

2) Does that possible relationship between coherent CTE course sequence participation and student discipline persist after controlling for previously established influential variables such as race, gender, socioeconomic status, special education classification, limited English proficiency, at risk status, and grade point average?
   a.) as measured through office referrals (write-ups)?
   b.) as measured through detention assignments?
   c.) as measured through suspensions allocated?

The first research question was designed to determine whether there is an association between involvement in a coherent CTE course sequence and student disciplinary consequences without relying on any other confounding variables. In the second research question, I sought to determine whether the relationship, if any, that existed between coherent CTE course sequence participation and school discipline persisted after controlling for common influential variables discovered in previous research studies.

**Settings and participants**

Because the research study was quantitative, I provide a brief description of the geographic location where the study takes place in this section. I also describe the participant pool from which the data was collected that I utilized for the statistical analysis. The benefits of each category are provided.
Settings

The population from which the sample was selected was in a suburban school district located in the Dallas/Fort Worth (DFW) metroplex. The geographic location of the site is within driving distance to Dallas, Fort Worth, and the DFW International airport. The state of Texas, particularly the D/FW area, has strong potential for growing industries, especially in comparison to national standards (Bureau of Labor Statistics, 2017). Investigation into the vocational space in this area has the potential to be rewarding for students and businesses alike.

Participants

The sample utilized in the study consisted of a large, heterogeneous student body. The sample was comprised of a fairly even distribution of 2,409 sophomore, junior, and senior students. Freshmen were not included in the sample because they were predominantly located in alternate sites. Since the location of the freshmen students could potentially alter results of their disciplinary outcomes, the entire category of students was excluded from the study.

The number and percentage of students in each variable are displayed in Table 1 below. The means, standard deviations, minimums, and maximums for GPA and the student discipline outcomes in the sample follow in Table 2.

Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTE</td>
<td>655</td>
<td>27.2</td>
</tr>
<tr>
<td>Black</td>
<td>601</td>
<td>24.9</td>
</tr>
<tr>
<td>White</td>
<td>1470</td>
<td>61</td>
</tr>
<tr>
<td>Hispanic</td>
<td>647</td>
<td>26.9</td>
</tr>
</tbody>
</table>
Because of the variety within each variable being considered in the research design, the sample was appropriate for the study. The diversity among the various categories of the sample ensured a more generalizable application of the results of the study due to the heterogeneous nature of the participants.
Variables

The specific variables that I examined are in consideration due to their existence in previous research studies. The consistent dependent variable for both research questions was student discipline outcomes (as evidenced by referrals, detentions, in-school suspensions, and out-of-school suspensions). The independent variables varied depending on the research question. The independent variables under examination included race, gender, socioeconomic status, special education classification, limited English proficiency level, at risk status, grade point average, and coherent CTE course sequence participation. I describe each type of variable and provide a reason for their utilization in the research study.

Student discipline. The broad category of dependent variable under examination in each research question was student discipline. This variable was the focus of the study because previous researchers have linked various forms of student discipline encounters including detention, suspension, and expulsion to many unattractive outcomes such as loss of instructional time (Carpenter & Ramirez, 2007; Gregory et al., 2010; Sullivan et al., 2013), reduced graduation potential (Skiba et al., 2014), and likelihood of dropping out of school (Christle et al., 2005).

In the current study, student discipline was measured through office referrals received, detentions assigned, and suspensions allocated. The office referrals were coded by type of offense so they can be categorized electronically for recordkeeping. Not all level one offenses were utilized in the study because I was interested specifically in exploring student behaviors that display the resistance that students exert as a result of dissatisfaction with the normative expectations of the hegemonic educational system. The level one offenses that I tracked in the study by number and description are as follows:
101 – Violates Rules/Procedures
102 – Disrespect
105 – Tardy
107 – Fails to complete work
104 – Sleeping/Non-Participation
111 – Off Task Behavior
116 – Refusal to Follow Directions
117 – Leaving without permission
118 – Loud/Rude/Disruptive
120 – Class cut

The level two offenses that I tracked in the study by number and description are as follows:

201 – Persistent Level 1
203 – Truancy
204 – Disruptive/Disorderly
205 – Fail to serve detention
220 – Inappropriate article
241 – Fighting

Since I was specifically interested in resistant classroom behaviors, I did not utilize level three or four violations in the study because these levels involved violations that offended beyond basic resistant classroom behavior. For the purposes of evaluating consequences for first and second level offenses to track inappropriate student behavior, I analyzed referrals, detentions, and suspensions assigned to the students. Detentions were a non-exclusionary form of
discipline, while suspensions were an exclusionary punishment in the current study. The independent variables that I considered in the study are described below.

**Race/Ethnicity.** Race/ethnicity was an independent variable utilized in the research study and was combined intentionally. Since Hispanic students typically fall into the White race category, their ethnicity was utilized, as opposed to their racial category, to distinguish them from a White, non-Hispanic student. I understand that people of a common race can be ethnically diverse and people of a common ethnicity can be racially diverse, but I combined the two classifications in the research study for ease in the statistical analysis. In addition, the White category for race was intentionally omitted from the regression model because it was the reference group due to the fact that was the race category with the largest number of students. Researchers conducting various studies previously examining student discipline have discovered that race/ethnicity is an influential variable on discipline outcomes in public schools (Gregory et al., 2010; Hoffman, 2014; Lee et al., 2011; Noltemeyer & Mcloughlin, 2010; Rocque, 2010; Rocque & Paternoster, 2011; Skiba et al., 2011; Vincent et al., 2012). Because the race/ethnicity category has previously impacted results in other studies, I explored and controlled for the variable in my own study.

**Gender.** Gender was another independent variable utilized in the research study. Previous researchers have discovered that gender significantly impacts results of their studies involving discipline (Barrett et al., 2010; Gregory et al., 2010; Skiba et al., 2002). Because gender had the potential to influence the results, I controlled the variable since it proves influential in various studies. Gender in the study was coded with a “0” for males and a “1” for females.
Socioeconomic status. Socioeconomic status was also an independent variable under examination in the current study. Socioeconomic status was an influential variable on student disciplinary outcomes as evidenced by other researchers (Christle et al., 2004; Christle et al., 2005; Noltemeyer and McLoughlin, 2010; Sullivan et al., 2013; Suh et al., 2014). Because it has the potential to impact the results of the study, I controlled for the category. For the current study, students coded as a “0” did not receive free/reduced lunch and those coded as “1” did receive free/reduced lunch.

Special education classification. Special education classification was another independent variable explored in the research design. Special education classification impacted the outcomes of student discipline studies as evidenced by previous research (Krezmien et al., 2006; Meiners, 2011; Mendez & Knoff, 2003; Vincent et al., 2012; Zhang et al., 2004). Since the category has proven to be influential in previous studies, the variable was controlled in the current study. Students were either coded as a “0” for not receiving special education services and a “1” for receiving special education services. Distinction of the specific special education service was not explored in the present study.

Limited English proficiency. Limited English proficiency (LEP) was another independent variable utilized in the research study. The state of Texas has a large population of students who claim another language as their primary language spoken at home. Because it had the potential to influence the results, I controlled for the variable. LEP in the study was coded with a “0” for students who are not considered LEP, and a “1” for those who are considered LEP.

At Risk. At risk status was also an independent variable under examination in the current study. Because it had the potential to impact the results of the study due to the fact that students in this category have larger amounts of disciplinary encounters, I controlled for the category.
Although various student classifications fall into the at risk category, some examples include: failed a previous grade, low state assessment scores, pregnant or parent, homeless, etc. For the current study, students coded as a “0” were not at risk and those coded as a “1” were at risk.

**Grade Point Average.** Grade point average (GPA) was also an independent variable under examination in the current study. Because it had the potential to impact the results of the study due to the fact that students with lower GPA’s have more frequent negative disciplinary encounters in school, I controlled for the category. For the current study, student GPA’s were standardized so the variable was a continuous measure with a mean of zero and a standard deviation of one. The measure was standardized to account for any differences in the calculation of GPA based on the weight of classes the students took.

**Career and technical education involvement.** Student classification in CTE was the last independent variable under examination in the study. Although previous researchers have not explored the relationship between CTE involvement and student discipline outcomes, the relationship between these two variables was the main focus of the current study. Schools in the state of Texas utilize federal codes to document CTE involvement for funding and accountability purposes. Although the funding is of no interest to the study, the classification system for coding was utilized to determine level of involvement in CTE. The three codes for CTE are “0”, “1”, and “2”. In order to create a dichotomous variable, students coded as “0” who do not take any CTE courses and students coded as “1” who have taken a CTE course but are not coherently committed to any sequence of courses were grouped into one category called “non-coherent CTE course sequence.” I combined the “0” and “1” students together because I was interested in the relationship between fully vested involvement in CTE and student behavior. Students who do not take any CTE courses and those who only participate in limited or disconnected CTE courses
were not meaningfully committed to the CTE program and the limited involvement did not seem to have the ability to influence student behavior. In other words, it was not an appropriate design to analyze students who dabble in CTE courses for the effects that such minimal involvement had on their behavior. Students coded a “2” fell into their own category entitled “coherent CTE course sequence” because these students had completed a coherent sequence of CTE courses and typically had a committed investment into a CTE program. The behavior of these students was ideal to determine whether CTE has a relationship with student behavior because of their authentic participation. The focus of the study was strictly to determine what relationship coherent CTE course sequence participation has on student behavior and discipline outcomes. I explain my prediction as the researcher about how the variables are related to one another below by describing the null and alternative hypotheses.

**Hypotheses**

The null and alternative hypotheses are listed below in correspondence to the order of the research questions stated above:

1) \( H_0 \): There is no relationship between coherent CTE course sequence participation and student discipline as measured through office referrals, detention assignments, and suspensions that students receive.

\( H_a \): There is a relationship between coherent CTE course sequence participation and student discipline as measured through office referrals, detention assignments, and suspensions that students receive.

2) \( H_0 \): The multiple regression model does not account for significant variation in the student discipline outcomes as measured through office referrals, detention assignments, and suspensions that students receive.
The multiple regression model does account for significant variation in the student discipline outcomes as measured through office referrals, detention assignments, and suspensions that students receive.

Based on what previous studies have shown about the positive effects of CTE on other academic areas (Fletcher Jr. and Cox, 2012; Kelly & Price, 2009; Martin et al., 2014; Plank et al., 2008; Ting et al., 2012), I hypothesized that a student who may not be engaged in their learning in a traditional environment can be more successful, less distracted, and more fully invested in CTE courses. The investment can potentially result in a reduction in the amount of students getting into trouble in traditional classrooms, exiting school for disciplinary issues, and falling into the school-to-prison pipeline. With the information about the positive effects of CTE participation on other variables and without conducting any statistical analysis, I believed the alternative hypotheses for each question were more likely.

**Instrumentation and Procedure**

The analytical process conducted in the research design relied on the collection and examination of existing data. As previously mentioned, the research study was purely quantitative because of the lack of interaction with participants or manipulation of any variables. I provide an explanation for the instrumentation utilized to capture the data and the collection process below.

**Instrumentation**

The research data utilized in this study consisted of the student information appropriate for the independent and dependent variables described earlier in this chapter. The data was retrieved from existing Cognos reports kept in a Home Access computer software system utilized
by the school district. Cognos reports are International Business Machine’s (IBM) line of business intelligence and performance management products that allow businesses without technical knowledge to extract data, analyze it, and assemble reports (IBM, 2016). The collection of the discipline and demographic data is required by the state of Texas as part of its Public Education Information Management System (PEIMS). The Cognos reports were available for review in an excel document and were exported to SPSS Statistics for the statistical analysis described further on in this chapter. The next subsection provides further information about the specifics of the data.

**Procedure**

In this subsection, I describe when and how the data was collected and what specifically was measured by the data. The data utilized in the study was from the 2015-2016 school year. The data was cross-sectional, rather than longitudinal, as it reflected a single period in time. The data was comprised of variables capturing information including race, gender, socioeconomic status indicated by lunch status of the student, special education classification, limited English proficiency qualification, at risk status, grade point average and career and technical education code. The data also consisted of student discipline information that was broken down by incident, level, and consequence.

The demographic data for race, gender, and socioeconomic status was based on information that parents provided at student registration. The special education data was based on Admission Review Dismissals (ARDs) conducted and agreed upon by the school diagnostician, special education teacher specialists, and general education teacher feedback. The limited English proficiency data was determined by the TELPAS rating of students who speak a different language than English as their primary language. The discipline data was collected
throughout the year based on incidents that the students had in classrooms and on campus. Although teachers or administrators had the opportunity to refer students for disciplinary infractions, administrators were responsible for documenting the referral, coding the incident in the appropriate level, and recording the consequence in electronic format. The following section describes the statistical analysis that was utilized for each research question in order to obtain answers sought after in the research study.

**Data processing**

In order to examine the potential relationship between student discipline and participation in a coherent CTE course sequence, I employed a quantitative research design. Various tests were conducted in order to sufficiently answer the research questions, which aimed to investigate the association between the two factors. In this section, I provide a description of the statistical process for each question, the assumptions required for each test, and the appropriate application of the analyses.

**Research question one**

Recall that the purpose of the present study was to determine if involvement in the career and technical education program disrupts the trend of disproportionate discipline occurring in traditional classroom settings with historically marginalized populations. Accordingly, the first research questions was as follows:

1) What relationship, if any, exists between coherent CTE course sequence participation and student discipline?
   
   a.) as measured through office referrals (write-ups)?
   
   b.) as measured through detention assignments?
   
   c.) as measured through suspensions allocated?
With this research question, I sought solely to determine if there was an association between the level of student involvement in a coherent CTE course sequence and their disciplinary encounters. In order to answer the research question, I conducted three separate statistical analyses for each student discipline outcome. The first test explored the relationship between coherent CTE course sequence participation and number of referrals. The second test explored the relationship between coherent CTE course sequence participation and number of detentions assigned. The third test explored the relationship between coherent CTE course sequence participation and number of days a student was suspended.

In order to analyze the relationship between coherent CTE course sequence participation and referrals, I conducted a two-sample t-test for means to determine whether the mean number of referrals for each category of coherent CTE course sequence participation was statistically significant in their difference. The independent variable for this first test was the CTE category: “non-coherent CTE course sequence” or “coherent CTE course sequence.” The dependent, continuous variable was the mean number of referrals. Certain specifications must be met in order to appropriately utilize the statistical approach to examine the relationship. The first assumption for the test involved randomness, which meant the observed counts were based on data from a random sample (Peck, Olsen, & Devore, 2012). The research study met this requirement since the sample was an independently selected random sample from the population of interest (Gravetter & Wallnau, 2013). The second assumption for the test involved independence of observations (Gravetter & Wallnau, 2013). The administrator recorded each student discipline offense in the study at the time the violation occurs, which means each observation was independent and fit the assumption for the statistical analysis. The third assumption for the analysis involved the sample size requirements. If the data utilized in a test is
not normally distributed, then the sample size must exceed a count of thirty. The sample size for the data utilized was approximately 2400 students, which far exceeded the rule regarding the amount in the sample. Whether the shape of the data was normal or not does not affect the results due to the size of the sample. Upon meeting the assumptions of the test, the two-sample t-test determined the association between student participation in a coherent CTE course sequence and the amount of referrals students receive. The null and alternative hypotheses for the test were as follows:

\[ H_0: \mu_{\text{coherent sequence}} = \mu_{\text{non-coherent sequence}} \]
\[ H_a: \mu_{\text{coherent sequence}} < \mu_{\text{non-coherent sequence}} \]

The second analysis required to answer the research question involved another two-sample t-test for means to analyze the relationship between coherent CTE course sequence participation and detention assignments. The test determined whether the mean number of detentions for each category of coherent CTE course sequence participation was statistically significant in their difference. The independent variable for this first test was the CTE category: “non-coherent CTE course sequence” or “coherent CTE course sequence.” The dependent, continuous variable was the mean number of detentions assigned. The same specifications met in the aforementioned two-sample t-test regarding randomness, independence, and sample size were met again in order to appropriately utilize the statistical approach to examine the relationship. The first assumption for the test that states that the samples were independently selected random samples from the population of interest was met (Gravetter & Wallnau, 2013). The second assumption regarding independence of observations was also met. The final assumption that stated that the sample sizes were large enough (generally 30 or larger) or the population distributions were approximately normal (Peck et al., 2012) was also met. Due to the
fact that the dataset met the assumptions of the test, the two-sample t-test analysis helped
determine the association between student participation in a coherent CTE course sequence and
the amount of detentions the different groups receive. The null and alternative hypotheses for the
test were as follows:

\[ H_0: \mu_{\text{coherent sequence}} = \mu_{\text{non-coherent sequence}} \]
\[ H_a: \mu_{\text{coherent sequence}} < \mu_{\text{non-coherent sequence}} \]

The third analysis required to fully answer the first research question involved another
two-sample t-test for means to analyze the relationship between coherent CTE course sequence
participation and number of days a student is suspended. The test determined whether the mean
number of days suspended for each category of CTE course sequence participation was
statistically significant in their difference. The independent variable for this first test was the
CTE category: “non- coherent CTE course sequence” or “coherent CTE course sequence.” The
dependent, continuous variable was the mean number of days suspended. The same
specifications met in the aforementioned two-sample t-tests regarding randomness,
independence, and sample size were met, which meant the statistical approach to examine the
relationship was appropriate. Upon meeting the assumptions of the test, the analysis helped
determine the association between student participation in a coherent CTE course sequence and
the amount of suspensions the different groups receive. The null and alternative hypotheses for
the test were as follows:

\[ H_0: \mu_{\text{coherent sequence}} = \mu_{\text{non-coherent sequence}} \]
\[ H_a: \mu_{\text{coherent sequence}} < \mu_{\text{non-coherent sequence}} \]

The three different two-sample t-tests adequately answered the first research question
regarding the association between student involvement in a coherent CTE course sequence and
the amount of various forms of discipline students receive. The first test examined the disciplinary aspect of student behavior based on write-ups, while the second and third tests examined the disciplinary aspect of both non-exclusionary (detentions) and exclusionary (suspensions) disciplinary consequences.

**Research question two**

In order to more extensively examine the potential relationship between coherent CTE course sequence participation and student discipline that might be discovered with the first research question, other factors needed consideration. The second research question was as follows:

2) Does the possible relationship between coherent CTE course sequence participation and student discipline persist after controlling for previously-established, influential variables such as race, gender, socioeconomic status, special education classification, limited English proficiency, at risk status, and grade point average?

a.) as measured through office referrals (write-ups)?

b.) as measured through detention assignments?

c.) as measured through suspensions allocated?

In order to answer this question with appropriate consideration of confounding variables, I utilized three separate multiple regression tests for the three different student discipline outcomes. Multiple regression allowed me to assess the relationship between a continuous, dependent variable (student discipline) and several independent variables: coherent CTE course sequence participation, race, gender, socioeconomic status, special education classification, limited English proficiency, at risk status, and grade point average (Tabachnik & Fidell, 2013). For the first multiple regression test, I used the number of referrals as the dependent, continuous
variable. The independent variables include coherent CTE course sequence status, race, gender, socioeconomic status, special education classification, limited English proficiency, at risk status, and grade point average. The formula was as follows:

\[ Y_{referrals} = \beta_0 + \beta_1 X_{CTE} + \beta_2 X_{race} + \beta_3 X_{gender} + \beta_4 X_{SES} + \beta_5 X_{sped} + \beta_6 X_{LEP} + \beta_7 X_{at\,risk} + \beta_8 X_{GPA} \]

The null and alternative hypotheses for the first test were as follows:

\( H_0: \) The multiple regression model does not account for significant variation in the number of referrals students receive.

\( H_a: \) The multiple regression model does account for significant variation in the number of referrals students receive.

For the second multiple regression test, I used the number of detentions assigned as the dependent, continuous variable. The independent variables included coherent CTE course sequence status, race, gender, socioeconomic status, special education classification, limited English proficiency, at risk status, and grade point average. The formula was as follows:

\[ Y_{detalls} = \beta_0 + \beta_1 X_{CTE} + \beta_2 X_{race} + \beta_3 X_{gender} + \beta_4 X_{SES} + \beta_5 X_{sped} + \beta_6 X_{LEP} + \beta_7 X_{at\,risk} + \beta_8 X_{GPA} \]

The null and alternative hypotheses for the first test were as follows:

\( H_0: \) The multiple regression model does not account for variation in the number of detentions students receive.

\( H_a: \) The multiple regression model does account for significant variation in the number of detentions students receive.

For the third multiple regression test, I used number of days suspended as the dependent, continuous variable. The independent variables included coherent CTE course sequence status,
race, gender, socioeconomic status, special education classification, limited English proficiency, at risk status, and grade point average. The formula was as follows:

$$Y_{suspensions} = \beta_0 + \beta_1 X_{CTE} + \beta_2 X_{race} + \beta_3 X_{gender} + \beta_4 X_{SES} + \beta_5 X_{sped} + \beta_6 X_{LEP}$$

$$+ \beta_7 X_{at\ risk} + \beta_8 X_{GPA}$$

The null and alternative hypotheses for the first test were as follows:

$$H_0:$$ The multiple regression model does not account for variation in the number of days of suspension students receive.

$$H_a:$$ The multiple regression model does account for significant variation in the number of days of suspension students receive.

Although various assumptions exist for this type of statistical test, the study met those limitations. The first assumption involved the ratio of cases to variables (Mertler & Reinhart, 2017). Because multiple regression may produce extremely large parameter estimates and standard errors that basically render the test results ineffective for interpretation or application in a real world scenario (Abu-Bader, 2010), I insured a large enough sample size to fit both the rule that $N > 50 + 8m$ for testing the multiple correlation and $N > 104 + m$ for testing individual predictors. I also employed a limited number of categories to analyze to ensure that the desired power, alpha level, and effect sizes were accomplished.

The second assumption involved the absence of outliers among the independent variables and on the dependent variable because extreme cases have too much impact on the equation and affect the precision of the estimation power (Abu-Bader, 2010). I looked for outliers through residual analysis and rescored or transformed the variable if necessary (Tabachnik & Fidell, 2013). Since none were present, I did not have to adjust any variables.
The third assumption entailed the absence of multicollinearity and singularity among the independent variables (Mertler & Reinhart, 2017). Because multiple regression is in the regression family, the test was sensitive to extremely high correlations among predictor variables, which were signaled by exceedingly large standard errors for regression coefficients (Abu-Bader, 2010). In order to test for multicollinearity and singularity in my study, I evaluated the squared multiple correlations among the independent variables (Tabachnik & Fidell, 2013). If the variance inflation factor value for each variable was below ten, the model met the assumption of multicollinearity (O’Brien, 2007).

The fourth assumption involved normality, linearity, and homoscedasticity of residuals (Stevens, 2009). Examination of residual scatterplots provided a test of the three components for this assumption between the predicted dependent variable scores and errors of prediction (Mertler & Reinhart, 2017).

The fifth assumption involved the absence of outliers in the solution (Stevens, 2009). If one or more cases are poorly predicted by the solution by being in one category but also showing high probability for another category, then the model had a poor fit (Tabachnik & Fidell, 2013). I examined the residuals in order to evaluate the possibility of outliers (Mertler & Reinhart, 2017).

The final assumption entailed the independence of errors. Multiple regression was best utilized for a between-subjects strategy as opposed to a repeated measures design (Tabachnik & Fidell, 2013). Since I did not match any control groups with experimental subjects and I did not utilize before and after strategies, my study fit the requirement of between-subjects strategy and therefore maintained independence of cases.

Since the study met the limitations of multiple regression, I utilized the statistical analysis in order to determine whether the relationship between various forms of student discipline
outcomes and involvement in a coherent CTE course sequence persisted after controlling for potentially confounding variables by analyzing the strength of the correlation. To display the results of the regression analysis, I began with reporting the descriptive statistics of the variables. I included the means and standard deviations, in addition to the correlation value calculated for each predictor variable against the dependent variable. I reported the r value and the significance value for each variable to adequately describe the correlation.

After reporting the descriptive statistics, I evaluated the significance of the regression model. The analysis of variance for the regression equation displayed the F value and the degrees of freedom for both the regression and the residual error. Next, I looked at how much of the variance in the results could be explained by my analysis. I utilized the r-squared value to determine how much of the variance in my analysis was explained by the various predictor variables. Finally, in order to determine which of the predictor variables was contributing to the result of the test, I reported the results from the coefficients table. The various t tests of the multiple regression analysis showed significance values for each variable. I analyzed the beta values for each variable to determine whether the regression was positive or negative for each variable. The results of the analysis determined the answer to the research question regarding the relationship between coherent CTE course sequence participation and student discipline.

Conclusion

In this chapter, I explained the methodology that I utilized for the research study investigating the relationship between coherent CTE course sequence participation and student disciplinary outcomes. First, I provided a description of the appropriateness of the research design in comparison to other possible methods. Then, I described the details of the research design including the research questions, hypotheses, setting, participants, instrumentation, and
the data processing. Finally, I explicated the process of the retrieval of the data, the precise method of how the data is processed and analyzed, and the steps involved in the methodology for each proposed research question. In the following chapter, I report the results of the methodology described in this chapter in order to obtain the answer to the research questions regarding the relationship between coherent CTE course sequence participation and student discipline.
Chapter 4

In this chapter, I report the results of the data analysis regarding the relationship between coherent CTE course sequence participation and student discipline outcomes. The data in the study was comprised of student discipline information collected by the school administrators, student demographic information reported by parents, and school classification categories determined by student actions. I combined the data into a single document for analysis in SPSS to accomplish two goals. The first goal of the statistical analysis was to determine what relationship potentially exists between coherent CTE course sequence participation and student discipline outcomes. Upon determining whether an association existed, the second goal was to determine whether that relationship persists when considering the impact of other influential variables. The goals of the dissertation to establish information regarding the relationship were accomplished by utilizing t-test and multiple regression analysis. The results of the statistical tests are described in the proceeding sections.

Descriptive Statistics

The table below contains the descriptive statistics disaggregated by coherent CTE course sequence participation. In Table 3, I display the number and percentage of students in each variable disaggregated by coherent CTE course sequence participation. The means, standard deviations, minimums, and maximums are also displayed for the GPA variable and the student discipline outcomes for each sample in the Table 4. The distribution of the percentages of students in the various categories was fairly similar for both samples. The reader should draw their attention to the fact that the means and standard deviations for the non-coherent CTE course sequence students was greater than the means and standard deviations for the coherent CTE course sequence students for referrals, detentions, and suspensions. It seems that the non-
coherent CTE course sequence students received more referrals, detentions, and suspension than the coherent CTE course sequence students based on the data. Inferential statistical analysis was necessary in order to determine if the relationship between coherent CTE course sequence participation and student discipline outcomes was statistically significant.

Table 3

Descriptive statistics disaggregated by coherent CTE course sequence participation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Non-coherent CTE course students</th>
<th>Coherent CTE course students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Black</td>
<td>476</td>
<td>27.1</td>
</tr>
<tr>
<td>White</td>
<td>1027</td>
<td>58.6</td>
</tr>
<tr>
<td>Hispanic</td>
<td>474</td>
<td>27.0</td>
</tr>
<tr>
<td>Asian</td>
<td>206</td>
<td>11.7</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>64</td>
<td>3.6</td>
</tr>
<tr>
<td>Amer. Indian</td>
<td>39</td>
<td>2.2</td>
</tr>
<tr>
<td>Female</td>
<td>878</td>
<td>50.1</td>
</tr>
<tr>
<td>SES</td>
<td>897</td>
<td>51.1</td>
</tr>
<tr>
<td>Sped</td>
<td>157</td>
<td>9.0</td>
</tr>
<tr>
<td>LEP</td>
<td>176</td>
<td>10.0</td>
</tr>
<tr>
<td>At Risk</td>
<td>757</td>
<td>43.2</td>
</tr>
<tr>
<td>Total</td>
<td>N = 1754</td>
<td></td>
</tr>
</tbody>
</table>

Table 4

Descriptive statistics disaggregated by coherent CTE course sequence participation
In order to examine whether an association existed between coherent CTE course sequence participation and student discipline outcomes, I conducted three different t-tests for the three different outcomes: referrals, detentions, and suspensions. If in fact a relationship was found, I tested the strength of that relationship considering the influence of other potentially confounding variables by performing multiple regression tests for the three different discipline outcomes.

**Research Question One**

With the first research question, I aimed to determine whether there was an association between coherent CTE course sequence participation and student discipline outcomes as measured through office referrals (write-ups), number of detention assignments, and/or number of suspension days that students were assigned. The question required a different test for each outcome: number of referrals, number of detentions, and number of days suspended. All three tests met the assumptions for proper use of the statistical test. In all three tests, the first sample was comprised of non-coherent CTE course sequence participants and the second sample was comprised of coherent CTE course sequence participants. The samples met the assumptions of
the test. The students were in randomly selected groups, not manipulated or grouped by the researcher. The referrals calculated in the samples were independently documented write-ups. The samples exceeded the rule of thirty required for the test given a non-normal distribution.

**Number of Referrals.** The first student discipline outcome that was evaluated was the number of referrals a student received. A two-sample t-test of means adequately evaluated the dependent variable, the number of referrals issued to students in each sample. In order to test the effect of participation in a coherent sequence of CTE courses on student referrals, I conducted an independent samples t-test. If the variances of the two groups were unequal, then the possibility of a type I error increased. In order to test for homogeneity of variance, I performed Levene’s test on the data and received both an F-statistic and a p-value. If the p-value was less than .05, then equal variances could not be assumed. Given a violation of Levene’s test for homogeneity of variances, F(1, 2407) = 7.773, p = .005, a t-test not assuming homogeneous variances was calculated. As predicted, results from the t-test indicated that students who were not coherent CTE course sequence participants (M = 1.72, SD = 3.066, N = 1754) received more referrals than students who were coherent CTE course sequence participants (M = 1.48, SD = 2.688, N = 655), t (1327.093) = 1.874, p = .03, one-tailed. Although a statistically significant difference existed between the mean number of referrals for the two groups, the difference was quite small, measuring at less than a quarter of a referral. However, these results suggested that participation in a coherent sequence of CTE courses did have an effect on number of referrals a student received. Specifically, the results suggested that when students were involved in a coherent sequence of CTE courses, they received fewer referrals than students who were not in a coherent sequence of CTE courses.
**Number of Detentions.** The second student discipline outcome that was evaluated was the number of detentions a student received. A two-sample t-test of means adequately evaluated the dependent variable, the number of detentions issued to students in each sample. In order to test the effect of participation in a coherent sequence of CTE courses on student detentions, I conducted an independent samples t-test. Levene’s test for homogeneity of variances was not violated, F(1, 2407) = 3.772, p = .052, therefore a t-test assuming homogeneous variances was calculated. Results from the t-test indicated that students who were not coherent CTE course sequence participants (M = .62, SD = 1.572, N = 1754) received more detentions than students who were coherent CTE course sequence participants (M = .53, SD = 1.383, N = 655), t (2407) = 1.396, p = .08, one-tailed. At an alpha level of .05, the results were not statistically significant. However, these results suggested that participation in a coherent sequence of CTE courses did have an effect on number of detentions a student received for a significance level of .10. Specifically, the results suggested that when students were involved in a coherent sequence of CTE courses, they received fewer detentions than students who were not in a coherent sequence of CTE courses.
**Number of Days Suspended.** The third student discipline outcome that was evaluated was the number of days a student was suspended. A two-sample t-test of means adequately evaluated the dependent variable, the number of days a student was suspended in each sample. In order to test the effect of participation in a coherent sequence of CTE courses on number of days students were suspended, I conducted an independent samples t-test. Given a violation of Levene’s test for homogeneity of variances, $F(1, 2407) = 4.016$, $p = .045$, a t-test not assuming homogeneous variances was calculated. Results from the t-test indicated that students who were not coherent CTE course sequence participants $(M = .19, \text{SD} = 1.36, N = 1754)$ received more days of suspension than students who were coherent CTE course sequence participants $(M = .13, \text{SD} = .825, N = 655)$, $t(1918.312) = 1.255$, $p = .105$, one-tailed. At an alpha level of .05, the results were not statistically significant. These results suggested that participation in a coherent sequence of CTE courses did not have a statistically significant impact on the number of days a student was suspended.

The results of the three t-tests indicated an interesting relationship between participation in a coherent sequence of CTE courses and student behavior. The fact that the number of referrals that coherent CTE course sequence participants was statistically significantly less than non-coherent CTE course sequence participants indicated that students who were enrolled in a coherent sequence of CTE courses were less likely to act out and receive referrals in school. It seemed that participation in a coherent sequence of CTE courses did indeed have an effect on student behavior, resulting in less negative disciplinary interactions. Students enrolled in a coherent sequence of CTE courses may have been more engaged in their academics, found more relevance in the curriculum, or felt more adequate in the classroom, all of which led to improved
behavior. Further studies are necessary to explore the reasons underlying the relationship, which is discussed in the proceeding chapter.

Although behavior was statistically significantly different for students enrolled in a coherent sequence of CTE courses, the consequences that those students received (detentions and suspensions) were not consistent in their statistically significant difference. In the present study, I found that students who participated in a coherent CTE course sequence served neither more nor fewer days of suspension than students who were not enrolled in a coherent CTE course sequence. In order to further explore the association discovered by the analyses conducted for the first research question, I conducted multiple regression analyses to determine whether the relationship between coherent CTE course sequence participation and student discipline outcomes persisted after controlling for previously established influential variables.

**Research Question Two**

With the second research question, I aimed to determine whether the association between coherent CTE course sequence participation and student discipline outcomes as measured through office referrals (write-ups), number of detention assignments, and/or number of suspension days that students were assigned persisted after controlling for race, gender, socioeconomic status, special education classification, limited English proficiency, at risk status, and grade point average. The question required a different test for each outcome: number of referrals, number of detentions, and number of days suspended.

All three tests adequately met the assumptions for utilization of multiple regression analysis. The assumption of proper ratio of case to variables was met with the large sample size and the limited number of cases included in the model. The second assumption pertaining to the absence of outliers in the predictor variables was met and was not a central concern because all
the predictor variables were dichotomous except for one. The one continuous variable was a transformed standardized measure, which did not contain outliers. The third assumption involving absence of multicollinearity was met due to the fact that none of the variance inflation factors exceeds ten. No cases needed to be deleted or transformed. The fourth assumption regarding normality, linearity, and homoscedasticity was met due to the absence of a pattern in the residual plot and a linear pattern in the normal probability plot. The fifth assumption of absence of outliers in the solution was met due to the absence of outliers in the residual plot. The final assumption regarding independence of cases was met with the independence of each disciplinary write-up.

**Number of Referrals.** The first student discipline outcome that was evaluated was the number of referrals a student received. The two-sample t-test of means for this dependent variable had a significant relationship with the participation in a coherent CTE course sequence. A multiple regression test determined whether that correlation persisted after controlling for the following predictor variables: race, gender, socioeconomic status, special education classification, limited English proficiency status, at risk status, and grade point average.

Complete data were available for the participants. Correlation and multiple regression analyses were conducted to examine the relationship between number of referrals received and various potential predictors. Table 5 summarizes the basic descriptive statistics and analysis results, where the asterisks denote statistical significance at the indicated alpha levels.

Table 5

*Summary statistics, correlations, and results from regression analysis for referrals*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTE</td>
<td>.004</td>
<td>.123</td>
<td>.971</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
<td>p-value</td>
</tr>
<tr>
<td>--------------</td>
<td>-----</td>
<td>-----</td>
<td>-----------</td>
</tr>
<tr>
<td>Black</td>
<td>.351</td>
<td>.147</td>
<td>.017*</td>
</tr>
<tr>
<td>Hispanic</td>
<td>-.060</td>
<td>.139</td>
<td>.667</td>
</tr>
<tr>
<td>Asian</td>
<td>.420</td>
<td>.185</td>
<td>.023*</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>.720</td>
<td>.306</td>
<td>.019*</td>
</tr>
<tr>
<td>American Indian</td>
<td>-.119</td>
<td>.387</td>
<td>.758</td>
</tr>
<tr>
<td>Female</td>
<td>-.012</td>
<td>.110</td>
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</tr>
<tr>
<td>SES</td>
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<td>.137</td>
</tr>
<tr>
<td>Sped</td>
<td>-.661</td>
<td>.213</td>
<td>.002**</td>
</tr>
<tr>
<td>LEP</td>
<td>-1.203</td>
<td>.213</td>
<td>.000***</td>
</tr>
<tr>
<td>At Risk</td>
<td>.154</td>
<td>.136</td>
<td>.257</td>
</tr>
<tr>
<td>GPA</td>
<td>-1.330</td>
<td>.069</td>
<td>.000***</td>
</tr>
<tr>
<td>Constant</td>
<td>1.521</td>
<td>.126</td>
<td>.000***</td>
</tr>
</tbody>
</table>

N = 2409

Note: *p<.05, **p<.01, ***p<.001

The multiple regression with all the predictor variables produced an $R^2$ value of .217, $(F(12, 2395) = 51.03, p < .001)$ meaning the model significantly accounted for just under 22% of the variance in the number of referrals students received. According to Cohen (1988), a value of .217 for the model indicated a medium to large effect size for the amount of variance explained by the model. The fit of the model, therefore, was suitable in accounting for the amount of variance of the dependent variable, number of detentions. The regression output suggested that special education students and those categorized as LEP received fewer referrals, controlling for all other variables. Students with greater-than-average GPAs also received fewer referrals. The
regression output also suggested that Black, Asian, and Pacific Islander students received more referrals, controlling for all other variables. Although CTE had a significant one-to-one correlation with number of referrals, coherent CTE course sequence participation did not appear to have a significant impact on the number of referrals students received, controlling for all other variables.

**Number of Detentions.** The second student discipline outcome that was evaluated was the number of detentions a student received. The two-sample t-test of means for this dependent variable did not have a significant relationship with the participation in a coherent CTE course sequence at an alpha level of .05. Further analysis into the relationship, however, was worthy due to how close the p value was to significance. A multiple regression test determined whether the correlation persisted after controlling for the following predictor variables: race, gender, socioeconomic status, special education classification, limited English proficiency status, at risk status, and grade point average.

Complete data were available for the participants. Correlation and multiple regression analyses were conducted to examine the relationship between number of detentions received and various potential predictors. Table 6 summarizes the basic descriptive statistics and analysis results, where the asterisks denote statistical significance at the indicated alpha levels.

Table 6

*Summary statistics, correlations, and results from regression analysis for detentions*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTE</td>
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<td>.956</td>
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<td>.022*</td>
</tr>
<tr>
<td>Hispanic</td>
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<td>.075</td>
<td>.671</td>
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</tbody>
</table>
The multiple regression with all the predictor variables produced an $R^2$ value of .136 ($F(12, 2395) = 29.067, p < .001$), indicating the model significantly accounted for 14% of variance in the number of detentions students received. The effect size for the model almost reached the amount to be considered a medium effect (.15), but fell slightly short (Cohen, 1988), suggesting the model moderately explained the amount of variance for the dependent variable, number of detentions. Similar to referrals, special education, LEP, and GPA had significant negative regression coefficients, indicating that students with limited English proficiency and those receiving special education services received fewer detentions: the same was true of those with higher than average GPAs, holding all other variables constant. The regression output also suggested that Black, Asian, and Pacific Islander students received more referrals, controlling for
all other variables. The CTE variable did not have a significant correlation and did not contribute significantly to the model, suggesting that coherent CTE course sequence participation did not impact the number of detentions that students received, when controlling for all other variables on the model.

**Number of Days Suspended.** The final student discipline outcome that was evaluated was the number of days a student was suspended. The two-sample t-test of means for this dependent variable did not have a significant relationship with the participation in a coherent CTE course sequence. However, further analysis into the relationship was worthy due to how close the p value was to significance. A multiple regression test determined that the lack of correlation persisted after controlling for the following predictor variables: race, gender, socioeconomic status, special education classification, limited English proficiency status, at risk status, and grade point average.

Complete data were available for the participants. Correlation and multiple regression analyses were conducted to examine the relationship between number of days suspended and various potential predictors. Table 7 summarizes the basic descriptive statistics and analysis results, where the asterisks denote statistical significance at the indicated alpha levels.

**Table 7**

*Summary statistics, correlations, and results from regression analysis for days suspended*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTE</td>
<td>-.002</td>
<td>.057</td>
<td>.968</td>
</tr>
<tr>
<td>Black</td>
<td>.174</td>
<td>.068</td>
<td>.010**</td>
</tr>
<tr>
<td>Hispanic</td>
<td>-.007</td>
<td>.064</td>
<td>.916</td>
</tr>
<tr>
<td>Asian</td>
<td>.124</td>
<td>.085</td>
<td>.146</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>American Indian</td>
<td>Female</td>
<td>SES</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------</td>
<td>--------</td>
<td>-----</td>
</tr>
<tr>
<td>-.030</td>
<td>.141</td>
<td>.834</td>
<td></td>
</tr>
<tr>
<td>-.015</td>
<td>.178</td>
<td>.933</td>
<td></td>
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<td>-.019</td>
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<td>.000***</td>
<td></td>
</tr>
<tr>
<td>.101</td>
<td>.058</td>
<td>.082</td>
<td></td>
</tr>
</tbody>
</table>

N = 2409

Note: *p<.05, **p<.01, ***p<.001

The multiple regression with all the predictor variables produced an $R^2$ value of .041 ($F(12, 2395) = 8.006, p < .001$), meaning that the model significantly accounted for only 4% of variance in the number of days students were suspended. The effect size for the model was small (Cohen, 1988), suggesting a poor fit between the regression and the underlying data. LEP and GPA had significant negative regression coefficients, indicating that students with limited English proficiency, as well as those with higher than average GPAs, were suspended fewer days, holding all other variables constant. The regression output also suggested that Black students received more referrals, controlling for all other variables. The CTE variable did not have a significant correlation and did not contribute significantly to the model, suggesting that coherent CTE course sequence completion did not impact days suspended, controlling for all other variables in the model.
The results of the regression analysis of all three outcomes differed substantially. The model for referrals produced a medium effect size. The predictor variables for this test, which focused on student behavior, accounted for more variance than the second and third models, which focused on student consequences. The second multiple regression model exploring number of detentions had a small effect size, while the third multiple regression model exploring number of days suspended produced an even smaller effect size than the second model. The variance percentages as measured by the $R^2$ values dropped off substantially for consequences. The variable representing coherent CTE course sequence completion was not statistically significant in any of the three regressions.

**Conclusion**

In this chapter, I reported the results of the data analysis regarding the relationship between coherent sequence CTE course participation and the following student discipline outcomes: number of referrals, number of detentions, and number of days suspended. The analysis involved two steps. In the first step, I utilized t-tests to determine whether coherent CTE course sequence participation correlated with student discipline outcome. In the second step, I performed multiple regression analysis to test the strength of the relationships found in the first step based on the presence of other influential variables.

The results of the t-tests indicated that participation in a coherent sequence of CTE courses was significantly associated with student behavior, as evidenced by the relationship to referrals. The results of the second t-test indicated that participation in a coherent sequence of CTE courses was significantly associated with student discipline as evidenced by the relationship to detentions at the alpha level of .1, but not at the alpha level of .05. This suggests that there was an association, but not as strong of an association as the relationship between coherent CTE
course sequence participation and number of referrals. The third t-test did not reflect a significant relationship between coherent CTE course sequence participation and the number of suspensions received.

Because this is a two-step analysis in the dissertation, further exploration into the relationship was conducted with the utilization of multiple regression analysis. The first analyses, the t-tests, found an association. The three multiple regression models themselves were statistically significant in their accounting for variation in the number of referrals, detentions, and days suspended. However, the CTE variable, which represents coherent course sequence participation, was not a statistically significant covariate in any of the models. The second analyses showed that the association found in the t-test was not strong enough to persist in the presence of other variables. In my analysis, I found that coherent CTE course sequence participation was associated with behavior and discipline, but it seems this association faded when accounting for other factors established in the literature. Therefore, the goal of the dissertation to explore the relationship between coherent sequence CTE course participation and student discipline outcomes was realized. A discussion regarding the results and the implications of the study takes place in the following chapter.
Chapter 5

Recall that the purpose of the dissertation is to determine the impact that participation in a coherent sequence of CTE courses has on various student discipline outcomes. In this chapter, I summarize the main points and the findings of the data analysis exploring the relationship between CTE and discipline. Then, I provide an explanation of those findings based on the theoretical framework, hegemony, which is the lens utilized to view the study. Next, I discuss the implications of the findings for students, schools, and society. I also situate the implications of the findings within practical applications for educators, policymakers, and researchers. Finally, I explain the limitations of the study and close by offering concluding comments.

Revisiting the Purpose of the Study

In previous chapters, I explained how disproportionalities in school discipline exist for children of color and those in other marginalized categories. Researchers consistently discover that the disparities cannot solely be contributed to differential behavior, indicating that these students receive different treatment and disciplinary processing. Seemingly, ineffective discipline systems and practices in schools are one of many components contributing to the disproportion. Although changing the inequities in schools and in disciplinary approaches is warranted, analysis of the potential for existing programs to curtail negative student behavior and reduce disciplinary infractions such as referrals, suspensions, and expulsions in all races and groups of students is also necessary.

A possible solution to the issue of ineffective discipline systems and exclusionary practices occurring in traditional high schools is involvement in CTE. CTE programs, historically referred to as vocational education programs, have been a component of education for a century and have undergone a dramatic transformation since inception. Today, students in
CTE have an opportunity to learn academic and technical abilities in an environment that aims to develop knowledge, training, and career skills, often times to the benefit of those wishing to transition to post-secondary education. The present study is necessary in order to determine whether participation in a coherent CTE course sequence has an impact on student behavior and school discipline. Because disparities in school discipline and the negative effects that exclusionary discipline has on student outcomes continue to persist, an investigation into an existing program that has the potential to function as a disruptor of negative student behavior, thus minimizing some of the student discipline issues, is worthwhile. The information obtained from the investigation of this dissertation into the effects of a coherent CTE course sequence on student behavior and discipline contributes immensely to the gap in knowledge regarding the two topics. The purpose of the study, therefore, is to determine the impact that participation in a coherent sequence of CTE courses has on various student discipline outcomes, specifically referrals, detentions, and suspensions.

**Summary of Findings**

Determining whether participation in a coherent sequence of CTE courses has an impact on student discipline outcomes is the focus of the study. In order to do so, I perform a t-test of means to analyze whether the participation in a coherent sequence of CTE courses minimizes student discipline outcomes. Once I performed the analysis, I test the relationship further to determine if other factors confounded the relationship. The results of each test are summarized and discussed below.

**Research Question One**

With the first research question, I aimed to determine whether coherent CTE course sequence participation impacted student discipline outcomes as measured through office referrals
(write-ups), number of detention assignments, and/or number of suspension days that students were assigned. The test between coherent CTE course sequence participation and the number of referrals showed that students enrolled in a coherent CTE course sequence received fewer referrals than students not enrolled in a coherent CTE course sequence. This was significant at the p<.05 level. This indicated a relationship between a coherent CTE course sequence and student behavior. A link between a coherent CTE course sequence and disciplinary consequences was less clear, however. Students who participated in a coherent CTE course sequence served fewer detentions, but the difference was very small and the probability/alpha value of the test fell between the .05 and .1 p values. No statistically significant relationship was established between a coherent CTE course sequence and days of suspension assigned.

**Research Question Two**

Since the purpose of the second research question was to determine whether the impact of coherent CTE course sequence participation and student discipline outcomes persisted after controlling for known, influential variables, I utilized multiple regression analysis. The first multiple regression concerned total number of referrals. Although CTE had a statistically significant result in the t-test conducted for the first research question, the variable was not significant when considering other influential variables in the model. The second multiple regression concerned the difference in number of detentions based on coherent CTE course sequence participation. The CTE variable did not contribute significantly to the model. The third multiple regression concerned the difference in number of days suspended based on coherent CTE course sequence participation. Again, the CTE variable did not contribute significantly to the model.
Information about the impact of coherent CTE course sequence participation was discovered with the investigation. The results showed that course sequence participation was associated with number of referrals and detentions because students who participated in a coherent CTE course sequence received fewer of them. The relationship between participation and the discipline outcomes, however, faded when controlling for other factors and characteristics known via the extant to literature to impact behavior.

**Explanation of Findings**

Analyses indicate that student behavior is affected by participation in a coherent CTE course sequence, but not necessarily the consequences those students receive. The number of referrals that students in a coherent CTE course sequence receive is less than those of students that are not enrolled in a coherent CTE course sequence. Considering hegemony as the theoretical perspective, this explanation is not surprising. As previously discussed, students who do not fit the normative role or do not have interest in the traditional academic curriculum are more likely to resist the dominant ideologies infused throughout educational institutions. The resistance results in larger amounts of disciplinary repercussions for students who oppose normative expectations and pathways. Students that have an authentic connection to the material they are learning, however, are less likely to engage in resistant behavior. A coherent CTE course sequence seems more likely to induce that authentic connection because students are exposed to a skill or trade that might impact their independence after high school. Because of the theoretical perspective, I did not include every type of referral or consequence from the data. In the study, I designed the analysis to examine specific types of behavior that signify resistant behavior. I intentionally selected referrals that affiliated with resistant student behavior to align with the theory of hegemony that is the framework used to understand the relationship. Since
students enrolled in a coherent CTE course sequence receive less referrals, it seems that these students have an authentic attachment to the curriculum they are learning. Regardless of the fact that their academic pathway is not the dominant route, the students enrolled in a coherent CTE course sequence are less inclined to be disruptive. Although these students are not following the traditional normative pathway of the typical high school student, their behavior does not indicate dissatisfaction with their alternate classroom choices.

Although participation in a coherent CTE course sequence has an association with student behavior as evidenced by the relationship to number of referrals, it does not appear to affect student consequences as heavily, as evidenced by the analysis of number of detentions and suspensions. The fact that students enrolled in a coherent CTE course sequence do not differ significantly on these measures from those students who are not enrolled in a coherent CTE course sequence indicates that the consequences assigned to the two student groups is fairly equivalent.

A facet of results that warrants further discussion is the lack of significance of coherent CTE course sequence participation in the regression model. I believe that it is still early in the transformation of CTE to determine definitively and in perpetuity, the relationships between coherent CTE course sequence participation and student behavior and discipline. Even though CTE has been a component of educational institutions for over a century, implementation of CTE in its modern form is still at the preliminary stages in many traditional educational settings. One of the most current policies affecting education in Texas has been House Bill 5, which affords students the opportunity to gain endorsements and performance acknowledgement on their diploma (House Bill 5: Public School Accountability, 2013). This legislation has led to more accountability measures within districts and a more authentic application of curriculum for
designated pathways. More rigorous pathways could potentially transform the effect of a coherent CTE course sequence on student discipline outcomes. With more time for implementation for these efforts to fully manifest in schools, significance of the CTE variable in the model may change. Further implementation of the bill would give school officials an opportunity to grow programs and promote participation in CTE since legislators continue to encourage increased accountability, additional funding, and academic alignment in an effort to maximize efficacy of educational programs.

The fact remains that students in this study enrolled in a coherent CTE course sequence receive fewer referrals than students not enrolled in a coherent CTE course sequence. The strength and nature of this relationship between participation in a coherent CTE course sequence and student behavior is dependent on other factors as indicated by the regression analysis. However, it is notable that the relationship exists even though it does not withstand when considering the other factors. The nature of this relationship could very well change with time as policy and funding shifts. Establishing more knowledge regarding the relationship between a coherent CTE course sequence and student behavior is important for the changing landscape of CTE, as well as educational institutions overall. With policy and funding changes, replication and expansion of this study might lead to different results. Investigation into that possibility would provide a wealth of knowledge and information for educators, policymakers, and researchers.

**Implications and Recommendations**

Based on the findings of the study, participation in a coherent CTE course sequence seems to associate student behavior, resulting in fewer referrals for coherent CTE course sequence participants. While the strength and nature of these associations is dependent upon
what other measures are considered, as evidenced by the regression analysis, the fact remains that there are relationships between coherent CTE course sequence participation and number of referrals students receive, as well as number of detentions students serve. The results have implications for students, schools, and society, which can be informative for educators, policymakers, and researchers.

Participation in a coherent CTE course sequence appears to impact student behavior, resulting in fewer referrals for those students who participate in a coherent CTE course sequence. Students who receive fewer referrals spend less time outside of the classroom for disciplinary consequences. Time in the classroom impacts learning, engagement, and attachment to education. Although CTE is not the traditional high school path, participation seems to have a positive academic effect for students involved in a coherent CTE course sequence, as demonstrated by their behavior and decreased amount of referrals in this study.

Even though CTE is only one program, the apparent effect of participation in a coherent CTE course sequence on student behavior impacts the entire school. With less focus shifted towards discipline, students spend less time waiting for instruction to reconvene after a negative disciplinary interaction. The shift from negative disciplinary exchanges to increased instruction provides students with the opportunity to engage in their studies in a more positive environment. With fewer displays of negative resistance to dominant ideology, students may view the option to explore non-normative educational routes in a healthy manner and perceive those pathways as a desirable prospect. The various possibilities for achievement would potentially create a more positive school climate and break past preconceived, archaic notions of success.

With fewer students in trouble, an improved school climate, and broadening understandings of pathways to success, communities and society benefit. Since resistant student
behavior leads to increased disciplinary consequences and detrimental future effects, minimizing the disciplinary problems in schools is a key concern. With fewer students misbehaving because they find fulfillment in their instruction, fewer students will be removed from schools and are less likely to fall prey to the school-to-prison pipeline, which is an immense drain on community resources and opportunities for members of society. The connection to the overall improvement on society is a major push for educators, policymakers, and researchers alike to investigate, understand, and encourage participation in CTE programs.

Practice

Practical applications by educators may be enforced based on the findings. In this study, I found a positive association between CTE and student behavior. Due to the apparent impact on student behavior, practitioners waste less time writing referrals and dealing with disciplinary issues in the classroom. Also, administrators receive an opportunity to spend their time and energy on other academic issues aside from discipline.

Additionally, if more studies were conducted to examine the relationship and found similar results, then educators would have another positive program to encourage students to participate in. Many students do not feel comfortable, prepared, or financially capable of immediate entry into four-year postsecondary education and should not feel that this is the only path to success. Students enrolled in CTE accomplish skill development while also obtaining access to an alternative pathway to postsecondary success. Based on the benefits of participation, teachers, counselors, and administrators can provide students with an alternative option to the traditional four-year institutions.
Policy

The implications for policymakers involve applications concerning focus and funding. Although legislators focus on CTE programs in schools with the passing of House Bill 5 and the Carl D. Perkins Act, more attention needs to be drawn to examination of the CTE courses. If researchers conducting further studies were to find more developed and affirmative results regarding the benefit of participation in a coherent CTE course sequence and student discipline outcomes, then policymakers have a duty to utilize that information when considering where to invest time, focus, and energy to maximize options for academic success for students. Increased focus gives even more students the option to participate, which increases the number of positive outcomes in students and decreases the amount of negative time spent on discipline. With this information and authentic encouragement of implementation of CTE programs by policymakers, educators can offer options for success to a larger portion of their students.

A more thorough investigation into the relationship between participation in a coherent CTE course sequence and student discipline outcomes is warranted. In this study, I found an association between participation in a coherent CTE course sequence and number of referrals and detentions students receive based on the t-test results. Knowing that participation in a coherent CTE course sequence potentially impacts student behavior, policymakers can utilize that information to implement further funding for CTE in schools. Although time and attention to further development of CTE programs and implementation of their guiding policies in schools is the preliminary step, policymakers need to allocate appropriate funding so that proper CTE applications and examinations are successful. Increased funding allocated to the program’s courses, instructors, equipment, and evaluation will most likely result in maximized efficiency for student success. Since the ultimate goal of education is student success, then the focus and
funding of policymakers needs to be drawn towards programs such as CTE that maximize that goal.

**Research**

The findings and implications of the study have led to a consideration of recommendations for research. Researchers have the opportunity to build off of this preliminary study to further explore the relationship with participation in a coherent CTE course sequence and student discipline outcomes. The design of the current study is fairly simple and small scale. It would be informative to conduct a similar investigation on a larger sample, from more than one school, and/or in different regions of the state or nation. The results from a more in-depth investigation would contribute more knowledge to the gap that currently exists regarding the relationship between participation in a coherent CTE course sequence and student discipline outcomes.

Another recommendation for future research involves the student discipline outcomes used for analysis. While my study focused on one area of student behavior in the form of referrals and two areas of student consequences in the form of detentions and suspensions assigned, researchers could consider other student discipline outcomes for future studies. Analyzing other areas of student behavior and discipline consequences contributes to the immense gap in the research regarding the relationship between participation in a coherent CTE course sequence and student discipline outcomes. Additionally, a qualitative approach to the relationship could also contribute to the area of research. Observations of behavior or interviews regarding discipline could provide more detailed information beyond the numerical analysis of a quantitative approach.
The final recommendation involves the time frame of the study. As previously discussed, the student data utilized in the study covered one school year of disciplinary records. I believe that it would be extremely informative for researchers to conduct future studies exploring longitudinal student discipline data to explore the long-term effects of participation in a coherent CTE course sequence on student discipline outcomes. With the changing landscape of policy and funding for CTE influenced by House Bill 5 and the pending reauthorization of the Carl D. Perkins Act, longitudinal analysis might provide different results because of the effect of policy on the current educational programs. A more in-depth analysis would provide a wealth of information to the existing gap in the knowledge regarding the relationship between coherent CTE course sequence participation and student discipline outcomes.

Limitations

The investigation into the impact of participation in a coherent CTE course sequence on student discipline outcomes is worthwhile and informative, but does have its limitations. In this study, the student data utilized came from one school in one specific location. Although the sample is diverse and the school is located in a metroplex, the results are not generalizable to populations outside of the study setting. Also, the economics of the area the school is located in is different than other areas of Texas and other states, which might be produce differences in results in other studies. These limitations are important to understand when considering replication of the study.

The other limitation of the study pertains to the data. The student data utilized in the study covers one school year of disciplinary records, so the information is only a snap shot. Being able to track students from year to year in order to explore the impact of their participation in a coherent CTE course sequence would provide valuable information about the relationship
between CTE and school discipline. It would be interesting to look at longitudinal data of students before and after their participation in a coherent CTE course sequence.

**Conclusion**

The goal of the study was to determine the impact that participation in a coherent sequence of CTE courses has on various student discipline outcomes. In this chapter, I summarized the main points and the findings of the data analysis exploring the relationship. Based on hegemony, I provided an explanation of those findings. Next, I discussed the implications of the findings and recommendations for educators, policymakers, and researchers. Finally, I explained the limitations of the study.

In this study, I discovered an association between a coherent CTE course sequence participation and student discipline outcomes. Based on the concept of hegemony, when students do not find relevance in the material they are learning or feel that success can be achieved by non-normative means, they tend to act out and resist learning in their educational environments. Since students who are enrolled in a coherent CTE course sequence receive fewer referrals and detentions, it seems this student group is finding value in their educational experience and not succumbing to the desire to behave in a defiant manner. Students enrolled in a coherent course sequence seem to be receiving positive benefits, thus curtailing negative behavior.

Although the aforementioned association between a coherent CTE course sequence and student discipline outcomes does get lost when considering other known factors, further exploration of the relationship is warranted in order to gain a more concrete understanding of the correlation. While the hypotheses from my study were not necessarily met, there appears to be some intriguing information regarding the association between a coherent CTE course sequence and student behavior. The relationship is going to need continued attention in order to contribute
to the gap in the knowledge regarding this area. This study is a preliminary step towards investigating the relationship and made a preliminary contribution because of these findings. More research into the association is necessary due to the changing landscape of policy and implementation of CTE in schools.
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